UNIVERSAL REGISTRATION DOCUMENT 2022

Including the annual financial report

CONTENT

This Universal Registration Document can be consulted and downloaded from the website **www.cgg.com**

AUTORITÉ DES MARCHÉS FINANCIERS AMF

This Universal Registration Document was filed on March 16, 2023 with the *Autorité des marchés financiers* (AMF), as competent authority under Regulation (EU) 2017/1129, without prior approval pursuant to Article 9 of said regulation.

The Universal Registration Document may be used for the purposes of an offer to the public of financial securities or admission of financial securities to trading on a regulated market if completed by a securities note and, if applicable, a summary and any amendments made to the Universal Registration Document. The complete package of documents is approved by the AMF in accordance with Regulation (EU) 2017/1129.

This Universal Registration Document is available at no charge upon request to the Company's registered address, as well as on the website of the AMF (www.amf-france.org) and on CGG's website (www.cgg.com).

This Universal Registration Document document has been prepared in both French and English. However, for questions of interpretation of the information, views or opinions expressed herein, the original French version shall prevail the English version. The Universal Registration Document is a reproduction of the official version of the Universal Registration Document which has been prepared in ESEF (European Single Electronic Format) and is available on the issuer's website.

This is a translation into English of the Universal Registration Document of the Company issued in French and it is available on the website of the issuer.

CGG

UNIVERSAL REGISTRATION DOCUMENT 2022

including the annual financial report

A unique range of geoscience technologies and solutions

Pursuant to Article 19 of Regulation (EU) 2017/1129, the following information is incorporated by reference into this Universal Registration Document:

- for fiscal year 2021: Group consolidated financial statements for the year ended December 31, 2021 and the related Statutory Auditors' report, Company statutory financial statements and related Statutory Auditors' report, as well as the financial information included in management report, as presented in the universal registration document filed with the AMF (French financial markets authority) on March 11, 2022, under number D.22-0087;
- for fiscal year 2020: Group consolidated financial statements for the year ended December 31, 2020 and the related Statutory Auditors' report, Company statutory financial statements and related Statutory Auditors' report, as well as the financial information included in management report, as presented in the universal registration document filed with the AMF (French financial markets authority) on March 5, 2021, under number D.21-0099.

The information included in these two universal registration documents other than the ones mentioned above has been, where applicable, replaced and/or updated by the information included in this Universal Registration Document.

FORWARD-LOOKING **STATEMENTS**

This Universal Registration Document (the "Document") includes "forward-looking statements", which involve risks and uncertainties, including, without limitation, certain statements made in the sections entitled 1.1 "Objectives and strategy", 1.2 "Business description", and 5 "Operating and Financial Review". These forward-looking statements may be identified by the use of words such as "believes", "expects", "may", "should", "seeks", "approximately", "intends", "plans", "estimates", or "anticipates" or similar expressions that relate to our strategy, plans or intentions. These forward-looking statements are subject to risks and uncertainties that may change at any time, and, therefore, the Company's actual results may differ materially from those expected. These forward-looking statements are based on the Company's views and assumptions about future events. While the Company believes that these assumptions are reasonable, it is very difficult to predict the impact of known factors, and, of course, it is impossible to anticipate all factors that could affect the Company's actual results. All forward-looking statements are based upon information available to the Company on the date of this Document.

Important factors that could cause actual results to differ materially from the Company's expectations ("cautionary statements") are disclosed under section 2.2 "Main Risk Factors and Control Measures" and elsewhere in this Document, including, without limitation, in conjunction with the forward-looking statements included in this Document.

Neither the Company nor any of its subsidiaries assumes any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. In addition, in light of these risks, uncertainties and assumptions, the forward-looking events discussed in this Document might not occur. When considering forward-looking statements, you should keep in mind the risk factors and other cautionary statements included in this Document, including those described in section 2.2 "Main Risk Factors and Control Measures" of this Document.

MESSAGE FROM CEO

SOPHIE ZURQUIYAH

"CGG delivered solid results in 2022, despite a volatile environment. We progressed our new businesses Beyond the Core to represent 8% of our total revenue and made significant investments to transform CGG into a global technology & HPC leader."

SOPHIE ZURQUIYAH

How did the year 2022 develop?

2022 remained volatile, marked by the war in Ukraine, ongoing Covid restrictions in China, continued supply chain disruptions and global inflation.

Despite oil & gas prices remaining favorably high, the market was volatile with strong variations by client type. National Oil Companies (NOCs) sustained activity levels while Independents and private companies started to progressively increase exploration activity. In contrast, International Oil Companies (IOCs) maintained their energy transition focus and low E&P capex spend, prioritizing shareholder returns.

Rising energy demand, combined with the increased importance of security of supply, is driving our customers to seek new sources of oil & gas production, and we believe our industry has entered a multi-year upcycle. The initial focus is on shorter term field development, production and infrastructure led exploration, as the lack of visibility downgraded the risk profiles of longer-term new exploration projects.

Overall, this shaped 2022 into a year of transition for CGG. Our core business started to see strengthening commercial activity with regional variability and volatility from quarter to quarter. We invested in our Beyond the Core (BTC) businesses including our new HPC and cloud solutions center in the UK which will increase our overall compute capacity by 100 Pflops, and we further established our BTC activities with several successful pilots and a few significant commercial successes, doubling our revenue over 2021.

We have recruited more than 300 high level professionals and welcomed almost 200 people from two acquisitions, growing our headcount after years of reductions. Our highly qualified workforce makes CGG unique and allows us to differentiate, ever pushing technology to solve our clients' challenges.

In 2022 we saw a strong recovery in Earth Data (EDA) after sales, a moderate improvement in Geoscience (GEO) and a significant reduction in Sensing & Monitoring (SMO) linked to the lumpiness of the business combined with our inability to do business in Russia. Digital Data and

Energy Transition segment grew 21% proforma over 2021, with Geoscience up 6% and Earth Data up 37% year-on-year. Total sales in our Sensing & Monitoring segment decreased 24% compared to 2021, as multiple large projects were delayed to 2023.

We ended the year with a solid cash position of 298 m$ cash.

Finally, I would like to highlight that we continued to advance our ESG objectives, which were highlighted by our AA rating being recently reconfirmed by MCSi.

What is your view on the upcycle?

First, I believe we are entering into a multi-year upcycle, but that its effect on CGG's markets is delayed, contrary to previous cycles. The macro-environment is in motion, with sustained high oil & gas prices, but it is first supporting oilfield services tied to development and production. The parts of businesses that are exposed to long-term exploration have been lagging. Today there remains a de-correlation between oil price and E&P investments, especially from the IOCs, but as we move into 2023 and beyond, we expect to progressively see improvements across the board.

Geographically, the most active countries remain US, Brazil, Norway and the Middle East countries, but we also have started to see increased activity in parts of Asia, Latin America and Africa, an encouraging trend as our market continues to progressively strengthen.

Sensing and Monitoring's perspectives are improving mainly based on large land seismic crews in the Middle East, and the continued strengthening of the OBN market. The significant growth we saw in 2022 for Earth Data – after a low 2021 - is a positive signal that E&P companies are looking for new exploration opportunities and are starting to take a longer-term perspective. Geoscience is continuing to benefit from our technology leadership combined with our clients' continued focus on reducing their E&P risks and the accelerated use of advanced seismic acquisition technologies.

How is CGG progressing in its BTC initiatives?

We made significant progress in 2022 in our Growth Beyond the Core initiatives, which are focused primarily around HPC & Cloud Solutions, Data Transformation, Infrastructure Monitoring, Carbon Capture Utilization and Storage (CCUS), Minerals & Mining and Environmental Geoscience.

Over the year, though still relatively modest, we more than doubled our revenue beyond the core, an excellent achievement for our internal startup businesses early on.

Some highlights include several successful pilots for our Data Hub - digital transformation solution, one of which lead to a multi-year significant project for bp. The creation of our new HPC & Cloud Solutions business and investment in our new HPC data center in the UK. Multiple successful pilots in Infrastructure Monitoring, a rapidly growing market, both in Europe and the US. Our acquisition of Geocomp a US company specialized in high-value services and products for geotechnical risk management which significantly strengthens our entry into the US structural health and earthworks market. Our new partnership with Kent to provide full spectrum CCUS services, from above ground facilities, to below ground long-term subsurface assessment & management, and significant sales of our Earth Data library studies and data into the CCUS and minerals & mining market.

How do you see 2023 ?

The core industry is entering into a multi-year upcycle, driven by years of underinvestment, and exploration is expected to progressively increase, especially offshore.

Increased requirements for energy security are driving the gradual resumptions of lease rounds in the key offshore basins.

The markets that we are addressing with our BTC businesses should see accelerated growth, particularly Digital, Energy Transition, Infrastructure Monitoring and Defense and we are planning for another year of strong growth in those sub-segments. CGG has both a market and technology leadership position, and demand for our technologies should remain strong, as high-end technology and data are increasingly required by our clients to meet their challenging exploration & production and ESG goals.

Going forward, our focus is to build on the growth that this cycle brings to CGG, while further establishing our BTC businesses. In this context we expect to see improvements across all our businesses in 2023, and will, as always, continue to focus on cash management and cash generation.

Sophie Zurquiyah
CEO

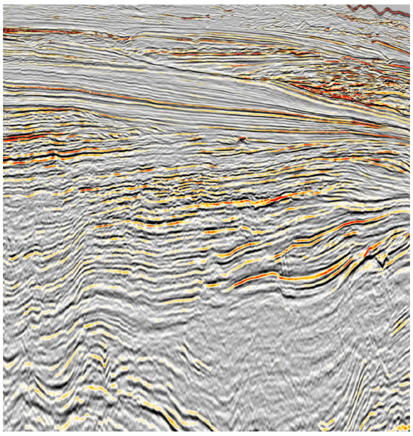
CGG **AT A GLANCE**

2022

Key operational highlights

CGG Awarded Multi-Year Extension of Dedicated 4D PRM Imaging Center for Equinor

JANUARY 18 / CGG has been awarded a three-year contract extension to continue operating a dedicated permanent reservoir monitoring (PRM) imaging center in Equinor's Stavanger offices.

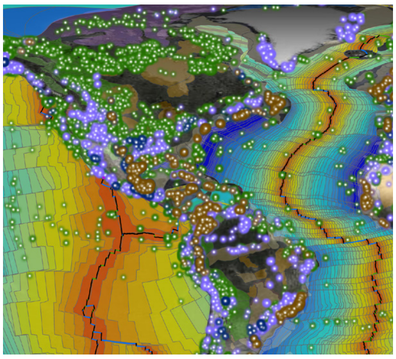


CGG Expands High-Performance Computing Capacity with New UK HPC Hub

APRIL 12 / To support continued differentiation in its core business and accelerate the development of its new activities, CGG is significantly expanding its high-performance computing (HPC) capacity and associated service offerings.

Completion of the Sale and Leaseback of CGG's Headquarter Building

APRIL 19 / CGG announced the completion of the sale and leaseback of Galileo, its headquarter building located in Massy, France for a total amount of €59,250,000.



Sercel Acquires Geocomp, a Leading US Provider of Infrastructure Monitoring

MAY 19 / Sercel, the Sensing & Monitoring division, has acquired Geocomp Corporation, specialized in high-value services and products for geotechnical risk management and infrastructure monitoring.

Sercel Equips New Vessel in South Korea with a Complete Marine Seismic Acquisition System for 3D Seismic Research

JUNE 13 / CGG announced that Sercel has sold a complete marine seismic acquisition system to HJ Shipbuilding & Construction, a South Korean shipbuilding leader.

CGG Expands its HPC and Cloud Solutions Business

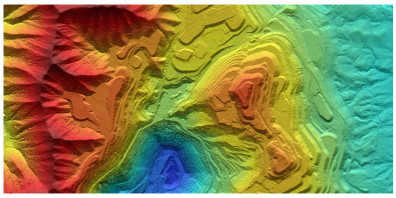
JUNE 28 / CGG announced the creation of a new HPC & Cloud Solutions business, under the leadership of Agnès Boudot, who will report to the CEO.

CGG and bp Sign Multi-Year Data Transformation Agreement

JULY 27 / CGG, announced a major multi-year global data transformation and curation agreement with bp, that will play a key role in supporting bp's subsurface digital strategy.

Sercel Completes the Acquisition of ION's Software Business

SEPTEMBER 12 / CGG announced that Sercel, its Sensing & Monitoring division, has completed the acquisition of ION Geophysical Corporation'ssoftware business.



CGG Announces New Integrated Multi-Client Data Project in Southeast Arizona to Support Mining Industry

DECEMBER 5 / CGG, a global technology and Earth sciences leader, has announced a new multi-client data project in Southeast Arizona focusing on exploration and development in the mining industry.

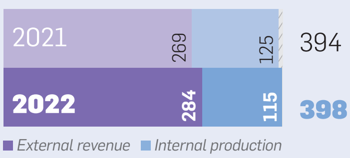
Activities

CGG is a global technology and HPC leader that provides data, products, services and solutions in Earth science, data science, sensing and monitoring. Our unique portfolio supports our clients in efficiently and responsibly solving complex digital, energy transition, natural resource, environmental, and infrastructure challenges for a more sustainable future. CGG employs around 3,400 people worldwid

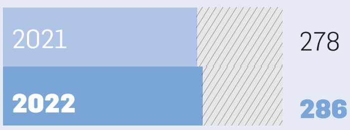
01 GEOSCIENCE

As recognized leaders in advanced subsurface imaging, our experts bring a collaborative approach to problem-solving. Our global network of 23 data imaging centers provides region-specific expertise, outstanding services and remarkable technology in every image.
We provide integrated reservoir characterization services and innovative solutions for complex E&P challenges.
Our comprehensive portfolio of geoscience services brings valuable insight to all aspects of natural resource exploration and development, helping to reduce drilling risk and build better reservoir models.
We develop sophisticated algorithms and intuitive interfaces to deliver powerful reservoir answers from geophysical data at every stage from exploration to production.
We have a high market share and are highly differentiated.

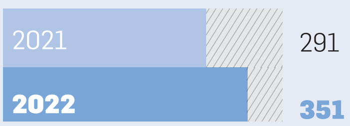
Total production *(in $m)*



Total production/head *(in $k)*

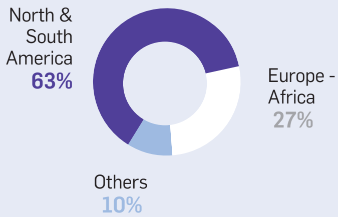


Computing power *(Pflops)*

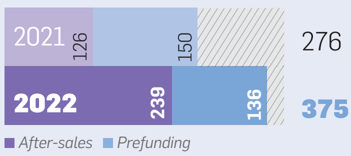


02 EARTH DATA

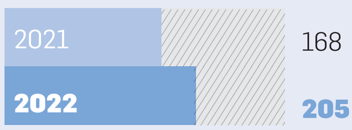
Data library regional split
as of 31/12/2022



Earth Data revenue
(in $m)



Investments Earth Data surveys
(in $m)

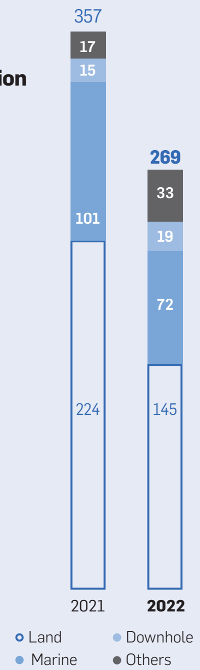


We invest in a portfolio of geographical opportunities to build a geoscience database and thrive to achieve a high prefunding for our new projects. We typically invest in the range of $150-200 million in our surveys. At the end of 2022, we had over 1.3 billion square kilometers of high-end offshore, in the most prolific basins around the world. We own marketing rights to the data for a period of time and sell licenses to use this data to named clients who generally use it for reservoir exploration and development.

03 SENSING & MONITORING

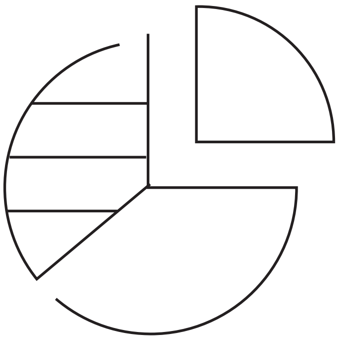
Through its subsidiary Sercel, CGG offers a full spectrum of systems, sensors and sources for seismic acquisition and downhole monitoring. Sercel sells its equipment and offers customer support services including training on a worldwide basis. Sercel manufactures in its six seismic equipment manufacturing facilities a wide range of geophysical equipment for land and marine seismic data acquisition, including seismic recording equipment, software and seismic sources. Sercel is the market leader in seismic equipment design, engineering, manufacturing and support.

Total production
(in $m)



INDICATORS
AS OF 31/12/2022

KEY FINANCIAL INDICATORS



Segment revenue
(in million dollars)

928

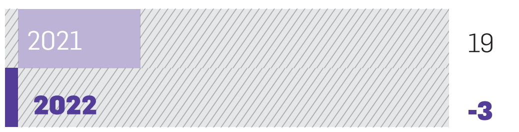
941 in 2021

Net Debt/
Adjusted* Segment EBITDAs

Adjusted* Segment EBITDAs
(in million dollars)

Adjusted* Segment Operating Income *(in million dollars)*

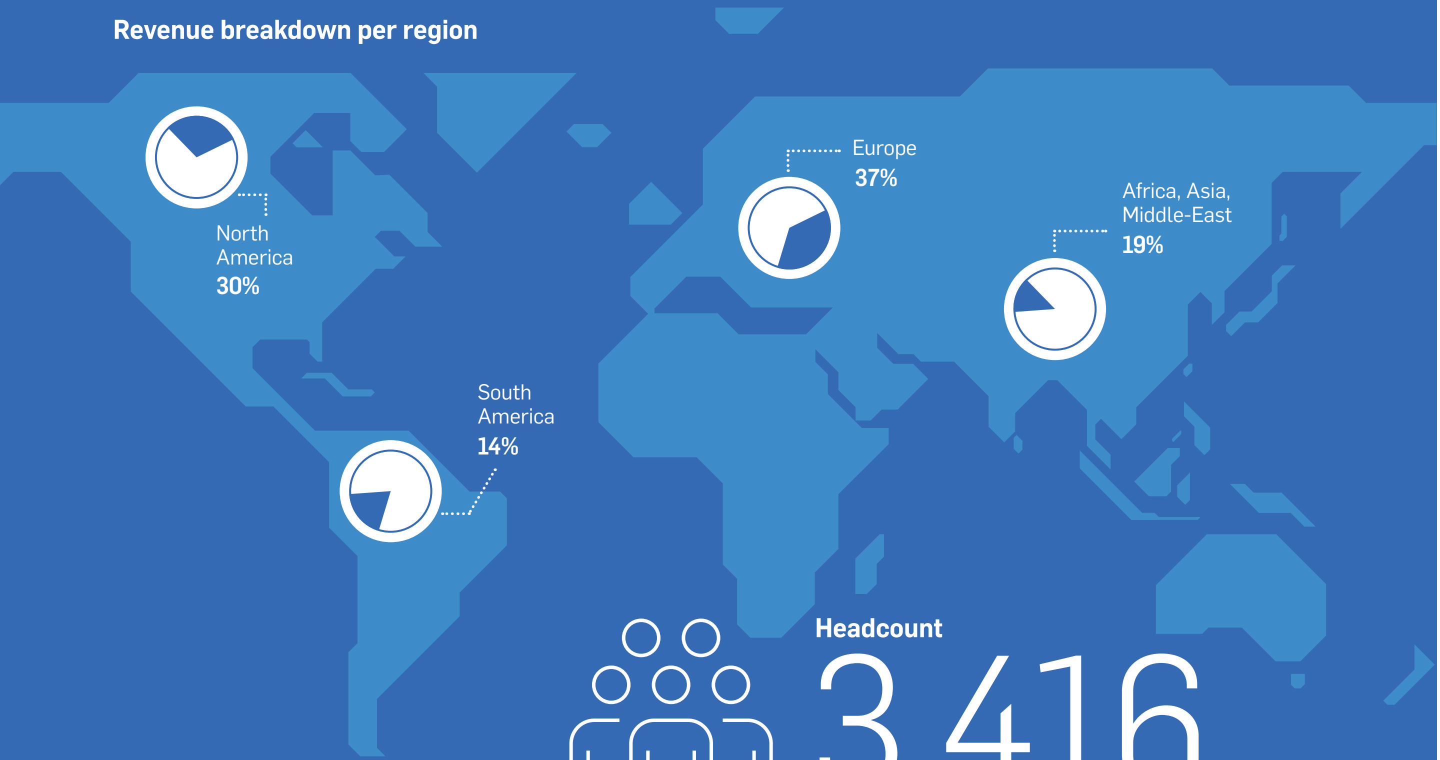
Net Cash Flow before refinancing fees *(in million dollars)*



* *Adjusted indicators represent supplementary information adjusted for non-recurring charges and gains.*

NON-FINANCIAL INDICATORS

Revenue breakdown per region



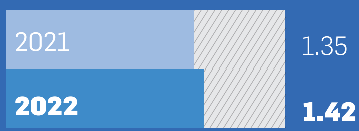
Headcount

3,416

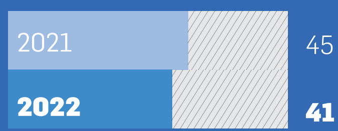
3,312 in 2021

Computing Power *(Pflops)*

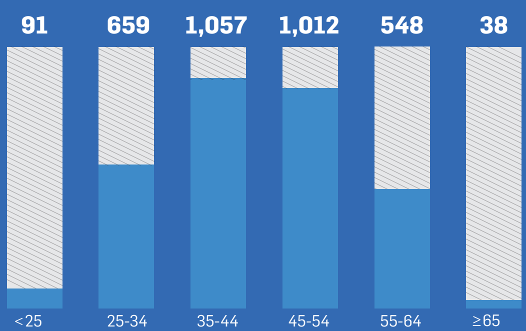
Energy efficiency *(Pflops)*



Direct and indirect greenhouse gas emissions *($ktCO_2eq$)*



Age and seniority structure



ESG Rating by MSCI

OUR STRATEGY

Our strategy is to deliver the leading technology, data, equipment and services that help our industry to discover and responsibly manage the Earth's natural resources. We provide the best understanding of the subsurface – always increasing the precision and the value that we bring to the Exploration, Development and Production value chain.

We are the People, Data and Technology Company with established and strong leadership positions in our three core businesses of Geoscience, Earth Data and Sensing & Monitoring, and will actively preserve and work to expand our leadership. This requires focus on our clients and constant willingness and aspiration to exceed their expectations.

4 CGG'S STRATEGY HAS CLEAR OBJECTIVES

01

Generating positive net cash flow

First and foremost, we need to ensure that our Group generates positive net cash flow throughout industry cycles thanks to our "asset-light" business model.

02

Reinforcing our businesses

Secondly, we must reinforce our businesses that are already performing well and capitalize on our capabilities and expertise so that CGG can grow in an improving market. CGG will continue to invest in human capital and R&D, specifically in development of algorithms, software and high-power computing and data management infrastructure, to further strengthen its Geoscience activities that continue to maintain leading market share as a result of their technology differentiation. CGG will also continue to pursue its investment strategy of the Earth-Data business, which has also always performed well. In Sensing & Monitoring, CGG continue to lead the market as a result of its continuing investments in R&D.

03

Deliver profitable organic growth

Thirdly, CGG builds on these core businesses to deliver profitable organic growth, either from its existing capabilities or in the new markets adjacent to the ones operated today, such as digital technologies, application of data analytics, machine learning and artificial intelligence, and structural health monitoring.

04

Diversifying its core expertise

Last but not least, CGG is diversifying its core expertise and leading capabilities outside the traditional oil & gas business. We want to develop from our core businesses, leverage our expertise and support our customers in their areas of growth.

To conclude, we want to ensure that CGG has a sustainable and promising future for all its stakeholders.

OUR ENVIRONMENT AND CLIMATE STRATEGY

CGG will achieve net zero emissions by 2050

Aligned with the Company's longstanding commitment to act responsibly and minimize the impact of its activities on the environment, in every sector of its business, CGG has announced its pledge to reach net zero emissions by 2050 in scopes 1 & 2 of the greenhouse gas (GHG) protocol.

Company-wide efforts are focused on continuing to improve the power usage efficiency of its data centers, offices and factories, along with increasing the share of sustainable energy in its energy supply mix, mainly through the energy purchased from utility providers.

To reach this long-term target, CGG has also set itself an intermediary milestone to reduce by half its 2019 levels of scope 1 & 2 GHG emissions by 2030.

To best protect the environment, climate and the communities where we operate:

- **We always act responsibly** and abide by all applicable environmental laws.
- **We continue to advance our technology** and services to enable our clients to sustainably and responsibly discover, develop and manage the Earth's natural resources.
- **We continue to advance our data collection capabilities** to best measure, monitor and continuously reduce our impact.
- **We commit to improving our power usage efficiency,** increasing the low-carbon content of our energy supply, and reducing our GHG emissions.
- **We encourage and support our businesses, all employees and locations globally** to find and take specific actions that support the health of the environment, climate and the communities where we operate.

BUSINESS MODEL

CAPITAL

Financial

Equity:	$1.059bn
Net Debt:	$951m
Liquidity:	$398m
Capital employed:	$2.010bn

Industrial

Manufacturing sites:	6
Imaging centers:	23
Datacenters:	3

Human

Permanent employees:	3,416
Nationalities:	100
Gender equality index W-M:	86/100

Intellectual

R&D Investment:	$57m
Employees in R&D:	490

Social

Code of Business Conduct:	Yes
Independent Board members:	87.5%

Natural

Energy consumption

Sercel:	23.7 GWh
Datacenters:	77.2 GWh

OUR VALUES

HSE

PEOPLE

INNOVATION

GEOSCIENCE

Developing high-end geoscience expertise and technology for advancing understandings of the earth's subsurface

Imaging & Services

Excellence in technology, HPC IT, quality and service

SENSING & MONITORING

Hi-tech equipment for collecting information about the earth's subsurface

Products & Solutions

Excellence in technology, reliability, manufacturing and service

INPUTS

PEOPLE, DATA AND TECHNOLOGY - DELIVERING GEOSCIENCE LEADERSHIP

Providing a comprehensive range of data, technology, products and solutions that supports the discovery and responsible management of the Earth's natural ressources.

VALUE CREATION

QUALITY

SOCIAL RESPONSABILITY

IMPACTS

EARTH DATA

Building and offering a global high quality library of geologic and geophysical data in mature and producing sedimentary basins

Data & Studies

Excellence in global coverage, technology and quality

MARKET EXPECTATIONS

To efficiently and responsibly solve complex natural resource, environmental and infrastructure challenges.

Financial

% of Segment proforma Revenue growth:	+3%
% of Segment EBITDAs margin:	43%
Net cash flow:	$-3m

Industrial

Production/head:	$286K
Numbers of k. channels delivered:	268
Number of "streamer" sections delivered:	101

Human

Employees with more than 5 years of seniority:	72%

Intellectual

Patents:	973

Social

ESG Rating by MSCI:	AA

Natural

Direct & Indirect GHG emissions (excluding Scope 3)

Scope 1:	2 kt eq. CO_2
Scope 2:	39 kt eq. CO_2
Power efficiency (PUE):	1.42
% of revenues dedicated to sustainable activities:	7.8%

GOVERNANCE

Chaired by Philippe SALLE, the Board of Directors determines the orientations of the Company's and the Group's activities and ensures their implementation in accordance with its corporate interest, taking into consideration the social, environmental, cultural and sporting issues of its activity.

The functioning of the Board is governed by the Internal Regulations of the Board of Directors, which are available on the Company's website (www.cgg.com).

Sophie ZURQUIYAH
CEO and Director
End of term of office: GM 2026

Philippe SALLE
Chairman of the Board
End of term of office: GM 2025

Michael DALY
Director
End of term of office: GM 2025

Patrick CHOUPIN
Director representing the employees
End of term of office: GM 2025 (1)

9
Directors
***87.5%** of members are independent*
***62.5%** of members are women*

8 meetings
(vs. 13 meetings in 2021)

93%
attendance rate
(vs. 96.5% in 2021)

Anne-France LACLIDE-DROUIN
Director
End of term of office: GM 2025

Heidi PETERSEN
Director
End of term of office: GM 2024

Colette LEWINER*
Director
End of term of office: GM 2023

Mario RUSCEV*
Director
End of term of office: GM 2023

Helen LEE BOUYGUES
Director
End of term of office: GM 2024

* *Director whose mandate is proposed for renewal at the 2023 General Meeting*
● *Independent Director*
● *Audit and Risk Management Committee*
● *Appointment, Remuneration and Governance Committee*
● *Investment Committee*
● *HSE/Sustainable Development Committee*
✪ *Chair of the Committee*

(1) Patrick CHOUPIN is a director representing the employees, appointed by the Group Committee, in accordance with Article 8 of the Company's Articles of Association.

BOARD COMMITTEES TO RESPOND TO THE GROUP'S STRATEGIC CHALLENGES

To ensure the proper professional conduct of the Company, the Board relies on the work of specialized Committees. The Committees oversee the Group's activities in their area of competencies, guarantee that high level risks are identified and managed, and work closely with the Group's General Management.

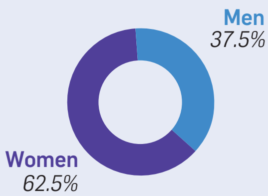
Audit and Risk Management Committee	Appointment, Remuneration and Governance Committee	HSE/Sustainable Development Committee	Investment Committee
6 meetings	5 meetings	3 meetings	3 meetings
88.9% attendance rate	100% attendance rate	91.7% attendance rate	100% attendance rate
100% of independence	100% of independence (1)	100% of independence (1)	100% of independence
3 members	4 members	4 members	3 members

(1) 75% if the Director representing the employees is included in the calculation.

A DIVERSITY OF PROFILES, SKILLS AND EXPERTISE WITHIN THE BOARD OF DIRECTORS (1)

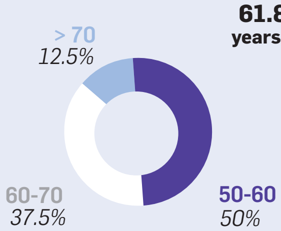
The Board of Directors considers that diversity of its membership is key to ensure a good performance. Diversity is applied to gender, age, independence, nationalities and skills.

Gender balance

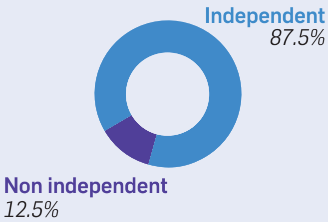


Age

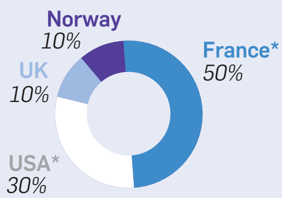
Average age:
61.88
years old



Independence

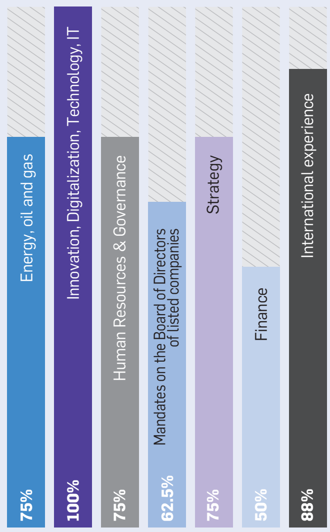


Nationalities



** For the purpose of this chart, Sophie ZURQUIYAH and Mario RUSCEV have been accounted for in both "France" and "USA" as they have both nationalities.*

Skills



(1) It shall be noted that Patrick CHOUPIN, as Director representing the employees, has not been taken into account when determining the above figures.

1 PRESENTATION OF THE CGG GROUP AND ITS ACTIVITIES

CGG has pioneered the use of oil immersion cooling for high-performance computing for over a decade.
CGG HPC & Cloud Solutions.

1.1 OBJECTIVES AND STRATEGY

CGG Overview

CGG (www.cgg.com) is a global technology and HPC providers that delivers data, products, services and solutions in Earth science, data science, sensing and monitoring. Our unique portfolio supports our clients in efficiently and responsibly solving complex digital, energy transition, natural resource, environmental, and infrastructure challenges for a more sustainable future. CGG employs around 3,400 people worldwide and is listed on Euronext Paris SA (ISIN : 0013181864).

CGG SA (referred to hereafter as the "Company"), the parent company of the CGG group was founded in 1931 to market geophysical techniques that could be deployed to detect the presence of natural resources in the Earth's subsurface. Over time, the Company gradually specialized, becoming a provider of seismic techniques applied to the exploration and production of oil and gas, while continuing to remain active in other geophysical disciplines.

The Company has been listed on Euronext Paris since 1981. The Company's American Depositary Shares were listed on the New York Stock Exchange from 1997 until 2018 and now trade over the counter (see section 7.1.1. of this Document for additional information relating to our American Depositary Receipt).

In the 1980s and 1990s, Marine Seismic activity expanded significantly. This growth in the marine seismic market, combined with the arrival of new competitors offering geophysical services and equipment had a significant impact on the Group, which only had a small fleet of seismic vessels at that time. In 2007, when CGG acquired the Veritas group, it joined the ranks of the world's leading seismic companies. At that point, it took the name CGGVeritas before reverting to "CGG" when it acquired Fugro's Geoscience division in 2013.

Beginning in late 2013, CGG experienced a deep and long downturn. Against the backdrop of a major and unprecedented crisis, the Group's headcount fell sharply from 9,700 people at the end of 2013 to around 3,900 at the end of 2020. CGG experienced serious financial difficulties between 2014 and 2018, entering into French safeguard proceedings on June 14, 2017, which resulted in a comprehensive financial restructuring that was completed on February 21, 2018. Following its emergence from these proceedings, CGG changed its governance team in the first half of 2018 and embarked on a new strategy announced during the *Capital Market Day* in November 2018, exiting its historical Contractual Data Acquisition segment, and growing and reinforcing its technically differentiated Data, Digital and Energy Transition (DDE) and Sensing and Monitoring (SMO) segments.

After a successful year in 2019, with CGG's financial results above market expectations and a strengthening of demand for geoscience services and solutions, the economic crisis triggered by the Covid-19 pandemic, together with the drop in demand for oil and gas and the increase in their supply and the subsequent fall in oil price, dramatically affected our market in 2020 and during the first half of 2021. Globally, our clients reduced their exploration and production (E&P) spending in the range of 30%, requiring a re-evaluation and readjustment of our organization to adapt to this reduced level of activity.

Since the summer of 2021, the macro-environment strengthened, with Brent oil price remaining above US$70/bbl. However, in the second half of 2021 and throughout 2022 the International Oil Companies (IOCs) maintained capital discipline despite record cash flow generation, disconnecting E&P spending trends away from the strengthening oil price.

In the first quarter of 2022, CGG announced its strategy to accelerate new business initiatives with a focus beyond oil & gas and the objective of these new Beyond The Core (BTC) businesses to represent 20% of CGG's revenue in 2025.

Today, CGG is organized in two segments:

- Data, Digital & Energy Transition (DDE): including Geoscience (Subsurface Imaging, Geology, Reservoir, and our Technology Function), and Earth Data (EDA) including our seismic and geologic data library; and
- Sensing & Monitoring (SMO), which includes the following business equipment activities: Land, Marine, Ocean Bottom, Borehole and Beyond the Core (infrastructure monitoring solutions and Defense) under the brands of Sercel, Metrolog, GRC, DeRegt and Geocomp.

Five corporate functions at the Group level ensure a globally coordinated approach and provide support across all activities: (i) the Finance, Information Systems and Risk Management Function, (ii) the Human Resources Function, (iii) the Legal, Compliance and Trade Compliance Function, (iv) the Health, Safety and Environment & Sustainable Development Function, and (v) the Marketing, Sales, and Communication Function.

CGG SA is the parent holding company of the CGG group, which comprises 59 consolidated subsidiaries as of December 31, 2022 (53 abroad and 6 in France). In addition, the Company has 3 branches registered in Yemen, Pakistan and Peru.

REVENUES BY ACTIVITY

In millions of US$	2022	2021
Earth Data (EDA)	375	276
Geoscience (GEO)	284	309
Data, Digital & Energy Transition (DDE) segment revenues	**659**	**586**
Sensing & Monitoring (SMO) segment revenues	**269**	**357**
Eliminated revenues and others	-	(1)
SEGMENT REVENUES	**928**	**941**
IFRS 15 impact on Earth Data prefunding revenues	(2)	121
CONSOLIDATED REVENUES	**927**	**1,062**

Please refer to Chapter 5, section 5.1.3 of this Document for more details

REVENUES BY REGION – BY LOCATION OF CUSTOMERS

	2022		2021	
In millions of US$	Amount	%	Amount	%
North America	274	30%	170	16%
Latin America	133	14%	232	22%
Europe, Africa, and Middle East	340	37%	393	37%
Asia Pacific	180	19%	267	25%
TOTAL	**927**	**100%**	**1,062**	**100%**

CGG TIMELINE

1931

FOUNDING OF CGG

Delivering geophysical techniques for appraising underground natural resources.

Gradual specialization in seismic technologies applied to the exploration and production of oil and gas, while continuing to remain active in other geophysical disciplines.

1956

CREATION OF SERCEL

Sercel was created to meet the Group's requirements for seismic recording equipment. Most notably, Sercel launched the SN 348 digital recording system, which became the industry benchmark in the 1980s.

1981

LISTING ON THE PARIS STOCK EXCHANGE

Between 1997 and 2018

Listing of CGG's American Depositary Shares on the New York Stock Exchange.

2007

Acquisition of the Veritas group, making CGG one of the world's leading seismic companies. At this point, the Company takes the name CGGVeritas.

2013

Acquisition of Fugro's Geoscience division. **THE GROUP SIMPLIFIES ITS NAME TO "CGG".**

2018

Delisting of American Depositary Shares (now traded over-the-counter)(1).

February 21, 2018

Completion of the Group's financial restructuring and change of governance in the first half of 2018.

November 2018

Implementation of a new strategy : exit from the Contractual Data Acquisition segment and growth and reinforcement of the Geology, Geophysics and Reservoir (GGR) and Equipment segments.

2019

A SUCCESSFUL YEAR, with financial results well above market expectations and a recovery in demand for geoscience services and solutions.

2020

The Covid-19 pandemic and the fall in the oil price severely affected our market in 2020 and in the first half of 2021. Globally, clients reduced their exploration and production (E&P) spending by around 30%, requiring a re-evaluation and readjustment of our organization to adapt to the Group's reduced level of activity.

2021

National oil companies and the big independents remained more active while international oil companies have maintained their capital discipline despite cash flow generation significantly higher than expected in 2021.

2022

Development of Beyond the Core (BTC) businesses with 2 acquisitions:

- Geocomp to establish a stronger infrastructure monitoring market position in North America and;
- Ion Software business to strengthen both the differentiation of our Core SMO business, by accelerating our value-add Cloud based services, and by extending our expertise and giving us a position in the Software as a Services (SaaS) market.

Creation of a new HPC & Cloud Solutions organization to strengthen our strategy in the Digital area.

(1) *See paragraph 7.1.1 of this Document for further information about the American Depositary Receipt program.*

1.1.1 Market environment and client needs

1.1.1.1 The context

Since 2020, we have seen some major strategic shifts from the integrated oil and gas companies, especially in Europe, reinventing their businesses in line with a universal ambition to contain global warming within 2°C, transforming themselves into broader, lower-carbon energy companies and making firm commitments to decarbonize their portfolios, increase renewable energy generation, deleverage their balance sheets and support dividend commitments. They have turned into energy companies and are allocating increasing amounts of capital to renewable energy and low carbon solutions. Oil and gas companies have communicated varying levels of emissions reduction targets and have begun acting on them, implementing decarbonization roadmaps and redeploying capital away from traditional exploration and production to low carbon businesses, setting energy transition targets in line with the Paris Agreement and committing to renewable energy investments. Though tempered in 2022 with Russia's invasion of Ukraine, which increased focus on energy security, the energy transition era is emerging. Renewable energy generation is expected to increase and could account for 65% of power supply by 2050 – according to some experts – a clear shift from historical fossil fuel-based energy generation.

We believe that the transition to renewable energy will take significant time and investments, and that oil and, especially, gas will for the time being remain at the core of oil and gas companies businesses, as cash flow generated by this core will be needed to progressively transform their energy portfolios and ensure the world has the energy it needs throughout this transition. Several analysts' reports project that gas and oil will remain fundamental sources of energy throughout the energy transition. As the required E&P investments to maintain oil and gas production through the transition have thus far been delayed and disconnected from the strong oil price and increasing demand, we expect this will eventually create an imbalance in supply that will need to be addressed.

1.1.1.2 The energy industry is entering a favorable multi-year up-cycle

At the macro-environment level, we see the effects of several years of reduced investments, which are translating into high commodity prices. Combined with the unanticipated shock of Russia's invasion of Ukraine, this has significantly increased energy security, energy availability and energy affordability concerns along with the need to secure future discoveries and rebuild production after years of underinvestment. This is in turn driving an acceleration of oil and gas investments, mostly focused on development, production and infrastructure led exploration in international basins and across all operator types.

New programs that were postponed during the Covid-19 pandemic are moving forward. Exploration is also returning with a priority on near field and infrastructure led exploration. Offshore remains an important source for reserve replacement and production growth with interest and activity in international offshore strengthening in core basins such as Brazil, the North Sea and the US Gulf of Mexico, but also select new frontier plays such as Guyana and Suriname.

Our clients, especially the large IOCs, have remained particularly cautious when it comes to longer-term exploration opportunities to replace reserves and maintain production. Energy brokers estimate that oil companies will increase their international E&P capex budgets by about ~13% in 2023 or around 18% when excluding Russia[1]. With the combination of continued underinvestment in exploration & production together with strengthening of global energy demand and the heightened level of geopolitical uncertainty that has emphasized the importance of energy security, we are seeing positive market signals worldwide and are increasingly confident that our industry is in a favorable multi-year up-cycle.

1.1.1.3 The market remains volatile

Despite being favorable, the market remains volatile and varied, mainly by client type. In the short term this is driven by tight client budgets, significant geopolitical considerations and the still unclear future plans from IOCs. In 2022, Independents and private companies reacted first with a progressive increase in their exploration activity, while NOCs maintained their activity levels. In contrast, IOCs continued to focus on shorter term, shareholder returns, energy transition, production levels and infrastructure led exploration. It is expected in the longer term that the responsible exploration, development and production of traditional oil and gas balanced with renewable energy growth must play a key role going forward. We see this increasingly in the actions as governments globally move forward with further securing and developing their resources, including Brazil, the North Sea, and the US Gulf of Mexico. Offshore activity is picking up again worldwide, Middle East onshore is growing and Asia-Pacific is starting to recover.

(1) Estimations based on various reports from Barclays, Rystad, JP Morgan, DNB.

1.1.1.4 Technology will help effectiveness and efficiency of our clients' activities

Over the decades, CGG has gained significant expertise and developed a portfolio of unique geoscience and data science technologies. As the energy transition continues to accelerate and society has become acutely aware of the environment and climate change, our geoscience and data science capabilities are increasingly required and provide a differentiated offering.

The underlying industry fundamentals are favorable to CGG despite the business variability and volatility that we saw from our clients in 2022, as some projects in the Middle East shifted to 2023, and IOCs were slower to increase E&P spending:

- demand for our technologies and especially our subsurface imaging is becoming increasingly more important for energy companies to effectively optimize their investments, not only for traditional Oil & Gas prospects but also for Energy Transition, including CCUS;
- ambitious production capacity growth targets have been set by select operators and NOCs in nearly all geographic regions which will drive higher demand for services and their pricing. Our core basins of Brazil, the North Sea (Norway and UK) and the US Gulf of Mexico remain the priority for a majority of E&P companies and should receive a big share of the budget increases;
- offshore and exploration activity is returning, driven mainly by NOCs, large independents, and selected IOCs investments. There is increasing visibility on long-term land contracts in North Africa, Middle East, and Asia, supported by NOCs, and these will require new land seismic equipment. Seismic acquisition contract prices, particularly for marine, are increasing, which should strengthen seismic acquisition companies and allow them to renew their aging equipment fleets;
- the industry is in a strong position to help drive energy transition along with the de-carbonization of oil and gas, and our differentiated technologies should play a key role.

1.1.2 Financial difficulties relating to the unprecedented crisis affecting the oil and oil-services industries

We have been severely impacted by unprecedented crises affecting the oil and gas industry: first, a steep decline in oil price between 2014 and 2018 and then, beginning in 2020, the Covid-19 pandemic, which triggered a global economic downturn. These two crises severely affected the Group as our business is dependent on the level of investments made by our customers in exploration, development and production of oil and gas, which is directly impacted by fluctuations in the oil price along with other market considerations. These crises have required us to re-evaluate our business profile and adjust our activity and headcount to the new baseline of activity in the industry.

1.1.2.1 The 2020 Covid-19 pandemic and volatility in oil prices

Beginning in March 2020, two compounding crises dramatically affected global economies and in particular the oil and gas industry, severely degrading our business environment. The first crisis was the global economic downturn triggered by the Covid-19 pandemic.

The second crisis was the new downturn in the oil & gas industry triggered by the volatility in the oil price throughout the year as prices declined from approximately US$65 per barrel (Brent) (bbl) as of December 31, 2019, to approximately US$25/bbl as of March 31, 2020, before rebounding to approximately US$40/bbl as of June 30, 2020, and further to approximately US$50/bbl as of December 31, 2020. Therefore, in just a few weeks starting in March 2020, our business environment dramatically changed. Our clients reacted very quickly and profoundly: on average, oil and gas companies reduced their planned 2020 capital spending in the industry by around 30%. The energy transition agenda quickly gained momentum, and our clients quickly refocused their oil and gas investments towards core areas and producing the most advantaged oil & gas.

In this business environment, the company quickly adapted its businesses and organization to the new industry baseline. Given the magnitude of the revenue drop in just three months, the Company rapidly cut its cost structure, reducing staff in various locations worldwide, and its administrative and support costs.

1.1.3 Significant events during 2022

CGG has implemented a continuous process of business portfolio management.

1.1.3.1 Sale of SDS businesses

On January 4, 2022, CGG SA announced that it had closed the sale of the physical storage assets and associated services of its Smart Data Solutions business, a non-core activity of the Company given our digital and technology focused strategy.

1.1.3.2 Sale and lease back of the headquarter Galileo building

On April 19, 2022 CGG completed the sale and leaseback of Galileo, its headquarter building located in Massy, France for the amount of €59.25 million.

1.1.3.3 Acquisition of Geocomp

On May 18, 2022, CGG announced, that Sercel, its Sensing & Monitoring division, acquired Geocomp Corporation, specialized in high-value services and products for geotechnical risk management and infrastructure monitoring. Effective on June 1, 2022, this acquisition gave Sercel access to the US infrastructure market and should accelerate deployment of its S-lynks and S-scan infrastructure monitoring solutions.

1.1.3.4 Acquisition of ION Software division

On September 12, 2022, CGG announced, that Sercel, its Sensing & Monitoring division, completed the acquisition of ION Geophysical Corporation's software business. Effective on September 7, 2022, this acquisition enables Sercel to supplement its range of software and maritime services.

1.1.3.5 Sale of the US land Earth-Data seismic library

On December 15, 2022, CGG announced the sale, to Bon Ton, LLC of its US land seismic multi-client library encompassing approximately 20,000 square miles (about 52,000 square kilometers) of 3D seismic data for a total cash consideration of US$63 million. Earth Data will continue to focus on key prolific offshore hydrocarbon basins, with ongoing development in CCUS, Minerals & Mining, and Digital as a service.

1.1.4 A strategy based on growing Core highly differentiated businesses and accelerating growth of Beyond the Core initiatives

We believe that our strategy based on providing high-end technologies, services and data that support our clients' exploration, reservoir development and production optimization efforts remains the right one.

We are well positioned with our highly differentiated businesses to best serve our clients and to develop unique solutions. We continue to invest in the development of key high-end geoscience technologies, in the expansion of our Earth data library and in the design, engineering and manufacturing of new best-in-class equipment. As our clients continue to prioritize their investments around "advantaged barrels", they require better understanding of the subsurface through sharper images so that they can optimize well placement and field development plans and mitigate drilling risks in geologically complex areas. We provide unique technologies through our high-performance computing, imaging services and multi-client data. These technologies help our customers make better and faster decisions.

Our strategy is based on growing our Core highly differentiated businesses and accelerating growth of our Beyond the Core initiatives utilizing our unique expertise and technologies in new sectors. The Beyond the Core new businesses are expected to generate around 20% of total revenue in 2025.

Growing Core highly differentiated businesses: Developing an integrated Geoscience activity and capitalizing on our Earth Data library in mature producing basins

We continue to invest in our key high-end geoscience technologies. Many of our customers are focusing their exploration, development and production budgets on increasing production from existing fields where they can leverage installed infrastructure. Geoscience and Earth Data provides solutions that support this trend and see solid demand for their services, data, and imaging technologies, given our leading ocean bottom nodes processing and imaging capabilities, as well as our large multi-client projects in mostly mature and proven basins. In addition, oil & gas companies are increasingly asking for reprocessing of existing data sets to benefit from the development of new imaging algorithms. This allows our customers to maximize the return from exploration investments based on lower seismic costs, compared with acquisition of new data.

In 2022 Geoscience segment revenue grew 6% proforma year-on-year. We expect Geoscience to continue its recovery sustained by increased demand for high-end technologies and improved images of the subsurface for reservoir optimization and development.

In the last few years, we have made a conscious effort to increase our Earth Data business' participation in areas closer to infrastructure but have also supported our client's interests in more frontier basins such as the Brazil pre-salt. In 2022, our Earth Data segment sales were upbut have alos supported 36% year-on-year mainly driven by a strong increase of our after-sales and transfer fees.

Growing Core highly differentiated businesses: Developing innovative solutions within the Sensing & Monitoring business and capitalizing on a strong client base

Our Sensing & Monitoring business benefits from a strong reputation as a provider of high-end solutions with a large installed base. We will continue to bring to the market our best-in-class equipment while expanding beyond oil and gas markets. We are maintaining a solid level of research and development driven by high technological seismic equipment, which includes numerous cutting-edge technologies, such as wireless transmission, high- and low-frequency transmission or miniaturized electronic technologies, as well as optical and acoustic technologies.

In 2022, Sensing and Monitoring external segment revenue decreased by (24)% compared to 2021, mainly driven by the delay of land seismic acquisition projects in the Middle East and the unfavorable impact of sanctions on Russia following its invasion of Ukraine. In 2023, we believe that the land equipment market will be supported by increased exploration activity in the Middle East and North Africa and the high demand for ocean bottom node (OBN) technologies.

Accelerating growth Beyond the Core (BTC): Expanding into adjacent areas

We are also pursuing efforts to further develop the Company's business outside its core areas in a capital efficient way, especially into the rapidly growing digitalization, observation & monitoring, and energy transition markets. We are developing new businesses around near-to-core step out diversification opportunities and establishing new businesses to address the growing requirement for a low carbon world. These are mostly areas in which we currently do, and in most cases have done for decades, our business, and are staffed with experts to deliver the products and services.

- **Digital Sciences:** With the continued rapid and global advance of digital technology and solutions, including areas such as data analytics, digital transformation, big data, machine learning, artificial intelligence and cloud computing, companies are increasingly considering their data as one of their core assets. In this context, CGG is concentrating its long-standing expertise in digital technologies, especially as applied to geoscience, to provide expert digital solutions to its clients. These solutions include digital transformation, cloud-ready data processing, high performance computing (HPC) and cloud services, data management and delivery solutions and Platform, Data and Software as a Service offerings (PaaS, DaaS, SaaS). Anticipating and leveraging the exponential increase in the volume of digital data that our clients are experiencing, along with the need to extract value from these growing volumes, CGG will continue to dedicate considerable research and development towards digital sciences to uniquely provide the digital capabilities our clients require to address their digital geoscience and energy transition requirements. In 2022, CGG secured various pilots projects and was awarded a major multi-year global data transformation and curation agreement with bp, to support their digital transformation journey.

- **Monitoring and observation:** CGG is well positioned to expand into the rapidly growing digital observation and monitoring solutions markets: from infrastructure monitoring to optimize maintenance and enhance the safety of structures such as buildings, bridges, dams, and railways, to monitoring solutions that support the Energy Transition markets of CCUS, minerals & mining and geothermal, and solutions for monitoring business activity, defense, and the environment, along with the health and safety of industry and society. CGG's technologies, expertise, and solutions provide the input needed to reduce the risks and costs of operations. Our satellite mapping technologies help our clients monitor critical environmental variations such as offshore pollution, and critical earth movements such as subsidence and the stability of mines and tailing dams. Our high-end data processing and geoscience centers provide detailed analysis of the gathered data, as an example for understanding environmental pollutants and their potential impact on health. Our industry leading equipment provides the sensor technology and solutions, as an example for the infrastructure monitoring market, which is growing at the high CAGR[(1)] rate of 15%-17% per year. In 2022, the Sensing & Monitoring business was awarded 3 monitoring projects in France and a major pilot project in Texas, USA. Through continued advances in our solutions that leverage our sensor technologies and cloud-based computing capabilities, aging infrastructure can be cost-effectively and proactively monitored remotely, to reduce risks and extend the operational life of the structures.
- **Energy transition:** Our historic and new clients are increasingly focused on energy transition, including the reduction of their environmental footprint and decarbonization. One of the key enablers for achieving these ambitious objectives is carbon capture, utilization, and storage (CCUS). Many of our clients are planning significant CCUS projects and are starting to incorporate application of CCUS technologies into their field development plans. Low carbon energy, such as green or blue hydrogen, will also require long term storage and monitoring. The energy transition requires significantly more mineral resources than produced today, to meet the power demands of society with clean energy. To address this, the mineral and mining industry, along with new investors entering the market, are ramping up efforts to meet future demand. Finally, there is increased interest around geothermal energy and the technologies required to increase its efficiency and effectiveness in the clean energy mix. To be successful, all these areas require a detailed understanding of the subsurface, and this is where CGG excels, through its unique expertise, advanced geoscience and digital science technologies and its global Earth data library. CGG has a long history of providing data, technology, and solutions into these markets, and as interests strengthen, we are seeing increased commercial activity around our offerings. In 2022, CGG had multiple sales of data into these growing markets, including to TotalEnergies for its new GeoVerse Carbon Storage database and screening studies. These unique studies provide an accurate and independent assessment of carbon storage opportunities in a desktop-ready database that supports rapid and informed decision making.
- **Earth Data library:** For all these growing markets, the input for better decisions starts with the right data, and our clients increasingly need access to our extensive and growing Earth Data library to guide their business, as an example, to reduce the costs and carbon footprint of their energy portfolios. With our seismic and geologic data, satellite imagery and growing environmental information, along with our unique taxonomy, global cloud services, data delivery capabilities and digital data management solutions, CGG provides a unique data ecosystem that enables our clients to effectively access, visualize, procure, and utilize the data they need to optimize their business. In 2022, as an example, CGG licensed geothermal and lithium brine screening Earth Data studies to an energy company in the US.

1.1.5 Financial and non-financial 2023 outlook and objectives

2023 non-financial outlook: Entering a multi-year positive industry cycle driven by increased demand for technology

In the context of increased requirements for energy security and energy affordability and after years of underinvestment, exploration and development is expected to progressively increase, especially offshore, sustained by the gradual resumptions of lease rounds in the key offshore basins.

Demand for technologies should remain strong and benefit CGG which has a market and technology leadership position.

Digital, Energy Transition, Infrastructure Monitoring and Defense (BTC) markets should see accelerated growth, and CGG is planning for another year of strong growth in those sub-segments.

In this context CGG expect to see growth in 2023, and will continue to focus on cash management and cash generation.

2023 financial objectives:

In 2023,segment revenue is expected to increase by around 15% to 20% primarily driven by SMO revenue growth.

2023 adjusted segment EBITDAs margin is expected to be around 39% to 41% due to the business mix.

2023 EDA cash Capex is expected to be around US$200 million with prefunding above 75%.

(1) Compound annual growth rate.

2023 Industrial and R&D Capex is expected to be around US$70 million, primary driven by increase in High Performance Computing (HPC) capacity.

CGG is anticipating 2023 positive net cash flow before change in working capital.

CGG is anticipating quarterly segment revenue volatility to remain high in 2023 mainly driven by sequencing of equipment deliveries. Q1 2023 segment revenue is anticipated to be stable year-on-year.

We have included above and elsewhere in this Document certain targets and projections (Segment EBITDAs 2023) regarding our financial outlook. We cannot guarantee that they can or will be met and investors are advised not to place undue reliance on these targets and projections. These targets and projections are based on assumptions and are subject to known and unknown risks, uncertainties and other factors that could cause our actual results to materially differ from those expressed in, or suggested by, these targets and projections.

We built our financial objectives in accordance with our accounting principles, on a comparable basis to past forecasts and, in particular, based on the following elements and assumptions:

- our estimates of yearly budgets of oil companies;
- various analyses of exploration and production spending provided by sell side analysts of brokerage companies and investment banks;
- an expected average oil price above US$75/bbl in 2023;
- internal assumptions of commercial penetration of new equipment, products and technologies developed by CGG;
- internal assumptions of changes in competition.

Our commitment to environment and climate

The health of the environment and climate is critical to the well-being of people and communities globally.

Aligned with the Company's longstanding commitment to act responsibly and minimize the impact of its activities on the environment, in every sector of its business, CGG has announced its pledge to reach net zero emissions by 2050 in scopes 1 & 2 of the greenhouse gas (GHG) protocol. Company-wide efforts are focused on continuing to improve the power usage efficiency of its data centers, offices and factories, along with increasing the share of sustainable energy in its energy supply mix, mainly through the energy purchased from utility providers. To reach this long-term target, CGG has also set itself an intermediary milestone to reduce by half its 2019 levels of scope 1 & 2 GHG emissions by 2030.

To best protect the environment, climate, and the communities where we operate:

- CGG seeks to always act responsibly and abide by all applicable environmental laws:
- we continue to advance our technology and services to enable our clients to responsibly discover, develop, and sustainably manage the earth's natural resources;
- we continue to advance our data collection capabilities to best measure, monitor and continuously reduce our environmental impact, and transparently report on our progress;
- we are committed to improving our power usage efficiency, increasing the low-carbon content of our energy supply, and reducing our greenhouse gas emissions;
- we encourage and support our businesses and all our employees globally to find and take specific actions that support the environment, climate, and the communities where we live and operate.

1.2 BUSINESS DESCRIPTION

1.2.1 Data, Digital & Energy Transition (DDE)

Overview

The DDE segment engages in many activities assisting our clients in identifying their exploration targets and characterizing their reservoirs in the context of their exploration, field development and production activities. These include, among others:

- developing and licensing Earth Data seismic surveys;
- processing and imaging seismic data;
- selling seismic data processing software;
- providing geoscience and petroleum engineering consulting services;
- collecting, developing, and licensing geological data.

Through its extensive scope of products and services and worldwide footprint, our DDE segment provides critical geoscience assistance to a wide range of clients.

General description of activities

a) Geoscience (GEO)

Through our Geoscience activity, we transform seismic and geologic data into information and high-quality images of the subsurface that are then used by our clients. These new insights provide a means to understand the structure of the subsurface as well as deduce various qualities of the rocks and fluids in those structures. Geoscience that includes imaging and reservoirs, processes seismic data for the need of our clients as well as our Earth Data's needs. We process the seismic data acquired through 3rd party contractors for the needs of our external clients using our advanced technologies. We also reprocess previously processed data using new technologies and techniques to improve the quality of seismic images.

We conduct our seismic imaging operations out of:

- 5 large open processing centers: Houston, TX (USA), Crawley (UK), Rio de Janeiro (Brazil), Massy (France) and Singapore, with Houston, Crawley and Singapore serving as High-Performance Computing (HPC) centers to support the larger regions;
- 11 additional local open processing centers, connected with the three regional hubs; and
- 7 dedicated processing centers, each one providing services to its single specific client.

This geographic spread of our cloud computing capabilities allows personal collaboration with our clients as we jointly seek to produce the best images and understanding of the subsurface.

In addition to subsurface imaging, we offer geophysical, geologic and reservoir services. Using seismic data in conjunction with other information such as well logs, we are able to determine various rock and fluid properties and thereby assist our clients in their exploration, reservoir characterization, field development and production optimization efforts.

We sell seismic data processing software, under the Geovation brand. We have a leading position in OBN data processing that we will capitalize on as the recovery will be led by increased near field exploration, field development and production optimization, where the benefits of OBN technology are most pronounced.

We sell various types of geologic services working from a global scale on tectonic studies down to a microscopic scale on micro-fossil studies. Clients use these services to enable or enhance their frontier exploration, basin and reservoir evaluations, and drilling work.

We operate in those geographic and technical areas where our specific offerings can deliver significant value to customers. Based on customer feedback and industry surveys, we believe that through our Geoscience activity we are regarded as the technology leader in most markets, especially in the high-end seismic imaging arena.

Geoscience imaging technology will continue to play a key role as it enables clients to allocate their investments more effectively and reduce their carbo footprint.

b) Earth Data (EDA)

The Earth Data (EDA) business utilizes the resources of sub-contractors to acquire and CGG Geoscience to process seismic data to enable the licensing of that data to its clients. This data may be used in exploration, appraisal, development, and production phases of customer operations. In addition to geophysical data, EDA develops and maintains large libraries of various types of geological data covering most geographic areas of the world that are of interest to oil and gas, and increasingly to CCUS and mining companies. We license this data to clients, who generally use it in the various stages of their exploration and developments efforts.

The seismic multi-client/Earth Data licenses have lengthy terms, the maximum allowable under local laws, typically ranging from 5 to 25 years. The licenses are non-transferable, and the data may not be shared with partners who do not own a license. Oil company partnerships of various forms are a common arrangement, especially in difficult and expensive exploration plays. We believe the business model works well in markets where the following factors are at play: significant levels of competition between oil and gas companies exploring for assets; frequent lease turnover due to government lease rounds or lease trading activity between oil and gas companies, frequent partnering between oil and gas companies and relatively high costs for proprietary seismic data.

We made a conscious effort to successfully increase our participation in mature basins or countries with long-term potential and stability. Brazil and Norway receive most of our investments, and we also specifically look for well prefunded reprocessing projects, that leverage our unique imaging technologies. We are also making some investments in emerging basins such Equatorial margin in Brazil, Guyana-Suriname basin, and the Orange basin to identify our future core basins.

EDA operates in marine environments on a worldwide basis. It has significant data and investments offshore in Brazil, the North Sea, and in the US Gulf of Mexico. Maps and details of all surveys in our data library are available on our website. At the end of 2022, the library of 3D seismic surveys consisted of approximately 1,300,000 square kilometers of marine surveys across numerous basins.

Shearwater Agreement

To perform multi-client surveys, CGG is subcontracting the acquisition of data to seismic contractors. As part of the divestiture of marine seismic acquisition vessels, CGG has entered the Capacity Agreement with Shearwater for offshore seismic data acquisition. The main terms of this Capacity Agreement require CGG to:

- work exclusively with Shearwater until January 2025, for seismic streamer acquisition and source vessels for nodes projects, up to 730 vessel days per year on average;
- pre-established daily rate for the first two and a half years; for the remaining two and a half years, the higher of the market rate and the pre-established daily rate;
- reimburse Shearwater for project-related operational costs and fuel; and
- compensate Shearwater for days during which more than one of its high-end seismic vessels are idle, for a maximum of three vessels (the "Idle Vessels Compensation").

The pre-agreed day rate as negotiated in June 2019 was higher than the estimated average market day rate at that time. Thus, an operational liability of US$(69) million was recognized at the Marine Closing representing the net present value of the positive difference between the pre-agreed rate and the estimated market rate over the five-year contractual term.

Accounting principles

The costs of the multi-client surveys are capitalized on our balance sheet and then amortized. Details of our multi-client accounting methods are fully described in note 1 to our consolidated financial statements included in this Document.

In 2022, Earth Data capitalized US$221 million of total costs, of which US$205 million represented cash expenditures, and amortized US$175 million to cost of sales, including US$17 million of impairment charges related to different offshore multi-client surveys .

Competition and market

We believe the geoscience sector is led by CGG, but includes strong competitors such as SLB, TGS, PGS and a host of other small local players. Competition in the high-end seismic imaging, where Geoscience focuses its business, tends to be based on technology and service level, areas where we believe we have a strong reputation.

CGG has decades of developing customized HPC designed for geoscience applications, and our processing capacity has continued to rapidly expand. This has allowed the most advanced processing techniques and technologies.

The main competition to our Earth Data business comes from TGS, PGS and SLB. Competition in this domain is focused on location of surveys, technologies used in acquisition and processing, and price. The four main companies generally compete in all areas of the world where the Earth Data/multi-client business model is practical.

2022 segment figures

DDE segment revenues in 2022 amounted to US$659 million, an increase of 21% proforma compared to 2021. GGR segment revenues represented 71% of the consolidated revenues in 2022.

Geoscience segment revenue was US$284 million, up 6% proforma year-on-year. Earth-Data segment revenue sales were US$375 million, up 36% year-on-year. Prefunding revenue was US$136 million, down (10)% year-on-year. Multi-Client cash Capex was US$(205) million, up 22% year-on-year. Cash prefunding rate was 66%. The IFRS net book value of the seismic multi-client library was US$419 million at the end of 2022.

1.2.2 Sensing and Monitoring (SMO)

Overview

We conduct our Sensing & Monitoring operations under the Sercel brand. We believe Sercel is the market leader in the design, engineering, and manufacturing of seismic equipment for the land and marine seismic markets. As of December 31, 2022, we operated five seismic equipment manufacturing plants, located in Nantes and Saint Gaudens in France, Houston, Texas in the US, Krimpen aan de Lek in the Netherlands and in Singapore. In China, Sercel operates through Hebei Sercel-JunFeng Geophysical Prospecting Equipment Co. Ltd. ("Sercel-JunFeng" joint venture), based in Hebei, in which Sercel has a 51% equity stake. In addition, Sercel has three sites in Massy, Toulouse, and Brest in France, which are dedicated to specific applications, one site in Edinburgh, UK dedicated to the software business and Geocomp, the geotechnical company in the USA, which is headquartered in Acton, MA with offices in Atlanta, GA, New York, NY, Los Angeles, CA and Chicago, IL.

General description of activities

The Sensing & Monitoring business offers through our Sercel brand, a complete range of geophysical equipment for land and marine seismic data acquisition, including seismic recording equipment, software and seismic sources for land (vibrators) or marine (marine sources) and sensing & monitoring equipment and solutions.

With respect to land seismic equipment, Sercel offers the 508^{XT} system, which provides high channel count crews with the ability to record up to one million channels in real time, resulting in a high level of image resolution.

Sercel also introduced, along with its new acquisition system, QuietSeis®, a new, high-performance digital sensor based on next-generation micro-electromechanical system (MEMS), allowing Data seismic signals to be recorded with three times less instrument noise than before. In September 2019, Sercel increased its offering of wireless products by launching WiNG, a fully integrated wireless nodal acquisition system seeking to achieve the most efficient and productive seismic surveys. This new product is based on the QuietSeis technology.

We believe Sercel is also a market leader for vibroseismic vehicles used as a seismic source on land and for vibrator electronic systems, such as the VE464. Sercel's latest vibrator family, called Nomad, offers high reliability and unique ergonomic features. Nomad is available with either normal tires or a tracked drive system. Sercel also offers the Nomad 90, which can exert a peak force of 90,000 pounds-force. The acquisition of a 51% stake in Sercel-JunFeng, in 2004, reinforced our manufacturing capabilities for geophones, cables and connectors, as well as our presence in the Chinese seismic market.

With respect to marine equipment, the Seal system is currently the sole system with integrated electronics. Sercel announced the launch of GPR300, a new nodal seismic acquisition solution specially designed for deployment in shallow waters down to depths of 300 meters. The new solution expands Sercel's existing GPRNT range which includes GPR1500 for high-end deep-water subsurface imaging. On September 12, 2022, the Sensing & Monitoring division, completed the acquisition of ION Geophysical Corporation's ("ION") software business. This acquisition, effective on September 7, 2022, enables Sercel to supplement its range of software and services and opens further diversification opportunities in simultaneous marine operations.

Moreover, in April 2019, Sercel created two new brands, Sercel Structural Monitoring and Sercel Earth Monitoring to bring the benefits of its advanced sensor technology to the high-potential structural health monitoring (SHM) and earthworks monitoring markets. Sercel is deploying S-lynks, a fully connected, stand-alone wireless solution for measuring structural vibration and which we believe is the sole solution on the market based on modal analysis. S-lynks integrates the QuietSeis® sensor which measures the ambient noise of a structure without requiring it to be shut down and which can be deployed on any type of infrastructure. The data recorded by the S-lynks solution is then transferred to a secure internet network in order to be able to consult the measurements taken remotely. On May 18, 2022, the Sensing & Monitoring division, acquired Geocomp Corporation, specialized in high-value services and products for geotechnical risk management and infrastructure monitoring. This acquisition, effective on June 1, 2022, gives Sercel access to the US infrastructure market and will accelerate deployment of its S-lynks and S-scan infrastructure monitoring solutions.

Competition and market

We estimate that the worldwide demand for geophysical equipment decreased by 18% in terms of revenues in 2022. The marine streamer market remains weak, as the demand for new streamers remains very limited. We estimate that Sercel's global revenue market share is over 40%. For land products, the main competitors are Inova, Geospace Technologies Corporation. Our main competitor for the manufacturing of marine seismic equipment is Teledyne. The market for seismic acquisition equipment is highly competitive and is characterized by continuous and rapid technological change. We believe that technology is the principal basis for competition and differentiation in this market, as oil and gas companies have increasingly demanded new equipment for activities such as reservoir management and data acquisition in difficult terrains. Oil and gas companies have also become more demanding with regard to the quality of data acquired. Other competitive factors include price and customer support services as well as operational efficiency. It is our belief that Sercel is well positioned as a leader in the sensing and monitoring market.

2022 segment figures

In 2022, the total sales of the Sensing & Monitoring segment amounted to US$269 million, a (24)% decrease compared to 2021, as multiple larger projects were delayed to 2023. Sensing & Monitoring represented 29% of the consolidated revenues in 2022.

1.3 RESEARCH AND DEVELOPMENT

1.3.1 Technology and strategy

We believe that the success of our research and development (R&D) efforts is critical to CGG's ability to remain an industry leader in the DDE and SMO segments.

Over the past two years, CGG has committed on average over 6% of revenues per year to R&D. The trend in gross R&D expenditure over the past two years, including capitalized development costs, is shown below:

	2022		2021	
	In MUS$	As % of net revenue	In MUS$ (restated)	As % of net revenue (restated)
Gross research and development expenditure	57.4	6.2 %	64.7	6.1%

The decrease in research and development spending between 2022 and 2021 are due to the sale of GeoSoftware at the end of 2021. We believe this investment, deployed by our skilled research and development teams, has kept CGG as the technology and market leader in seismic imaging technology and geophysical acquisition equipment.

1.3.2 2022 innovation highlights

While we have seen a reduction in demand for frontier exploration in the market, it is also our observation that the need for higher-quality, higher-resolution data for development and production purposes continues to increase.

We continually develop a suite of technologies to improve our ability to deliver high-quality images, with the most important being our developments in full waveform inversion (FWI) and FWI Imaging.

Breakthroughs in this domain, especially when combined with high-end data acquisition such as OBN (ocean bottom node), are leading to images of unprecedented quality and precision, and allowing remarkable insights even in the most geologically challenging areas.

We also have observed that the ability to integrate different expertise and data types enables us to derive better insights, especially when coupled with machine learning and artificial intelligence to leverage our computing more effectively. This is at the heart of our R&D innovation, leveraging not only our expertise in HPC, mathematics, physics and wave propagation for seismic imaging but also our data science, geological, reservoir and earth observation expertise.

Also underpinning this strategy is a continuous growth in our HPC capacity, which is now of 350 Pflops. It is this combination of our deep scientific knowledge, HPC and data that is facilitating our strategy to continue growing our business in many market segments, including HPC & Cloud Solutions, CCUS, Minerals & Mining, Geothermal, Environmental Science, Infrastructure Monitoring.

1.4 INVESTING ACTIVITIES

In 2022, the total capital expenditures – industrial, capitalized development costs and Earth Data cash capital expenditures amounted to US$260 million versus US$227 million in 2021.

The industrial capital expenditures amounted to US$33 million in 2022 compared to US$29 million in 2021. In 2022, CGG invested into the construction of a new data center in the UK which completion is expected in the third quarter of 2023. At the end of 2022, the computing capacity of the Group was established at 350 petaflops and incremental 100 petaflops should be reached in 2023.

Our capitalized development costs amounted to US$21 million in 2022 and US$30 million in 2021.

The Earth Data cash capital expenditures amounted to US$205 million in 2022 and to US$168 million in 2021.

From a general standpoint, industrial capital expenditures and capitalized development costs are financed through permanent funding (equity and financial debt) whereas Earth Data cash capital expenditures are financed mainly with funds from original participants of multi-client projects.

The Earth Data cash prefunding rate was 66% in 2022 down from 89% in 2021.

1.5 SELECTED FINANCIAL DATA

The tables below describe the main consolidated financial information in accordance with IFRS for each of the years in the two-year period ended December 31, 2022. These tables should be read in conjunction with, and are qualified in their entirety by reference to, our consolidated financial statements included elsewhere in our 2022 Universal Registration Document.

In millions of US$, except per share data	2022	2021
Statement of operations data		
Operating revenues	926.9	1,062.2
Other revenues from ordinary activities	0.5	0.8
Cost of operations	(654.9)	(853.2)
Gross profit	272.5	209.8
Research and development expenses, net	(19.0)	(17.0)
Marketing and selling expenses	(29.6)	(29.9)
General and administrative expenses	(68.2)	(62.9)
Other revenues (expenses)	25.9	(123.2)
Operating income	181.6	(23.2)
Cost of financial debt, net	(98.5)	(120.5)
Other financial income (loss)	0.4	(42.4)
Income taxes	(17.2)	4.4
Net income (loss) from companies accounted for under the equity method	(18.5)	0.1
Net income (loss) from continuing operations	47.8	(181.6)
Net income (loss) from discontinued operations	(4.5)	1.6
Net income (loss)	43.3	(180.0)
Attributable to owners of CGG SA	43.1	(180.5)
Attributable to non-controlling interests	0.2	0.5
Net income (loss) per share – attributable to shareholders:		
– Basic [(a)]	0.06	(0.25)
– Diluted [(a)]	0.06	(0.25)
Net income (loss) from continuing operations per share – attributable to shareholders:		
– Basic [(a)]	0.07	(0.25)
– Diluted [(a)]	0.07	(0.25)

(a) Basic and diluted per share amounts have been calculated on the basis of 712,088,021 and 714,608,919 weighted average outstanding shares respectively in 2022 and 711,526,474 weighted average outstanding shares in 2021.

In millions of US$	2022	2021
Balance sheet data		
Cash and cash equivalents	298.0	319.2
Working capital [(a)]	225.0	228.6
Property. plant & equipment, net	167.3	212.1
Earth Data surveys	419.1	393.1
Goodwill	1,089.4	1,083.6
Total assets	2,889.4	2,924.6
Gross financial debt [(b)]	1,249.2	1,308.4
Equity attributable to owners of CGG SA	1,019.3	962.7

(a) "Working capital" is defined as net trade accounts and notes receivable, net inventories and work-in-progress, tax assets, other current financial assets and other current assets less trade accounts and notes payable, accrued payroll costs, income tax payable, advance billings to customers, current provisions, other current financial liabilities and other current liabilities.

(b) "Gross financial debt" is defined as financial debt current and non-current portion (leases included), including accrued interests and bank overdrafts.

In millions of US$ except per ratios	2022	2021
Other financial data and other ratios:		
Segment [g] EBIT [b]	161.6	(48.6)
IFRS [a] EBIT [b]	163.1	(23.1)
Segment [g] EBITDAs [c][i]	433.8	344.1
IFRS [a] EBITDAs [c]	432.2	464.9
Segment [g] Operating income	180.1	(48.7)
IFRS [a] Operating income	181.6	(23.2)
Segment Free-cash flow [h]	149.1	201.1
Capital expenditures [d]	54.5	58.6
Investments in Earth Data surveys, net cash	205.3	168.3
Net financial debt [e]	951.2	989.2
Gross financial debt [f]/Segment [g] EBITDAs [c]	2.9x	3.8x
Net financial debt [e]/Segment [g] EBITDAs [c]	2.2x	2.9x
Segment [g] EBITDAs [c]/Cost of financial debt, net	4.4x	2.9x
Gross financial debt [f]/IFRS [a] EBITDAs [c]	2.9x	2.8x
Net financial debt [e]/IFRS [a] EBITDAs [c]	2.2x	2.1x
IFRS [a] EBITDAs [c]/Cost of financial debt, net	4.4x	3.9x

(a) IFRS: In accordance with IFRS, as indicated in our consolidated financial statements.

(b) Earnings before interest and tax (EBIT) is defined as operating income plus our share of income in companies accounted for under the equity method. EBIT is used by management as a performance indicator because it captures the contribution to our results of the significant businesses that we manage through our joint ventures. However, other companies may present EBIT and related measures differently than we do. EBIT is not a measure of financial performance under IFRS and should not be considered as an alternative to cash flow from operating activities or as a measure of liquidity or an alternative to net income as indicators of our operating performance or any other measures of performance derived in accordance with IFRS.

(c) "EBITDAs" is defined as earnings before interest, tax, income from equity affiliates, depreciation, amortization net of amortization costs capitalized to multi-client surveys and share-based compensation cost. Share-based compensation includes both stock options and shares issued under our share allocation plans. EBITDAs is presented as additional information because we understand that it is one measure used by certain investors to determine our operating cash flow and historical ability to meet debt service and capital expenditure requirements. However, other companies may present EBITDAs and similar measures differently than we do. EBITDAs is not a measure of financial performance under IFRS and should not be considered as an alternative to cash flow from operating activities or as a measure of liquidity or an alternative to net income as indicators of our operating performance or any other measures of performance derived in accordance with IFRS.

(d) "Capital expenditures" is defined as "total capital expenditures (including variation of fixed assets suppliers, excluding multi-client surveys)" from our statement of cash flows.

(e) "Net financial debt" is defined as gross financial debt less cash and cash equivalents. Net financial debt is presented as additional information because we understand that certain investors believe that netting cash against debt provides a clearer picture of the financial liability exposure. However, other companies may present net financial debt differently than we do. Net financial debt is not a measure of financial performance under IFRS and should not be considered as an alternative to any other measures of performance derived in accordance with IFRS.

(f) "Gross financial debt" is defined as financial debt current and non-current portion (leases included), including accrued interests and bank overdrafts.

(g) The "Segment" figures are figures prepared before IFRS 15, for internal management reporting purposes, in accordance with the Group's previous method for recognizing Multi-Client prefunding revenues based on percentage of completion. Other companies may present segment and related measures differently than we do. Segment figures are not a measure of financial performance under IFRS and should not be considered as an alternative to any measures of performance derived in accordance with IFRS.

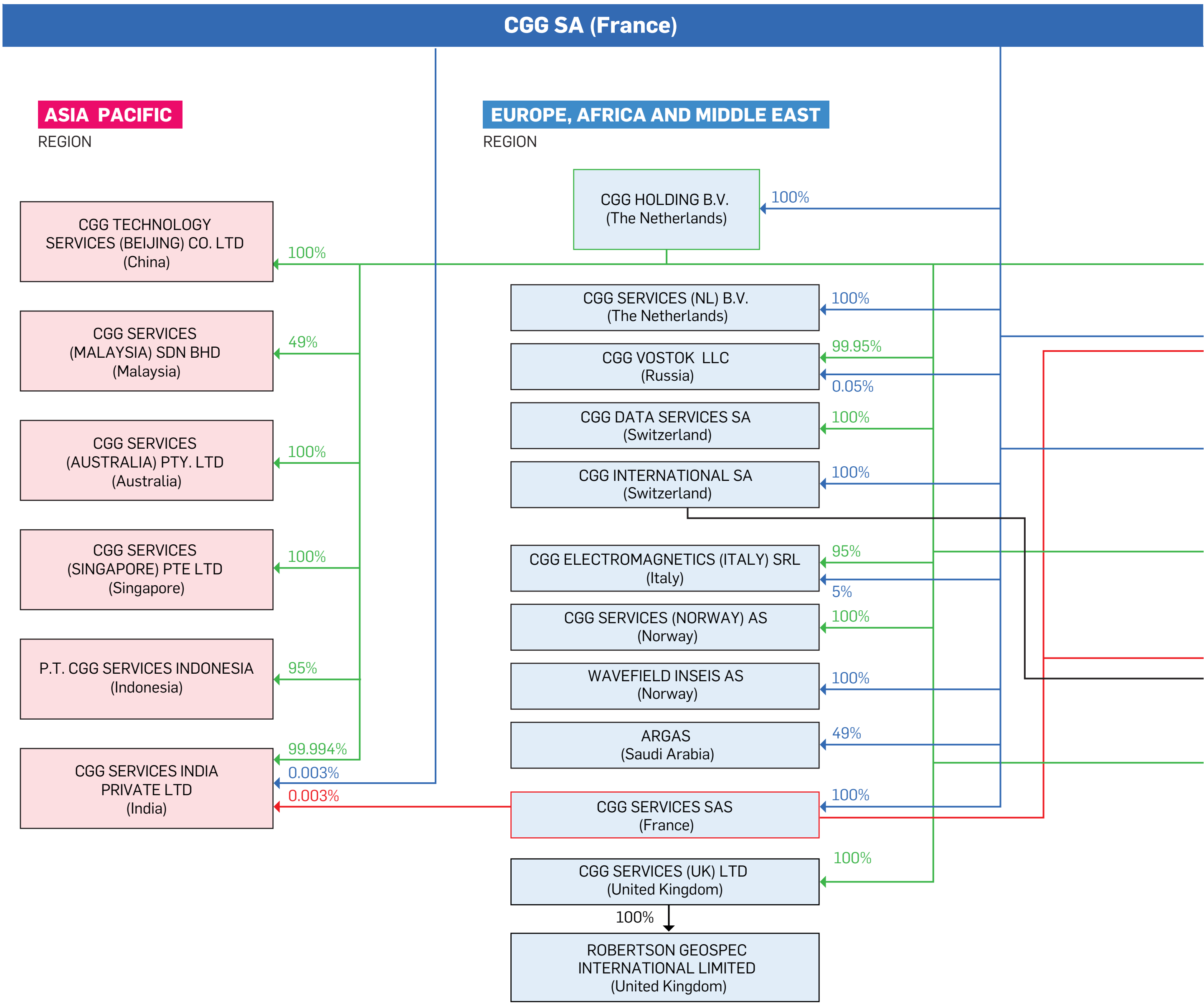
(h) "Segment Free-cash flow" is defined as "Net cash flow provided by operating activities" plus "Proceeds from disposals of tangible and intangible assets", minus "Total capital expenditures" and "Investments in multi-client surveys", plus "Acquisition of investments, net of cash & cash equivalents acquired", "Proceeds from divestment of activities and sale of financial assets" and "Variation in subsidies for capital expenditures" as set out in our consolidated statement of cash flows in the "Investing" section. Segment Free-cash flow is presented as additional information, however, other companies may present Free-cash flow differently than we do. Segment Free-cash flow is not a measure of financial performance under IFRS and should not be considered as an alternative to cash flow from operating activities or any other measures of performance derived in accordance with IFRS.

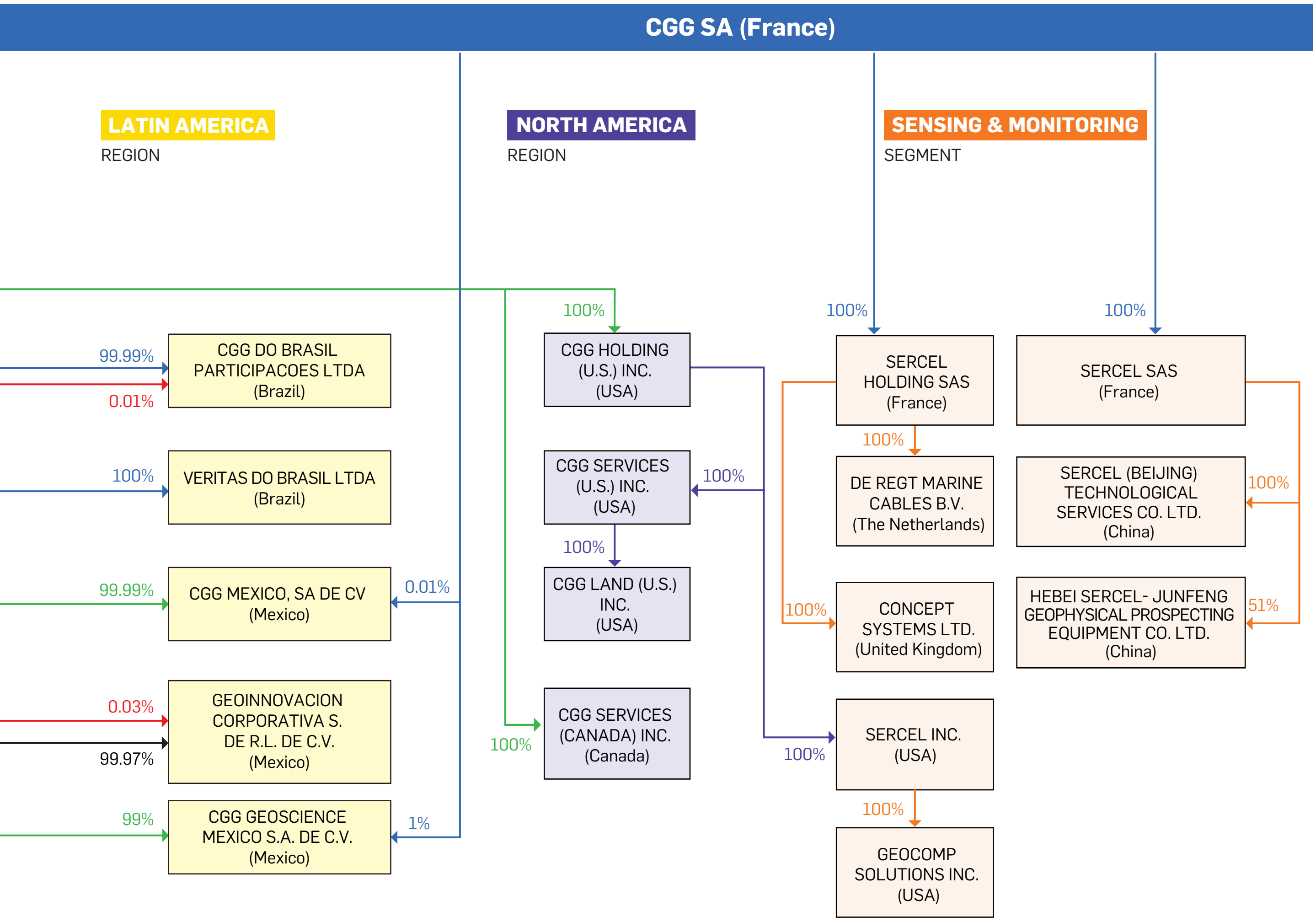
(i) For further information, please refer to Chapter 5 Operating and financial review - 5.1.4 Comments on the financial situation of the Company and the Group - EBIT and EBITDAs (unaudited).

1.6 CGG ORGANIZATION

1.6.1 Organization chart

CGG SA is the parent holding company of the CGG group, listed on Euronext Paris stock exchange. The Group's subsidiaries are directly or indirectly owned by CGG SA. The simplified organization chart (showing the percentage of share capital and/or voting rights owned) as of December 31, 2022 is presented below.




CGG SA (France)
LATIN AMERICA
REGION
NORTH AMERICA
REGION
SENSING & MONITORING
SEGMENT
99.99%
0.01%
CGG DO BRASIL PARTICIPACOES LTDA (Brazil)
100%
VERITAS DO BRASIL LTDA (Brazil)
99.99%
CGG MEXICO, SA DE CV (Mexico)
0.01%
0.03%
99.97%
GEOINNOVACION CORPORATIVA S. DE R.L. DE C.V. (Mexico)
99%
CGG GEOSCIENCE MEXICO S.A. DE C.V. (Mexico)
1%
100%
CGG HOLDING (U.S.) INC. (USA)
CGG SERVICES (U.S.) INC. (USA)
100%
100%
CGG LAND (U.S.) INC. (USA)
100%
CGG SERVICES (CANADA) INC. (Canada)
100%
SERCEL HOLDING SAS (France)
100%
DE REGT MARINE CABLES B.V. (The Netherlands)
100%
CONCEPT SYSTEMS LTD. (United Kingdom)
100%
SERCEL INC. (USA)
100%
GEOCOMP SOLUTIONS INC. (USA)
100%
SERCEL SAS (France)
100%
SERCEL (BEIJING) TECHNOLOGICAL SERVICES CO. LTD. (China)
51%
HEBEI SERCEL- JUNFENG GEOPHYSICAL PROSPECTING EQUIPMENT CO. LTD. (China)

1.6.2 Intra-group transactions

The Group carries out intra-group transactions in various fields (e.g. different kinds of services, and software licenses). The corresponding remuneration or royalties vary depending on the nature of the transaction and are determined in accordance with the arm's length principle and the Group's transfer pricing policy.

The assistance and advice provided by the parent company to the Group's main subsidiaries regarding financial, administrative, commercial and technical matters are generally paid at cost plus and allocated subsequently to the related subsidiaries or by a fixed remuneration defined in accordance with the importance and nature of the service provided.

In most situations, the payment of the services provided by the subsidiaries for the benefit of the parent company corresponds to the cost incurred plus a margin defined in accordance with the arm's length principle.

During the years 2022 and 2021, financial flows between the parent company and its subsidiaries were as follows:

In millions of US$	**2022**	**2021**
Services provided	22.8	34.5
Expense rebilling	13.0	20.5

1.7 RECENT EVENTS

FIL crossed the 10% shareholding threshold

On February 2, 2023, FIL Limited declared it crossed on January 27, 2023, the threshold of 10% of the capital and voting rights of the Company, i.e holding 10.10% of the share capital and 10.07% of the voting rights of CGG (for more details, see sections 7.1.2 and 7.4.5 of this Document).

Seismic data reimaged with time-lag full waveform inversion (TL-FWI) and HD tomography, offshore Angola. *CGG Earth Data.*

2

RISK MANAGEMENT
AND INTERNAL CONTROL

2.1 INTERNAL CONTROL COMPONENTS LEADING TO AN INTEGRATED APPROACH TO RISK MANAGEMENT

The Company is listed in France and is therefore subject to the French *Loi de sécurité financière.* The Company complies with the 2013 COSO internal control integrated framework, established by the Committee of Sponsoring Organizations of the Treadeway Commission ("COSO 2013"). The *Autorité des marchés financiers* (AMF) has subsequently integrated the principal elements of COSO in its frame of reference.

Pursuant to the provisions of Articles L. 225-100-1 and L. 22-10-35 of the French Commercial Code, this section includes a presentation of the main characteristics of internal control and risk management processes implemented by the Company and cascaded down within its subsidiaries (the Company and its subsidiaries hereinafter being collectively referred to as the "Group") with respect to the development and processing of accounting and financial information.

The Group's internal control and risk management is conducted by the management with the support of the Finance Function, the Internal Control, the Risk Management and Internal Audit Departments, while the monitoring of its effectiveness is performed by the Board of Directors in particular via its Audit and Risk Management Committee.

Our internal control and risk management frameworks are designed to provide reasonable assurance regarding the achievement of objectives in the following areas:

- optimization of Group processes notably ones leading to safeguarding of its resources;
- reliability and accuracy of financial information; and
- compliance with applicable laws and regulations.

The principal objective of our internal control and risk management system is to identify and control risks related to the activities of the Group, as well as the risks related to errors and omissions in accounting and financial reporting.

2.1.1 Control environment

The control environment is the foundation of all the components that carry out internal control across the Group.

CGG commits to act with integrity and professionalism across all locations, business lines and support functions.

The Group's standards and expectations as regards to Integrity and Ethics are stated in our Ethics Policy and in the Code of Business Conduct, which apply to all Group's employees.

For more information on the Group's Ethics Policy, see section 3.4.1 of this Document.

Organization of the Group with respect to internal control

The Chief Executive Officer and the Executive Leadership team

The Chief Executive Officer has ultimate ownership and responsibility for the internal control and risk management system. She ensures the existence and operation of an efficient control environment and is responsible for overseeing that all components of internal control and risk management system are in place.

The Chief Executive Officer's responsibilities are sub-delegated to the Executive Leadership team which includes the heads of business lines and functions, who have responsibility for internal control and risk management related to their organizational unit's operational and business objectives *(for more information on the Executive Leadership team's composition, see* section 4.1.2.2 *of this Document).* The heads of business lines and functions are responsible for the development and implementation of internal control rules and procedures that address their unit's operational and business objectives and ensure that these are consistent with the Group's objectives. These responsibilities are cascaded through the organization in each business line and function.

The Executive Leadership team is chaired by the Chief Executive Officer and meets once a month or more often, if necessary, for the review and general conduct of the business of the Group. The Executive Leadership team monitors and controls performance of individual business lines, as well as the implementation of the Group strategy and carrying out of its projects through the business lines and functions. The Team members interact regularly with the Board of Directors and its Committees.

Internal Control Function

The Group also has an **Internal Control Department** whose role is to support the organization in implementing and maintaining effective processes, and to ensure that control procedures effectively mitigate the identified risks. It also maintains our internal control framework and coordinates the evaluation system of internal control over financial reporting.

The Group has an internal control guide based on the COSO 2013 internal control framework, which provides Group staff with a single and common source of internal control guidance. This guide was rolled out across all locations, business lines and support functions, and aims at improving the Group's risks management and oversight.

Finance Function

The **Finance Function** is notably composed of the following departments, each playing critical role in internal control and risk management:

- **Group Financial Controlling and Financial Planning & Analysis (FP&A):** headed by the Group Controller and Chief Accounting Officer, this department oversees the budgeting and business planning process as well as the monthly, quarterly and annual financial reporting. It prepares management accounts and Group financial synthesis in close coordination with business lines' financial controllers and is closely involved in the preparation of the Board Committees' and Board of Directors meetings. Along with the business lines' financial controllers, it ensures, on a regular basis, the oversight of the Group's operations and follow-up of the action plans initiated at the Group level;
- **Accounting and Consolidation:** headed by the Group Controller and Chief Accounting Officer, and in close cooperation with the financial controllers of the business lines, this organization is in charge of the production of the financial accounts in compliance with applicable standards and regulations, on a statutory basis for each legal entity, and on a consolidated basis as part of the quarterly and annual financial reporting. From this perspective, it defines the accounting procedures in accordance with legal and regulatory reporting requirements to financial information of the publicly listed companies and ensures they are up to date and enforced;
- **Treasury and Corporate Finance:** this department ensures management of the Group's liquidity and its investment as well as the Group's long-term financial resources (bonds and credit lines) and the relationships with the banking community. It oversees and manages risks associated with currency fluctuations, credit and counterparty risks. Treasury also prepares and presents to the CEO and CFO cash flow reporting on a monthly basis. The department also manages the balance sheets of Subsidiaries;
- **Tax:** this department manages the Group's tax compliance and obligations as well as associated risks. From this perspective, it oversees that all tax returns are prepared and filed in a timely manner across all legal entities of the Group.

Internal Audit

The Internal Audit Department is an independent body that has direct access to the Executive Leadership team and reports to the Chief Executive Officer and to the Audit and Risk Management Committee. It assists the Executive Leadership team and the Audit and Risk Management Committee in carrying out their oversight responsibilities for the effectiveness of the Group's risk management, internal control and governance.

The Internal Audit Department evaluates internal controls based on the COSO 2013 framework and tools and in compliance with the Code of Conduct of the Institute of Internal Auditors (IIA). Internal Audit Department has a charter, which governs its operating procedures, approved by the Audit and Risk Management Committee, and been continuously certified by IFACI/IIA since June 2013.

Internal Audit priorities are defined based on current operations, the assumed level of risk and Group risk analysis performed by Risk Management. The annual Internal Audit plan is defined by the Internal Audit Department and is approved by the Executive Leadership team and the Audit and Risk Management Committee.

The Internal Audit Department conducts general reviews of entities, operational and compliance audits, integrated audits and in-house consulting missions. Recommendations resulting from these audits and their associated action plans are executed by line management and monitored by the Internal Audit Department until full implementation.

2.1.2 Risk Management

Risk Management System

The Group has put in place organization, processes, and working practices to manage risks across the organization at all levels, across all business lines and support functions. The management of risks is fully integrated in the Group decision-making process. The main financial and non-financial risks with potential impact on the Group's operational and financial objectives, its reputation or its compliance with laws and regulations have been duly identified and evaluated. The Group has is in place a risk management system implemented by business lines and functions.

The Group has implemented risk management system throughout the organization to identify, assess and control risks:

- the identification of events that could have an impact on the Group comprises a combination of techniques and supporting tools including event inventories, internal analyses, risk interviews, process flow analysis, leading event indicators and loss event data methodologies;
- all identified risks are assessed and prioritized as per their criticality according to their impact (critical/major/significant/low) and likelihood of occurrence (almost certain/possible/rare/unlikely). In assessing risks managers consider the residual risks (after mitigation measures and controls in place) and their potential impact on people, health and safety, environment, finance, compliance with laws and regulations and on the Group's reputation. Additional mitigation plans can be required to be set up to manage these risks. Their progress against those plans is monitored on a regular basis;
- risks are controlled through robust processes allowing their avoidance, reduction, sharing or acceptance. The Group employs comprehensive processes to reduce risk probability, risk severity or both. Control activities are followed from policies and procedures established to manage risks.

The principles of the comprehensive risk management policy and framework are consistent with the recommendations issued by the professional standards (COSO ERM, ISO 31000, AMF)

The Group Risk Management System is managed by the Director of Risks Management and Insurance, who reports to the Finance organization.

Risk Mapping

One of the standardized tools of the Group's risk management program is the Risk Map, which provides a shared view of the risks that have the potential of having a material impact on the Group. Risk registers are used to classify the risks by their nature: Business, Governance & Strategy risks, Operational risks, Information Assets & Technologies risks, People risks, Finance Risks and Legal, Regulatory & Compliance risks. The risk registers and the risk map are reviewed by the Executive Leadership team on an annual basis as per the Group's strategy or more frequently as appropriate. The Risk Map is presented to the Audit and Risk Management Committee on an annual basis.

For more details, please refer to Chapter 2.2 of this Document.

2.1.3 Control activities

Processes implemented by the Group to identify necessary control procedures are based on risk assessments and on the processes required to fulfill the Group's objectives.

Internal control procedures

Control procedures of the Group are implemented according to the responsibility levels of personnel involved and the principles of materiality and the segregation of functions. Control procedures are implemented considering the identification of risks.

System of evaluation of internal control

Internal control in the Group is evaluated through self-assessment tools and internal audits.

Objectives for Control over financial reporting are set annually and require self-assessments of all active Company entities using the internal control assessment form (ICAF). This questionnaire includes approximately 60 items defined for operating business lines and support functions. On an annual basis, the results of these reviews are consolidated, assessed and distributed to relevant managers, and internal control improvement areas are identified through these assessments.,

Effectiveness of internal control is continuously evaluated through the program of internal audits.

Financial and accounting controls

Internal control procedures of the Group are designed to ensure that accounting, financial and management information communicated to corporate bodies of the Group provide a fair presentation of the activities and position of the Group:

- the financial statements of all the Group's subsidiaries are reviewed by the Finance Function;
- access to the accounting information systems is formally restricted in accordance with the functions and responsibilities of each user;
- the financial information systems make it possible to record transactions in a complete and exact manner, to trace them and regularly back them up;
- all intercompany transactions are documented and reconciled on specified dates depending on the nature of the transactions;
- the Company monitors its off-balance sheet commitments;
- comparisons and reconciliations are performed at various levels, particularly between FP&A and Consolidation. The consolidated financial statements are reviewed by the Group Chief Financial Officer at the corporate level and the business lines' controllers.

The Executive Leadership team fully supports this internal control environment to ensure proper business controls in line with the Group's values and the application of the control over financial reporting by our personnel.

Control over financial reporting

Specific processes and controls have been put in place by the Group to assure that financial reporting is reliable and pertinent.

Financial information

Key processes such as the preparation of consolidated financial statements, documents for the Board of Directors and the Audit and Risk Management Committee, preparation of budgets, etc., are formally documented.

The Executive Leadership team regularly renews principles and objectives related to the control over financial reporting (CFR) to ensure that all financial and operational managers of each operation unit understand the importance of internal controls and continuous monitoring of their effectiveness, based on annual objectives and relevant training.

The Group's Accounting Manual sets forth its accounting policies, practices, instructions and reporting rules. The accounting manual applies to all Group entities and is designed to ensure that the accounting rules are applied across the Group in a reliable and homogeneous way. It details processes and procedures for closing the accounts, consolidating and preparing the financial statements It also outlines the principles for preparing the notes to the consolidated financial statements.

To limit the risks of fraud, the segregation of duties is in place, from approval of the orders to goods and services receipts to payments to the vendors and suppliers.

All Group entities prepare accounts in the format chosen by the Group using a standardized package. All reclassifications from the statutory accounts to the consolidated accounts are documented.

Intercompany transactions are carried out in accordance with market conditions and transfer pricing principles. Information Systems represent the backbone of the Group's internal control framework and are fully supporting our processes.

Information technology (IT) infrastructure and information systems security (InfoSec)

Information about IT infrastructure and information systems security is described in Chapter 3, section 3.5.3 of this Document.

Control of the disclosure of information externally

- The Group has rules and specified procedures for preparing, validating and approving press and news releases.
- The Group follows a pre-determined process for the preparation and distribution of its regulatory documents.

2.1.4 Information and Disclosure

The Group's ability to meet its objectives depends on effective dissemination of information at all levels of the Group.

Quality standards, security requirements or legal and professional obligations demand that the procedures are documented and accessible. The Group encourages sharing of knowledge and best practices. An intranet site provides all personnel with access to Group codes, policies, annual objectives, general instructions, procedures, standards and other documents, which represent the Group's Management System. Generally, the intranet site of the Group enables better communication and cooperation between the Group business lines, entities and support functions.

The Group generally holds seminars once a year as well as a quarterly video meeting, for Group senior managers from all key locations worldwide.

The Group has implemented a weekly, monthly and quarterly reporting system by responsibility levels and relevance to obtain and share information necessary to carry out, manage and control operations. The scope of reporting covers operational, financial, legal, tax and regulatory compliance information, internal or external to the Group.

Senior management evaluates the performance of the Group on the basis of both internal and external information.

2.1.5 Monitoring activities

Risk Management Task Force

The Group has set up a Risk Management Task Force in charge of monitoring the efficiency of the internal control and risk management systems. Its members are the Internal Audit Director, the Risk Management and Insurance Director, the Internal Control & Quality Coordinator, the VP Legal Affairs and Group Compliance Officer, the Chief Information Security Officer, and the HSE & quality global manager. The Committee meets every month. The main objectives of this Committee are:

- information sharing of Group Internal Audit observations, events and facts relating to the quality of risk management and internal controls;
- follow-up on the reported risks and internal control incidents, which are classified by the Committee; and
- recommendations for and coordination of the mitigation or process improvement actions taken in these areas.

Disclosure Committee

The Group has set up a Disclosure Committee chaired by the Group Controller and Chief Accounting Officer. In 2022, the Committee is composed of the EVP SMO, EVP Geoscience; EVP Earth-Data, VP Controller Geoscience; VP Finance SMO, SVP Finance Strategy Risk DDE, Group Internal Audit Director, SVP Group Treasurer; EVP Group General Counsel and SVP Group Communications and Investor Relations. The main objectives of this Committee are:

- share information, analyze its importance and determine the appropriateness of disclosures and their timing;
- provide guidelines to ensure the reporting of material information to be disclosed within the framework of half-year or annual communication to market authorities or financial markets; and
- inform the Chief Executive Officer and the Group Chief Financial Officer of any changes, deficiencies or material weaknesses identified by the Committee in the process of reporting of information.

The Disclosure Committee meets three times a year: once after closing of each semester and once a year for review of the Universal Registration Document prior to its publication.

Monitoring and Management Review

The Group's business environment is continuously changing and evolving by its nature. As a result, the internal control system is continuously adapted taking into account the environmental conditions and past experience.

Operations are managed and evaluated against their performance criteria on a day-to-day basis and are monitored by relevant layers of management across the organization, culminating with the Executive Leadership team. Management carries out periodic evaluations, taking into account the nature and importance of any changes, which may have occurred.

Key indicators that signal risk environment changes and adverse trends have been defined and are reviewed in management meetings at each level. Transverse functions assist the business lines in monitoring these indicators and, when necessary, focusing attention on specific Group risks.

The Group has implemented a global incident monitoring system for the 24/7 alerts. Actual incidents and high potential incidents (HPIs) anywhere in our operations must be reported within 24 hours to the relevant management level.

The Board of Directors and its Committees regularly review key risks faced by the Group. The Board receives annually mapping of the key risks the Group faces and monitors implementation of agreed action plans and key controls put in place. The Audit and Risk Management Committee, the HSE and Sustainable Development Committee, the Appointment, Remuneration and Governance Committee and the Investment Committee each regularly review the risk management in their specific domains of responsibility. In accordance with Article L. 823-19 of the French Commercial Code, the Audit and Risk Management Committee monitors in particular the effectiveness of the internal control and risk management frameworks, with regard to the procedures relating to the preparation and processing of accounting and financial information.

Reasonable Assurance

Every system of internal control, however well-designed and effective, has inherent limitations. Notably, there are residual risks that may be circumvent or bypassed. This means that the internal control system can offer only a reasonable assurance as to the reliability and completeness of financial statements. Furthermore, the effectiveness of internal control procedures may vary over time, in response to new circumstances.

In order to evaluate the effectiveness of internal control procedures on a regular and formal basis and beyond the related actions undertaken by the Internal Audit management, the Group has put in place a tool for internal control self-evaluation for all entities of the Group.

2.2 MAIN RISK FACTORS AND CONTROL MEASURES

This chapter includes the main risks identified during the year ended December 31, 2022 to which CGG is exposed, at the date of this Document, and whose occurrence could negatively impact our business activities, financial results, outlook, reputation and market share.

The risks identified by CGG as specific, and material are grouped by categories based on their nature. The categories themselves are not ranked by importance. However, the risks within each category are ranked by their degree of criticality in terms of likelihood of occurrence and potential impact, starting with those management believes to be the most material.

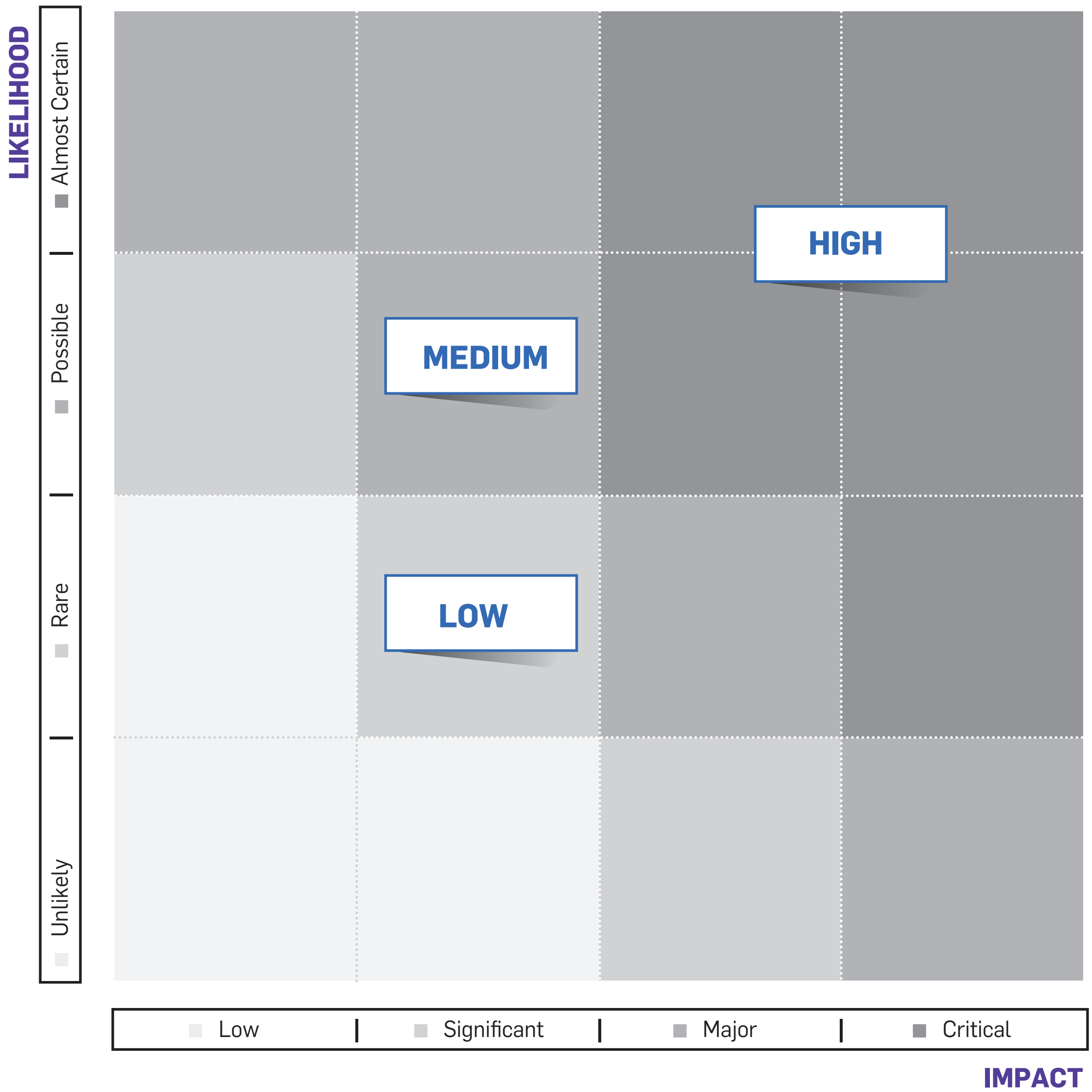
As detailed in the section 2.1.2 "Risk Management", the main risks described below (as per the Risk Map revised annually) are residual risks, after implementation of mitigation measures to prevent and control them.

The risk factors also include some of the non-financial risks reported as critical in Chapter 3 "Statement on non-financial performance" of this Document.

As CGG operates in a constantly changing economic and regulatory context with highly volatile market cycles, our assessments and forward-looking statements are subject to uncertainties and risks that the Group is not aware of or does not consider significant as of the date of this Document, but which could affect our business activities and performance.

For more details about the Risk Management system, please refer to 2.1.2 "Risk Management" of this Document.

RISK SIGNIFICANCE



The main Group risk factors and uncertainties identified and assessed in the year ended December 31, 2022 are ranked into the following six categories:

Category	Risk Factors	Net Significance Level
RISKS RELATING TO OUR BUSINESS, GOVERNANCE AND STRATEGY		
2.2.1.1	Market Cyclicity and Highly Competitive Environment Risks **ESG**	High
2.2.1.2	Geopolitical Risks	High
2.2.1.3	Strategic Partner Risks	High
2.2.1.4	Energy Transition and Market Shift Risks **ESG**	High
2.2.1.5	Sustainable Development Risks **ESG**	High
OPERATIONAL RISKS		
2.2.2.1	Loss of Key Asset and Value Impairment Risks	High
2.2.2.2	Risk of Supplier failure/Supply Chain Interruption/Shortage of component **ESG**	High
2.2.2.3	Risks of Intellectual Property Mismanagement/Failure to protect Intellectual Property **ESG**	Medium
INFORMATION TECHNOLOGY AND INFORMATION SECURITY RISKS		
2.2.3.1	Risks of Critical Business Information Technology Failure and Cyber Security **ESG**	High
PEOPLE RISKS		
2.2.4.1	Risks of Difficulties to Attract and Develop Adequate Expertise – Loss of Key People/Key Expertise **ESG**	High
ECONOMY AND FINANCE RISKS		
2.2.5.1	Cash generation/Working capital variation Risks	High
2.2.5.2	Risks of Unfavorable Currency/Exchange Rate	Medium
LEGAL, REGULATORY AND COMPLIANCE/TRADE COMPLIANCE RISKS		
2.2.6.1	Risks of Adverse Regulatory Changes	High
2.2.6.2	Risks of Non-Compliance/Trade Compliance **ESG**	Medium
2.2.6.3	Risks of Fraud – Internal & External	Medium

The following sections describe the main risks identified in the year ended December 31, 2022, their potential impact and their treatment plan.

The treatment plan includes, but is not limited to, examples of controls and mitigating actions as listed below. This is not a comprehensive list.

It must be noted that there are three transverse risks – inflation, Covid-19 pandemic and the war in Ukraine - present in several of CGG's risks described below.

Inflation has a transverse impact on others risks of the Group.

Global inflation is running at an unusually high rate driving up the prices of goods, services, wages and interest rates. While most economic surveys and Central Bank Authorities are now aligned that inflation peak is close or have been passed in some countries, they are now stating that inflation is to remain in place for a longer time. If inflation levels and length remain undetermined, its economic consequences start to lead into fragilization of households, companies and developing countries, which could encounter more difficulties to finance themselves. This global weakening could lead to supply shortage, suppliers' or partners' bankruptcies or limitations to secure adequate financing for our capital expenditures to our processing centers at reasonable terms and conditions.

While generally we benefit from hydrocarbon prices remaining at high levels, general inflation could negatively impact our operations and profitability to the extent we would be unable to pass cost increases to our customers. At CGG, we anticipate for 2023 cost increases between 7% and 8% compared to 2022, driven by salaries, electricity needed to run our processing centers, increased computer equipment rental costs and increased cost of components in our SMO division. We also anticipate a 5% inflation in our capitalized costs related to our contracts for marine seismic acquisition services with Shearwater, to support our EDA business, and related to our capital expenditures in our processing and imaging centers. And this, despite an anticipated lower average fuel prices for the vessels used in Earth Data marine seismic acquisition projects. While we intend to pass those cost increases to our clients, which benefit from high level of energy prices, we cannot guarantee that we will be successful to pass our anticipated costs increases, mainly at the level of indirect costs or for the unanticipated costs.

Except for our $100 million undrawn Revolving Credit Facility (RCF), most of our financing bears fixed interest rates, as do our facility leases and real estate rents.

For more details, please refer to sections 2.2.1.4, 2.2.1.5, 2.2.4.1, 2.2.5.1 and 2.2.5.2 of this chapter.

The Covid-19 pandemic has had and continues to have an impact on the Group, namely in the following areas:

- supply chain disruption/shortage of raw materials and components: Chinese zero-Covid policy and its unexpected abandonment continue to affect our operations in this country and the supply chain (mainly SMO division), but to a lesser extent than in 2020-2021;
- energy transition and market shift: after the start of the pandemic international oil companies have drastically reduced their exploration and production expenditures following the collapse in demand for hydrocarbons, reduced oil prices and reduced shipping activity. They continue to pursue new strategies involving: stricter capital discipline, prioritization of deleveraging, payment of dividends and stock buybacks, focus on low cost/low carbon oil, increase of investments into renewable energy and/or CCUS projects.

For more details, please refer to sections 2.2.1.1, 2.2.2.2 and 2.2.5.1 of this chapter.

The war in Ukraine has had and continues to have an impact on the Group, namely in the following areas:

- despite the worldwide economic recovery, and oil price rebound following the first waves of the COVID-19 pandemic, investments in exploration do not seem to be recovering at the same pace. On the contrary, the war in Ukraine has contributed to a decrease in investments due to the awareness of investing in the energy transition;
- the international sanctions against Russia have negatively impacted 2022 revenues of our SMO division by about US$50 million.

For more details, please refer to sections 2.2.1.2, 2.2.2.2, 2.2.3.1, 2.2.5.1 and 2.2.6.2 of this chapter.

2.2.1 Risks related to our Business, Governance and Strategy

2.2.1.1 Market Cyclicity and Highly Competitive Environment Risks

Demand for most of our products and services is linked to the level of expenditures by oil and gas companies in their effort to find, develop and produce hydrocarbons. These expenditures are discretionary in nature and can vary significantly based on various considerations beyond our control, including oil and gas prices and expectations regarding future hydrocarbon prices, which may fluctuate based on relatively minor changes in the supply of, or demand for oil and gas, as well as many other factors.

At the same time, increases in oil and natural gas prices may not necessarily increase demand for our products and services or otherwise have a positive effect on our financial condition or results of operations. For instance, following the improvement of oil prices during 2021 from their lowest levels in March 2020, our clients, especially the international oil companies (IOCs), did not increase their E&P spending and continued to maintain capital discipline, prioritizing deleveraging, dividends and share buybacks, at the same time increasing their investments into energy transition. It is possible that trends in oil and gas exploration, development and production will become increasingly decoupled from commodity prices.

While analyses show a growth in E&P investments of 10% to 15% in 2022 compared to 2021, these investments were mainly directed towards immediate production growth (drilling rigs), which gave rise to a new concept of "Exploration on the basis of existing infrastructure", the demand for the Group's services and products that have a more distant impact on oil and gas production remained static.

In addition, the locations where oil and gas companies choose to invest in exploration, development and production can have a material effect on our business. Demand for our products and services may not reflect the level of activity in the industry, as our data libraries are located in specific basins globally (including, in particular Brazil, the North Sea and the US Gulf of Mexico), and approaches in the selection of products and services used for finding and producing oil and gas vary between customers and basins. Our offerings are preferred where high-end geoscience technology is perceived to lower the risks and costs associated with exploration, development and production but may not be the most cost-effective choice for producers exploring and producing in lower-risk areas. If oil and gas companies decide to invest in regions where we are not active, where our data portfolio is less extensive or if customers prefer lower-cost solutions, our business, results of operation and financial condition could be materially affected.

Finally, the balance of our clients' investment across the spectrum of different types of hydrocarbons and across hydrocarbons in general, and renewable energy sources, can also have a material effect on our business. Due to its abundance, as well as various other economic and environmental factors, natural gas is widely predicted to contribute an increasing share of energy in the future. Today significant natural gas resources are stranded, being flared or being released into the atmosphere. To bring this energy source into the market would require extensive infrastructure investment, but low or no exploration cost. It is possible that natural gas infrastructure development by our clients will compete for budget dollars with the oil exploration and development.

It is difficult to predict how and where oil and gas companies will choose to invest, as this is subject to a large number of considerations including, but not limited to, those indicated above, as well as:

- demand for hydrocarbons, which is affected by worldwide population growth, economic growth rates, and general economic and business conditions;
- government policies regarding the exploration and development of oil and gas reserves in their territories, as well as governmental laws, policies, regulations and subsidies related to or affecting the production, use, and exportation or importation of oil and natural gas;
- the ability or willingness of the Organization of Petroleum Exporting Countries (OPEC+) and other oil producing countries to balance supply and demand;
- shareholder activism, activities by non-governmental organizations, or pressure from the general public to restrict exploration, development and production of oil and natural gas;
- development, exploitation, relative price and availability of alternative sources of energy and our customers' shift of capital to the development of these sources;
- the overall costs and risks of exploring for, developing and producing oil and gas in different locations;
- the oil and gas companies' perception of perspectivity of different global basins;
- changes in short and medium-term investment decisions and its impact on oil and gas prices;
- the strategies selected by oil and gas companies to manage their portfolios;
- volatility in, and access to, capital and credit markets, which may affect our customers' activity levels and spending for our products and services;
- technological advances affecting energy consumption and the types of energy consumed; and
- the development of technologies that can significantly affect the costs and risks associated with exploration, development and production.

Examples of mitigating activities

The following measures have been put in place to mitigate the risks related to lower capital expenditures by the oil and gas industry:

- performance of risk analysis on a regular basis to assess potential business impacts;
- regularly monitoring market conditions and resulting client expenditure levels focused on in their effort to find, develop and produce hydrocarbons, and updating our strategies, business plans and operations to adapt. As an example, following the outbreak of the Covid-19 pandemic, we immediately reduced our capex, both in our EDA and SMO segments, and commenced a review of our worldwide footprint, to optimize capex spend on the main basins expected for oil and gas exploration and development; and
- we also review our cost base, identify areas where we could reduce costs without jeopardizing the quality and safety of our products and operations and implement such reductions.

For more details, please refer to Chapter 1, section 1.1.1 of this Document.

We operate in a highly competitive environment, and unanticipated changes relating to competitive factors in our industry may impact our results of operations

We compete on the basis of a number of different factors, such as product and service offerings, project execution and service delivery, customer service and price. Maintaining our competitive advantage in high-quality solutions requires us to continuously invest into research and development (R&D) in order to be able to innovate and keep abreast of the latest technological changes. However, we may be unable to capture the full value of innovations and may encounter resource constraints or technical or other difficulties that could delay the introduction of new and enhanced products, services and solutions in the future. We may also commit errors or misjudgments in our planning and misallocate resources, for instance, by developing products or services that are not commercially viable but require large investments in R&D and capital expenditures.

We are focused on providing premium products and services and have positioned ourselves at the high-end tier of the market. While we believe our customers choose us specifically for the value and quality of our offerings, they may decide to buy products and services from our competitors if we are unable to convey and deliver the benefits of our offerings as compared to lower-cost options. While our R&D strategy is focused on developing the highest value and quality solutions, our products and services may not be perceived as the most cost-efficient options for our customers and as a result may not achieve market acceptance. If our customers decide to shift away from our offerings to lower-cost products and services, either because of constraints on their capital or operating expenditures or because we are not successful in differentiating our offerings from those of our competitors, we would suffer a loss in our market share and a negative impact on our results of operations and financial performance.

Examples of mitigating activities

The following measures have been put in place to mitigate the risks related to loss of clients due to their acceptance of lower cost solutions:

- we have systems in place to monitor our clients' needs, and our competitions' technological and service offerings and the level of acceptance of lower cost technologies by our customers;
- we seek to maintain premium positioning by differentiating ourselves through technological advances, data and image quality, equipment quality, reliability and customer service;
- we continue to advance imaging technology to ensure that we remain at the forefront of the market;

- we use our in-house Earth Data across the globe to develop our technology so that the results of the new techniques can be freely demonstrated to customers;
- we continue to invest via capital expenditures and R&D, including ensuring that the high-performance computing resources necessary to produce “next-generation” imaging are available when needed;
- we focus on recruitment to ensure we employ the right people in all relevant areas (researchers, developers, imagers, programmers and IT specialists);
- we focus on communicating the advantages of superior imaging quality to our clients; and
- we have commercial discussions and maintain relations at all levels with customers to ensure price is not the overriding consideration when projects are awarded.

For more details, please refer to Chapter 3, sections 3.5 and 3.9 of this Document.

2.2.1.2 Geopolitical Risks

With operations worldwide, including in emerging markets, our business and results of operations are subject to various risks inherent to international operations. These risks include:

- instability of foreign economies and governments, which can cause investment in capital projects by our potential customers to be withdrawn or delayed, reducing or eliminating the viability of some markets for our services;
- war, terrorism, riots and uprisings, which can make it unsafe to continue operations and expose us to losses;
- challenges in protection and enforcement of intellectual property rights;
- fraud and political corruption;
- changes in legal and regulatory requirements;
- inability to repatriate income or capital;
- trade restrictions, trade protection measures, price controls, or trade disputes; and
- foreign exchange restrictions, import/export quotas, sanctions, boycotts and embargoes and other laws and policies affecting taxation, trade and investment.

The international nature of CGG's business means that the Group is generally alert to geopolitical risk. Nevertheless, with respect to Brazil and China in particular, countries in which the Group has achieved almost 20% of its turnover by 2022, CGG serves local markets or customers locally and therefore does not have the same geopolitical risk as in Russia. The Group's main risks in Brazil and China are related to currency fluctuations, and for China to the fact that CGG's main local customer is also the partner in Sercel Junfeng.

For its business in Russia, CGG has, since the beginning of the conflict between Russia and Ukraine, increased its vigilance and audit and verification procedures to ensure that transactions with third parties and Russian customers are in compliance with applicable international regulations and sanctions. In this very evolving context, CGG has set up a dedicated unit to strengthen the monitoring of new international regulations and sanctions and ensure the awareness of its employees. In the end, thanks to these measures, and given that the activity in Russia represented less than 0.7% of CGG turnover for 2022, we consider the risks of potential liabilities or potential negative impact on our reputation as not significant.

In addition, global market and economic conditions are uncertain and volatile. In recent periods, economic contractions and uncertainty (exacerbated by the war in Ukraine) have affected the balance between the demand and supply for oil and natural gas. This dynamic has resulted in increased volatility in oil and gas prices, associated, due to the energy transition to a reduction in the levels of exploration, development and production spend for hydrocarbons, therefore affecting demand for our products and services.

Examples of mitigating activities

The following measures have been put in place to mitigate geopolitical risks and risks related to the volatility of the global economy:

- we provide appropriate resources and expertise to monitor geopolitical changes and legislative and regulatory requirements;
- we deliver general awareness and targeted training to exposed stakeholders to ensure understanding of the risks and risk mitigation responsibilities;
- we implement and maintain policies and procedures formalizing risk control processes and responsibilities; periodically audited to ensure applicability, compliance, efficiency and to identify opportunities for improvement;
- we monitor and analyze questions, concerns and potential incidents to determine remedial actions and opportunities for improvement;
- we apply general third party and transaction due diligence screening processes at all steps of the project lifecycle; and
- we apply specific due diligence processes related to exposed/high risk transactions and third parties.

2.2.1.3 Strategic Partner Risks

We enter into strategic partnerships and joint ventures from time to time in the course of our operations. We are subject to risks related to these partnerships, including failures by our strategic partners to perform their obligations in accordance with our expectations or in breach of the terms of the agreements that govern our relationship.

Our overseas operations are dependent on our good relationship and continuous cooperation with our local partners and governments. For instance, our subsidiary Sercel operates in China through Heibei Sercel-Junfeng Geophysical Prospecting Equipment Co. Ltd. (SJF), a joint venture in which Sercel holds 51% of the share capital, and BGP Ltd. (BGP), a subsidiary of the Chinese state-owned enterprise China National Petroleum Corporation (CNPC), holds nearly 30% of the share capital. The remainder of the share capital is held by a shareholding vehicle, for employees of SJF. BGP is a major player in seismic acquisition and geoscience processing in China and related overseas markets and remains the primary customer of SJF. As a result of these arrangements, Sercel depends on BGP's continuous cooperation and may be significantly affected if BGP decided to stop cooperating with Sercel or to develop more actively its own equipment manufacturing factory.

On January 8, 2020, the Group completed the sale of its interest in Global Seismic Shipping AS (GSS), an entity indirectly owning five seismic vessels, which subsequently acquired all of CGG's streamers, to Shearwater. The Group contracted with Shearwater for guaranteed access to their global fleet (the "Capacity Agreement"). However, if Shearwater is unable to deliver access to its fleet in accordance with the terms of our contractual arrangements or if they provide lower quality data than expected or if their acquisition techniques are not sufficiently advanced, the value of our Earth-Data library could deteriorate in the future.

In addition, in connection with our exit from the Marine Data Acquisition business, Shearwater CharterCo AS entered into five-year bareboat charter agreements (guaranteed by Shearwater) with GSS and its subsidiaries for five high-end vessels equipped with streamers. CGG has agreed to substitute itself for Shearwater CharterCo AS as charterer of the five high-end seismic vessels (equipped with streamers) in the event of a payment default by Shearwater CharterCo AS under its charter party agreement with the GSS subsidiaries (the "Step-In Agreements"). Because CGG is required to pay a portion of the amounts due under the Capacity Agreement directly to the GSS subsidiaries to cover Shearwater CharterCo's obligations under its bareboat charter agreements, a payment default can be triggered only by a CGG payment default or a Shearwater insolvency.

The Step-In Agreements will not impact the statement of financial position unless a trigger event, as described above occurs. In such circumstance, the obligations under the Capacity Agreement would be terminated and replaced by the obligations under the Step-In Agreements (for a lower amount than the Capacity Agreement).

For more details please refer to section 1.2.1 of this Document and to note 17 of the 2022 consolidated financial statements..

Examples of mitigating activities

The following measures have been put in place to mitigate the impact of risks related to our strategic partnerships:

- we include contractual provisions in the agreements governing our joint ventures and strategic partnerships to, among other things, address non-compliance by our counterparties with these agreements and establish specific standards for services or products to be provided by them; and
- we try to maintain good communications with joint venture parties to ensure early notice of any issues.

2.2.1.4 Energy Transition and Market Shift Risks

Today our core business strongly depends on the level of activity in the oil and gas industry, and demand for our core products and services highly correlates with the activities that support the exploration, development, and production of hydrocarbons. Society in general along with numerous organizations such as governments, non-governmental organizations, insurers, financial institutions and various other stakeholders are increasingly encouraging directly or indirectly the reduced consumption of carbon-based energy products and the establishment of a low-carbon renewable energy mix, to combat climate change and support a more sustainable planet. Increasing global interest in energy transition is intensifying behaviors that disadvantage hydrocarbons and advantage more sustainable energies, which is creating a demand shift away from oil and gas. This demand shift towards a more renewable energy source could significantly impact our clients' hydrocarbon focused activities, and therefore could significantly reduce the demand for our current core products and services.

In particular, a rapid global shift in behaviors and energy mix away from hydrocarbons, before CGG has the time to transition its business away from its core focus on hydrocarbons related activites, could significantly impair the business by reducing demand for our products and services.

The pace and magnitude of this market shift away from hydrocarbons towards more renewable energy sources remains unclear and difficult to predict, and its impact on our business is subject to several factors including, but not limited to the following:

- global supply and demand and the resulting prices for hydrocarbons and alternative fuels;
- global and local economic and geopolitical conditions;
- rising inflation, and its impacts on oil and gas and more sustainable energies;
- laws, policies and regulations, or any public opinions that advantage or disadvantage the access to, or the use of, one energy source over another. These could include subsidies or taxes that advantage or penalize one energy source over another, regulations regarding levels of atmospheric emissions or types of fuels, policies that open or restrict access to geographic locations required for energy development or any public opinions or legal actions that advantage or penalize one energy source over another;

- any other actions by members of governmental or non-governmental organizations, shareholders, investors or the general public that advantage or disadvantage one source of energy or industry over another;
- the development of technologies that significantly affect the costs and risks associated with any energy source (for example, battery efficiency or emission reduction technologies);
- our ability to predict the global pace and magnitude of energy demand shift and modify our business effectively to address these changes, and
- the strategies selected by oil and gas companies to determine their overall investment mix, and the percentage and magnitude of their investment in hydrocarbons.

Any of the risks outlined in this section, and others we may not yet perceive associated with Climate Change could adversely affect our financial condition, results of operations, or cash flows.

Examples of mitigating activities

The following measures have been put in place with the aim to mitigate market shift risks:

- performance of risk analysis on a regular basis to assess potential business impacts;
- regularly monitoring changes to regulations and governmental and non-governmental policies related to the energy transition market shift and updating our strategies, plans and operations to adapt;
- implementation of an energy transition strategy and roadmap to ensure awareness and to anticipate and respond to the pace and magnitude of the shifts in demand for our products and services; and
- expansion of our products and services offerings into markets beyond oil & gas, such as those associated with energy transition, as an example: minerals & mining, carbon capture utilization and storage (CCUS), environmental sciences and geothermal, as well as markets beyond oil & gas and energy transition such as digital sciences and infrastructure monitoring.

We also recognize and acknowledge that there are risks associated with our mitigation plans for energy transition and market shift, as CGG could miss taking the right steps, take the wrong steps, or take the right steps at the wrong time to effectively mitigate the impact of the risks.

For more details, please refer to Chapter 3, sections 3.2 and 3.9 of this Document.

2.2.1.5 Sustainable Development Risks

Today our core business strongly depends on the global supply and demand for oil and gas, an energy source that historically created and still creates a high level of carbon emissions. Society in general, along with numerous organizations such as governments, regulatory bodies, non-governmental organizations, insurers, financial institutions and various other stakeholders are increasingly encouraging directly or indirectly the reduced consumption of carbon-based energy products and the establishment of a low-carbon renewable energy mix, to combat climate change and support a more sustainable planet. The strategic investment choices and social and political decisions due to the acceleration of climate change could impact on its activities. These changes include, but are not limited to, laws, policies, actions, or perceptions that could significantly impact our activities, and therefore impair our business.

In particular laws, policies, legal or public actions, or general perceptions related to climate change that restrict or disadvantage our ability to operate, increase our costs, decrease our efficiency or reduce our ability to access the resources required to effectively run operations, could all impair our business. Laws and regulations may directly result in more onerous obligations or restrictions on our operations, including the costs, locations and facilities where we acquire and process the data to develop our products and manufacture our equipment. The European Union has already established various regulations around sustainability, as have many other countries, including the United States. Substantial update of regulations, or new onerous regulations being put in place that significantly limit or restrict our ability to effectively operate or increase our direct or indirect costs could significantly impair our business.

The nature, magnitude, location and timing of any changes in policies, legal or public actions and perceptions are difficult to predict, and their impact on our business activities is subject to several factors including, but not limited to the following:

- global and local economic and geopolitical conditions;
- inflation, and its impacts on oil and gas and more sustainable energy companies;
- laws, policies and regulations or public opinions focused on climate change that limit our ability to operate, increase our costs, decrease our efficiency, or reduce our ability to access the resources required to run the business. These could include subsidies or taxes that advantage or penalize our company, regulations regarding levels of atmospheric emissions or types of fuels that can be used, policies that open or restrict access to geographic locations required for energy exploration, development and production, or any public opinions or legal actions that advantage or penalize one company over another;

- any other changes or actions based on climate change by members of governmental or non-governmental organizations, shareholders, investors or the general public that disadvantage our business;
- any change in our banks' or investors' perception of climate change that could cause them to adjust meaningfully their opinions of our Company and significantly change their exposure to our debt and equity;
- any change in our potential or active employees' opinions of CGG that makes it more difficult for us to attract and maintain qualified talent;
- the strategies selected by policy makers to mitigate the risks of climate change; and
- our ability to predict these changes and modify our business effectively to address them.

Any of the risks outlined in this section and others we may not yet perceive associated with Sustainable Development could adversely affect our financial condition, results of operations, or cash flows.

Examples of mitigating activities

CGG is committed to facilitating the transition towards a lower carbon world through lowering its own carbon footprint across its value chain, transitioning its business to lower carbon emission activities, and supporting our clients in meeting their environmental sustainability objectives through our advanced technology solutions. Our carbon reduction targets were made public in 2020, and our energy transition strategy and targets were made public in 2022. We continuously monitor and report on our progress. *For more details on our efforts and initiatives, please refer to Chapter 3, sections 3.6 and 3.9 of this Document.*

The majority of our direct emissions come from the electricity requirements to power our data centers. We continuously look for ways to reduce these emissions by focusing on increasing the share of low carbon content energy in our mix and by investing in technologies that improve our global energy efficiency. We participate proactively in environmental sustainability, both within our own business and in support of our clients, which is aligned with our long-term culture of responsibility and accountability in the way we conduct our operations.

The following measures have been put in place with the aim to mitigate Sustainable Development risks:

- performance of risk analysis and modelling on a regular basis to assess potential business impacts under different scenarios;
- regularly monitoring changes to regulations and governmental and non-governmental policies related to energy transition and sustainability; and updating our strategies, plans and operations to adapt to them;
- we invest and will continue to invest, in new technologies that reduce our direct carbon emissions, and that allow us to offer our clients products and services that advance environmentally conscious activities;
- we set goals, measure our performance and continuously strive to improve our overall sustainability. We publish results so that all stakeholders can review our progress;
- we participate in the carbon disclosure project (CDP) and integrate our score with prominent ESG ratings agencies;
- we initiated an ESG performance monitoring project of our main suppliers in 2021 and progressively deployed it in 2022;
- implementation of an energy transition strategy and roadmap focused on growing our business away from hydrocarbons and toward the more environmentally sustainable areas of minerals & mining, carbon capture utilization and storage (CCUS), environmental sciences, geothermal, digital sciences, and structural health monitoring; and
- we updated our company purpose, brand and employer brand to best align with our environmental sustainability goals and expectations, and continuously update our culture to optimize our ability to attract and retain the talents required to support our business.

We also recognize and acknowledge that there are risks associated with our mitigation plans for Sustainable Development as CGG could miss taking the right steps, take the wrong steps or take the right steps at the wrong time to effectively mitigate the impact of the risks.

For more details on our efforts and initiatives, please refer to Chapter 3, sections 3.6 and 3.9 of this Document.

Climate Change Risks

Today our business operates for the most part in major urban and industrial centers and to a lesser extent offshore for our sub-contracted seismic data acquisition activity. Our worldwide operations are carried out through our manufacturing facilities, High Performance Computing (HPC) data centers, in the field (mainly through 3rd party contractors), in our laboratories and in our offices.

If not controlled, climate change is expected to directly affect weather patterns, biodiversity, agriculture, ecosystems, the environment, flora and fauna, and civilization.Substantial increased impact of these climate change considerations, or others, could potentially impact our activities, and therefore impair our business.

In particular increased frequency and magnitude of severe storms, rising temperatures and ocean levels, and general social disruptions could negatively impact our ability to effectively operate or increase our direct or indirect costs, and therefore could impair our business.

The actual direct effects of climate change along with their magnitude, location and timing are difficult to predict, and the impact on our business activities is subject to several factors including, but not limited to the following:

- the accuracy of global understandings of climate change;
- the strategies developed and adopted globally to combat climate change;
- the strategies developed and adopted globally to reduce the impacts of climate change if not stopped;
- the global effectiveness of these strategies and their implementations;

- our ability to accurately predict these impacts along with their location and timing;
- the actual magnitude of any direct impact of climate change on our business, such as any challenges caused by severe weather's impact on our operations, rising costs of operations, such as increasing temperatures driving up costs of cooling for our data centers, or any other issues caused by the impact of climate change on natural systems; and
- our ability to effectively modify our business to address these impacts.

Any of the risks outlined in this section, and others we may not yet perceive associated with Climate Change could adversely affect our financial condition, results of operations, or cash flows.

In a 2°C scenario, it is expected that the physical risk on CGG sedentary facilities is mainly limited to our presence in Houston, Texas with regards to severe weather and in Rotterdam with regards to rising sea levels.

Examples of mitigating activities

CGG is committed to reducing the impacts of climate change both within our own business and in support of our clients, which is aligned with our long-term culture of responsibility and accountability in the way we conduct our operations.

The following measures have been put in place with the aim to mitigate the impact of Climate Change risks:

- performance of risk analysis on a regular basis to assess potential business impacts;
- regularly monitoring and updating our strategies, plans and operations to adapt to the impact of climate change risks. As an example, we consider the impact of potential changes in weather patterns, based on climate change, when considering where, and how to build our next generation data centers;
- we have a long history of investing, and will continue to invest in technologies that can operate in the harshest conditions;
- we consider the direct impact of climate change in our strategies and roadmaps for growing our new, beyond the core businesses.As an example, our sensing and monitoring solutions could provide important information about the structural health of critical infrastructures and earthworks under the stress of climate change; and
- we continuously develop and commercialize leading sustainable technology, such as Quiet Sea that detects the presence of marine life and have had 3rd party observers monitor and document marine life during offshore operations. This strengthens the environmental sustainability of the industry's operations and the information gathered can provide key insights to document and understand any changes in marine life biodiversity, range, and behavior.

We also recognize and acknowledge that there are risks associated with our mitigation plans for the impact of Climate Change risks, as CGG could miss taking the right steps, take the wrong steps or take the right steps at the wrong time to effectively mitigate the impact of the risks.

For more details on our efforts and initiatives, please refer to Chapter 3, sections 3.6 and 3.9 of this Document.

2.2.2 Risks related to our Operations

2.2.2.1 Loss of Key Asset and Value Impairment Risks

We are subject to the risk that one of our physical sites is rendered totally or partially unavailable by a major event. Our Geoscience seismic data processing and imaging business relies on physical infrastructure hosted primarily at three main data centers. Problems, including those rising to the level of loss events, at one or more of our data centers, whether or not within our control, could result in service interruptions or significant infrastructure or equipment damage and a large loss of service capability and revenue. In our Sensing and Monitoring business, Sercel manufactures a wide range of geophysical equipment at various manufacturing facilities. Damage to or destruction of any one of our factories could result in significant loss of production capacity as well as in loss of access to certain of our information technology databases.

A loss event as a result of fire, natural hazard, extreme weather event or explosion, or due to critical equipment failure, third party event or cyber-incident could impair our ability to provide services and deliver products and could harm our reputation. Any such event occurring at one of our sites or in its vicinity could also have other consequences and may result in personal and/or property damage or business interruption, which could impact our results of operations and financial results.

Examples of mitigating activities

The following measures have been put in place to mitigate the risk of loss of physical assets:

- HSE management with regular site management visits and risk assessments;
- implementation of a crisis management plan at the Group level and emergency response plans specific to each of our sites to address the risks linked to the activities of the site and to the site's location;
- implementation of business continuity plans for each site;
- risk of loss at our data centers is also mitigated by use of dual independent network supplies at certain of our sites, use of power generators and uninterrupted power supply (UPS) units to protect critical systems, data protection mechanisms (including regular back-up of critical information) and fire protection; and

- risk of loss at our factories is also mitigated by regular insurance audits (which focus on, among other aspects, measures in place to prevent fire and explosion), regular risk assessments and key product business impact analyses that enable us to determine key products for which further mitigation measures such as safety stocks, duplicate production lines and stock splits are necessary.

We may need to impair goodwill or the carrying value of other assets and liabilities on our balance sheet

We have been involved in business combinations leading to the recognition of goodwill. Goodwill carrying value represents 38% of the consolidated asset as of December 31, 2022, or US$1,089 million, and any impairment loss could have material adverse effect on our results of operations.

As mentioned in notes 1 and 11 to our 2022 Consolidated Financial Statements, we perform, at least once a year, the impairment test of the goodwill allocated to the cash generating units (CGUs) to assess whether an impairment loss must be recognized. To do so, we determine the value in use of our CGUs by estimating their future cash flows, discounted to the present value at the updated sector weighted average cost of capital (WACC). In addition to this year-end test, we also perform impairment tests whenever there is any indication of potential loss of value. Factors that could trigger such ad hoc reviews include, among others, the following:

- significant underperformance relative to expected operating results;
- significant changes in the strategy for our overall business;
- significant negative industry or economic trends;
- material change in the trajectories of recovery of E&P spending or growth of Beyond The Core new businesses;
- specific events affecting the value of the assets, such as changes in government policies affecting lease rounds; and
- introduction of new Businesses.

We recognize an impairment loss in the income statement whenever the carrying amount exceeds the recoverable value. In 2022, the Group did not recognize any goodwill impairment loss. As a reminder, in 2021, we revised downwards the future cash flows of our Earth Data CGU compared to our forecasts at December 31, 2020, based on lower than expected sales both in 2020 and in 2021. We hence recorded US$102 million impairment loss in 2021. Given the volatility of the markets where we operate, the uncertainty in the E&P spending and Beyond the Core new businesses growth trajectories, we may need to write down goodwill in potentially material amounts in the future.

We may also need to impair or write-down the value of other assets, especially our Earth Data library, depending on a variety of factors, many of which are beyond our control, including the level of spending from our customers. which depends in particular on the future hydrocarbons' prices and their volatility. Technological or regulatory changes or other developments could also adversely impact the value of our assets. For example, regulatory changes such as limitations on drilling for hydrocarbons could affect the ability of our customers to develop exploration and development programs, either generally or in a specific location where we have acquired data, and technological changes could make existing data obsolete. In this context, we run regular reviews.

The carrying value of the Earth Data library represents 15% of consolidated asset as of December 31, 2022, or US$419 million, and any impairment loss could have material negative effect on our results of operations.

As mentioned in notes 1 and 10 to our 2022 Consolidated Financial Statements, we perform, at least once a year, an impairment test for all Earth Data surveys, based upon updated sales forecasts, over and above the systematic tests, which are carried out on the delivery date of each survey. In addition to these regular tests, we also conduct impairment tests whenever there is any indication of potential loss of value. In 2022, we recognized an impairment loss of US$17.3 million for our Earth Data library, as a consequence of the downward revision of sales forecasts for certain surveys in Brazil and United Kingdown and pursuant the agreement between government and anti-oil factions to seriously delay licensing rounds until after 2025 in the area of a specific survey in Norway. As a reminder, in 2021, we recorded US$21.2 million of impairment loss, due to the downward revision of expected sales of one survey pursuant to the development of political context in the UK, which was unfavorable for exploration.

See notes 1, 10 and 11 to the Group's 2022 Consolidated Financial Statements, for more details.

2.2.2.2 Risks of Supplier Failure, Supply Chain Interruption and Shortage of Components

The high technology content of our products and services renders us dependent on the supply of electronic components. These components could be unavailable to us temporarily or for extended periods of time, as a consequence of the worldwide generalized shortage post Covid-19 pandemic, or because of geopolitical conflicts, such as the Russia-Ukraine war, leading to some components being under international sanctions, and/or when the demand is high, and their production is fully captured by larger users. This would mainly affect single source suppliers where there is a lack of or limited number of alternatives.

In order to reduce the impact of a temporary shortage (below 6 months), as per our Business Continuity Management Plan, the single source components used in our main (strategic) products are identified and properly secured depending on their risk assessment.

In case of long-term shortage, as materialized with the outbreak of Covid-19, or currently because of the international sanctions against Russia, immediate mitigation actions were taken at the first signs of the shortage.

Thus, since February 2021, in connection with the increase in supply times, such components have been ordered "in anticipation", particularly some of them. Thanks to the actions taken, and despite a worldwide shortage situation, our sales for 2021 and 2022 have been assured.

Except for a few very specific components, the production plan for H1 2023 has been covered, ensuring deliveries of identified products over the period.

Although, we are not completely out of the global shortage yet, the situation seems to be improving for raw materials and "common/simple" electronic components. We hope to be able to reduce our manufacturing cycles in 2023 and return to a normal situation by 2024.

We are also subject to the risk of default by such suppliers (such as bankruptcy, natural or industrial disasters, lack of compliance, etc.), our French manufacturing sites are outsourcing part of their production to local third-party companies. According to our Business Continuity Management Plan, for all critical electronics sub-contractors, and most of the mechanical ones, we have an alternative supplier for the strategic products, which reduce our risk.

Examples of mitigating activities

The following measures have been put in place to mitigate the risk of supplier failure, supply chain interruption and component shortage:

- implementation of Business Continuity Management Plans, periodically reviewed, tested and updated;
- distribution of outsourced operations among several subcontractors, each having a small proportion of the aggregate outsourced activity, and identification of alternative suppliers for the strategic products;
- periodical analysis of single source components (including analysis of other risk factors related to relevant suppliers) with consequent adjustments to the safety stocks and/or search for alternative vendors;
- “key product business impact” analysis to determine the products for which further mitigation measures, to guarantee adequate supply, are necessary, such as safety stocks of key components, duplicate production lines (i.e. production at multiple Sercel sites or subcontracted sites) and split inventory (products stored at multiple sites); and
- anticipation of components’ obsolescence, using a worldwide platform, which alerts us well in advance to take mitigating decisions (last buy, alternative component, etc.).

For more details, please refer to Chapter 3, section 3.4.2 of this Document.

2.2.2.3 Risks of Intellectual Property Mismanagement/Failure to Protect Intellectual Property

Technology changes rapidly in energy and natural resources industry and also in other domains that we have diversified into or foresee entering, and our success depends to a significant extent upon our ability to develop and produce new and enhanced products and services on a cost-effective and timely basis in accordance with industry demands. In the markets where we operate, technological innovation is frequent, and industry and regulatory standards are constantly evolving; this also applies to the other sectors explored by us. Both factors could contribute to the obsolescence of our existing technology, products and services. In our industry, new and innovative technologies are rarely available for us to purchase from third parties, so we must develop them internally. If we are not able to develop and produce new and enhanced products and services on a cost-effective and timely basis to replace technologies that have become obsolete, our business, financial condition and results of operations could suffer.

We invest heavily in R&D and rely on innovation to offer new and more efficient products and services to our customers. Protection of our intellectual property rights (IP), especially our innovative algorithms and data processing, is essential for our business. We are exposed to risks associated with the misappropriation or infringement of that technology and rely on a combination of patents, trademarks and trade secret laws to protect our proprietary technologies. Our ability to maintain or increase prices for our products and services depends in part on our ability to differentiate the value delivered by our products and services from those delivered by our competitors. Our proprietary technologies play an important role in this differentiation.

We have a patent portfolio, which as a whole is material to our operations and business. We actively protect and promote our patents, but the laws of certain countries do not protect proprietary rights to the same extent as, for example, the laws of France or the United States, which may limit our ability to pursue third parties that misappropriate our proprietary technologies. Furthermore, the protection of our algorithms through patents requires us to disclose the underlying methodology. Considering that keeping such algorithms and codes secret from our competitors and other third parties is essential in giving us a competitive edge, we often seek to maintain these as trade secrets rather than patents, which may offer less protection.

Although we take steps to strictly maintain the confidentiality of our proprietary and trade secret information, unauthorized use, misappropriation or disclosure may nevertheless occur. Our actions to protect our proprietary rights may not be adequate to deter the misappropriation or independent third-party development of our technology. The use of our intellectual property and other proprietary information and know-how by an unauthorized third party could reduce or eliminate competitive advantage that has been developed and consequently cause us to lose market share or otherwise adversely affect our business, operating results or financial condition.

We also actively monitor our operations to ensure that our activities do not infringe third parties’ intellectual property rights. However, we cannot assure that our technology and services will not be challenged by third parties as infringing on their intellectual property rights, and we may be subject to lawsuits claiming that certain of our products, services, and technologies infringe the intellectual property rights of others. Although we do not have any current litigation involving our intellectual property rights or the intellectual rights of others, it could have a material impact on the Group, if such litigation may take place in the future.

Examples of mitigating activities

The following measures have been put in place to mitigate IP risks:

- we actively monitor our technological developments to guard against inadvertent use of a third-party/competitors' IP rights;
- we maintain an intellectual property portfolio consisting of a combination of patents, trademarks and trade secrets to establish and protect our proprietary technologies;
- we have a dedicated IP Department that closely collaborates with our innovation, research and development teams, and rely on both internal legal and specialized outside counsel to assist with IP related matters;
- we have a global policy addressing IP protection, we regularly conduct assessments and provide training to relevant employees; and
- we enter into confidentiality and license agreements with our employees, customers, potential customers and partners to limit access to and distribution of our technologies. Our customer data license and acquisition agreements also identify our proprietary, confidential information and require that such proprietary information be kept confidential. In addition, our collaboration agreements provide requirements for the confidentiality and ownership of commonly developed proprietary technologies and information.

For more details, please refer to Chapter 3, sections 3.5.2 and 3.9 of this Document.

2.2.3 Risks related to Information Technology and Cyber Security

2.2.3.1 Risks of Critical Business Information Technology Failure and Cyber Security Risks

The technologies we apply in our industry are increasingly using emerging tools, techniques and applications to improve the quality and effectiveness of their operations. Machine learning, high-performance computing (HPC) and cloud computing are now part of the standard solutions that the industry is implementing. Although these new technologies and solutions bring significant value to the industry, they also increase its exposure to cyber-related incidents and to Information Technology (IT) systems failure risks. We depend on these digital technologies and related infrastructure (including the servers that host our Earth Data data libraries) to perform many of our services, deliver our products and to process and record financial and operational data.

In the context of intensification of digitalization, the frequency and sophistication of cyber incidents, including deliberate attacks, and other data breaches are increasing and may result in an increase in our exposure to risks such as:

- hacking of physical facilities (plants, security systems, etc.);
- failure of data protection through unauthorized release, gathering, monitoring, misuse, loss, or destruction of proprietary, personal and other data/information;
- cyber fraud & ransomware attacks; and
- any other disruption of business operations.

Moreover, despite any precautions we may take, damage from fire, floods, hurricanes, power loss, telecommunications failures and similar events at our computer facilities could result in interruptions in the flow of data between our systems and from our servers to our customers. In addition, our business lines are increasingly managed through IT solutions. The majority of the operational functions related to our businesses are managed through enterprise resource planning (ERP) systems and centralized global treasury management systems. If we were to lose access to these systems, we may experience issues with processes such as customer invoicing, vendor payments, accounting and financial reporting (including delayed monthly closings), production planning (for instance, in connection with our Sensing and Monitoring business), compliance and human resources issues. As these systems are integral with our ability to operate smoothly, we apply a risk-based approach to protecting them from cyber and other threats.

Disruptions or failures in the physical infrastructure or operating systems that support our businesses and clients, or cyberattacks or security breaches of our networks or systems, could result in the loss of clients and business opportunities, legal liabilities, regulatory fines, penalties or intervention, reputational damage, reimbursement or other compensation and additional compliance costs, any of which could materially adversely affect our business, financial condition and operating results.

Examples of mitigating activities

The following measures have been put in place to mitigate risks related to IT systems failures and cyber security risks:

- we have a Group policy signed by the CEO, and a dedicated information security team at the Group level supported by a network of specialists at the regional and business line level;
- we have recruited experts in this field;
- we have implemented a number of processes aimed at cyber security, including a dedicated information security management system aligned with internationally recognized standards (NIST), an information security incident response plan, training and drills, annual penetration testing and cyber security exposure assessments conducted by external partners;
- we conduct crisis management exercises with external consultants;
- we have a mandatory information security e-learning for all employees, in addition to more job-specific training and drills to test our processes. The general awareness program is reinforced by our phishing simulation program aimed to increase the skills and awareness of our employees in regard to malicious emails;
- we also have partnerships with a well-recognized security service provider and with industry groups for sharing information and intelligence;
- we utilize the latest technologies such as network traffic monitoring and management, firewalls, network access controls, vulnerability scanning, patch management tools, VPN access, encryption, end-point protection, cloud access security controls and secured internet gateways, among others;
- we have data recovery plans in case of critical outages, which are tested regularly;
- we have maintenance of back-ups for critical business processes;
- we have data managed by hosting partners on two separate sites, providing data redundancy;

- we deploy tools to improve our visibility and alignment with internal and external data compliance obligations and to leverage the data classification processes;
- we monitor through our Information Security systems potential/actual incidents; and
- we have implemented processes, including involvement of key stakeholders in the decision-making process regarding contractual engagements with clients, suppliers and subcontractors related to data privacy, maintaining a data privacy working group with members from our legal and information security functions, maintaining an IT Governance Committee, regularly reviewing our compliance with internal and external obligations and assessing cyber exposure to identify potential internal/sensitive CGG data available in the public domain.

Based on the cyber security incident we experienced in the first quarter of 2021 we have added further mitigating controls to reduce our attack surface and limit the impact of any unauthorized access to our data:

- restricting the file sharing tools in use and requiring strict approvals to use any other method;
- automatic clean-up of stale files stored on data transfer servers;
- enforcing the use of file retention periods;
- blocking access to file sharing web sites; and
- review of all third-party applications in use to ensure security updates are applied and the impact of potential breaches is limited.

For more details, please refer to Chapter 3, sections 3.5.3 and 3.9 of this Document.

Specific Cyber considerations due to the Russia-Ukraine war:

Our risk analysis for the Russia/Ukraine conflict includes our public facing systems in Russia, network connectivity from our offices in Russia back to the corporate network, network access to the offices in Russia from elsewhere in the company, users with elevated privileges, insider threat, infrastructure devices and systems (firewalls, routers, AD, DNS, …), network connections with our clients. In this situation, we do not anticipate CGG being a direct target of a cyber-attack, but we could become a conduit for an attack on our clients, especially those who have ceased operations in Russia as a result of the conflict. Additionally, as ransomware is the modus operandi of Russian based malicious actors we believe the risk of becoming a victim has marginally increased, though due to our security tools and the additional steps and vigilance taken by our suppliers we still believe the risk to be low.

Based on this risk analysis we have implemented additional controls to manage these new risks. These controls include:

- the creation of a company-wide crisis team to make risk based decisions on how to manage the current situation. Members include risk management, information security, trade compliance, human resources, IT, finance, legal, communications and business leaders;
- increased monitoring of our networks both within Russia and between Russia and the rest of the company network through extension of the scope and coverage of our contract with our Managed Security Service Provider;
- all network communications between our offices in Russia and the remainder of the network have been blocked except those needed for our very small self-sustained business in Russia; and
- all user accounts have been validated for multi-factor authentication (MFA) and administrative privileges have been further limited to reduce the risk and impact of any account compromise.

2.2.4 Risks related to our People

2.2.4.1 Risks of Difficulties to Attract and Develop Adequate Expertise – Loss of Key People/Key Expertise Risks

We depend on key people and key expertise such as highly skilled scientists, engineers and technicians to develop, launch and service our products and solutions. If we are unable to hire, engage and retain these key people for any reason, we risk the loss of know-how and technical expertise, which could, in certain circumstances, lead to delayed product roll outs and disruptions to existing customer relationships. Therefore, difficulties to attract and retain technically skilled and qualified team members could have a material adverse effect on our reputation, business, prospects, operating results and financial position.

A limited supply of such skilled personnel is available, and demand from other companies and industries may limit our ability to fill our human capital needs in the short term or at all. In addition, given that we operate in multiple countries throughout the world, we face competition for highly skilled and qualified employees in various markets and are required to adapt our benefits packages to meet the expectations in local markets.

In alignment with our focus on high-end technological activities, we have refocused our recruitment strategies to attract skilled applicants for careers in engineering, geophysics, IT, data science, digital and environmental sciences. The Company's profile might be considered less attractive, with CGG still predominantly perceived as an Oil & Gas industry company despite its technological, data and digital positioning. These factors contribute to making it more difficult to hire and/or retain enough qualified employees. Similarly, cost and headcount reduction actions and other similar measures taken in the past may have had an impact on our reputation, which may increase recruitment difficulties. In addition, the roll out of our new strategy and our differentiation will only be successful if we are able to attract the most qualified talents to meet the needs of our clients, which may be difficult considering the war for talent in those specific technological employment markets.

Finally, inflation rates and salary increase trends in 2022 in the countries where we operate are generating a risk of having an increase in our compensation cost base as well as difficulties in retaining and attracting employees if we were unable to cope with those compensation market trends and expectations.

Examples of mitigating activities

The following measures have been put in place to drive recruitment and retention:

- identification of key employees during the annual people review process; talent management and development programs to drive career progression and individual engagement;
- succession planning initiatives, including attempts to duplicate certain technical expertise and to avoid customer relationships relying only on one individual;
- annual review of compensation, long-term compensation plans and performance reward frameworks;
- renewal of our employer branding, updating the Group description, purpose and values, and perception to improve our applicants' knowledge of our activities and career opportunities and ultimately improve our attractiveness, as CGG shifts more and more towards technology and digital oriented services activities;
- increased use of digital recruitment platforms, processes and software;
- improving candidate sourcing through various channels including social media, university relationships, worldwide recruitment and integration programs for new graduates;
- adjusting work environments and implementing flexible working arrangements that are adapted to the region and business line; and
- working with top industry benchmark providers to ensure compensation and benefits are competitive.

For more details, please refer to Chapter 3, sections 3.3.1 and 3.9 of this Document.

2.2.5 Risks related to Economy and Finance

2.2.5.1 Cash Generation/Working Capital Variation Risks

We rely primarily on our ability to generate cash from operations and our access to external financing to fund our working capital needs. Our cash generation depends on, among other factors, market conditions, the credit quality of customers and other contractual counterparties, the countries of cash collection and any transfer restrictions that may be in place, as well as the strength of our bank partnerships.

We are subject to certain risks due to the nature and concentration of our customer base. In 2022, the Group had no customer representing more than 9% of its consolidated turnover, its two largest customers representing 8.8% and 7.6% of turnover respectively compared to 6.1% and 6.0% in 2021. The ranking of the two largest customers may vary from year to year, however the Group's most important customers are recurrent customers with whom the Group has historical relationships In order to secure the continuity of its historical customers, the Group strives to maintain a high-quality standard and a technological advance over its competitors. In that context, we believe that the risk and impact associated with the loss of one of our largest clients is moderate. Some of our customers are national oil companies, which can result in longer payment terms for us and expose us to political risk. However, a growing part of our clients are private companies with less predictable behavior, which can result in a higher uncertainty in payment terms. The Group seeks to reduce commercial risk by monitoring our customer credit profiles. In addition, in our international operations we work with a wide network of approximately 49 banks and are therefore subject to a limited counterparty risk. As of December 31, 2022, 11% of our cash balances were located in banks rated below A3 by Moody's or A- by Standard & Poor's.

We may not be able to generate sufficient cash from operations to fund our activities or may find that cash generated in certain countries is blocked due to tax, compliance or other reasons. Cash and Cash equivalents included trapped cash amounting to US$47 million as of December 31, 2022 up from US$38 million as of December 31, 2021, mainly driven by a temporary working capital need in our SMO activity in China.

Our Treasury Management System could be hacked, blocking access to our bank accounts, or our bank accounts could be attacked due to the failure of our banks' IT security systems or fraud.

We may not be able to satisfy our working capital needs and meet our obligations (such as payments to suppliers, capital expenditures and payroll, as well as payments of interest and principal on our outstanding debt obligations) if we are unable to generate sufficient cash or if our access to cash is blocked for other reasons or if we are unable to gain access to financing on acceptable terms.

In the context of inflation, failure to pass all the Group's cost increases through the sale prices for our products and services, or a delay in this implementation, would have a negative impact on the Group's margin and liquidity t is difficult for us to predict with certainty our working capital needs. This difficulty is due primarily to working capital requirements related to Earth Data projects, the build-up of inventory in our SMO division in anticipation of large contracts and the development and introduction of new lines of geophysical equipment products. For example, in certain circumstances, we may have to extend the length of payment terms we grant to customers or may increase our inventories substantially. We may therefore be subject to significant and rapid increases in our working capital needs. In addition, we will probably need investments in diversification of our businesses that we may have difficulty financing on satisfactory terms, or at all, due to the limitations in our debt agreements or market conditions.

Certain of our customers and suppliers, and certain tax, social security or customs authorities may request that we or certain of our subsidiaries or affiliates provide performance or bid bonds or guarantees issued by financial institutions, including in the form of standby letters of credit, in order to guarantee our or their legal or contractual obligations. As of December 31, 2022, guarantees granted by financial institutions in favor of our customers amounted to approximately US$48 million. As of the same date, the amount of the cash collateral (or its equivalent) we had provided for these guarantees amounted to approximately US$16 million (reported in our financial statements as fixed assets and financial investments) and the bank guarantees or guarantees granted by us amounted to approximately US$166 million (excluding the guarantees granted to financial institutions, and the guarantees related to capital leases already presented on balance sheet as per IFRS 16.

As a result of our debt refinancing in 2021, our debt structure has been normalized and became more flexible with covenants and restrictions in line with market practice for companies of our size, business and credit rating. The maturity of our Senior Secured Bonds has been extended to 2027, with fixed rates, and we have an undrawn $100 million revolving credit facility, maturing in 2025. We have no maintenance covenants attached to our debt and incurrence covenant related to our revolving credit facility is only triggered if such facility is more than 40% drawn. *See note 2 to the Group's 2022 Consolidated Financial Statements, available in this Document.*

However, we remain exposed to financial risks related to our substantial outstanding debt, associated with interest rates, relatively high to our size, and which we may not be able to repay or refinance on favorable terms. As of December 31, 2022, our net financial debt (defined as gross financial debt less cash and cash equivalents) was US$858.5 million before giving effect to IFRS 16 and US$951.2 million after giving effect to IFRS 16. Our gross financial debt, as of December 31, 2022, was US$1,156.5 million (including US$19.7 millions of accrued interest and bank overdrafts) before giving effect to IFRS 16 and US$1,249.2 million after giving effect to IFRS 16. As of December 31, 2022, our available financial resources amounted to US$252 million (including cash, cash equivalents and marketable securities, excluding trapped cash and excluding undrawn revolving credit facility). *See note 28 to the Group's 2022 Consolidated Financial Statements for additional information.*

Our ability to repay or refinance our indebtedness and fund our working capital needs and planned capital expenditures depends, among other things, on our future operating results, which will be in some respect the result of economic, financial, competitive and other factors beyond our control, including inflation.

Continued difficult conditions in the markets where we operate or volatility in the financial markets, including in relation to the Covid-19 pandemic, war in Ukraine, climate risk management/ legislation and inflation, could have a material adverse effect on our ability to service or refinance all or a portion of our indebtedness or otherwise fund our operational requirements. We cannot be certain that additional funds will be available if needed to make future investments in certain projects, take advantage of acquisitions or other opportunities or respond to competitive pressures. If additional funds are not available, or are not available on terms satisfactory to us, there could be a material adverse impact on our business, financial condition and results of operation.

If we are unable to satisfy our debt obligations, we may have to seek alternative financing plans, such as refinancing or restructuring our indebtedness, selling assets, reducing or delaying capital investments or seeking to raise additional capital. Our ability to, and the conditions under which we may, borrow funds to refinance existing debt or finance our operations depend on many factors, including conditions in credit markets, perception of our business and the corporate ratings attributed to us by rating agencies (which are today CCC+ for Standard & Poors, B3 for Moody's and B by Fitch).

In addition, changes in the monetary policies of the US Federal Reserve and the European Central Bank, developments in financial markets and changes in our perceived credit quality may increase our financing costs and consequently adversely impact our ability to refinance our indebtedness, which could have a negative impact on our business, liquidity, results of operations and financial condition.

Examples of mitigating activities

The following measures have been put in place to manage our liquidity risk:

- we have implemented extended cash pooling arrangements in order to circulate cash inside the Group and supply funds where needed;
- we seek to anticipate liquidity position (with daily reporting on cash in, weekly reporting on free cash flow, regular reporting to Finance Committee, and to the Audit and Risk Management Committee and, on a long-term basis, assessments of our budget and business plan);
- we manage short term cash needs by targeting reserves of available liquidity, and, as appropriate, reducing capital expenditures and selling assets, and, if required, adjusting the Group profile and footprint;
- we manage long term cash needs by planning refinancing long before maturity, maintaining regular discussions with banks and regularly communicating with investors regarding our strategy;
- our Trade Compliance Officer and treasury functions are regularly informed about countries where cash could be trapped or difficult to move within the Group. We also check our counterparty risk for sales and our bank partners credit quality (rating); and
- we aim to maintain access to guarantee lines by sustaining good relations with bank partners.

2.2.5.2 Risks of Unfavorable Currency/ Exchange Rate

We derive a substantial portion of our revenues from international sales, which subjects us to risks relating to fluctuations in currency exchange rates. Our revenues and expenses are mainly denominated in US dollars and to a significantly lesser extent in Euro, Brazilian reals, British pounds, Chinese yuan, Norwegian kroner, Canadian dollars, Mexican pesos, and Australian dollars. A portion of our debt is denominated in Euro, which exposes us to fluctuations in the Euro/US dollar exchange rate.

Our net foreign exchange exposure, as of December 31, 2022, is principally linked to the Brazilian real (with a net passive position of US$26 million equivalent), the Euro (with a net asset position of US$16 million equivalent), the British pound (with a net asset position of US$6 million equivalent), the Norwegian Krone (with a net passive position of USD 20 million equivalent), and the Canadian Dollar (with a net passive position of USD 8 million equivalent). Fluctuations in the exchange rate of the US dollar against each of the Brazilian real, the Euro and, the British pound have had in the past and will have in the future a significant effect upon our results of operations.

As of December 31, 2022, we estimated that our annual recurring net expenses in Euros were approximately 220 million and, as a result, an unfavorable variation of US$0.10/€ in the average annual exchange rate of the Euro against the US dollar would reduce our net income and our shareholders' equity by approximately US$22 million.

We regularly hedge our exposures whenever possible or practicable, but we cannot hedge all our currency exposures (mainly our exposures in Brazilian real, or currencies for which there is no forward market), nor those in relation to balance sheet items (largely for taxes, pensions liabilities and IFRS 16 debts that are either long term or for which the cash conversion date is unknown). Therefore, significant fluctuations in the values of the currencies in which we operate may materially adversely affect our future results of operations and cash position.

During 2022, the geopolitical instability due to the Ukrainian conflict, combined with inflation and the central banks' interest rate increases put particular pressure on several currencies, including the Euro and the British pound, which, excluding currency hedging had a favorable impact on the Group's operating margin. The impact of hedging contracts is detailed in note 14 of the consolidate financial statements.

Examples of mitigating activities

The following measures have been put in place to manage our balance sheet exposure (including debt exposure):

- maintaining our monetary assets and liabilities in the same currency to the extent practicable; and
- rebalancing through spot and forward currency sales.

In addition, since 2022, the Group has been covering part of the annual recurring costs in euros at the budget rate.

2.2.6 Legal, Regulatory and Compliance/ Trade compliance Risks

2.2.6.1 Risks of Adverse Regulatory Changes

We operate worldwide in a complex, volatile and evolving industry, and, in light of the current economic conditions, oil price uncertainty, political and trade tensions and environmental concerns, the regulatory environment in the countries in which we operate is constantly evolving. If we are not able to anticipate and react quickly to these regulatory changes, we are at risk of not being compliant with the new rules and regulations, which may have a material adverse effect on our reputation, business, financial condition and results of operations.

In addition, new and future laws and regulations intended to limit or reduce emissions of gases, such as carbon dioxide, methane and other greenhouse gases or nitrogen oxides, may affect our operations or, more generally, the production and demand for fossil fuels such as oil and gas. To the extent that our customers' operations are disrupted by future laws and regulations, our own business, financial condition and results of operations may be materially and adversely affected. *See section 2.2.1.4 above "Energy Transition and Market Shift Risks".*

Further changes in such laws and regulations could affect the demand for our products or services or result in the need to modify our products and services, which may involve substantial costs or delays in sales and could have an adverse effect on our results. Moreover, if applicable laws and regulations, or the interpretation or enforcement thereof, become more stringent in the future, we could incur capital or operating costs beyond those currently anticipated.

Our legal and regulatory risks are particularly acute in connection with our operations in emerging markets where the political, economic and legal environment may be less stable. Operations in developing countries are subject to decrees, laws, regulations and court decisions that may change frequently or be retroactively applied and could cause us to incur unanticipated or unrecoverable costs or delays. The legal systems in developing countries may not always be fully developed, and courts or governmental agencies in these countries may interpret laws, regulations or court decisions in a manner that might be considered inconsistent or inequitable and may be influenced by factors other than legal merits, which could have adverse effect on our reputation, business, financial condition and results of operations.

In particular our Sensing & Monitoring business line (SMO), due to its activities in the development and manufacture of electronic equipment, must comply with a number of specific regulations, such as the so-called "RoHS" and "REACh" EU Directives. The RoHS (Restriction of Hazardous Substances) Directive prohibits the use of certain hazardous substances in electrical and electronic equipment. The "REACh" Regulation (Registration Evaluation and Authorization of Chemicals) relates to the registration, evaluation and authorization of chemical substances as well as the restrictions applicable to these substances. This complex regulatory context potentially leads to risks of compliance, obsolescence, competitiveness or distortion of competition.Also, as SMO manufactures products that may qualify as dual-use goods (items that can be used for both civilian and military applications), SMO must obtain export licenses from authorities before delivering its products (*See section 2.2.6.2 below* "Risks of Non-Compliance/Trade Compliance").

In addition, the CGG EDA business line licenses geophysical data to exploration operators on a global scale and, in collaboration with third party service providers, executes seismic data acquisition projects. As we seek to conduct the business in compliance with all applicable laws, the panoply of changing regulations may adversely affect CGG's ability to acquire data and materially impact the commercial value of a survey in a given country.

Examples of mitigating activities

The following measures have been put in place to manage the risk of regulatory changes:

- a regulatory watch per country has been set up for different business teams/services (including, legal, tax, finance, compliance and trade compliance); and
- training is provided to exposed stakeholders to ensure understanding of the risks and risk mitigation responsibilities.

2.2.6.2 Risks of Non-Compliance /Trade compliance

Operating a business in many jurisdictions requires us, our partners and our agents to comply with international conventions and treaties, national, regional, state and local laws and regulations in force in these various jurisdictions. We invest financial and managerial resources to comply with these laws, regulations and related permit requirements.

We currently hold numerous regulatory authorizations, permits and licenses necessary to operate our business in certain countries. To the best of the Company's knowledge, all of our authorizations or licenses are valid. However, we cannot assure that we will be able to maintain all authorizations and licenses necessary to operate our business or that we will be able to renew our authorizations or licenses when they expire. If we are held to be in breach of any applicable laws or the terms and conditions of our licenses, our licenses may be revoked. The loss of any of our authorizations or licenses or a material modification of the terms of any existing or renewed licenses may have a material adverse effect on our business, financial condition and result of operations. For instance, we could be excluded from the ability to tender on certain large projects.

Due to its business, CGG may import/export products, services and/or knowledge which is subject to specific trade controls, and CGG may undertake business with trade sensitive countries and/or clients and must therefore maintain appropriate regulatory authorizations or licenses.

Some of our business activities may be subject to tariffs and import/export restrictions, including sanctions regimes. These laws can change over time and may result in adjustments to our business practices and commercial strategies, as well as limitations on our ability to undertake work in affected areas. In the case of US legislation, non-US persons employed by our separately incorporated non-US entities may conduct business legally in some foreign jurisdictions that are subject to US trade embargoes and sanctions by the US Office of Foreign Assets Control (OFAC). We may generate revenue in some of these countries through multi-client surveys and licensing, the provision of data processing and reservoir consulting services, the sale of software licenses and software maintenance and the sale of SMO equipment. We may have current and ongoing relationships with customers in some of these countries.

Since the beginning of the conflict between Russia and Ukraine, CGG has increased its vigilance and audit and verification procedures to ensure that transactions with third parties and a very limited number of Russian customers are in compliance with applicable international regulations and sanctions.

For more details, please refer to Chapter 2, section 2.2.1.2 of this Document.

Our internal controls, operational support procedures and employee training are focused on ensuring that we understand and comply with applicable restrictions and obligations that may be imposed by the United States, the European Union or other countries. Failure to comply with these restrictions and obligations could result in material fines and penalties, damage our reputation, and negatively affect the market price or demand for our securities.

We and certain of our subsidiaries and affiliated entities also conduct business in countries where there is government corruption. We are committed to doing business in accordance with all applicable laws and codes of ethics and have implemented an Ethics Policy and a Code of Business Conduct as well as related training. Despite the Company's best efforts, a risk remains that one of our Directors, employees or agents may act in violation of such codes and applicable laws.

Our failure to comply with such laws could result in civil or criminal fines and enforcement actions, as well as in an adverse impact on our reputation.

Examples of mitigating activities

The following measures have been put in place to manage legal, regulatory and non-compliance risks:

- delivery of general awareness and targeted training (including e-learning) to key stakeholders (employees and third parties (including business partners such as commercial consultants)), related to trade compliance, sanctions, anti-bribery and corruption risks, as well as data privacy;
- Ethics Committee and Business Code of Conduct covering the Group's fundamental principles;
- provision of a secure and confidential reporting process to assist stakeholders raising questions or concerns (such as EthicsPoint online hotline administrated by an independent third party supporting anonymous reporting to enable employees to report any suspected behavior conflicting with the Business Code of Conduct);
- securing general due diligence screening processes for third parties and transactions at all steps in a project lifecycle, with specific due diligence processes related to high-risk transactions and third parties;
- implementation and maintenance, as well as periodic audits of policies, procedures and processes to ensure applicability, compliance and efficiency and to identify opportunities for improvement; and
- compliance with all measures of the Sapin II law with a strong commitment of the Senior Management, a digitalized anti-corruption risk mapping and adequate corruption risk measures and procedures;
- implementation of specific due diligence processes related to exposed transactions and third parties.

For more details, please refer to Chapter 3, section 3.4.1 of this Document.

Our failure to comply with the restrictions and covenants in our current and future debt agreements may trigger cross-acceleration possible debt repayment acceleration. In which case, our assets might not be sufficient to repay in full all of our outstanding indebtedness and we may be unable to find alternative financing.

The current and future debt agreements contain or might contain, restrictive covenants that limit our ability to, among other things:

- incur or guarantee additional indebtedness or issue preferred shares;
- pay dividends or make other distributions;
- purchase equity interests or reimburse subordinated debt prior to its maturity;
- create or incur certain liens;
- enter into transactions with affiliates;
- issue or sell capital stock of subsidiaries;
- sell assets or merge or consolidate with another company; and
- enter into joint venture transactions.

The requirements to comply with these provisions may adversely affect our ability to react to changes in market conditions, take advantage of business opportunities we believe to be desirable, obtain future financing, sell assets, fund capital expenditures, or withstand a continuing or future downturn in our business.

Moreover, if we are unable to comply with the restrictions and covenants in the indentures governing our debt securities or in other current or future debt agreements, there could be a default under the terms of these indentures and agreements.

Our ability to comply with these restrictions and covenants may be affected by events beyond our control. As a result, we cannot assure that we will be able to comply with these restrictions and covenants. In certain cases, lenders could terminate their commitments to lend or accelerate loans or bonds and declare all amounts outstanding due and payable. Borrowings under other current or future debt instruments that contain cross-acceleration or cross-default provisions may also be accelerated and become due and payable. If any of these events occur, our assets might not be sufficient to repay in full all of our outstanding indebtedness, and we may be unable to find alternative financing (or, even if we were able to obtain alternative financing, it might not be on terms that are favorable or acceptable to us), which could have a material adverse effect on our reputation, business, financial condition and results of operations.

Examples of mitigating activities

The following measures have been put in place to manage our compliance with the covenants in the agreements governing our debt:

- regular meetings and communications of our Finance, Legal and FP&A Functions to review and assess our covenants compliance; and
- systematic pre-transaction assessment of covenants compliance.

2.2.6.3 Risks of Fraud – internal & external

We are exposed to different types of fraud threats, which can be potentially committed by employees (internal fraud) or by third parties (external fraud). Internal fraud threats can take the following forms: (i) misappropriation of assets, being direct theft (such as theft of petty cash or the theft of inventory or equipment) or misuse (including of proprietary or sensitive information) perpetrated in the frame of various processes including bank payments (such as misuse of employee passwords to make unauthorized payments and schemes designed to change bank account details to direct payments to unauthorized persons), purchasing (such as employees purchasing goods and services for personal use or the use of fictitious suppliers), payroll (such as submission of fictitious expense claims and illegitimate overtime), inventory, fixed assets and IT (such as theft or abuse of proprietary information); (ii) financial communication fraud with misreporting or manipulation of financial information; and (iii) corruption (including kickbacks to employees from suppliers or other unauthorized payments to government officials).

External fraud threats include purchasing fraud (involving submission of false purchase invoices with requests for payment), email fraud, imposter fraud and account takeovers. Increasingly, such attempts take the form of cybercrimes with sophisticated phishing campaigns and scams.

We have adopted policies and procedures to detect fraud attempts, including phishing and impersonation scams. We have trained our employees in fraud prevention, but there can be no assurance that our ongoing policies and procedures will be followed at all times or will effectively detect and prevent every instance of fraud in every jurisdiction. As a result, we could be subject to penalties and reputational damage, with material adverse consequences for our reputation, business, financial condition and results of operations.

Examples of mitigating activities

The following measures have been put in place to manage the risk of fraud:

- implementation of internal controls, which are regularly revised and improved to adapt to changing fraudsters' tactics, including preventive controls (e.g. contracts reviews, segregation of duties, delegation of authority) and detective controls (e.g. bank reconciliations and physical inventory checks);
- our tools are secured by passwords, multi-factor authentication and via encryption. Bank powers or access to Treasury tools given to employees are regularly reviewed and audited;
- we have also put in place a centralized ERP, extended cash pooling, an Internal Control Department, an Information Security Department, a Disclosure Committee and a Risk Management Task Force;
- we have implemented fraud reporting tools such as an Ethics hotline and an Internal Control Incident Form;
- we provide regular training and provide employees with a fraud risk management guide, Code of Business Conduct, internal controls guide and local guides to business functional SOD (segregation of duties) application; and
- we have implemented specific procedures on Petty cash; Business Partner due diligence; Facilitation payments, gifts and entertainment; Management of the Commercial Consultants Network; Identification and Management of major Internal Control incidents.

2.3 INSURANCE

The Risk Management Department determines whether the assessed residual risks to which the Group entities and businesses are exposed can be transferred through insurance policies.

A robust Insurance program has been implemented at the Group level. The key risks are covered by Master insurance policies, negotiated with leading reputable insurance companies.

Local insurance programs are subscribed worldwide either to cover specific risks or in response to local legal or regulatory insurance requirements.

We have put in place insurance coverage against certain operating hazards, including but not limited to product liability claims, personal injury claims, business interruption, in amounts we consider appropriate in accordance with industry practice. Our risk coverage policy reflects our objective of covering major claims that could affect the Group. We review the adequacy of insurance coverage for risks we face periodically.

Whenever possible, we obtain agreements from clients and contractors that limit our liability.

However, our insurance coverage may not be sufficient to fully indemnify us against liabilities arising from pending and future claims or our insurance coverage may not be adequate in all circumstances or against all hazards.

For the last four years and much more intensely during the last three years, we are facing a more challenging insurance market on a worldwide basis. This is characterized by risk aversion, higher premiums and self-retention, lower capacity and coverage and new exclusions restrictions.

2.4 LEGAL AND ARBITRATION PROCEEDINGS

The Company and/or its subsidiaries may be involved in disputes and proceedings arising in the normal course of their business. To the best of the Company's knowledge, there are no pending or impending administrative, judicial or arbitration procedures that are likely to have, or have had over the last twelve-month period, any significant impact on the Group's financial position or profitability.

2.4.1 ONGC Arbitration proceedings in India

On March 18, 2013, CGG Services SAS, a fully owned subsidiary of CGG SA, initiated arbitration proceedings against ONGC, an Indian company, to recover certain unpaid amounts under three commercial contracts entered into by ONGC and CGG Services SAS on one hand and ONGC and Wavefield Inseis AS on the other hand, between 2008 and 2010. The Arbitration Tribunal issued an award in favor of CGG on July 26, 2017. ONGC submitted an appeal against the Tribunal award on October 27, 2017. On January 6, 2020, ONGC's application to set aside the Tribunal awards was dismissed by the Bombay High Court without costs.

ONGC submitted an appeal against the Bombay High Court's decision on March 2, 2020. On March 3, 2021, the Court ordered and ONGC made a deposit of INR 2,686,439,944 to the Bombay High Court, equivalent to approximately 36 million US dollars. We believe that the Tribunal's award will be confirmed again by the Bombay High Court, which should allow us to recover at least the amount of the receivables that are recorded on our balance sheet as unpaid receivables as of December 31, 2022.

As of the date of this Document, legal proceedings are still ongoing.

2.4.2 Legal proceedings related to the Safeguard Plan

Certain holders of convertible bonds ("Oceanes") due 2019 and 2020 lodged an appeal against the judgement dated December 1, 2017 approving the Safeguard Plan. The Appeals Court of Paris confirmed this judgment in a ruling dated May 17, 2018. By ruling dated February 26, 2020, the French Supreme Court rejected the appeal lodged by certain Oceanes bondholders against the ruling of the Appeals Court of Paris, thus putting a definitive end to this litigation.

By a ruling issued on November 24, 2020, the Commercial court of Paris acknowledged the completion of CGG's Safeguard Plan, following the early repayment in full of all its remaining debt under the Safeguard plan. In this context, CGG reiterated its undertaking made as part of the safeguard plan to maintain, and procure that the French-law subsidiaries it controls within the meaning of article L.233-3 of the French Commercial Code maintain in France their decision-making centres currently located in France, including the headquarters of CGG, until December 31, 2022.

2.4.2.1 Third opposition to the decision issued by the Commercial Court of Paris

On December 22, 2020, Mr. Jean Gatty in his capacity as former representative of each of the two bodies of OCEANE bondholders and JG Capital Management (a management company of JG Partners, itself a former holder of the Oceanes) of which he is the director, filed three third-party appeals against the decision dated November 24, 2020 which had acknowledged the anticipated completion of CGG's Safeguard Plan.

Further to Mr. Jean Gatty's withdrawal of his judicial proceedings, the Commercial court of Paris Court rejected the third-party appeal by ruling (which is now final) dated May 7, 2021.

2.4.2.2 Criminal complaints

Furthermore, on February 2, 2021, CGG was informed that JG Capital Management also filed a criminal complaint seeking to call into question again the terms of the CGG's financial restructuring approved in 2017 under CGG's Safeguard Plan. However, this point regarding the differential treatment of creditors holding high yield bonds and Oceanes has been debated at length before various courts in a wholly transparent fashion.

On April 29, 2021, CGG filed a complaint for slanderous denunciation in connection with the complaint filed by JG Capital Management.

2.4.2.3 Writ of summons (Assignation / *Recours en Révision*)

On March 29, 2021, JG Capital Management issued a writ of summons to CGG before the Commercial Court of Paris in order to try and obtain, through an appeal for modifying an existing judgement ("*recours en révision*"), the cancellation of the judgment dated December 1st, 2017, which approved the CGG Safeguard Plan. Two former Oceanes bondholders (i.e. SA Schelcher Prince Gestion and HMG Finance) joined JG Capital Management in this writ of summons in 2022.

As of the date of this Document, the corresponding judicial proceedings are still ongoing.

3

STATEMENT
ON NON–FINANCIAL PERFORMANCE

3.1 ESG STRATEGY

CGG is a global technology and HPC leader that provides data, products, services and solutions in Earth science, data science, sensing and monitoring. Our unique portfolio supports our clients in efficiently and responsibly solving complex digital, energy transition, natural resource, environmental, and infrastructure challenges for a more sustainable future. Our business model is described in the introductory book of this Document on pages 12 and 13.

Among the growing concerns about the role of companies in climate change, our societal, economic and environmental actions are at the heart of our concerns as a responsible company. ESG (Environment, Social, Governance) issues, and in particular climate change, are also a major concern of our external stakeholders (customers, suppliers, investors), our employees and civil society.

In 2022, we reviewed our ESG policy to steer it around three strong pillars, each of them rolled out into four commitments:

Reduce our overall carbon footprint	Be an examplary company	Strive to the highest standard of governance
E1: Reduce our carbon footprint at all levels of our value chain	S1: Promote and ensure the Health & Safety of our employees	G1: Maintain a top teir company governance
E2: Encourage internal initiatives supporting our 2030-2050 net-zero ambitions	S2: Promote an environment and a culture of Diversity and Inclusion	G2: Ensure the highest level of ethics in all our activities
E3: Work with our Supply Chain to improve their ESG performance	S3: Promote a work environment that ensures engagement and development of our employees and attraction of the best talents	G3: Maintain and Promote an effective compliance program
E4: Develop an offer of products & services enabling environmaentaly sustainable activities	S4: Act as a positive influence towards our employees, suppliers and communities	G4: Manage company's risks holistically, including cyber risk

This policy and its priorities are regularly reviewed and updated based on the materiality analyzes that we have been conducting every 3 years on average since 2013. If necessary, the strategy will be adjusted in 2023 following the completion of our new materiality analysis at the end of 2022.

The ESG data made public by the company allows extra-financial rating agencies to assess CGG. In 2022, "MSCI ESG Ratings", one of the rating agencies most used by investors confirmed the score of AA with, which positions us in the leading group of companies in our sector of activity. In 2022, CGG joined the list of top rated ESG companies by “Sustainalytics”, another major rating agency. This achievement means that our company is recognized as a performing company in terms of ESG.

CGG voluntarily reports its impact on climate change annually through the CDP, a global non-profit organization that assesses companies on their governance, strategy, performance and commitments in the fight against climate change. This data is public and can be consulted by all the company's stakeholders.

For more details on our engagement in the social and governance dimensions, please refer to the relevant sections of this 2022 Universal Registration Document.

3.1.1 ESG Governance

ESG is one of the pillars of CGG's strategy: the subject is taken to the highest level of the company, as demonstrated by governance. Three committees work together on ESG issues within the Board of Directors:

- the Remuneration Committee in charge of social commitments;
- the Audit & Risk Management Committee for governance, ethics and compliance commitments;
- the Health and Safety / Sustainable Development (HSE/SD) committee in charge of the other commitments of the ESG strategy. Established by the Board of Directors and made up of three directors, the Chief Executive Officer (CEO) and the Chief Sustainability Officer (CSO), it meets three times a year.

A global review of ESG performance is analyzed once a year, and we place particular emphasis on monitoring our carbon footprint, which we review twice a year.

The CSO reports directly to the CEO and is an active member of the Executive Management Committee. He coordinates a network of HSE coordinators present at all levels of the company. In 2023, these correspondents will have their scope extended to ESG in general. Their role is to lead the process locally, to communicate information and to report information (via the internal reporting tool PRISM). For a comprehensive understanding of corporate governance at CGG, please refer also to the following chapter 4.

As part of our HPC & Cloud Solutions activity, we have launched the analysis of the gaps between our practices and the expected practices of the European code of conduct relating to the energy efficiency of data centers and we plan to eventually join the program of the European Union with our main centres.

The Sensing & Monitoring (SMO) division has its own ESG governance, with a dedicated CSR manager and local correspondents, generally site managers and HSE/SD coordinators. An ESG strategy adapted from the group strategy has been put in place with the aim of fully integrating ESG topics within each business, in particular the specific businesses of this industrial division.

SMO's operational sites are all ISO 9001 certified, the objective is to move all these sites to an integrated management system by 2025: quality (ISO 9001), environment (ISO 14001) and energy (ISO 50001). To date, only 20% of sites are ISO 14001 certified.

SMO is also working on the eco-design of its products. In 2023, the objective will be to continue developing a methodology for determining the environmental profile of products, based on a simplified life cycle analysis (LCA), according to the ISO 16524 standard. The effectiveness of the implementations of the first solutions will thus be measured: the integration of recycled materials, the weight reduction of products, the reduction of energy consumption and therefore of emissions during the use of the products, etc... are the avenues studied. The reuse of wooden packaging (preferably from responsibly managed forests), the repairability and the extension of the lifespan of products are also interesting areas for optimization. As an example, streamers with an estimated lifespan of 7 years initially are still in service 10 years later and are repairable.

Finally, HSE/DD objectives are rolled out within CGG to all employees, who each have an HSE objective and an SD objective adapted to their profile and position.

3.1.2 Risks and Opportunities (Materiality analysis)

The analysis covers the main extra-financial aspects that could affect our strategy, our business model and our performance or that could significantly influence our stakeholders and their vision of the company. The analysis covers social, societal, environmental, governance and business model aspects.

This approach allows us to ensure that our corporate and ESG strategies complement each other and cover all critical areas for our business and our stakeholders.

Materiality methodology

We conduct a benchmark of sectoral documents, peers and internal documentation and the expectations expressed by our stakeholders (customer or investor questionnaires) to identify the main concerns of our sector.

The following issues have been identified:

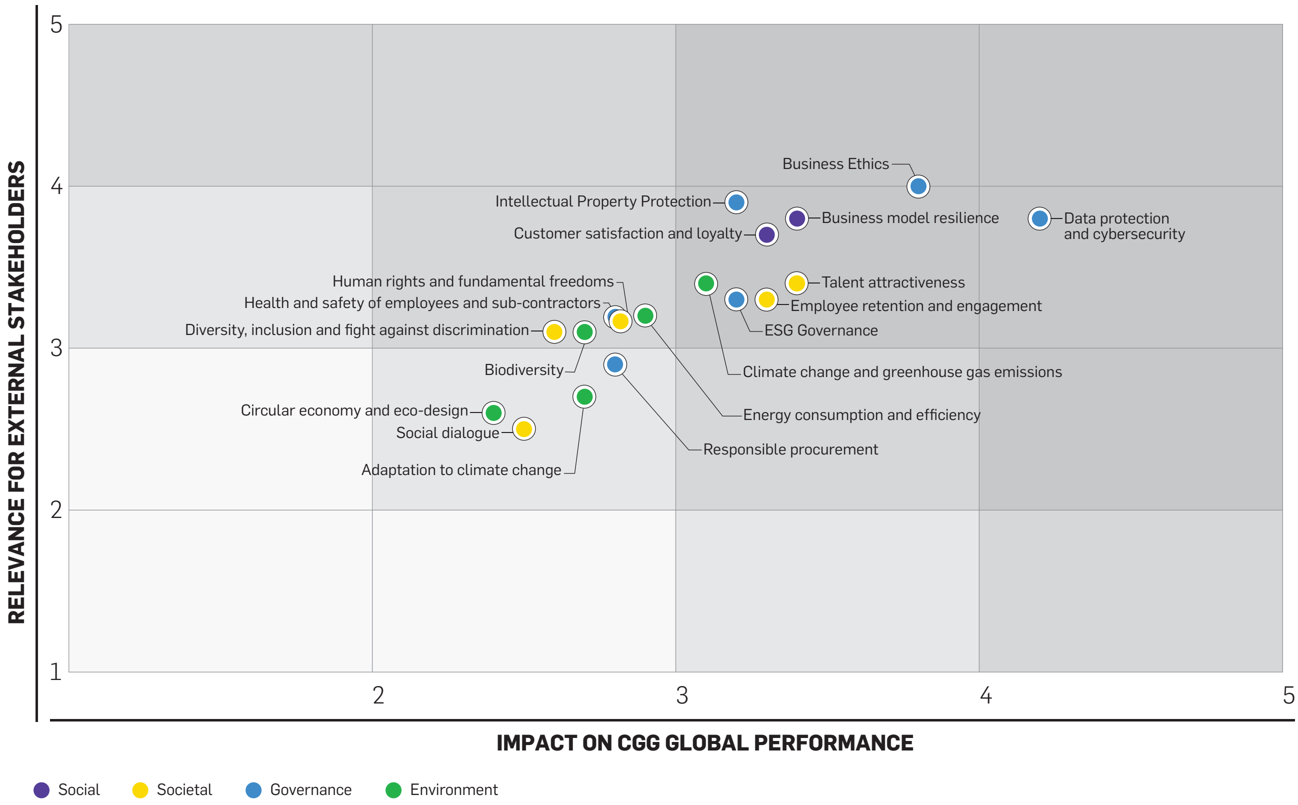
- **Governance:** business ethics, information systems security, ESG governance, responsible purchasing; protection of intellectual property;
- **Social issues:** occupational health and safety, attracting and retaining talent, social dialogue, diversity and inclusion;
- **Environmental issues:** climate change, energy consumption, biodiversity, circular economy;
- **Business model:** resilience of the business model, customer satisfaction and loyalty.

We then perform individual qualitative interviews with members of the Executive Leadership Team (ELT) and the CGG Board of Directors and a panel of external stakeholders (including customers, suppliers, sectoral and non-governmental organizations and investors). This year we supplemented the analysis with an internal survey via an online questionnaire sent to all Group employees.

Internal stakeholders assess each issue based on financial, business continuity, reputation and compliance risks posed on a scale of 1 to 5, weighted differently. External stakeholders comment on the potential impact of CGG on their organization.

CGG responses are plotted on the horizontal axis of impact, and our external stakeholders are on the vertical axis of relevance. Ratings are as follow: 1) very low 2) low 3) medium 4) high 5) major.

CGG materiality matrix results



Following the new analysis conducted in 2022 , issues that emerge as a priority for CGG and which could represent a risk for the company are as follows:

- **Governance**: business ethics, data protection & cybersecurity, ESG governance, intellectual property protection;
- **Social issues**: talent attractiveness; employee retention and engagement;
- **Environmental issues**: climate change & greenhouse gas emissions and energy consumption & efficiency;
- **Business model**: business model resilience, customer satisfaction and loyalty.

3.2 OFFER DIVERSIFICATION STRATEGY

In a global context unfavorable to the exploration and exploitation of fossil fuels, CGG initiated a diversification strategy in 2018. The ambition is to ensure the resilience of the business model over the long term, as CGG cannot be solely dependent on the Oil & Gas sector. For this, the diversification strategy is based on 3 main components:

- the disposal of acquisition activities which was completed in 2019;
- a refocusing on the main activities, which bring high added value;
- a focus on opportunities to deploy our technologies in other areas, particularly energy transition, the fight against climate change and digital technologies.

To implement this strategy, light governance has been put in place at group level, the ambition being to transfer a sense of ownership to each of the operational entities. Initially in 2019, a detailed analysis of the markets made it possible to identify growth drivers for the activities. Each Business Line then took up the subject and developed its own roadmap and organization. Thus the Sensing & Monitoring division made two complementary acquisitions in terms of new markets and R&D to accelerate its transition. Our HPC & Cloud Solutions activity, for its part, has chosen to recruit external people, specialists in its new markets.

With the rapid and continuous advance of technology and digital solutions, companies increasingly consider their geoscience data as one of their major assets. In this context, CGG is focusing its historic leadership in digital technologies applied to geosciences, to provide unique digital solutions to its customers. Beyond these traditional activities, we have capitalized on our technologies and know-how to develop in the fast-growing markets of Digital Sciences and Energy Transition.

CGG's long-standing and new customers are increasingly focused on energy transition, reducing their environmental footprint and decarbonization. As a technology company, we care about the environment. Our business brings added ESG value to our clients, our geoscience expertise and data integration capabilities enable our customers to be more effective, efficient and responsible in their new energy projects.

KPI	2021	2022
Share of revenue generated by diversification activities	3%	8%

3.2.1 Digitalization

In Digital Sciences, we have focused on technologies applied to geosciences to develop an integrated solution, including hardware, middleware (technical gateways) and specialized applications, to support and optimize high performance computing architectures based on cloud (HPC) and digital transformation. In this context, we offer our customers, among other things, data, algorithms and software as a service (DaaS/ SaaS) in the CGG cloud. Anticipating and taking advantage of the exponential increase in the volume of digital data (Big Data) experienced by our customers, as well as the need to extract value from these growing volumes, CGG will continue to devote significant research and development to seismic imaging, intelligent data storage and management, advanced high-performance computing architectures and digital technology. CGG aims to uniquely process and analyze this data to provide the highest level of understanding and bring new insights to its clients.

Also, CGG Data Hub offers data transformation services to extract, curate, integrate and validate subsurface datasets that allow user to efficiently discover all data, overcome subsurface challenges and reduce time cycle. The Data Hub team pairs SMEs with data scientists and engineers to ensure trust in data and develop cutting-edge technology solutions.

In 2022, Data Hub secured its first major strategic project, which is a two-year global transformation project with a major international oil company.

3.2.2 Carbon Capture, Utilization and Storage (CCUS)

The capture, use and storage of carbon energy is a key element of our global efforts to decarbonize our human activities and enable us to achieve the objectives of the Paris Agreements. The commercial potential of CGG is significant. CGG's core competencies in underground reservoir expertise, including geological and petrochemical imaging, modeling and analysis, fit well within the framework of CO_2 storage planning and continuous monitoring storage sites. . Many of our existing and new customers are planning large CCUS projects and are beginning to incorporate the application of CCUS technologies into their field development plans. Low-carbon energy, such as green or blue hydrogen, will also require long-term storage and monitoring.

Building on 16 years of CCUS experience, CGG continued to expand its CCUS business throughout 2022. This included high-end, large-scale CCUS screening studies in areas of the North Sea and the US Gulf of Mexico, a variety of imagery projects focused on CCUS storage assessment, and Earth Data sales to support CCUS projects around the world. This activity has been supported by partnerships, strategic agreements and technology development focused solely on expanding the CCUS business.

In 2023, the focus will continue to be on storage assessment and monitoring, while emphasizing the development of our organization.

3.2.3 Strategic minerals and mining exploration

Critical minerals such as copper, lithium, nickel, cobalt and rare earth elements are essential components of many clean energy technologies booming today – from wind turbines to electric vehicles to grids electrical. Demand for these minerals is growing rapidly as the clean energy transition accelerates and heightened geopolitical tensions lead countries to step up efforts to reduce dependencies and secure their own sources of these critical minerals. The requirement to search for these minerals and extract them safely, with the minimum possible impact on the surrounding environment and in a sustainable manner managing associated risks, presents significant business opportunities for CGG.

Throughout 2022, CGG successfully completed projects around the world, both in exploration and monitoring. For exploration, these range from large-scale regional scouting studies considering individual minerals and associated mineral systems, to more targeted projects on specific areas. In addition to core geoscience expertise, these projects also leveraged our expertise in data and machine learning. On the monitoring side, we continued to expand our satellite monitoring offering while developing our TailingsPulse solution, allowing us to offer complete and integrated mine site monitoring solutions from space, air and floor. We are moving towards solutions combining both equipment and associated information for our customers. 2022 was also marked by the launch of our first large-scale Earth Data project in the United States, which integrates a series of new and existing data for a series of major and junior mining operators.

3.2.4 Infrastructure monitoring (SHM & S-Scan)

In a general context of aging infrastructure in the United States and Europe, of which the vast majority of structures were built in the middle of the 20th century and which are reaching the end of their life, and of increasing population density and of human activities, the diagnosis, inspection and repair of engineering structures is in high demand. Estimated at more than $7 million by 2030, the infrastructure monitoring market known as Structural Health Monitoring (SHM) is a market for the future.

CGG, through its Sensing & Monitoring equipment division, has established itself in this promising market by developing two distinct solutions: S-Lynks for structural diagnosis (bridges, buildings) and S-Scan for geotechnical diagnosis of structures (rail, dykes). These two solutions, initiated in 2018, are based on Sercel's technologies and know-how in electronics (sensors), development of on-board software and physical and geophysical analyses.

In May 2022, Sercel sent a strong signal of its desire to develop in the American market by acquiring one of the leaders in SHM and geotechnical consulting in the US: Geocomp.

3.2.5 Other fields of diversification

3.2.5.1 Geothermal

Geothermal energy has traditionally been harnessed in tectonically active areas, and CGG has always played a role in this market through its multi-physics imaging team and occasionally through its seismic imaging team.

To date, CGG has undertaken more than 130 targeted projects, developing an enormous level of expertise and associated software. Today, the exploitation of geothermal energy also applies to sedimentary basins and offers new opportunities to CGG. Underground geoscience expertise, including seismic imaging, reservoir modeling and geological analysis, are highly sought-after skills in this emerging energy sector.

Growing our group through 2022 to incorporate these broader disciplines, CGG began to create large-scale scouting studies such as the Global Geothermal Resources Study which was carried out by leveraging our expertise in the discipline geothermal data as well as our expertise in streamlining, using and organizing thousands of different data sources. This product has been successfully licensed to 2022.

CGG's expertise has also helped assess the broader geothermal value chain, for example by creating a global lithium screening product to implement highlights the lithium potential of geothermal brines.

3.2.5.2 Environmental science

In 2021, CGG established a team to investigate how the company's deep technical and scientific knowledge could be repurposed to meet the growing environmental and climate challenges facing the world. Through this survey, the environmental science activity within CGG identified two main areas of focus: environmental monitoring and environmental data analysis. Both of these areas are supported by CGG's data science and high performance computing (HPC) capabilities.

The business has grown throughout 2022 and has recruited world-renowned scientists and technical personnel who, along with CGG's core expertise, have been engaged in active projects demonstrating our capabilities. To do this, we have also engaged with academic, government and commercial partners.

CGG's HPC enables the group to explore the use of complex, multi-layered data to provide customers with insights into a range of environmental applications and solutions that will enable them to meet current environmental and climate regulations as well as the risk management. In addition, our HPC allows us to couple our environmental data bank with our own climate modeling capability - a target for 2023.

CGG's environmental science activities go beyond our traditional customer base and engage with the financial sector, renewable energy companies, utilities, and government departments and agencies.

3.2.5.3 Satellite enabled solutions

CGG has a long history of processing and interpreting satellite data, particularly difficult-to-manage Synthetic Aperture Radar (SAR) data. As more and more SAR satellites are launched into orbit, the ability to realistically monitor a wide range of surface facilities in real time is now within reach. This, combined with the growing ability of satellites to measure environmental data, makes it a rich area in which CGG can find substantial business.

During 2022, CGG then began to obtain commercial projects for this solution, with interest from the industry increasing rapidly. Our customers now see the value of ongoing, proactive monitoring of their sites, rather than waiting for something bad to happen and looking back.

This is also the case for environmental monitoring of mine sites, for example with tailings failures causing catastrophic impacts, often evidenced by retrospective reviews of satellite data.

3.2.5.4 Defense

CGG, through its Sensing & Monitoring (SMO) equipment division, has always put its marine expertise and technological know-how at the service of National Defence. Historical activity since the 1980s, SMO is a recognized supplier of equipment and solutions for the French Navy: mainly sensors, on-board systems or specific customized solutions. SMO has supported the French Navy throughout the successive Military Programming Laws (LPM), which have been constantly increasing since 2017.

Since 2022, the Defense market has taken on a new dimension following the military conflict in Ukraine, the growing need for security energy infrastructure and the growing interest in exploring the deep seabed. SMO, as a recognized historic supplier, is well positioned in this market to support the French Navy in these new challenges of tomorrow.

3.2.5.5 Earth & Ocean Monitoring

The design, manufacture and marketing of instruments for measuring seismic activity on land and at sea is a historical activity of the Sensing & Monitoring (SMO) equipment division of CGG. Mainly intended for research institutes and universities, Sercel seismometers are instruments recognized in the industry for their precision and reliability. It is a market with constant demand, mainly for the replacement of worn equipment.

Through its underwater acoustics activity based in Brest, SMO has launched the MicrObs, which is a seabed seismometer that can measure seismic activity up to 6,000 meters deep: enough to open up new perspectives on this Niche Market.

3.2.5.6 Autonomous Robots

With the acquisition of a stake in the AMBPR start-up in July 2020, CGG, through its equipment subsidiary Sercel, entered the ship maintenance market, in particular that of the treatment of coatings on hulls (washing, stripping, painting). With its autonomous articulated robot, AMBPR wants to revolutionize the cleaning of ship hulls by offering an innovative solution that is 100% robotic, fast, less expensive and respectful of the health of workers (workers on sites exposed to musculoskeletal disorders and discharges of paints and coatings hazardous chemicals). Relying on the know-how and industrial resources of SMO in Saint-Gaudens, AMBPR offers a unique patented solution with the ambition to become the market leader working with ports and ship owners worl wide. This ship maintenance market is supported by a strong global trend of increasing marine commercial and energy activities worldwide.

3.2.5.7 Offshore simultaneous operations monitoring (Marlin)

With the proliferation of renewable energy projects at sea around the world, which require the use of many boats with different profiles, and the global trend of increasing maritime transport activity, the management of maritime fleet operations becomes a critical activity for the world of today and tomorrow.

SMO, through the acquisition of Concept in September 2022, has decided to establish itself in this promising market by developing and marketing the Marlin solution: centralized software solution for the management, piloting and monitoring of multi-ship offshore operations for ports and ship owners and operators.

3.3 HUMAN RESOURCES

Key Performance Indicators

KPIs	2021	2022
Voluntary turnover[(a)]	6.1%	7%
Seniority of employees	14.2 years	13.9 years
Share of employees with a seniority over 5 years	77%	72%
Equality Index (for men & women) (calculation method by index)	85	86
Gender split at CGG (M/F)	70%/30%	70%/30%
Gender split in the recruitments (M/F)	70%/30%	69%/31%
Gender diversity in the top 10% of positions of responsibility	24%	24%

(a) Excluding retirements.

3.3.1 Talent attraction and retention

CGG operates in a competitive market in terms of talent acquisition and retention. Supporting our core business in Geoscience, Earth Data, Sensing and Monitoring, HPC and Cloud services and exploring Beyond the Core activities, the Company has positioned itself as Global Technology and HPC leader and made a shift in expected key competencies for our employees . To attract key talents in this new context, we have to be an attractive and sustainable place to work within our existing and prospective markets and offer compelling career opportunities.

Retention of our talents is also a top priority. Satisfying our customers with high quality products and services is linked to developing the skills of our employees, offering them clear career opportunities and ensuring they have the best work environment. These are essential factors in exceeding our customers' expectations. In building and fostering a diverse, inclusive and equitable environment, we enhance our ability to solve complex problems for our clients and are the kind of company people want to work for and with.

In 2022 we launched an employee engagement survey through a partnership with Great Place to Work.The survey had a 76% participation rate and provided the forum to acknowledge where the Group is doing well and recognize the opportunities for improvement. Global communications and action plan has been shared covering areas of 'Business Communication', 'Positive Work Environment', 'Fairness & Recognition' and 'Engaging Leadership'.

Attracting talents

We have developed a global recruitment process to manage all available job postings and applications. Our applicant tracking system (ATS) is a smart tool that publishes the job postings where they can have the most impact, such as ob boards, professional groups and social media. It also promotes our job positions to candidates who have a high match with the profile we are looking for, which means that those who are not actively seeking a job opportunity at CGG will be made aware of the jobs and careers that we offer.

We have also rebranded our Employer Brand around an updated Employee Value Proposition to increase the awareness of our company and the knowledge of our activities and career opportunities. By this, we aim to change potential applicants' perception of our company and ultimately improve our attractiveness. This rebranding started in 2019, was pursued in 2020 and finalized in 2021 as CGG shifts towards more technology and digital oriented activities, requiring increased technical profiles such as data scientists.

CGG has a long and proud history of working with universities around the world to raise awareness, help nurture students and develop the field of geoscience. We continue to foster these relationships and connect with the next generation of talented employees.

In 2023, we aim to continue to leverage our social media presence to increase connection with potential candidates and better promote our corporate culture externally.

Retaining talents

CGG is a multicultural group with multiple locations throughout the world. Our talent management system is structured so that it can be adapted to each country need to maximize their relevance to the local job market.

Benchmarks are used to help position ourselves in comparison to our peers for each market and offer an attractive package for all our employees. Trainings and career development are also adapted locally to suit to the local context and needs.

Individual career management

CGG is dedicated to the development of its employees throughout their careers. As such, we believe that career management is not something that can be addressed just once a year. We have developed a performance management platform that focuses on the development of each person's performance throughout the year. This encompasses continuous improvement and feedback.

We also have a people review and succession planning cycle along with ongoing learning and development opportunities.

We have developed an employee assistance program (EAP), as a resource to employees who may require confidential support or counseling on a variety of personal topics such as mental wellbeing, legal assistance, financial planning and child or elder care.

3.3.2 Inclusion, Diversity and Equity

In 2021, CGG launched a global initiative called IDEA to promote Inclusion, Diversity and Equity in Action at CGG. The aim of IDEA is to raise awareness among our employees and implement actions toward 3 axis: Attract, Develop and Engage. Connected to IDEA there is a mandatory e-learning for all employees, and the current participation rate is 97%.

Furthermore, understanding that inclusion, diversity and equity (ID&E) is crucial for CGG's performance, dynamism and capacity for innovation, the Global Head of ID&E position was created in the Human Resources function in 2022. This position reports to the HR EVP and is leading the agenda globally.

Additionally, the group understands ID&E as one of its businesses priorities and has incorporated its principles into its ESG agenda.

Equal opportunities at CGG

CGG absolutely believes that offering equal opportunities to all candidates and employees is an important part of attracting and retaining talents. We are committed to both equal opportunity and equal pay to all our employees regardless of gender, race or any other potentially discriminating factor.

Gender diversity within CGG

Although the energy and technology industries are traditionally male-dominated, CGG strongly encourages all candidates to join the Group and hopes to actively participate in the momentum and efforts that are underway to increase the diversity of our industry. Sophie ZURQUIYAH, our Chief Executive Officer, reaffirmed CGG's commitment to equal opportunities.

For the year 2022, the proportion of women in the Group, considering all levels, is 30%.

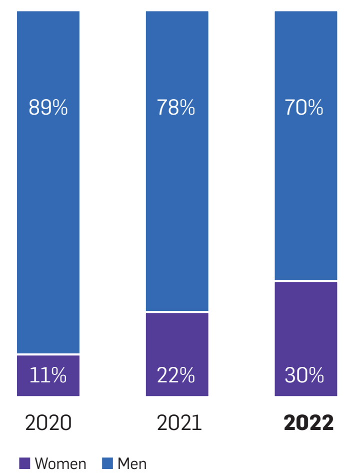
Gender balance in Governing Bodies

The Group is committed to taking effective measures to promote gender balance at all levels and in particular at the highest levels within the Company.

The Group's commitment to promoting gender equality is already reflected in the composition of the Board of Directors of CGG (Parent Company) and its committees. Indeed, out of the eight members of the Board of Directors (the Director representing employees not being included in this calculation), five Directors are women. In addition, out of the four Committees of the Board of Directors, three are headed by women: the Audit and Risk Management Committee, Appointment, Remuneration and Governance Committee and the Investment Committee.

The gender balance objective also materialized in the last appointments to the Executive Leadership team (ELT), with Sophie ZURQUIYAH as Chief Executive Officer in 2018, Emmanuelle DUBU as Executive Vice President Equipment in 2020, and Agnes Boudot as Executive Vice President HPC and Cloud Solutions in 2022. Furthermore, the gender distribution in the Executive Leadership team, headed by a woman, thus stands at 30%.

ELT: GENDER DISTRIBUTION

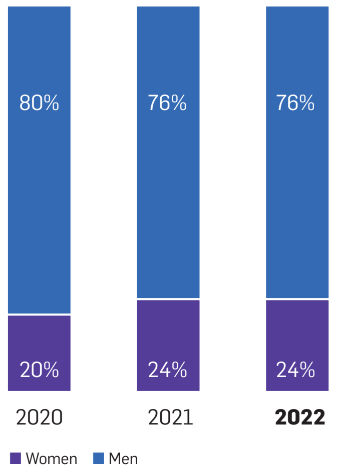


Although above the average of 25.5% observed within SBF 120 companies in the report of the High Committee for Corporate Governance in May 2021, the Group intends to continue its long-term policy aimed at promoting women's access to the highest levels of governance, including within the Group's management bodies. To this end, the Group acts in accordance with the methods and objectives defined by its strategy in favor of diversity.

In terms of gender diversity in the 10% of positions with the highest responsibilities (as defined in Article L. 22-10-10 of the French Commercial Code), the proportion of women stands at 24% in 2022.

Being aware that this rate is slightly low in relation to the proportion of women in the Group, the Company's Board of Directors has set the objective of reaching 25.5% of women in the 10% of positions with the highest responsibilities in 2025.

GENDER DISTRIBUTION: 10% TOP MANAGERIAL POSITIONS



Group strategy for diversity

Recruitment

As our target cabdidates are mainly from the Science and Technology fields, the Group is confronted with the reality that a low percentage of graduates from STEM (Science, Technology, Engineering and Mathematics) field schools are women. Therefore, we are implementing actions to promote applications from women.

These actions may include partnerships with schools by participating in actions to discover and promote training in industrial, scientific and technical professions, with the ambition to fight against stereotypes and misconceptions about the representation of women in certain occupations.

Identification of talents

Talents are identified during our annual people review exercise. To be considered, the individual needs to demonstrate high levels of managerial and/or technical competencies, a behavior in line with CGG values, consistent solid performance as observed at least in two consecutive annual performance reviews, and potential for future vertical growth within the organization. Once these prerequisites are established, a talent will emerge with specific attributes: the will and the potential to develop, the capacity for wider responsibilities, leadership abilities and agility.

As the identification of talents can be one of the obstacles to the promotion of women, specific focus is given to reduce any bias in identification or development.

CGG's objective here is to reinforce its focus on the levels of management representing the 10% of positions with the highest responsibilities within the Group.

Promotion

With equal skills, all employees despite their gender, ethnicity, nationality, physical ability and sexual orientation must be able to benefit from equal career and development opportunities, which includes senior positions from professional, technical and managerial level.

The call for internal promotion is strongly developed within the Group. However, trying to promote gender balance, the Group seeks to promote the appointment of women to senior positions despite a current workforce mainly composed of men.

The objective of CGG is to continue to pay particular attention and monitor women's internal promotions and career development, encouraging them to apply for job opportunities, with a strong technical and managerial footprint, increasing the female representation in the positions with the highest responsibilities.

Remuneration

Fairness and equity in remuneration is at the foundation of our compensation philosophy.

The Group undertakes not to discriminate on remuneration. A quantitative analysis is carried out during the cycles of salary increase, supplemented by a qualitative and individual approach to avoid any gender bias.

The Group's objective is to continue its action in this regard, in order to ensure that equity in remuneration is complied with at all levels of the organization.

In 2022 the group has included ESG metrics including diversity and retention into the performance metrics criteria applicable to its Long Term Incentives plan.

Retention

In order to retain women in the Group to enable them to evolve internally, CGG ensures that men and women are treated fairly throughout their careers: remuneration, promotion, training, etc.

Specific actions are carried out locally to improve the retention rate of women in these various fields (training, promotion, equal treatment, etc.).

In order to enable employees to reconcile their professional and private lives, the Group encourages the establishment of flexible working conditions (adapted according to the countries). The Group has also worked on the development of remote work, to be deployed according to each local context, also making it possible to promote this life balance and contribute to the retention of employees and women in particular.

Disability

As part of our disability policy, we mobilize and raise awareness of disability among all our employees through mandatory IDEA training. The objective is to create a climate of trust conducive to the integration and development of employees with disabilities, which represents in France 3% of our staff for the UES CGG Services and SA and 3.9% for Sercel SAS.

We educate our employees to prevent behaviors, decisions or actions that could create a difference or a disadvantage for potential recruitment candidates or employees with disabilities. Our Disability policy is also supported by management and by the Human Resources department in collaboration with the HSE department through the organization of events for employees to raise funds for a LADAPT association to help with social integration. and work for people with disabilities.

We also carry out regular follow-up by the company's medical department with each person with a disability to take stock of the work situation and any adjustments to be made, whether to organizational or material aspects, etc. A questionnaire has been set up for this purpose at Sercel and is supplemented by an interview.

The necessary workstations have been adapted with the support of dedicated organizations (CapEmploi/Sameth) at Sercel. Workstation adaptations as well as accessibility adaptations for people with disabilities were specifically made during the last moves within our premises and workspaces in Massy.

At Sercel in particular, we have developed subcontracting with companies in the "protected and adapted environment" (ESAT / EA) and long-term partnerships have been set up with structures employing people with disabilities. disabilities that we use to carry out support missions. Examples: product refill operations, sorting, cleaning, data entry operations.

3.3.3 Health, safety and security of our employees and subcontractors

Key Performance Indicators

KPIs	2021	2022
Total recordable cases frequency rate (TRCF)[(a)]	1.02	0.98
Lost time injury frequency rate (LTIF)[(b)]	0.46	0.44
Severity rate[(c)]	0.004	0.008
Recordable occupational illness cases frequency rate	0.00	0.00
Exposure hours *(in million)*[(d)]	8.8	9.1

(a) Number of recordable cases (FAT: fatality, LTI: lost time injury, RWC: restricted work case, MTC: medical treatment case) per million exposure hours.
(b) The number of lost time injuries (including FAT) per million exposure hours.
(c) Number of lost workdays per thousand exposures hours.
(d) Total number of hours of employment but excluding leave, sickness and other absences. (160 hours per person per month).

HSE at CGG

Our approach to HSE is core in our aim to assure that CGG remains a healthy, safe and environmentally conscious company in direct support of our ethos “Care and Protect what Matters”. HSE principles are integrated into our risk management, business planning and processes. We believe that all incidents are preventable and strive for zero harm to our people, the environment and the communities in which we operate. We annually review our HSE policy to ensure we are doing all that we can prevent all workplace accidents or occupational diseases of employees and contractors.

We recognize the international ILO conventions and laws and comply with all applicable national and industry HSE regulations. We also contribute actively to advancing industry standards and best practices. CGG continues to play an active role in the HSE Committee of the EnerGeo Alliance and participates in workgroups organized by the International Oil and Gas Producers (IOGP).

Our HSE principles

Our HSE principles are as follow:

- CGG provides a healthy, safe and environmentally friendly workplace and promotes the awareness of workplace hazards;
- we protect our employees, contractors and assets against criminal, hostile or malicious acts;
- we regularly monitor our employees' health program and promote wellness;
- we are committed to promoting a working environment that is free from illicit substances and tobacco use;
- we apply eco-design principles and mitigation to prevent and remediate harmful effects on the environment;
- we respect and promote human rights, maintain mutually beneficial relationships with local communities and develop local content where practicable.

Reporting and communication

Transparent reporting and fast and efficient communication are critical to effective HSE management and therefore CGG have explicit expectations on reporting all HSE events.

PRISM is the internally developed reporting platform for all HSE, Social Responsibility and InfoSec incidents. PRISM is deployed on all CGG sites and is accessible by all staff. It also allows us to produce analyses, monitor performance, manage actions and record risk assessments with associated mitigation. Incidents within PRISM are assessed on their risks to allow better understand the cause of incidents and prevent reoccurrence.

Governance, risks and the HSE operating management system (HSE-OMS)

CGG maintains a robust HSE operating management system (HSE-OMS) deployed to all the Group operations. The HSE-OMS frameworks purpose is to control risk and deliver high HSE performance. Our HSE-OMS framework is built on the requirements of IOGP 510 and assessed externally by independent prequalification schemes.

Risk management is at the core of our HSE-OMS. The Group has a structured approach aimed at identifying, evaluating and controlling risks, based on a common Group-wide methodology and model for risk management. Risk assessments are performed on each project or permanent installation. They incorporate the history of incidents recorded in the Group database as well as those in the database shared with the EnerGeo Alliance, which now covers several decades of incidents.

Our HSE program is supported by an HSE team at all levels of the business. The Chief Sustainability Officer (CSO) in charge of HSE and Sustainable Development reports directly to the CEO and is an active member of the Executive Leadership team (ELT).

A Board Committee made of three administrators, the CEO and the CSO meets three times per year with a systematic review of the global HSE-SD performance, including near incidents, and a focus on specific risks to present the measures which were implemented to mitigate the exposure of the employees and contractors.

Deployment of Care & Protect

In 2022, we deployed the 2022-2024 goals of our "Care & Protect" brand. Set by our CEO, they present our Group HSE goals and highlight both the fact that all accidents can be prevented and the importance of proactivity in HSE. The business lines define every year a set of specific objectives aligned with the Group's 3-year goals. To further their implementation, executive staff and line managers have personal objectives on the matter.

We also reward projects at our "Care & Protect" awards, a yearly event that looks at the best practices among the Group for HSE and sustainable development.

The following projects were awarded in 2022:

- Health, Safety and Security Excellence Category

  The introduction of a geo locatable man down system was awarded the Care + Proect award for Health, Safety and Security Excellence. This initiative greatly improved the safety of staff during a distress situation. The solution included light and sound alarms on a high visibility vest, if the employee remains inactive an assigned caregiver will be notified with last known position coordinates displayed on an ariel image of the area.
- Sustainable Development Excellence Category

  Daily food donations made to local homeless and disadvantaged individuals was awarded the Care + Protect Award for Sustainable Development Excellence. The initiative provided over 30,000 meals to those in desperate need by redeploying canteen staff during the Covid-19 pandemic. This initiative had a huge positive impact on local homeless charities that struggled through the pandemic.

Security of employees and contractors

CGG has implemented a security intelligence and monitoring system to identify and assess threats in areas prone to security risks. The projects in the areas at risk are reviewed at the highest level. Their assessment is supported by security experts. Local security plans, tied to the Site or project, are put in place. In addition, all personnel receive regular security information on their country of operations.

CGG subscribes to the International Code of Conduct for Private Security Service Providers. CGG further recognizes the importance of the Voluntary Principles on Security and Human Rights (VOLPRIN) and supports its clients in implementing these.

All travel request to high-risk security areas goes to a review and validation process at the Group level.

Occupational Health & Safety

Our employees are exposed to certain health, safety and security risks in the course of their employment, which include physical and mental health risks related to working conditions, risks of workplace accidents and, for some of our employees, security risks related to the geographic and operational nature of their roles. Physical and mental health risks include, among others, improper or poorly designed working equipment that could lead to physical injury such as musculoskeletal issues as well as increased mental strain, job-related stress and workplace accidents at our sites, which could result in bodily injury, disability or death of one or more of our employees or subcontractors. We are also exposed to the risk of infection of our employees at the workplace due to exposure to harmful microorganisms such as bacteria, fungi or viruses. Potential exposure to biological agents, including to highly contagious ones such as the SARS-Cov-2 responsible for Covid-19, has created the need to implement extraordinary health and safety measures, entailing increased expense and operational complexity.

Major health or safety incidents could result in injuries, loss of life and disruption to business activities, each of which could result in enforcement proceedings or litigation. Moreover, this could result in material damage to our reputation, since customers place increasing emphasis on hiring providers of services, products and solutions with strong health and safety records.

Examples of mitigating activities

The following measures have been put in place to mitigate the risk of physical and mental health risks:

- implementation of a workspace/task specific ergonomics program, including provision of appropriate ergonomic equipment and training in its correct use;
- regular reviews of conditions and risks at various sites and implementation of action plans to address issues;
- delivery of health and wellness training to increase awareness of the risk and what people can do on an individual basis to manage fatigue and stress;
- provision of recreational and welfare facilities and implementation of tailored arrangements such as flex-time or working from home;
- HSE induction training, on-going HSE training for general staff (e.g. fire awareness) and specific advanced training for HSE specialists and HSE critical positions (Emergency Response Team, first aid, firefighting, risk analysis, defensive driving, etc.).

Covid-19 pandemic

CGG has continued in its proactive approach whereby its HSE community deployed and managed controls and mitigations, minimizing the impact on the health and safety of our employees and operations.

CGG has made a return to office-based working with contingencies in place should there be any confirmed Covid-19 cases.

The following measures have been put in place to mitigate the risk of infection caused by exposure to biological agents, and were implemented to combat risks resulting from the Covid-19 pandemic:

- we implemented Covid-19 specific response plans in all of our locations following overall Group and country specific guidelines and regulations. These plans provide for, among others:
  - restricted site access and front of house controls, such as temperature monitoring and Covid-19 questionnaire,
  - specific arrangements related to site occupancy to ensure a safety distance,
  - cleaning and disinfection protocols,
  - personal protective equipment and sanitizing materials to protect against contagion, and education on how to prevent the spread of infections, and
  - management of Covid-19 contact and positive cases;
- we deployed employee communication and awareness campaigns through multiple channels (including, e-learning, on our internal corporate website, via e-mail and through virtual sessions); and
- we implemented programs to combat risks related to homeworking, with a focus on preventing musculoskeletal disorders and impact on mental health. These programs provide for:
  - working from home ergonomics assessments and awareness campaigns,
  - providing employees with relevant equipment, devices and furniture to improve their work-environment,
  - virtual stretching and fitness sessions to reduce the risk of musculoskeletal disorders,
  - initiatives to maintain the social links between and among our teams using our collaborative tools,
  - an employee assistance program to address various difficulties faced by our employees on of topics (legal, financial, health, etc.),
  - educating managers and supervisors regarding how best to support a home workforce, and
  - access to webinars and external links supporting wellbeing and developing resilience.

3.4 GOVERNANCE AND SOCIETAL ISSUES

3.4.1 Business Ethics

Key Performance Indicators

KPIs	2021	2022
Percentage of employees that followed the Ethics e-learning course[c]	87%[a]	87%[b]
Percentage of employees that followed the Anti-Corruption e-learning course	96%[a]	83%[b]
Number of alerts received by the Ethics Committee	7	6

(a) Cumulative compared to the year 2020.
(b) Actual number for the year 2022.
(c) Excluding employees from Sercel 2022 M&As (GeoComp, Concept).

CGG and its stakeholders expect our employees to hold an irreproachable attitude in both our processes and our business conduct. Business Ethics at CGG focuses on creating value by complying with existing laws and rules and acting in an ethical manner. Compliance relates to the procedures which CGG will use to operate while ethics covers the individual actions of CGG employees in accordance with CGG's Ethics Policy and CGG's Code of Business Conduct.

A Compliance Department and an Ethics Committee

We have traditionally managed Ethics through the dedicated Ethics Committee and the Compliance Department. The Ethics Committee is constituted of five members (with representatives of the Human Resources, the Eart Data, Geoscience and Sensing & Monitoring business lines, as well as the Group compliance officer), based in different locations, to ensure both a diverse geographical and professional background and diversity. It meets every 5 to 6 weeks and presents yearly reports to both the Executive Leadership team and the Audit and Risk Management Committee. Annually, it also defines the priorities in terms of ethics and compliance, which are discussed and presented to the Audit and Risk Management Committee and validated by the CEO.

We have identified our key corruption risks and developed corresponding procedures to mitigate them and continued to reinforce our anti-corruption approach at Group level in compliance with Sapin II law. The Compliance Department, with the BLs and Finance teams, internal control, Group internal audit and enterprise risk management (ERM) have worked very closely to review, update and release our anti-corruption risk matrix validated by the Executive Leadership team and the Audit and Risk Management Committee.

Since 2021, we have been working with an external advisor to migrate this matrix onto a digitalized format (software application) with the aim of facilitating the reporting to the Management and follow-up of our action plans, while confirming our compliance with Sapin II requirements. In this process, we have updated and reviewed all potential corruption scenarios identified, in collaboration with the relevant departments/functions. The full update of this new version has been finalized in 2022. The digital tool allows each entity to map for itself the risks identified at group level: during individual interviews in the entities, 25 potential corruption scenarios were thus identified. A risk assessment is made individually and following these first individual results, CGG organizes a workshop to explain, understand and agree on the risk assessment. A consolidation at Group level is then carried out. Action plans are implemented directly by the entities.

We have also reviewed and updated the review process of our procedures to adapt them to the new size and organization of the Group.

In 2022, the emphasis was placed on monitoring and measuring the effectiveness of the policies and procedures put in place.

Fight against tax evasion

For this fiscal year, no consequences in relation to the Group's activities were identified regarding this issue during the implementation of the appropriate internal control measures.

Communicating on Business Ethics

Workshops and presentations on the Code of Business Conduct, the Ethics Policy and Compliance program have been organized throughout 2022 for the business lines, the support functions and the country managers. As part of our global awareness initiative, regular communication is sent to employees under several means. In 2022, four communications concerning ethics were sent by email to all employees. Also, activities were carried out throughout the year according to international events in order to raise employee awareness: Data Protection Day, awareness of sending and receiving end-of-year gifts, etc. For example, specific communication was made to employees for International Anti-Corruption Day that included general information and links to portals, resources and who to contact for assistance. Each communication is available on CGG's "In the Loop" tool.

Code of Business Conduct

The Code of Business Conduct (CBC) covers the Group's fundamental principles, and is structured around 3 major sections: (i) Protecting People and Environment, (ii) Protecting Business and Brand and (iii) Protecting Assets and Information. The CBC is voluntarily concise to maximize its impact.

The current version of the CBC (released in 2020) includes seven topics:

- fraud;
- data privacy;
- trade compliance;
- fiscal evasion;
- money laundering;
- social media;
- information systems security.

In 2023, the Code of Conduct will be reviewed and updated.

E-learnings

Six e-learnings are mandatory at Group level for all employees regarding different topics falling under the CBC (trade compliance, harassment, anti-corruption, information security, etc.). The intention is to update the existing e-learnings and develop new ones in addition to other communication tools on every topic covered by the CBC (such as one page of "DOs and DON'Ts" for topics such as Facilitation payments, Gifts& Entertainment, Donations and Charities).

Of these six modules, two were reviewed in 2022: in January on ethics and in June on the fight against corruption to raise awareness among all employees. In 2023, CGG's objective is to continuously improve the training modules. Although the e-learning modules are managed within the scope of each department, CGG ensures that these modules are aligned with the objectives of the Ethics Committee to ensure harmonized communication within the Group.

In 2022, we organized 23 training sessions/workshops for employees most exposed to corruption risks, in particular sales representatives and buyers to raise their awareness on the subject. The workshops are also accessible to employees who so wish. An e-learning course comprising 3 modules on ethics, corruption and compliance must be taken every year. The theme is also addressed during the annual legal and financial seminar to raise awareness among these populations.

Since this year and in order to assess the effectiveness of training, employees are questioned in three different ways: firstly on their expectations vis-à-vis their training, and then on the knowledge acquired during the e- learning. In addition and more generally, an annual survey is carried out in order to know their level of understanding and appropriation of these rules and procedures.

Identifying and reporting on Business Ethics

CGG updated and released its alert system on a web base solution in 2019, administered by an independent third party, supporting anonymous reporting to enable employees to report any suspected behavior conflicting with the CBC. Several other channels exist to complement this web alert. Any person can address their concern to their line manager, HR representative, in-house legal counsel, country manager, VP Group compliance officer or contact any members of the Ethics Committee directly. If needed, they can also send an email directly to the Ethics Committee. In 2022, 6 cases were reported to the ethics committee, which investigated them and concluded with an official report and recommendations. Of the 6 complaints, 2 were anonymous. The main issues raised by these complaints related to conflicts of interest and human resources issues.

2023 goals

In 2023, CGG wishes to:

- keep communicating on Ethics to reinforce awareness about this topic and the CBC;
- update the Code of Conduct and the ethics policy;
- launch at least two ethical communications on ethics to employees and provide more training in the Code of Conduct and Ethics in general;
- define the Key Risk Indicators (KRI) in order to measure the effectiveness of the compliance program;
- improve the efficiency of alert reporting.

3.4.2 Responsible Supply Chain

Key Performance Indicators

KPIs	2021	2022
Percentage of sourcing and supply chain employees that followed the anti-corruption e-learning course	95%[(b)]	86%[(c)]
Percentage of suppliers having signed the Supplier Code of Conduct or with a purchasing order mentioning the Supplier Code of Conduct[(a)]	100%	100%

(a) The Supplier Code of Conduct is in CGG Terms and Conditions automatically attached to all PO's. The traceability of the signature of the Code of Conduct by the supplier for transactions without purchasing order is still under implementation in 2022.

(b) Cumulative compared to the year 2020.

(c) Actual number for the year 2022.

The global performance of CGG depends partly on our suppliers' own performance in terms of delivering products and services. The Sourcing & Supply Chain Function in the organization is responsible for ensuring that the performance of CGG's suppliers is properly assessed. To this effect, CGG has written a Supplier Assessment Procedure which governs the assessment of our suppliers. Sustainability is one of its components as any fault in our suppliers' corporate responsibility could negatively impact the reputation of CGG.

Supplier assessment procedure

Main suppliers

For our main suppliers, we assess their financial situation and market position, their dependency on CGG as well as the risks related to their HSE & Sustainable Development, information security, trade compliance, legal & regulation performances.

Selecting new suppliers

All new suppliers which may pose an HSE risk are subject to a compliance audit with an audit report. They may also be assessed on the same metrics as for our main suppliers and at a minimum, must receive our Suppliers Code of Conduct.

When our supplier provides critical products or services, an onsite audit is conducted which covers quality, HSE and Sustainable Development metrics. Conclusions are also traced in an audit report.

Code of Business Conduct (CBC)

Our Group Code of Business Conduct (CBC), which covers protection of people and the environment, protection of activities and the brand, protection of assets and information, explicitly mentions that each subcontractor working for the Group must comply with the CBC.

Suppliers Code of Conduct (SCC)

We are committed to doing business with suppliers who conduct business in a safe, legal and ethical manner with respect for employees, local communities and the environment. Consequently, we ask of our suppliers to ensure their operations are undertaken in accordance with the commitments listed and that they sign our Supplier Code of Conduct.

It covers Business Ethics, Compliance, Local Communities, Human and Labor Rights as well as Health, Safety, Security & the Environment. This Code of Conduct is dated and signed (if applicable) by our suppliers.

If this is not possible (our suppliers may follow their own internal code and/or be so large that it would be impossible to follow all of their customers' codes), we may add terms in our purchasing orders mentioning that they should conform themselves to our Supplier Code of Conduct.

2022 events

In 2022, 86% of our sourcing and supply chain employees (IT sourcing managers, supply chain global managers and purchasers) followed an e-learning course on anti-corruption. Facially the drop in performance compared to the year 2021 comes from the change in the duration of the reporting period which runs over a year and a half for 2021 and only 6 months for the year 2022 as the new version of the e-training in anti-corruption was launched in June 2022 only.

In order to start monitoring the sustainability performance of our trading partners, CGG entered an agreement with EcoVadis, a trusted web-based platform providing sustainability ratings; the solution is still in its early phase of deployment.

2023 goals

In 2023, we shall accelerate our campaign requesting our main suppliers (i.e., those representing 80% of our annual spend) to join the EcoVadis program. We aim at disclosing in 2023 our first evaluation of the ESG performance of our Supply Chain and initiate a continuous improvement cycle on sustainability issues associated with our suppliers.

In 2023 CGG plans to recruit a resource directly attached to the Chief Sustainability Officer (CSO) to coordinate our actions on the supply chain, ensure the alignment of our sourcing strategy and ensure process efficiency and consistency across all of our Divisions. The continuous improvement of the ESG performance of our Supply Chain will be at the heart of this mission.

3.4.3 Relations with local communities

Key Performance Indicators

KPIs	2021	2022
Total Number of Social Development initiatives	**43**	**73**
Community service	*14*	*30*
Education	*15*	*18*
Environment	*5*	*17*
Health & Safety	*9*	*7*
Number of employees involved in volunteering	**663**	**612**
Number of volunteering hours	**468**	**4866**
Cash granted by CGG & employees (excluding Babyloan)	**US$52,100**	**42 236USD**

CGG wants to get involved in the local communities in which each of our sites operate. The latter are encouraged to act at their level in the local environment.

All main CGG sites (generally more than 50 people) have a Sustainable Development Committee. The 2022 cultural and social responsibility objectives have been cascaded to the Geoscience activity on a global level:

- work to develop a global community around issues of social responsibility, allowing CGG to have a global vision of the areas in which resources and efforts would be most effective, while increasing the impact of our efforts locally;
- work to improve the ESG culture through training and employee engagement campaigns throughout the year.

Local initiatives are not managed at Group level and decisions are made by each committee. In 2022, the maturity of the committees has particularly developed. In the United Kingdom, the objective was to develop the teams and encourage more local initiatives. 2023 objective is to materialize and implement these new initiatives.

In 2022 we maintained the same level of commitment to social development initiatives as last year. Our local social development actions have involved community services, charities, environmental preservation, education, health and safety.

73 projects were supported in 2022. Thanks to the digital internal reporting tool, called PRISM, all initiatives are monitored and measured: the progress, the type of initiative and the description of the projects are reported directly in the tool.

Many projects relating to education, the donation of computer equipment or even environmental challenges such as the "Annual Clean-up day" were carried out in 2022. Thus, in July 2022 in UK, employees presented their careers in the field of Geosciences to young female students. Also, a donation of clothes and toys was made for the inhabitants of the village of Olleras de Bustamante – Oaxaca in Mexico. At the same time, CGG was mobilized with the Red Cross to support the populations affected by the Ukrainian crisis.

Collective Agreements

CGG signed several Collective Agreements in some of the countries where we operate whenever it was feasible or required by law.

- in Singapore, we have a Collective Agreement with the union valid until 31 December 2024 that covers most of the element of the employee handbook (Grievance and termination Procedures, General terms and conditions of employment, salary negotiation, flexiwork and benefits);
- in North Wales (UK) We have a Recognition Agreement with the union UNITE which covers all employees at our North Wales establishments that includes Consultation, negotiation and agreement on all changes to terms and conditions – pay and benefits, policies, etc for all employees in the bargaining unit;
- in Brasil, we have the Union Agreement established yearly between CGG and Sindaut. The agreement covers Salary negotiation and local benefits;
- in Netherland we have an employee handbook agreed with union that covers most of the employer to employee contractual relationship;
- in France (CGG SAS and CGG Service), a collective agreement was signed with the union in 2007 it includes all rules applicable to the employment contract, remuneration and the termination of the employment contract. In Sercel SAS France, we also have negotiated agreements on Gender equity, disability, profit sharing scheme, workforce planning, salary increase for 2023. In addition for all of our French entities, there are specific agreements with regards to working hours and flexiwork, benefits (such as a health and welfare scheme), company savings plan and retirement savings plan, organization of election and rules governing the work council.

As of 31 December 2022, around 42% of our employees worldwide were covered by a Collective Agreement of some sort.

Micro-loans with Babyloan

Since 2012, CGG has developed a partnership program with Babyloan a micro finance organization. Over the years CGG has now invested €40,528 that were re-invested 17.4 times supporting 1105 projects to date resulting in a total amount loaned of €706,208 The field of activities covered by the projects we support are mainly agriculture (52%) and Trade (31%) and most of our micro-loans go to female entrepreneurs which represent 61% of the projects we financed since 2012.

Following the acquisition of Babyloan by Lendahand CGG account was transferred to Lendahand in November 2022. Lendahand is a crowdlending platform similar to Babyloan, its mission being the fight against poverty by creating jobs in emerging countries. Based in the Netherlands, the company provides financing for a wide variety of projects in 25 countries. Unlike Babyloan, loans on Lendahand give rise to interest rates, and the amounts raised for the benefit of their microfinance institutions and partner social enterprises are on a larger scale.

Accelerating startups

In collaboration with EFI Automotive, an independent international company, which develops innovative sensors, actuators and technological products for the automobile industry, a team of our Sensing & Monitoring (SMO) division engineers participates actively in AXANDUS, a group of seasoned experts in the field of product design, industrialization and international business development. Axandus accelerates the growth of innovative companies in the field of mechatronics and connected objects, helping them scale up quickly for mass production and international markets. Among other startups, Axandus has been working in 2020 with AMBPR, an innovative company developing autonomous blasting and painting robots for shipyards. The fit with the know-hows required by AMBPR have led SMO to acquire a majority stake in the Company, and to become its sole industrial partner and to accompany its development on the long term.

2023 objectives

In 2023 CGG wishes to:

- further support local communities;
- develop ESG committees on each site so that they are more efficient;
- set up an ESG forum accessible to all as part of the implementation of an internal social network within the company in 2023;
- encourage the commitment of its employees to long-term volunteering.

3.5 CUSTOMER SATISFACTION AND INTELLECTUAL PROPERTY

3.5.1 Customer satisfaction

Key Performance Indicators

KPIs	2021	2022
CGG position in the Kimberlite[a] review	Ranked highest performing Supplier	Ranked highest performing Supplier[b]
Sercel position in the *Voix du Client*[a] review	Ranked highest performing Supplier	Ranked highest performing Supplier[b]
Completion rate of Equipment division internal quality objectives	84%	83.4%

(a) "Kimberlite" and "Voice of the Customer" are external surveys commissioned by CGG which relate to customer satisfaction and the perception of CGG by the market. (See "External Studies" for more information on Kimberlite and see "Sensing & Monitoring Division" for The Voice of the Customer.

(b) 2021 performance. THere was no survey in 2022

As a high-end player, CGG consistently provides the highest quality products, data and services available in today's competitive market. Our highly ranked customers' satisfaction is achieved through an "on time" provision of best-in-class reliable products, data and services.

As such, customer satisfaction is a major concern for CGG and the Group has developed a strong quality policy to this effect.

CGG quality & customer satisfaction policy

CGG's quality policy, reviewed and signed by the Chief Executive Officer (CEO) in 2022, aims to:

- create value by optimizing the discovery, development and management of the Earth's natural resources;
- understand and solve global natural resource, environmental and infrastructure challenges for a more sustainable future;
- promote the development of environmentally sustainable activities and progress towards our ambitions to reduce GHG emissions for 2030 and 2050.

To this end, we are committed to:

- deliver the highest quality service to our customers and constantly improve internal and external performance. It is a key element of the company's sustainability and financial performance;
- use our resources efficiently through good project management practices;
- develop the skills and knowledge of all our employees in order to meet our common ambitions;
- continually improve the quality and performance of our products and services by relying on our talents and technological innovation;
- develop a virtuous circle of performance improvement in all aspects of our business, including with our suppliers and subcontractors;
- listen to our customers and exceed their expectations;
- constantly improve our products and services, relying on our talents and technological advances.

The application of this policy is supported by quality and performance objectives, which, although adapted to each sector of activity to be relevant, are guided by two overriding objectives:

- monitor customer satisfaction: take customer feedback into account, follow up on issues raised, implement corrective actions and share examples of exceptional practices;
- align talent, organization and dialogue with employees, so that each activity is recognized as a leader in its field.

Customer satisfaction is monitored through surveys conducted with CGG customers and external studies. This combination allows us to get direct feedback on a range of key performance indicators, to benchmark our performance against previous projects and our direct competitors. Additionally, using the Net Promoter Score also allows us to benchmark against other industries. It tells us about our customers' loyalty to CGG. The feedback we have received in 2022 has been incredibly positive, placing us at the highest levels in all sectors measured.

A new customer satisfaction survey will be carried out in 2023.

CGG customer surveys

Like project teams and management, CGG key account managers monitor the development of their projects. They are the client's first contact in case of issues or opportunities. They are responsible for their customers globally.

Our projects generally provide for occasional satisfaction surveys during the various phases of execution. This allows us to be proactive, improve our level of service, our overall results and the customer satisfaction throughout the delivery phase of projects. Customer interaction is continuous throughout a project and we always strive to act on a feedback immediately rather than wait. These are then followed by formal evaluations at the end of the project.

At the end of each project, two types of evaluations are launched:

- the first is sent to our clients' teams working directly with us to measure the successes and improvement areas of our experts and project management. This helps us identify any lessons that need to be learned;
- the second is end user evaluations. Sent several months after the project completion, they target the assets or interpretation teams of our clients and aim to better our understanding of the real-world application and technical success of our products and services.

Business lines review the customers' satisfaction periodically, including monthly management reports which review the actions currently being undertaken. Quarterly feedback reports then update staff on the current customer satisfaction results, and an annual customer satisfaction report is sent each year to all staff to present a global view of the year's performance.

External third-party reviews

Kimberlite is a third-party market research company which provides CGG with an external point of view of both the market's view of CGG and of its recent customers' satisfaction for our products and services (it surveys only customers which worked with CGG within the last two years). This report is produced every two years and the next one will be based on the research material collected in 2023.

We use this third-party survey and report to position ourselves on the market and identify our strengths and potential improvement areas. A summary of the report is sent and reviewed by the CEO.

Sensing & Monitoring Division

For our Equipment division, customer satisfaction is also synonym with quality. We are committed to meeting our customers' expectations in terms of the reliability, quality and delivery of the products we provide. Our customers expect an equally high quality of service: expert support teams, up-to-date trainings and fast reactions. We must do our utmost to be the most dependable supplier to all our customers to maintain our leadership position.

To pilot and monitor quality levels at Equipment level, we have set annual objectives. These objectives are set and then adapted in collaboration with each Sercel Site Manager.

The Sensing & Monitoring division has set three key objectives in terms of quality:

1. cost of non-quality;
2. customer satisfaction;
3. operational and system continuous improvement.

Those objectives are monitored to analyze processes, product quality, financial efficiency and customer satisfaction. Monthly reviews are conducted to evaluate the progress on each of the objectives set. Some of our employees also have individual incentives linked to quality.

To monitor our customer satisfaction externally, the Marketing and Sales Department conducts a survey every two year which identifies our strong points and improvement areas. After an interruption during the Covid-19 pandemic, a new "Voice of the Customer" study for SMO will be conducted in 2023.

As part of the "Voice of the Customer" study, our customers will review us and others on a wide range of criteria (including on-time delivery, reparability, quality of products, ease of use and customer support). When last surveyed in 2018, the Sercel brand ranked highest, including on quality and reliability of its products.

We are recognized internationally as a leader in our field. SMO also prides itself in the fact that all our sites have been certified ISO 9001 (v2015) and that during the last three years, there has been no major operational disturbance caused by its products on the field while recording data.

We firmly believe that the quality of our Sercel products is matched by the quality of our services and that both together contribute to our customers' satisfaction. Our experts train our customers onsite, get out on the field for the launch of our machines, and will only leave once the customer is satisfied. In addition to our field experts, we have a 24/7 hotline which will assist our customers. If the hotline cannot find a solution to our customers' solution, an expert will be sent to assist in person.

One of Sercel's strengths is its proximity to its customers. SMO's main objective is to better understand the needs of its customers in order to respond to them quickly. This is why the commercial representation teams as well as the experts are present in the offices or directly on sites in order to help, advise and intervene directly with the customers if necessary. SMO teams are present on customer sites abroad such as China, the United States, India or Dubai for example.

In 2022, out of 199 quality objectives identified on our SMO sites, 166 projects were carried out, i.e. 83.4%.

3.5.2 Intellectual property (IP)

Key Performance Indicators

KPIs	2021	2022
Total capital expenditure (mUS$)	65	57
Share of Group revenues invested in research and development	6%	6%
Share of SMO revenues invested in research and development	11%	16%
Share of CGG (excluding SMO) revenues invested in research and development	4%	2%

	2021		2022	
KPIs	Titles	Patents	Titles	Patents
Number of CGG Geoscience patents	378	277	418	**323**
Number of Equipment patents	780	620	787	**650**

CGG invests heavily in R&D and relies on new innovation to offer differentiating products and services to its customers. Effective management of our intellectual property rights is key to protecting our investments and leading-edge innovations from being unlawfully accessed by external sources, and to ensure CGG respects IP rights belonging to other parties.

Our IP rights are managed through dedicated IP Departments that works closely with the various innovation departments of CGG. We have a Group policy that provides specific adaptations for each business line, with the goal of considering specificities related to their products and services. In particular, a unique General Instruction document addressing various sections of IP called "Protecting and Managing Intellectual Property" has been deployed within the Group. We continue to update our documentation and procedure to guide our employees to understand the procedures to follow for all IP matters Our IP Department provides internal counselling and advice, and engages external specialists to assist the Group with specific matters if and when they arise. All employment contracts contain the protection of CGG intellectual property rights.

We hold regular IP reviews at various business level for covering internal technology developments and issues. We regularly check competitors' patent activity in our core business with a dedicated Patent Watch and we also compile and update competitive IP landscape on core and diversification technologies several times a year.

In the Geoscience division, our IP focus is the protection of the innovative algorithms, workflows and system design. The IP team works closely to define the ownership of each element of the data we produce and of their use and prevent any potential confusion or litigation.

In the HPC & Cloud Solutions division, we ensure that our innovations are protected, which includes our algorithms, our workflows, our solutions, our knowledge and the design of innovative data center systems – including technologies of cooling, while ensuring that any development requiring specific patent protection is also protected.

In SMO, product development teams follow a methodology called "Maestro" which covers, among many other topics, IP rights. As a result of its full deployment, the development of products or services follows a dedicated workflow which is characterized by validation milestones which includes IP matters.

In the "Beyond The Core activities", we ensure that our innovative developments for our diversification activities are protected, which includes all innovative algorithms, workflow, solutions and knowledge, along with ensuring that any developments requiring specific protection are patented.

2022

Actions initiated in 2021 were pursued and consolidated, with organization of training sessions for employees, and the deployment of solutions for retention of know-how and related IP (see the relevant chapter for employee retention). New employees are trained through e-learning courses as soon as they join. The head of the IP division also provides training at the request of her teams according to their needs. R&D employees are mainly trained to ensure confidentiality rules. At CGG, 100% of employees have access to continuous training. Regular reminders are made throughout the year.

As a result of the actions implemented by the Group, no IP right infringements litigations were brought against CGG in 2022, as was the case the previous year.

3.5.3 Information security

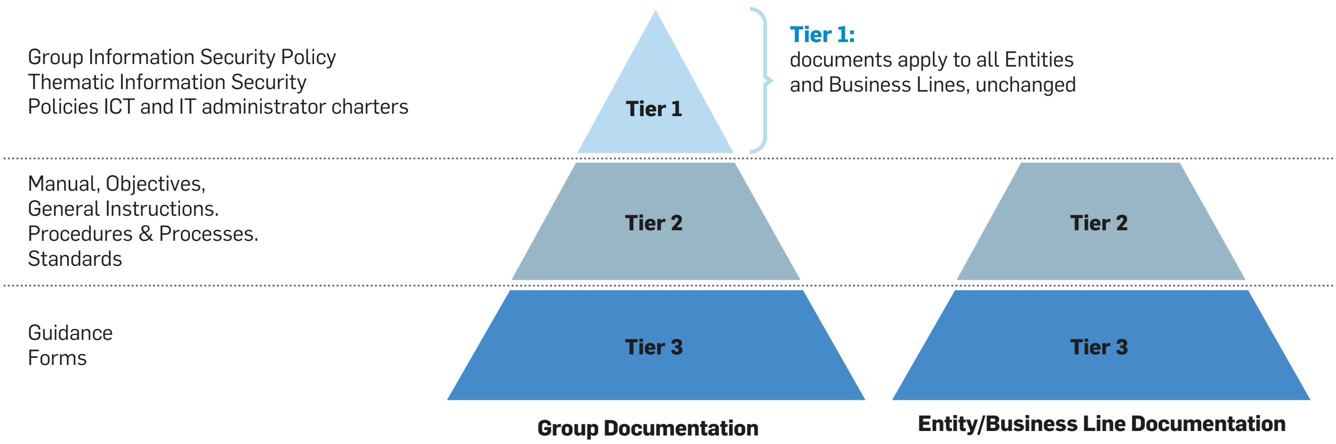
Key Performance Indicators

KPIs	2021	2022
Number of InfoSec incidents with a significant impact	0	0
Participation rate of the InfoSec e-learning	67%	86%
Number of people trained directly onsite by the InfoSec team	0	307

As the Group creates value by processing data, data management and data protection are a crucial component of our business conduct. CGG makes every effort to protect the information of its clients, employees and partners.

We have a three-tiered Information security management system (ISMS). Its goal is to prevent breaches that could impact the confidentiality, availability and/or the integrity of CGG information assets.

Policies are defined at Group level (Tier 1) and apply to all entities and business lines. Those policies remain unchanged for all but can be adapted at business line level through manuals and procedures, processes and standards with more specific objectives (Tier 2). The Tier 3 covers guidelines and forms. The three tiers cover topics such as Human Resources Security, Operational Security, Incident Management and Supplier Relations.



The Group Information Security Policy (GISP) is signed by the Chief Executive Officer for the entire Group. A Chief Information Security Officer (CISO) leads a dedicated information security team to oversee its application, supported by regional information security officers and business information security officers. The GISP concerns all entities including our Sensing & Monitoring division. A cyber risk map is updated at least every year and according to current events. The effectiveness of the measures taken to manage risks is monitored by a dashboard of internal KPIs.

The CISO is placed under the supervision of the Group Steering Committee (which includes the Chief Executive Officer) and to the Audit & Risks Committee of the Board.

CGG considers its employees as the strongest line of defense. To this effect, Information Security e-learning is mandatory annually for all employees and is updated on a regular basis. In addition, the Group performs in-person Information Security Awareness training when possible to reinforce the message. Unfortunately, due to the Covid-19 pandemic, this has not been possible in either 2020 or 2021. Given the poor training results in 2021, we have intensified our cyber risk awareness actions in 2022. Thus, by making training mandatory, the rate of participation in the online training module devoted to information security has increased. We have also added the possibility of carrying out the training in another language in order to facilitate understanding of it. Now, the online training is available in English and French. For specific user profiles, in addition to e-learning, employees are invited to one on one individual refreshing.

We have implemented several technical measures to secure our information systems. These controls include, but are not limited, to network firewalls, intrusion detection systems, multi-factor authentication, virtual private network (VPN) and network segmentation. Security updates are systematically deployed.

In order to continually evaluate our exposure and identify areas for improvement we conduct weekly vulnerability scans of our infrastructure, quarterly phishing simulations covering all employees and annual third-party penetration tests of our perimeter and critical systems, resolving any findings appropriately.

A global review of the Group Information Security Management System (ISMS) started in 2019, and was completed in 2021 to align it more closely to the National Institute of Standards and Technology (NIST) Cyber Security Framework. This revision of our ISMS was rolled out to the entire Group in 2022 in order to better meet the demands and expectations of our customers.

The framework is based on five major elements, each containing several sections of controls. The existing and desired state of these controls is analyzed and a current and a target profile is created. These profiles are then used to determine projects and actions to close any gaps, leading to a stronger security posture.

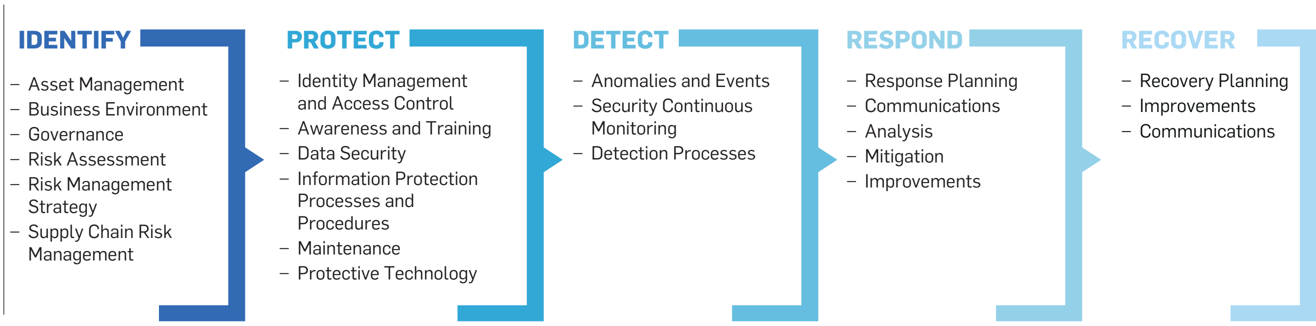
2021 objectives were achieved in 2022. At the same time, faced with the Ukrainian crisis, we had to restrict access to our network and step up our actions.

Our main objective in 2023 is to maintain and reinforce our level of security.

2023 objectives

In 2023, CGG wishes to:

- deploy new generation firewalls to reinforce the security of our network;
- strengthen network access control;
- reinforce vulnerable software.



3.6 ENVIRONMENTAL PERFORMANCE

3.6.1 Energy efficiency and carbon footprint

Key Performance Indicators

KPIs	*2019 base line*	2021	2022
CGG Power Usage Effectiveness (PUE)[(a)]		1.35	1.42
Carbon Footprint Scope 1 (kt CO_2eq)	337[(b)] 3[(c)]	2	2[(d)]
Carbon Footprint Scope 2 (kt CO_2eq)	55	43	39[(e)]
Carbon Footprint Scope 3 (kt CO_2eq)	278[(b)] 165[(c)]	242	654[(f)]
Low emissions energy mix (% of Scope 2)		36%	51%
Green Company cars (hybrid/electric) (%)		38%	56%

(a) On the perimeter of our 3 main data centers US, UK and Singapore. Ratio of total energy consumed to energy actually used by IT equipment.
(b) With the Acquisition business.
(c) Outside the Acquisition business.
(d) Excluding cooling gaz.
(e) Excluding district heating for our Chinese site in Xu Shui.
(f) In 2022, scope 3 includes for the first time the downstream impact of products sold by the SMO division.

Given climate change and the growing expectations of stakeholders, CGG considers CO_2 emissions and energy efficiency to be a real opportunity for its activities.

Environmental and climate policy

CGG's environmental policy is based on the ESG policy reviewed in 2022 and validated by General Management. Four commitments have been made with the objective of reducing CGG's overall carbon footprint:

1. reduce the carbon footprint at all levels of the value chain: focus is placed on scopes 1 and 2 with the ambition of emitting net zero emissions by 2050. In 2030, the objective is to halve emissions compared to 2019;
2. encourage and support local internal initiatives in line with 2030 ambitions and our 2050 net zero emissions target: the levers are the energy optimization of data centers, the integration of renewable energy into the energy mixes used by CGG and to renew the entire fleet of company cars for low-carbon vehicles;
3. work to improve the ESG performance of the supply chain: the evaluation of the ESG performance of suppliers and a focus on the carbon footprint of the outsourced acquisition of data for the Multi-Client activity are the main objectives;
4. develop and offer products and services that promote the sustainability of activities: for the Sensing & Monitoring division, the objective is to eco-design products to reduce our impacts and those of our customers. We also want to develop our Energy Transition and Environment activities towards less-emitting activities.

In addition to its environmental policy, CGG launched an energy sobriety campaign in 2022. CGG closely monitors its energy consumption. Also, CGG has generally negotiated and signed fixed price contracts with energy companies.

CGG will achieve net zero emissions by 2050

Aligned with the Company's longstanding commitment to act responsibly and minimize the impact of its activities on the environment, in every sector of its business, CGG has announced its pledge to reach net zero emissions by 2050 in scopes 1 & 2 of the greenhouse gas (GHG) protocol.

Company-wide efforts are focused on continuing to improve the power usage efficiency of its data centers, offices and factories, along with increasing the share of sustainable energy in its energy supply mix, mainly through the energy purchased from utility providers.

To reach this long-term target, CGG has also set itself an intermediary milestone to reduce by half its 2019 levels of scope 1 & 2 GHG emissions by 2030 *(in relative values compared to emissions per unit of turnover for the Equipment division and per unit of computing power for our data centers)*.

- In 2022, our carbon intensity per petaflop fell by 50% from 177.4 tCO_2eq/pflop in 2019 to 88.6 tCO_2eq/pflop. The face value of the corresponding scope 1 & 2 emissions fell by 30% to 31 $ktCO_2$eq.
- In 2022, our carbon intensity per million \$ of revenue for our Sensing & Monitoring division increased by 17% from 28.5 tCO_2eq/m\$ in 2019 to 33.4 tCO_2eq/m\$. Directly linked to the volume of business, this ratio is extremely volatile, indeed over the same period the turnover of SMO fell by 40% as well as the face value of the corresponding emissions which in absolute value fell by 30% compared to 2019 to settle at 9 $ktCO_2$eq.

After exiting the geophysical data acquisition services business in 2020 and becoming an asset-light people, data and technology company, CGG has already considerably reduced its scope 1 carbon footprint. Our pledge to become net zero by 2050 also aligns well with our commercial strategy of continuously advancing our technologies to best support our clients in achieving both their business and transition goals.

Advanced high-performance computing (HPC)

As a HPC company, we require a very large data processing capacity and own our own internal servers and facilities.

Our dedicated infrastructures are spread over three major sites: Houston (United States), Redhill (United Kingdom) and Singapore. Each site acts as a regional hub, and while we have several other computer rooms throughout the world, they represent a small share in computing power and energy consumption.

To monitor our three hubs' energy consumption and efficiency, CGG analyses its energy bills and follows their power usage effectiveness (PUE). Where applicable and economically sound, we also implement measures to reduce our energy consumption.

Most of the computing traffic is done on our American and British sites, which represent approximately 60% of our global electricity consumption and which are therefore a priority for carrying out actions to reduce energy consumption.

Reflecting the growth of our business in providing a cutting-edge high performance computing (HPC) service to our customers, both in the energy sector and in other industries, a transition to a new purpose-built UK site began in 2021 and will be finalized in late 2023. This larger site will incorporate improved energy efficiency through new cooling technologies, building on our decade of innovation in immersion technology. This new data center will also accommodate future expansion opportunities.

With the gradual commissioning of this new HPC center in the United Kingdom, we are beginning the technological upgrade of our main computing centers to both support the needs of our activity and our diversification, but also to meet our commitment on power usage efficiency by 2030. With this in mind, in 2022 we also initiated a feasibility study for the gradual upgrade, starting in 2024, of our main computing center in Texas.

CGG, an early adopter of renewable energy sources for its UK business nine years ago, in 2021 reinforced its commitment to green energy by ensuring that 100% of renewable energy is used to power all of its UK operating sites. CGG assessed suppliers' energy portfolios, supply stability and transparency, carbon emissions and reinvestment practices, and examined legitimacy beyond published REGO statements. The 100% renewable energy contract also covers the new UK center which will provide high performance computing (HPC) resources for CGG's global business and for a number of its key customers.

At the same time, in Texas, a third-party organization manages the energy mix and publishes the share of electricity from renewable sources every month. In France, all sites are backed by electricity contracts with guarantees of origin. The Sercel site in Nantes is studying the installation of photovoltaic panels, which would allow the Group to strengthen its energy mix.

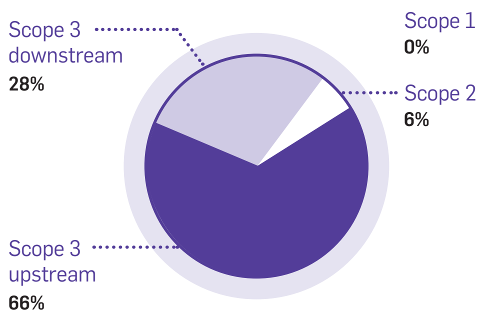
Greenhouse gas emissions calculation

CGG has been measuring, calculating and publishing its greenhouse gas emissions for more than ten years. 2019 was used as a reference for its objective of reaching net zero emissions by 2050 for its scopes 1 and 2. On previous years, this measurement of the carbon footprint includes only upstream scope 3 emissions and downstream freight.

In 2022, CGG has expanded the measurement of its carbon footprint to include in particular the carbon footprint of the main products sold by the Sensing & Monitoring division, namely vibrator trucks, 508^{XT} telemetry, terrestrial and marine nodes, streamer sections and downhole instruments. The carbon footprint of the products and services sold by the Geoscience, Earth Data and HPC & Cloud Solutions divisions is still marginal but should increase in the short term with the development of "Cloud as a Service" solutions.

These emissions, estimated according to the GHG protocol model, are now included in our scope 3, which brings our total emission of scope 3 at 654 KtCO_2eq for 2022.

EMISSIONS 2022



Our energy efficiency targets:

- the energy efficiency of our 3 main data centers (Houston, United Kingdom and Singapore) will drop below 1.2 by 2030. The new data center in the United Kingdom will be operational in 2023 which will allow us to decommission the obsolete Redhill center. And we will begin in 2024 the transition from our center in Houston to a new center in Texas, which will allow us to confirm our course towards achieving our ambitions in terms of energy efficiency for 2030.
- In 2022, the share of low-emission electricity in our total scope 2 consumption reached 51% and has therefore already exceeded the 50% target we had set for 2030. We are maintaining our target of reaching 90% 'by 2050.
- our fleet of company cars will be 100% electric by 2050. In France, all company vehicles at the end of their leases are converted into electric or hybrid cars. In addition, CGG encourages carpooling on its various sites. In the United States and the United Kingdom, CGG financially helps employees to purchase "greener" vehicles. At the end of 2022, 56% of our fleet of company vehicles was either hybrid or electric.

3.6.2 Biodiversity protection

Key Performance Indicators

KPIs	2021	2022
Number of species identified by QuietSea™	9	9
Number of vessels equipped with QuietSea™	4	4

CGG's main impact on biodiversity is linked to the acquisition of seismic data in the marine environment, either through the activity of our Earth Data division, which subcontracts marine data acquisition campaigns, or through the sale of geophysical equipment by our Sensing & Monitoring (SMO) division.

Earth Data

All offshore seismic surveys sponsored by CGG as part of its data library activity are subject to a preliminary environmental impact study (EIA) and are carried out in accordance with the national and international environmental regulations of the countries in which we operate.

During operations, Earth Data's subcontractors apply the EIA prevention measures on board their ships and more particularly the prevention measures to mitigate the risk of impact of noise emissions on marine mammals. The security perimeter and the monitoring methods implemented vary according to the risk assessment and depend on the ecological sensitivity of the acquisition area. Acoustic sources are systematically activated gradually, ensuring that there are no marine mammals within a radius of at least 500 meters around these sources. The implementation of these verification measures reduces the risk of harming marine mammals, the controls are visual, with a person on board watching for signs of animal presence or by acoustic detection with sensors capable of identifying the sounds emitted by marine mammals.

Earth Data (EDA) monitors the performance of its subcontractors by systematically having a representative on board during all seismic surveys, often accompanied by an HSE specialist. EDA also systematically uses third-party operators for passive acoustic monitoring of marine mammals as well as observers for visual detection. There were no environmental incidents on our offshore multi-client operations in 2022.

Sensing & Monitoring

The acquisition of seismic data is based on signal emission technologies by acoustic sources. These emissions can in certain operational conditions disturb the animal world, particularly marine mammals whose hearing is the most developed sense.

A visual or acoustic control requires a person on board the boats who continuously watches for the presence of mammals. Visual inspection can be difficult at night or due to lack of visibility. To limit the risk of not identifying the presence of animals, SMO has developed a unique tool on the passive acoustic control market, Sercel QuietSea™.

Indeed, QuietSea™ sensors are designed to be directly integrated into Sercel's Sentinel seismic acquisition systems or navigation systems, reducing the risk of accidents during the deployment, withdrawal or operation with specific antennas for passive listening. As a result, downtime and equipment replacement costs are significantly reduced. This solution also makes it possible to reduce the number of people on board and greatly increases the reliability of detecting the presence of marine mammals.

By the end of 2022, the QuietSea™ system was able to identify whales (blue whales, fin whales, humpback whales) and toothed whales (dolphins, sperm whales, porpoises and beaked whales, excluding pygmy sperm whales) . The numerous tests carried out have validated the high level of precision in measuring the distance and geolocation of animals.

In Australia, regulations (NOPSEMA) impose an automatic detection system: to date, Sercel QuietSea™ is the only system on the market that can meet this requirement. Elsewhere, QuietSea™ has been validated for use in the US (BSEE/BOEM), UK (BEIS/JNCC) and Mexico (ASEA).

Beyond the equipment of boats, the system can also be used on autonomous energy buoys, opening the possible field to new utilization possibilities such as, for example, the development of wind turbines at sea which could be an interesting outlet. During the impact study, installation and operation of wind turbines, Sercel QuietSea™ can detect mammals and can be coupled with animal population census systems to assess the impact of wind turbines on wildlife.

SMO also strives to further control the sound spectrum emitted by the compressed air guns used by seismic sources to reduce the impact on animals as much as possible. By reducing the spectrum of frequencies emitted, and in particular the high frequencies, this makes it possible to use only the band useful for seismic imaging while reducing the spectrum heard by marine mammals. Two Sercel products have been revised according to this principle of reduced frequency band: Bluepulse and TPS which are complementary depending on the type of imaging desired.

3.6.3 Other environmental impacts

Key performance indicators

KPI	2022
Weight of waste generated	**1,170 tons**
– Hazardous waste	*79 tons*
– Non-hazardous waste	*1,092 tons*
Weight of waste treated	**1,150 tons**
– Recycled or treated waste	*723 tons*
– Incinerated waste	*268 tons*
– Landfill waste	*159 tons*
Water consumption	**169,843 m^3**

Waste management

In order to underline our commitment to the protection of the environment, we strive to have an efficient approach to waste management, respecting legal and regulatory requirements.

In terms of waste management, CGG has developed its approach in accordance with international and industrial practices, with the ultimate goal of minimizing the impact of the waste produced by our activity on the environment and health.

Six main principles are applied:

- Delete: we try as much as possible to avoid producing waste;
- Reduce: where it is not possible to eliminate waste, we are committed to minimizing our waste production through judicious purchasing, optimized selection and substitution of materials;
- Reuse: before scrapping, we examine all possibilities of reusing;
- Recycle: CGG recycles (to the extent facilities are available) anything that cannot be reused or reallocated;
- Recover: once an item has been examined for reusing or recycling, then the possibility of sending it to a facility for the extraction of materials or to be used as an energy source will be considered;
- Dispose: When all other options have been exhausted, the waste is sent to a landfill or official disposal facility approved for use by local authorities or governments.

Each of our sites is responsible for setting up waste management by evaluating the materials entering the site in relation to the local availability of recycling and waste collection networks. The first step is to use resources efficiently and reduce consumption.

The overall volume of waste by type of waste as well as their method of treatment is recorded as an environmental indicator in CGG's PRISM reporting system.

For the SMO division, the figures are used and communicated internally to the site management as part of an annual Health Safety and Sustainable Development review, in order to understand and analyze our waste production, which helps us to measure and improve our performance. SMO pays particular attention to plastic: both in terms of consumption of plastic material and in terms of disposal of plastic waste: thus, in all of our activities we aim to reduce our consumption of resources by eliminating virgin and single-use plastics. Together with our main suppliers, we encourage the elimination or reduction of plastic packaging at source.

On the Group's other sites, since 2021 we have generally banned the use of single-use plastic in our tea rooms and canteens when we had control of them.

We have a procedure in place for the recycling of our IT equipment and we contract locally with specialized companies for the recycling process where appropriate. Note that most of our servers are rented so we usually return them to the leasing company. In the rare cases where we buy back this equipment, our recycling procedure applies when the servers are no longer used.

In 2023 we are planning a global awareness campaign on waste with the aim of improving the quality and reliability of the data that is reported in our systems in order to improve the quality of our reporting on this subject.

Water consumption

Due to its activities, CGG does not have an important water consumption and we do not foresee any specific risk related to water stress in the future as a result of global warming.

In 2022, the total water consumption reported in our PRISM tool amounts to 169,843 m^3.

For our division SMO, 70% of the water consumption comes from the surface treatments necessary for the manufacturing of geophones on our site in China, 20% is related to the extrusion process used on our sites in the US and Holland, the rest corresponds to the consumption of sanitary facilities.

Apart from SMO's industrial activity, the Group's water consumption is mainly related to sanitary facilities and the watering of green spaces. This year, we deplore a major leak at our Houston Town Park site in the US which had a strong impact on consumption, all aggravated by an episode of drought which required an additional effort to water the green spaces. As a result, our Town Park site in Houston represented 97% of our water consumption in 2022 outside the industrial sites of the SMO division.

In 2023 we are planning a global awareness campaign on water with the aim of improving the quality and reliability of the data that is reported in our information systems in order to be able to guide our actions in terms of reducing our consumption.

3.7 EU GREEN TAXONOMY

3.7.1 EU Taxonomy at a glance

The EU Taxonomy is a tool to help investors, companies, issuers and project promoters navigate the transition to a low-carbon, resilient and resource-efficient economy.

The Taxonomy sets performance thresholds for economic activities which:

- make a substantive contribution to one of six environmental objectives (see table 1);
- do no significant harm (DNSH) to the other five, where relevant;
- meet minimum safeguards (e.g., OECD Guidelines on Multinational Enterprises and the UN Guiding Principles on Business and Human Rights).

The performance thresholds will help companies, project promoters and issuers access green financing to improve their environmental performance, as well as helping to identify which activities are already environmentally friendly.

In doing so, it will help to grow low-carbon sectors and decarbonize high-carbon ones.

TABLE 1: ENVIRONMENTAL OBJECTIVES

1. CLIMATE CHANGE MITIGATION	2. CLIMATE CHANGE ADAPTATION	3. THE TRANSITION TO A CIRCULAR ECONOMY
4. POLLUTION PREVENTION AND CONTROL	5. THE SUSTAINABLE USE AND PROTECTION OF WATER AND MARINE RESOURCES	6. THE PROTECTION AND RESTORATION OF BIODIVERSITY AND ECOSYSTEMS

● *Applicable from financial year 2021* ● *Only applicable from financial year 2023*

3.7.2 Activities covered by the Taxonomy

Economic sectors and economic activities included in the Taxonomy to date have the potential to make a substantial contribution to climate change mitigation or climate change adaptation. The approach differs for each of these objectives, reflecting their nature.

For climate change mitigation, sectors responsible for 93.5% of direct greenhouse gas emissions in the EU were prioritized when identifying economic activities for which technical screening criteria were developed. Sectors that have a large emissions footprint were prioritized and identifying activities making a substantial contribution to climate change mitigation in these sectors is likely to have a large impact.

Among CGG portfolio of activities, three of them make a substantial contribution to climate change mitigation:

NACE	Sector	Activity #	Activity
J63.11	Information and communication	8.1	Data processing, hosting and related activities
J61, J62, J63.11	Information and communication	8.2	Data-driven solutions for GHG emissions reductions
E39.00	Water supply, sewerage, waste management and remediation	5.12	Underground permanent geological storage of CO_2

3.7.2.1 Data processing, hosting and related activities (activity 8.1)

As a specialist in high-performance computing, CGG must be able to rely on a very large data processing capacity and have its own servers and internal infrastructure.

Our dedicated infrastructures are spread over three major sites: Houston (United States), Redhill (United Kingdom) and Singapore. Each site serves as a regional hub.

All of the activity that passes through these computing centers is eligible under the taxonomy.

However, as far as alignment is concerned, only 2 out of 3 units at our Houston data processing center use a refrigerant gas with a GWP (global warming potential) index of less than 675. In 2022 our other data processing sites do not meet this alignment condition.

We have also started a gap analysis with the European Data Center Energy Efficiency Code of Conduct best praticefor our aligned centers. We will have the correct orientation of our own practice checked over the next three years according to the technical examination criteria recommended by the Taxonomy.

Eventually, with our new center in the United Kingdom, which will be operational at the end of 2023 and with the gradual upgrade from 2024 of our largest center, in Houston, all of our data processing, data hosting and related will be fully aligned.

3.7.2.2 Data driven solutions for GHG emissions reductions (activity 8.2)

Our integrated Energy Transition & Environment Department was formed during 2021 to facilitate the rapid growth of the business initiatives launched in 2020 in the domain of Environmental Monitoring and Low Carbon Transition solutions. It provides data driven solutions to climate change mitigation in the following domains *(for more details on these activities please refer to section 3.2 of this Document)*:

- Carbon Capture, Utilization and Energy Storage (CCUS) which is one of the big hopes for de-carbonizing our atmosphere and heading-off climate change. In 2022 this included a variety of imaging projects focused on evaluating CCUS storage and multi-client data sales to support CCUS projects around the world. As this is essentially a data processing activity, it is already captured in activity 8.1 and we decided not to report it under category 8.2 so as not to create duplication.
- geothermal energy: traditionally exploited in tectonically active areas, where CGG has consistently played a role through its multi-physics imaging team. There is a new push to exploit geothermal energy in sedimentary basins and this brings new opportunities for CGG;
- environmental science: observation of the Earth via satellite, drones, etc., combined with surface measurements (geological, atmospheric, etc.) lead to a multitude of data relevant to assisting people solve many of the environmental issues facing the world today;
- satellite enabled solutions: CGG has a long history of processing and interpreting satellite data. The possibility of realistically doing real-time monitoring of a large range of surface facilities is now upon us. This, combined with the growing ability to measure environmental data from satellites, makes for a rich domain in which CGG can play a substantial role.

If we consider the revenue criterion, the last three solutions mentioned above in their strict application to the reduction of GHG emissions are not yet mature and do not yet generate sufficient activity to be included in this report.

3.7.2.3 Underground permanent geological storage of CO_2 (activity 5.12)

Although we are actively engaged on the Carbon Capture, Utilization and Energy Storage market through our data-driven solutions offer in the activity # 8.2 above, the sector is not mature enough in 2022 for CGG to deploy its monitoring solutions on operational underground geological CO_2 storage sites.

We produced in 2022 studies on potential storage areas, established partnerships and strategic agreements but we had no activity related to a storage site in operation. We therefore report no contribution to climate change in 2022, whether eligible or moreover aligned. We anticipate however a growing importance of this activity in our portfolio as the implementation of CCUS sites will grow.

3.7.3 Key Performance Indicators

TURNOVER		Substantial contribution criteria								DNSH criteria										
Economic activities	Codes	Absolute turnover	Proportion of turnover	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Minimum safeguards	Taxonomy-aligned proportion of turnover year N	Taxonomy-aligned proportion of turnover year N-1	Category (enabling)	Category (transitional)
		M$	*%*	*%*	*%*	*%*	*%*	*%*	*%*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*%*	*%*	*E*	*T*
A. TAXONOMY ELIGIBLE ACTIVITIES																				
A.1. Taxonomy aligned																				
Activity 1	8.1	144	15.5%		100%					Yes		Yes	Yes	Yes	Yes	Yes	15.5%	12.1%		T
Activity 2	8.2	0	0.0%	100%													0.0%		E	
Activity 3	5.12	0	0.0%	100%													0.0%		E	
Turnover of taxonomy aligned activities (A.1.)		**144**	**15,5%**	**100%**	**100%**	**0%**	**0%**	**0%**	**0%**								**15.5%**	**12.1%**		
A.2. Taxonomy eligible but not taxonomy aligned activities																				
Activity 1	8.1	184	19,8%														19.8%	19.5%		T
Activity 2	8.2	0	0.0%														0%	0%	E	
Activity 3	5.12	0															0%	0%	E	
Turnover of taxonomy eligible but not taxonomy aligned activities (A.2.)		**184**	**19.8%**														**19.8%**	**19.5%**		
TOTAL A (A.1. + A.2.)		**328**	**35.4%**														**35.3%**	**31.7%**		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																				
Turnover of taxonomy non eligible activities (B)		**599**	**64.6%**																	
TOTAL A + B		**927**	**100%**																	

CapEx		Substantial contribution criteria								DNSH criteria										
Economic activities	Codes	Absolute CapEx	Proportion of CapEx	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Minimum safeguards	Taxonomy-aligned proportion of CapEx year N	Taxonomy-aligned proportion of CapEx year N-1	Category (enabling)	Category (transitional)
		M$	*%*	*%*	*%*	*%*	*%*	*%*	*%*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*%*	*%*	*E*	*T*
A. TAXONOMY ELIGIBLE ACTIVITIES																				
A.1. Taxonomy aligned																				
Activity 1	8.1	15	15.1%	100%						Yes		Yes	Yes	Yes	Yes	Yes	15.1%	13.9%		T
CapEx of taxonomy aligned activities (A.1.)		**15**	**15.1%**	**100%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**								**15.1%**	**13.9%**		
A.2. Taxonomy eligible but not taxonomy aligned activities																				
Activity 1	8.1	30	30.6%														30.6%	19.6%		T
CapEx of taxonomy non eligible activities (B)		**30**	**30.6%**														**30.6%**	**19.6%**		
TOTAL A (A.1. + A.2.)		**44**	**45.7%**														**45.7%**	**33.5%**		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																				
CapEx of taxonomy non eligible activities (B)		**52**	**54.3%**																	
TOTAL A + B		**97**	**100%**																	

OpEx		Substantial contribution criteria								DNSH criteria										
Economic activities	Codes	Absolute OpEx	Proportion of OpEx	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Minimum safeguards	Taxonomy-aligned proportion of OpEx year N	Taxonomy-aligned proportion of OpEx year N-1	Category (enabling)	Category (transitional)
		M$	%	%	%	%	%	%	%	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	%	%	E	T
A. TAXONOMY ELIGIBLE ACTIVITIES																				
A.1. Taxonomy aligned																				
Activity 1	8.1	5	1.1%		100%					Yes		Yes	Yes	Yes	Yes	Yes	1.1%	0.7%		T
OpEx of taxonomy aligned activities (A.1.)		**5**	**1.1%**	**0%**	**100%**	**0%**	**0%**	**0%**	**0%**								**1.1%**	**0.7%**		
A.2. Taxonomy eligible but not taxonomy aligned activitie																				
Activity 1	8.1	9	1.8%														1.8%	1.6%		T
OpEx of taxonomy eligible but not taxonomy aligned activities (A.2.)		**9**	**1.8%**														**1.8%**	**1.6%**		
TOTAL A (A.1. + A.2.)		**14**	**2.9%**														**2.9%**	**2.3%**		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																				
OpEx of taxonomy non eligible activities (B)		**481**	**97.1%**																	
TOTAL A + B		**495**	**100%**																	

Methodology

Turnover

- Activity 8.1:
  - Eligibility: Based on the Company's consolidated scope, we consider all of our external revenue from Geoscience imaging activity less revenue from sales of our Geovation software, as well as the Imaging component of revenue from our business. Earth Data. The share of imagery is assessed by applying the ratio of internal data processing costs to operational costs before capitalization, applied to EDA's external revenue.
  - Alignment: In 2022, among all of our Data Centers, only two units out of three of our Houston data center are aligned under the Taxonomy (cf. 3.7.2.1). The equivalent revenue aligned was calculated using the same proportion as the power consumption of those units compared to the entire Houston data center based on internal and external Western Hemisphere data processing activity flowing through the Houston Regional Compute Hub.

At the denominator we used the Group Operating Revenues as reported in this document. We considered IFRS revenue for all calculations.

- Activity 8.2: No reporting in 2022 as mentioned in 3.7.2.2.
- Activity 5.12: No reporting in 2022 as mentioned in 3.7.2.3.

CapEx

Capex is understood as per the definition of the Taxonomy as the increase in the gross value of tangible and intangible fixed assets for the financial year, considered before depreciation, amortization and any revaluation, including those resulting from revaluations and depreciations, for the financial year concerned and excluding fair value adjustments. Leases and long-term leasing are to be recognized in CapEx, in application of IFRS 16 (rights of use).

Obviously reported CapEx is associated with the economic activities eligible for the taxonomy i.e. consistent with activities 8.1, 8.2 and 5.12. Investments allowing the transition to an eligible activity with regard to the taxonomy as well as investments qualified as “green” (for example purchases of electric vehicles, energy efficiency renovation of buildings, etc.) are also eligible.

- Activity 8.1:
  - Eligibility: Reported in 2022 is the share of all of our Data Centers Capex including IFRS 16
  - Alignment: Reported in 2022 is the share of Houston data center Capex including IFRS 16 using the same proportion as for the turnover calculation.

In the denominator, we have retained the acquisitions of tangible and intangible fixed assets, excluding Multi-Client studies, plus increases in rights of use.

- Activity 8.2: No reporting in 2022.
- Activity 5.12: No reporting in 2022.

OpEx

The EU Taxonomy has defined as eligible OpEx, non-capitalized direct costs that relate to research and development, building renovation measures, short-term rentals, maintenance and repairs and any other direct expense related to the day-to-day maintenance of assets and which is necessary to ensure the continuous and efficient operation of these assets (e.g. maintenance supplies, cost of employees assigned to maintenance, IT dedicated to maintenance).

Obviously relating to assets or processes that are associated with the economic activities eligible for the taxonomy i.e. consistent with activities 8.1, 8.2 and 5.12:

- Activity 8.1:
  - Eligibility: For 2022 we report non-capitalized direct costs of facilities, utilities, maintenance and related personnel necessary for the proper functioning of all our data processing centers.
  - Alignment: Same calculation principle as for eligibility but brought back to the Houston data center, using the same proportion as for the turnover calculation.

For the denominator, we used operating (or operational) cash costs, excluding amortization and depreciation. In the numerator, we considered all the direct costs of the data centers restated for electricity expenses attributable to production and property taxes calculated on the value of production equipment.

- Activity 8.2: No reporting in 2022.
- Activity 5.12: No reporting in 2022.

3.8 REPORTING SCOPE AND METHOD

The indicators were selected following a risk analysis (see chapter presenting our materiality matrix). They represent the performance of CGG and of the commitments and policies in place.

The indicators were collected between January and February 2023 and cover the year 2022. They were reported and consolidated through various CGG' data bases, such as PRISM (for HSE-SD data), HRMS (HR), EPIC (Supplies), etc.

The report aims to conform to the French regulatory obligations (Statement on Non-Financial Performance, outcome of the transposal of the European directive on non-financial reporting).

The following issues were not deemed as material according to our materiality analysis and will not be discussed in this report:

- food waste;
- the fight against food insecurity;
- animal well-being (except in terms of noise emissions, which is addressed in this report);
- responsible, equitable and sustainable eating;
- eco-design;
- circular economy;
- effects of climate change on our activities;
- the practice of physical activities and sports.

The topics mentioned by the decree have been treated in the most transparent manner possible. The analysis of materiality did not consider eco-design and the circular economy as a material topic. Information regarding the eco-design of Sercel equipment is nevertheless available on our internet site.

3.9 INDICATORS

DIVERSIFICATION STRATEGY

KPI	2021	2022
Share of revenue generated by diversification activities	3%	8%

TALENT ATTRACTION AND RETENTION

	2020	2021	2022
Voluntary turnover	4.9%	6.1%	7%
Seniority of employees	14.3 years	14.2 ans	13.9 years
Share of employees with a seniority over 5 years	78%	77%	72%
Equality Index (for men & women) – (Result by index) - France	88	85	86
Gender split at CGG (M/F)	70%/30%	70%/30%	70%/30%
Gender split in the recruitments (M/F)	76%/24%	70%/30%	69%/31%
Gender diversity in the top 10% of positions of responsibility	na	24%	24%

HEALTH, SAFETY AND SECURITY OF OUR EMPLOYEES AND SUBCONTRACTORS

	2020	2021	2022
Total recordable cases frequency rate (TRCF)[a]	0.84	1.02	0.98
Lost time injury frequency rate (LTIF)[b]	0.34	0.46	0.44
Severity rate[c]	0.009	0.004	0.008
Recordable Occupational illness cases frequency rate	0.00	0.00	0.00
Exposure hours *(in million)*[d]	11.8	8.8	9.1

(a) Number of recordable cases (FAT: fatality, LTI: lost time injury, RWC: restricted work case, MTC: medical treatment case) per million exposure hours.
(b) The number of lost time injuries (including FAT) per million exposure hours.
(c) Number of lost workdays per thousand exposures hours.
(d) Total number of hours of employment but excluding leave, sickness and other absences. (160 hours per person per month)

BUSINESS ETHICS

	2020	2021	2022
Percentage of employees that followed the Ethics e-learning course[c]	82%	87%[a]	87%[b]
Percentage of employees that followed the Ethics e-learning course on anti-corruption		96%[a]	81%[b]
Number of alerts received by the Ethics Committee	4	7	6

(a) Cumulative compared to the year 2020.
(b) Actual number for the year 2022.
(c) Excluding employees from Sercel 2022 M&As (GeoComp, Concept).

RESPONSIBLE SUPPLY CHAIN

	2020	2021	2022
Percentage of sourcing and supply chain employees that followed the anti-corruption e-learning course	93%	95%[(b)]	86%[(c)]
Percentage of suppliers having signed the Supplier Code of Conduct *or* with a purchasing order mentioning the Supplier Code of Conduct[(a)]	100%	100%	100%

(a) The Supplier Code of Conduct is in CGG Terms and Conditions automatically attached to all PO's. The traceability of the signature of the Code of Conduct by the supplier for transactions without purchasing order is still under implementation in 2021.

(b) Cumulative compared to the year 2020.

(c) Actual number for the year 2022.

RELATIONS WITH LOCAL COMMUNITIES

	2020	2021	2022
Total number of social development initiatives	**37**	**43**	**73**
Community service	17	14	30
Education	8	15	18
Environment	5	5	17
Health & Safety	7	9	7
Number of employees involved in volunteering	**205**	**663**	**612**
Number of volunteering hours	**1,390**	**468**	**4866**
Cash granted by CGG & employees (excluding Babyloan)	**US$58,099**	**US$52,100**	**42 236USD**

INNOVATION OF PRODUCTS AND SERVICES

	2020	2021	2022
Total capital expenditure *(in million of US$)*	78	65	57
Share of Group revenues invested in R&D	9%	6%	6%
Share of Equipment revenues invested in R&D	14%	11%	16%
Share of CGG (excl. Equipment) revenues invested in R&D	6%	4%	2%

CUSTOMER SATISFACTION

	2020	2021	2022
CGG position in the Kimberlite review[(a)]	Ranked highest performing Supplier	Ranked highest performing Supplier	Ranked highest performing Supplier
Sercel position in the *Voix du Client* review[(a)]	Ranked highest performing Supplier	Ranked highest performing Supplier	Ranked highest performing Supplier
Completion rate of Equipment division internal quality objectives	78%	84%	83%

(a) "Kimberlite" and "Voice of the Customer" are external surveys commissioned by CGG which relate to customer satisfaction and the perception of CGG by the market. (See "External Studies" for more information on Kimberlite and see "Sensing & Monitoring Division" for The Voice of the Customer.

INTELLECTUAL PROPERTY

	2020	2021	2022	
	Titles/**Patents**	Titles/**Patents**	Titles	**Patents**
Number of CGG Geoscience patents	441/**275**	378/**277**	418	**323**
Number of Equipment patents	874/**683**	780/**620**	787	**650**

INFORMATION SECURITY

	2020	2021	2022
Number of incidents with an important InfoSec impact	0	0	0
Participation rate of the InfoSec e-learning	78%	67%	86%
Number of people trained directly onsite by the InfoSec team	0	0	307

ENERGY EFFICIENCY AND CARBON FOOTPRINT

	2020	2021	2022
CGG Power Usage Effectiveness[(a)]	1.32	1.35	1.42
Carbon Footprint Scope 1 (kt CO_2eq)	2	2	2[(b)]
Carbon Footprint Scope 2 (kt CO_2eq)	51	43	39[(c)]
Carbon Footprint Scope 3 (kt CO_2eq)	342	325	654[(d)]
Carbon neutral energy mix (% of Scope 2)		36%	51%
Green Company cars (hybrid/electric) (%)		38%	56%

(a) On the perimeter of our 3 main data centers US, UK and Singapore.
(b) Excluding cooling gaz.
(c) Excluding district heating for our Chinese site in Xu Shui.
(d) In 2022 scope 3 includes for the first time the downstream impact of products sold by the SMO division.

SOUND EMISSIONS

	2020	2021	2022
Number of species identified by QuietSea™	9	9	9
Number of vessels equipped with QuietSea™	4	4	4

WASTE AND WATER CONSUMPTION

KPI	2022
Weight of waste generated	**1,170 tons**
– Hazardous waste	79 tons
– Non-hazardous waste	1,092 tons
Weight of waste treated	**1,150 tons**
– Recycled or treated waste	723 tons
– Incinerated waste	268 tons
– Landfill waste	159 tons
Water consumption	**169,843 m^3**

GREEN TAXONOMY

TURNOVER		Substantial contribution criteria								DNSH criteria										
Economic activities	**Codes**	**Absolute turnover**	**Proportion of turnover**	**Climate change mitigation**	**Climate change adaptation**	**Water and marine resources**	**Circular economy**	**Pollution**	**Biodiversity and ecosystems**	**Climate change mitigation**	**Climate change adaptation**	**Water and marine resources**	**Circular economy**	**Pollution**	**Biodiversity and ecosystems**	**Minimum safeguards**	**Taxonomy-aligned proportion of turnover year N**	**Taxonomy-aligned proportion of turnover year N-1**	**Category (enabling)**	**Category (transitional)**
		M$	*%*	*%*	*%*	*%*	*%*	*%*	*%*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*%*	*%*	*E*	*T*
A. TAXONOMY ELIGIBLE ACTIVITIES																				
A.1. Taxonomy aligned																				
Activity 1	8.1	144	15.5%		100%					Yes		Yes	Yes	Yes	Yes	Yes	15.5%	10.8%		T
Activity 2	8.2	0	0.0%	100%													0.0%		E	
Activity 3	5.12	0	0.0%	100%													0.0%		E	
Turnover of taxonomy aligned activities (A.1.)		**144**	**15,5%**	**100%**	**100%**	**0%**	**0%**	**0%**	**0%**								**15.5%**	**10.8%**		
A.2. Taxonomy eligible but not taxonomy aligned activities																				
Activity 1	8.1	184	19,8%														19.8%	17.6%		T
Activity 2	8.2	0	0.0%														0%	0%	E	
Activity 3	5.12	0															0%	0%	E	
Turnover of taxonomy eligible but not taxonomy aligned activities (A.2.)		**184**	**19.8%**														**19.8%**	**17.6%**		
TOTAL A (A.1. + A.2.)		**328**	**35.4%**														**35.4%**	**28.5%**		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																				
Turnover of taxonomy non eligible activities (B)		**599**	**64.6%**																	
TOTAL A + B		**927**	**100%**																	

CapEx		Substantial contribution criteria								DNSH criteria										
Economic activities	Codes	Absolute CapEx	Proportion of CapEx	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Minimum safeguards	Taxonomy-aligned proportion of CapEx year N	Taxonomy-aligned proportion of CapEx year N-1	Category (enabling)	Category (transitional)
		M$	*%*	*%*	*%*	*%*	*%*	*%*	*%*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*%*	*%*	*E*	*T*
A. TAXONOMY ELIGIBLE ACTIVITIES																				
A.1. Taxonomy aligned																				
Activity 1	8.1	15	15.1%	100%						Yes		Yes	Yes	Yes	Yes	Yes	15.1%	13.9%		T
CapEx of taxonomy aligned activities (A.1.)		**15**	**15.1%**	**100%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**								**15.1%**	**13.9%**		
A.2. Taxonomy eligible but not taxonomy aligned activities																				
Activity 1	8.1	30	30.6%														30.6%	19.6%		T
CapEx of taxonomy non eligible activities (B)		**30**	**30.6%**														**30.6%**	**19.6%**		
TOTAL A (A.1. + A.2.)		**44**	**45.7%**														**45.7%**	**33.5%**		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																				
CapEx of taxonomy non eligible activities (B)		**52**	**54.3%**																	
TOTAL A + B		**97**	**100%**																	

OpEx				Substantial contribution criteria						DNSH criteria										
Economic activities	Codes	Absolute OpEx	Proportion of OpEx	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	Water and marine resources	Circular economy	Pollution	Biodiversity and ecosystems	Minimum safeguards	Taxonomy-aligned proportion of OpEx year N	Taxonomy-aligned proportion of OpEx year N-1	Category (enabling)	Category (transitional)
		M$	*%*	*%*	*%*	*%*	*%*	*%*	*%*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*yes/no*	*%*	*%*	*E*	*T*
A. TAXONOMY ELIGIBLE ACTIVITIES																				
A.1. Taxonomy aligned																				
Activity 1	8.1	8	1.7%		100%					Yes		Yes	Yes	Yes	Yes	Yes	1.7%	1.2%		T
OpEx of taxonomy aligned activities (A.1.)		**8**	**1.7%**	**0%**	**100%**	**0%**	**0%**	**0%**	**0%**								**1.7%**	**1.2%**		
A.2. Taxonomy eligible but not taxonomy aligned activitie																				
Activity 1	8.1	16	3.3%														3.3%	2.6%		T
OpEx of taxonomy eligible but not taxonomy aligned activities (A.2.)		**16**	**3.3%**														**3.3%**	**2.6%**		
TOTAL A (A.1. + A.2.)		**25**	**5.0%**														**5.0%**	**3.7%**		
B. TAXONOMY NON-ELIGIBLE ACTIVITIES																				
OpEx of taxonomy non eligible activities (B)		**470**	**95.0%**																	
TOTAL A + B		**495**	**100%**																	

3.10 INDEPENDENT THIRD PARTY'S REPORT ON CONSOLIDATED NON-FINANCIAL STATEMENT PRESENTED IN THE MANAGEMENT REPORT

This is a free translation into English of the original report issued in the French language and it is provided solely for the convenience of English speaking users. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

To the General Assembly,

In our capacity as an independent third party ("third party"), accredited by the French Accreditation Committee (COFRAC) under the number n° 3-1681 (COFRAC Inspection n°3-1681, scope available on at www.cofrac.fr), and as a member of the network of one of the statutory auditors of your entity (hereinafter "Entity"), we have undertaken a limited assurance engagement on the compliance of the consolidated non-financial statement for the year ended December 31, 2022 (hereinafter the "Statement") with the provisions of Article R. 225-105 of the French Commercial Code (*Code de commerce*) and on the fairness of the historical information (whether observed or extrapolated) provided pursuant to 3° of I and II of Article R. 225-105 of the French Commercial Code (hereinafter the "Information") prepared in accordance with the entity's procedures (hereinafter the "Guidelines"), included in the management report pursuant to the requirements of Articles L. 225 102-1, R. 225-105 and R. 225-105-1 of the French Commercial Code (*Code de commerce*).

Conclusion

Based on the procedures performed, as described in "Nature and scope of the work", and on the elements we have collected, nothing has come to our attention that cause us to believe that the consolidated non-financial statement is not prepared in accordance with the applicable regulatory provisions and that the Information, taken as a whole, is not presented fairly in accordance with the Guidelines, in all material respects.

Preparation of the non-financial performance statement

The absence of a commonly used generally accepted reporting framework or a significant body of established practice on which to draw to evaluate and measure the Information allows for different, but acceptable, measurement techniques that can affect comparability between entities and over time.

Consequently, the Information needs to be read and understood together with the Guidelines, summarised in the Statement.

Limitations inherent in the preparation of the Information

As stated in the Statement, the Information may be subject to uncertainty inherent to the state of scientific and economic knowledge and the quality of external data used. Some information is sensitive to the choice of methodology and the assumptions or estimates used for its preparation and presented in the Statement.

Responsibility of the Entity

It is the responsibility of the Board of Directors to:

- select or establish suitable criteria for the preparation of the Information;
- prepare a Statement in accordance with legal and regulatory requirements, including a presentation of the business model, a description of the main non-financial risks, a presentation of the policies applied with regard to these risks as well as the results of these policies, including key performance indicators and, in addition, the information required by Article 8 of Regulation (EU) 2020/852 (green taxonomy);
- and to implement the internal control procedures it deems necessary to ensure that the Information is free from material misstatement, whether due to fraud or error.

The Statement has been prepared in accordance with the entity's procedures as mentioned above.

Responsibility of the independent third party

On the basis of our work, our responsibility is to provide a report expressing a limited assurance conclusion on:

- the compliance of the Statement with the requirements of Article R. 225-105 of the French Commercial Code;
- the fairness of the information provided in accordance with Article R. 225 105 I, 3° and II of the French Commercial Code, i.e., the outcomes, including key performance indicators, and the measures implemented considering the principal risks.

As it is our responsibility to form an independent conclusion on the Information as prepared by management, we are not permitted to be involved in the preparation of the Information, as this could compromise our independence.

However, it is not our responsibility to comment on:

- the entity's compliance with other applicable legal and regulatory requirements, in particular the information required by Article 8 of Regulation (EU) 2020/852 (green taxonomy), the French duty of care law and anti-corruption and tax avoidance legislation
- the fairness of the information required by Article 8 of Regulation (EU) 2020/852 (green taxonomy)
- the compliance of products and services with the applicable regulations.

Applicable regulatory provisions and professional guidance

The work described below was performed in accordance with the provisions of Articles A. 225-1 et seq. of the French Commercial Code, the professional guidance of the French Institute of Statutory Auditors ("Compagnie Nationale des Commissaires aux Comptes") applicable to such engagements and acting as the verification programme and with ISAE 3000 (revised)[1].

Independence and quality control

Our independence is defined by the requirements of Article L. 822–11-3 of the French Commercial Code and the French Code of Ethics (*Code de déontologie*) of our profession. In addition, we have implemented a system of quality control including documented policies and procedures regarding compliance with applicable legal and regulatory requirements, the ethical requirements and French professional guidance.

Means and resources

Our verification work mobilized the skills of four people and took place between October 2022 and February 2023 on a total duration of intervention of about fourteen weeks.

We conducted five interviews with the persons responsible for the preparation of the Statement including those in charge of human resources, health, safety, the environment and biodiversity, information systems security and compliance.

Nature and scope of the work

We planned and performed our work taking into account the risks of material misstatement of the Information.

In our opinion, the procedures we have performed in the exercise of our professional judgment enable us to provide a limited level of assurance:

- we obtained an understanding of all the consolidated entities' activities and the description of the principal risks associated;
- we assessed the suitability of the criteria of the Guidelines with respect to their relevance, completeness, reliability, neutrality and understandability, with due consideration of industry best practices, where appropriate;
- we verified that the Statement includes each category of social and environmental information set out in Article L. 225 102 1 III of the French Commercial Code as well as compliance with human rights and anti corruption and tax avoidance legislation;
- we verified that the Statement provides the information required under Article R. 225-105 II of the French Commercial Code, where relevant with respect to the principal risks, and includes, where applicable, an explanation for the absence of the information required under Article L. 225-102-1 III, paragraph 2 of the French Commercial Code;
- we verified that the Statement presents the business model and a description of principal risks associated with all the consolidated entities' activities, including where relevant and proportionate, the risks associated with its [their] business relationships, its [their] products or services, as well as its [their] policies, measures and the outcomes thereof, including key performance indicators associated to the principal risks;
- we referred to documentary sources and conducted interviews to:
  - assess the process used to identify and confirm the principal risks as well as the consistency of the outcomes, including the key performance indicators used, with respect to the principal risks and the policies presented, and
  - corroborate the qualitative information (measures and outcomes) that we considered to be the most important presented in Appendix 1; concerning certain risks (professional ethics, information security, product and service innovation, intellectual property, customer satisfaction), our work was carried out on the consolidating entity, for the others risks, our work was carried out on the consolidating entity and on a selection of entities: Houston Town Park and the head office of Sercel;
- we verified that the Statement covers the scope of consolidation, i.e. all the consolidated entities in accordance with article L. 233-16 of the French Commercial Code;
- we obtained an understanding of internal control and risk management procedures the entity has put in place and assessed the data collection process to ensure the completeness and fairness of the Information;
- for the key performance indicators and other quantitative outcomes that we considered to be the most important presented in Appendix 1 , we implemented:
  - analytical procedures to verify the proper consolidation of the data collected and the consistency of any changes in those data,

(1) ISAE 3000 - Assurance engagements other than audits or reviews of historical financial information.

- tests of details, using sampling techniques, in order to verify the proper application of the definitions and procedures and reconcile the data with the supporting documents. This work was carried out on a selection of contributing entities and covers between 24% and 54% of the consolidated data relating to the key performance indicators and outcomes selected for these tests (24% of headcounts, 54% of electricity consumption);
- we assessed the overall consistency of the Statement based on our knowledge of all the consolidated entities.

The procedures performed in a limited assurance review are less in extent than for a reasonable assurance opinion in accordance with the professional guidelines; a higher level of assurance would have required us to carry out more extensive procedures.

Paris-La Défense, March 14, 2023

French original signed by:

Independent third party
EY & Associés
Christophe Schmeitzky
Partner, Sustainable Development

APPENDIX 1: THE MOST IMPORTANT INFORMATION

SOCIAL INFORMATION

Quantitative Information (including key performance indicators)	*Qualitative Information (actions or results)*
Voluntary turnover (%) Gender split at CGG (%) Gender split in the recruitments (%) TRCF: Total Recordable Cases Frequency rate LTIF: Lost Time Injury Frequency rate Severity rate Exposure hours.	The results of the Human Resources policy (attraction, retention, diversity)

ENVIRONMENTAL INFORMATION

Quantitative Information (including key performance indicators)	*Qualitative Information (actions or results)*
Power Usage Effectiveness (PUE) Carbon Footprint Scope 1 ($ktCO_2eq$) Carbon Footprint Scope 2 ($ktCO_2eq$) Number of vessels equipped with QuietSea™	The result of the Environmental, biodiversity and climate change (material emission posts) policy

SOCIETAL INFORMATION

Quantitative Information (including key performance indicators)	*Qualitative Information (actions or results)*
Percentage of employees that followed the Ethics e-learning course (%) Share of participation to in InfoSec e-learning course (%) Percentage of sourcing and supply chain employees that followed the anti-corruption e-learning course (%) Total Number of Social Development initiatives Number of employees involved in volunteering Number of volunteering hours	Actions in favor of Information Security The result of the Compliance policy Actions in favor of Business Model Resilience

Seismic depth slice overlain with FWI velocity model reveals channel features offshore Mozambique. *CGG Earth Data.*

4 CORPORATE GOVERNANCE

4.1 GOVERNANCE BODIES

This chapter includes in particular the elements constituting the report on corporate governance established by the Board of Directors at its meeting on March 2, 2023, following the recommendation of the Appointment, Remuneration and Governance Committee pursuant to Article L. 225-37 of the French Commercial Code. The sections of this report relating to the composition of the Board of Directors and the conditions for preparing and organizing its work have been prepared based on contributions from several functional departments of the Company, in particular the Legal, Financial and Human Resources Departments.

4.1.1 Governance Structure

a) Code of Corporate Governance

In accordance with Article L. 22-10-10 of the French Commercial Code, the Company complies voluntarily with the AFEP-MEDEF Code of Corporate Governance for listed companies (the "AFEP-MEDEF Code") and applies all its recommendations. This Code is available on the websites of the AFEP (www.afep.com) and MEDEF (www.medef.com).

b) Separation of the Chairman and Chief Executive Officer's functions

The Company is a *société anonyme* with a Board of Directors.

Since June 30, 2010, the functions of Chairman of the Board and Chief Executive Officer have been separate. During its meeting on March 2, 2023, the Board deliberated on the relevance of its governance and confirmed that this separation helps ensure a long-lasting and efficient governance by promoting the balance of powers between:

- on the one hand, the Board of Directors, responsible for overseeing the Company's General Management, composed mainly of independent members, and headed by a Chairman; and
- on the other hand, the Chief Executive Officer, in charge of the general conduct of the day-to-day business of the Company.

For more information on the role of the Chairman of the Board of Directors, see section 4.1.3.2.a). For a presentation of the General Management, see section 4.1.2 below.

4.1.2 General Management

4.1.2.1 Chief Executive Officer

a) Appointment

In accordance with Article 10 of the articles of association, the Board of Directors appoints the Chief Executive Officer, sets his/her term of office, and determines his/her compensation. The Chief Executive Officer may be revoked at any time by the Board of Directors. The functions of Chief Executive Officer end no later than the end of the Ordinary General Meeting following the date on which he/she reaches the age of 65. However, the Board of Directors may extend the term of the Chief Executive Officer beyond this limit, on one or more occasions, for a total period which may not exceed three years.

The Board of Directors held on March 23, 2018 appointed Sophie ZURQUIYAH as Chief Executive Officer, effective as of April 26, 2018. She was renewed in her functions by the Board following the General Meeting of May 5, 2022 for a period of four years, i.e. until the Ordinary General Meeting called to approve the financial statements as of December 31, 2025.

b) Cumulative mandates

Sophie ZURQUIYAH combines her term of office as Chief Executive Officer with that of Director of the Company for concurrent four-year terms expiring at the end of the Ordinary General Meeting called to approve the financial statements as of December 31, 2025.

The Board of Directors believes that combining the function of Chief Executive Officer with that of Director contributes to an efficient governance, allowing the Chief Executive Officer to be fully involved in Board discussions. Thus, while sharing her operational vision as Chief Executive Officer, this combination also allows her to have the right to vote as a Director in the same way as her peers for the decisions taken collectively by the Board of Directors. Insofar as the vote of the Chief Executive Officer, who is also a Director, is not decisive in the event of a tie, the Board of Directors considers that there is no violation of the balance of powers.

In accordance with Article L. 225-54-1 of the French Commercial Code, Sophie ZURQUIYAH does not hold any other office as Chief Executive Officer within a public limited company having its registered office in France. She also holds other offices in other companies, the details of which are presented in section 4.1.3.1.f) of this Document.

c) Powers and limitations

The Chief Executive Officer is granted the broadest powers to act on behalf of the Company in any circumstances within the limit of the corporate object and subject to the powers allocated expressly by applicable laws to the Company's General Meeting or Board of Directors, and to the corporate governance rules applicable to the Company. She represents the Company vis-à-vis third parties. She is responsible for the financial information released by the Company and presents, on a regular basis, the Group's results and prospects to the shareholders and the financial market. She reports on significant events for the Group's business to the Board and its Chairman.

The Internal Rules and Regulations of the Board of Directors (hereafter the "Internal Rules and Regulations") which are available on the Company's website (www.cgg.com) provide certain limits to the powers of the Chief Executive Officer. In particular, the prior authorization of the Board of Directors is required for any significant transaction for the Group's strategy, such as in particular the completion of external growth operations, partnerships, disposals or strategic investments above the threshold of US$10 million *(for more information on the missions of the Board of Directors, see section 4.1.3.3.a).*

4.1.2.2 Executive Leadership team

The Chief Executive Officer is supported by an Executive Leadership team which she chairs. It meets at least once a month and as often as the interests of the Company require, for the analysis and general conduct of the Group's business.

Composition of the Executive Leadership team as of the date of this Document

Sophie ZURQUIYAH	Chief Executive Officer
Jérôme SERVE	Chief Financial Officer[a]
Eduardo COUTINHO	EVP Group General Counsel
Jérôme DENIGOT	EVP Group Human Resources
Hovey COX	EVP Group Marketing & Sales and Communications
Emmanuel ODIN	Chief Sustainability Officer
Peter WHITING	EVP Group Geoscience
Agnès BOUDOT	EVP HPC and Cloud Solutions[b]
Dechun LIN	EVP Group Earth Data
Emmanuelle DUBU	EVP Group Sensing & Monitoring

(a) Jérôme SERVE was appointed Chief Financial Officer on March 2, 2023 in replacement of Yuri BAIDOUKOV (see press release dated March 2, 2023).
(b) Agnès BOUDOT was appointed EVP HPC and Cloud Solutions on June 28, 2022 (see press release dated June 28, 2022).

The Chief Executive Officer is the only corporate officer *(mandataire social)* member of the Executive Leadership team.

4.1.3 Board of Directors

Appointment, Remuneration, and Governance Committee

4 Members

5 Meetings

100 % Attendance

Composed of 4 Directors of which 3 are independent and 1 represents the employees

Colette LEWINER ★●, Patrick CHOUPIN ■, Heidi PETERSEN ●, Mario RUSCEV ●

Investment Committee

100% composed of independent Directors

Helen LEE BOUYGUES ★●, Michael DALY ●, Mario RUSCEV ●

3 Members

3 Meetings

100 % Attendance

Board of Directors

Chaired by Philippe SALLE, the Board determines the orientations of the Company's activities and ensures their implementation.

9 Members

4 Nationalities

8 Meetings

5 Women

93 % Attendance

87.5 % Independent Directors*

** Excluding the Director representing the employees.*

HSE/Sustainable Development Committee

4 Members

3 Meetings

91.67 % Attendance

Composed of 4 Directors of which 3 are independent and 1 represents the employees

Michael DALY ★●, Patrick CHOUPIN ■, Anne-France LACLIDE-DROUIN ●, Heidi PETERSEN ●

Audit & Risk Management Committee

100% composed of independent Directors

Anne-France LACLIDE-DROUIN ★●, Helen LEE BOUYGUES ●, Colette LEWINER ●

3 Members

6 Meetings

88.89 % Attendance

★ *Chairperson* ● *Independent Director* ■ *Director representing the employees*

4.1.3.1 Composition of the Board of Directors and its Committees

In accordance with Article 8 of the articles of association, the Company is administered by a Board of Directors composed of at least six members and at most fifteen members, unless there is a decision to raise this maximum to a higher figure in the event of a merger. The Directors are appointed for a term of four years by the Ordinary General Meeting, upon proposal from the Appointment, Remuneration and Governance Committee. They can be dismissed at any time by decision of the Ordinary General Meeting.

As of the date of this Document, the Board of Directors is composed of nine Directors including one Director representing the employees.

Director representing the employees

In accordance with the provisions of Article L. 225-27-1 of the French Commercial Code and Article 8 of the Company's articles of association, the Board of Directors includes one Director representing the employees.

By decision dated April 6, 2021, the Group Committee appointed Patrick CHOUPIN as Director representing the employees for a term of four years, i.e. until the General Meeting to approve the financial statements as of December 31, 2024.

A biography of Patrick CHOUPIN is presented in section 4.1.3.1.f) of this Document.

In accordance with Article R. 225-34-4 of the French Commercial Code, the Director representing the employees benefits from a training due to his function.

a) Overview of the composition of the Board of Directors and its Committees as of the date of this Document

	Director	Nationality	Independent	Gender	Age	Date of first appointment	Date of the last renewal	Date of expiry of term of office	Number of years as Director	COMMITTEES: Audit & Risk Management	Appointment Remuneration & Gov.	Investment	HSE – Sustainable dev.
	Philippe **SALLE** *Chairman of the Board*	🇫🇷	✓	M	57	2018	2021	GM 2025	5				
	Sophie **ZURQUIYAH** *CEO*	🇫🇷 🇺🇸		F	56	2018	2022	GM 2026	5				
	Patrick **CHOUPIN** [(a)]	🇫🇷		M	46	2021	N/A	GM 2025	2		●		●
	Michael **DALY**	🇬🇧	✓	M	69	2015	2021	GM 2025	8			●	● ★
	Anne-France **LACLIDE-DROUIN** [(b)]	🇫🇷	✓	F	55	2017	2021	GM 2025	6	● ★			●
	Helen **LEE BOUYGUES**	🇺🇸	✓	F	50	2018	2020	GM 2024	5	●		● ★	
	Colette **LEWINER** [(c)]	🇫🇷	✓	F	77	2018	2019	GM 2023	5	●	● ★		
	Heidi **PETERSEN**	🇳🇴	✓	F	65	2018	2020	GM 2024	5		●		●
	Mario **RUSCEV** [(c)]	🇫🇷 🇺🇸	✓	M	66	2018	2019	GM 2023	5		●	●	

(a) Patrick CHOUPIN is a Director representing the employees, appointed by the Group Committee, in accordance with Article 8 of the Company's articles of association.

(b) Anne-France LACLIDE-DROUIN is a member of the HSE/Sustainable Development Committee since May 5, 2022. She was previously a member of the Investment Committee.

(c) Director whose term is proposed for renewal at the 2023 General Meeting.

★ *Chairman/Chairwoman* ● *Member*

b) Changes in the composition of the Board of Directors and its Committees in 2022

The changes in the composition of the Board of Directors and its Committees that occurred in 2022 are presented in the following table:

	Date	Departure	Appointment	Renewal
Board of Directors	May 5, 2022 [(a)]	n.a.	n.a.	Sophie ZURQUIYAH
Audit and Risk Management Committee		n.a.	n.a.	n.a.
Appointment, Remuneration and Governance Committee		n.a.	n.a.	n.a.
Investment Committee		Anne-France LACLIDE-DROUIN	n.a	n.a.
HSE/Sustainable Development Committee		n.a.	Anne-France LACLIDE-DROUIN	n.a.

(a) Cf. press realease dated May, 5, 2022

c) Independent Directors

In accordance with the recommendations of the AFEP-MEDEF Code (Article 10), the qualification of the Directors as independent is reviewed every year by the Appointment, Remuneration and Governance Committee and decided by the Board of Directors.

The Board of Directors considers that a Director is independent when he has no relationship of any kind whatsoever with the Company, its group or its management that may impair his freedom of judgment. It therefore assesses the individual situation of each Director on an annual basis based on the following criteria as defined by the AFEP-MEDEF Code:

Criterion no. 1	Not being and not having been within the previous five years (i) an employee or executive officer of the company (ii) an employee, executive officer or Director of a company consolidated within the Company, or (iii) an employee, executive officer or Director of the Company's parent company, or a company consolidated within this parent company.
Criterion no. 2	Not being an executive officer of a company in which the company holds a directorship, directly or indirectly, or in which an employee appointed as such or an executive officer of the company (currently in office or having held such office within the last five years) holds a directorship.
Criterion no. 3	Not being a customer, supplier, commercial banker, investment banker or consultant (or being linked directly or indirectly to these persons), that is significant to the company or its group, or for which the company or its group represents a significant portion of its activities.
Criterion no. 4	Not being a close family member of a company officer.
Criterion no. 5	Not having been a statutory auditor of the company within the previous five years.
Criterion no. 6	Not having been a Director of the company for more than twelve years.
Criterion no. 7	For non-Executive Directors: not receiving variable compensation in cash or in the form of shares or any compensation linked to the performance of the company or its group.
Criterion no. 8	For Directors representing major shareholders of the company or its parent company: they may be considered independent, provided these shareholders do not take part in the control of the company. Nevertheless, beyond a 10% threshold in capital or voting rights, the Board of Directors, upon a report from the Nominations Committee, should systematically review the qualification of a Director as independent in light of the make-up of the company's capital and the existence of a potential conflict of interest.

The Board of Directors, at its meeting of March 2, 2023, decided to qualify as independent, based on the criteria set by the AFEP-MEDEF Code above, seven Directors out of the eight Directors elected by the General Meeting, i.e. an independence rate of 87.5%, observation being made that, in companies with dispersed capital and without controlling shareholders – which is the case of CGG – the AFEP-MEDEF Code recommends compliance with the rule of at least 50% of Independent Directors. The independence rate does not take the Director representing the employees into account, in accordance with the recommendations of the same Code. The following Directors were therefore considered to be independent: Philippe SALLE, Michael DALY, Anne-France LACLIDE-DROUIN, Helen LEE BOUYGUES, Colette LEWINER, Heidi PETERSEN and Mario RUSCEV.

Name of the Director	Criterion no. 1	Criterion no. 2	Criterion no. 3	Criterion no. 4	Criterion no. 5	Criterion no. 6	Criterion no. 7	Criterion no. 8	Qualification of independence established by the Board of Directors
Philippe SALLE	✓	✓	✓	✓	✓	✓	✓	n.a.	✓
Sophie ZURQUIYAH	✗	✓	✓	✓	✓	✓	n.a.	n.a.	✗
Patrick CHOUPIN	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Michael DALY	✓	✓	✓	✓	✓	✓	✓	n.a.	✓
Anne-France LACLIDE-DROUIN	✓	✓	✓	✓	✓	✓	✓	n.a.	✓
Helen LEE BOUYGUES	✓	✓	✓	✓	✓	✓	✓	n.a.	✓
Colette LEWINER	✓	✓	✓	✓	✓	✓	✓	n.a.	✓
Heidi PETERSEN	✓	✓	✓	✓	✓	✓	✓	n.a.	✓
Mario RUSCEV	✓	✓	✓	✓	✓	✓	✓	n.a.	✓

Concerning in particular criterion 3 defined by the AFEP-MEDEF Code, the Board of Directors ensured that none of the Directors likely to be considered as independent was related directly or indirectly to a customer, supplier or commercial banker or advisor that was material to the Company or the Group.

To this end, during its meeting on March 1st, 2023, the Appointment, Remuneration and Governance Committee made a case-by-case assessment. It relied on multiple criteria in order to identify whether or not there was any business relationship between the Group companies and companies at which certain Directors hold operational functions or directorships, and if so, to determine the level of materiality. The Committee concluded there were no business relationships for Philippe SALLE, Michael DALY, Anne-France LACLIDE-DROUIN, Helen LEE BOUYGUES, Colette LEWINER and Heidi PETERSEN likely to impact their independence (see their detailed biographies under section 4.1.3.1.f) of this Document).

In the context of the proposal for renewal of Mario RUSCEV's mandate as Director, the Committee carried out a more in-depth assessment in respect of his function as Chief Technology Officer of TAQA effective since January 1, 2022. It concluded that he continued to qualify as an Independent Director based on the following analysis:

- there is a partnership relationship between CGG and TAQA (non-listed company of Saudi Arabia) through the Argas joint venture, of which they hold respectively 49% and 51% of the share capital;
- Mario RUSCEV has no operational function or directorship within Argas and therefore the latter has no decision-making power in the joint venture;
- Mario RUSCEV does not exercise any operational function within CGG, of which he is a Director;
- TAQA is not a customer or supplier for the Company or the Group;
- there are business relationships between a subsidiary of CGG (Sercel) and Argas, but the turnover and volumes of these sales occur in the ordinary course of business, in a traditional competitive environment and represent only a small proportion of the Group's activities. Indeed, Argas is involved in the acquisition of contractual data from which CGG has exited and the Company remains determined to sell its stake in Argas. Consequently, the operating revenue with Argas is not material to the Group representing 2.8 million USD for 2022 financial year (see note 27 of the consolidated financial statements).

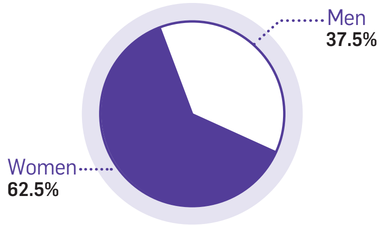
During its meeting on March 2, 2023, the Board of Directors confirmed the qualification of Mario RUSCEV as Independent Director. On this occasion, the Board reiterated its decision that, for prevention and to avoid any situation of potential conflict of interest, Mario RUSCEV should refrain from participating in any discussion and decision related to Argas and/or TAQA.

d) Diversity on the Board of Directors

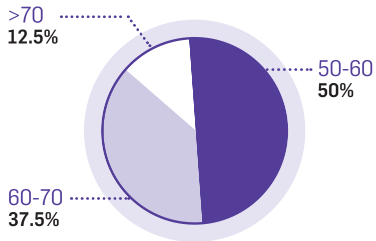
The Board of Directors considers that diversity of its membership is key to ensure a good performance. That is the reason why the Board has set composition targets and, to this end, applies diversity criteria in terms of gender, age, independence, nationalities and skills, as described below, in particular applicable in the selection process for new Directors.

It is noted that the Director representing the employees has not been taken into account when determining the below figures as this diversity policy targets only Directors elected by the shareholders, based upon the Board's proposal. In addition, considering the Board of Directors remained the same in 2022, there has been no significant change in the information provided compared to last year.

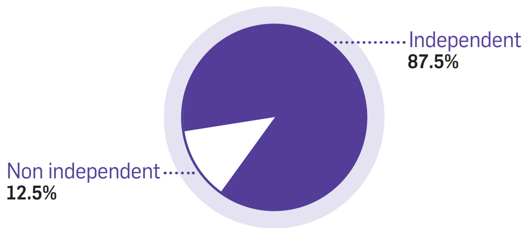
GENDER BALANCE

Objective	2022 Results
Reach a balanced representation between men and women in the composition of the Board, in compliance with the applicable regulations, i.e. either: – have at least 40% of each gender for Boards composed of more than 8 members; or – maintain a maximum gap of two between members of each gender for Boards composed of up to 8 members.	

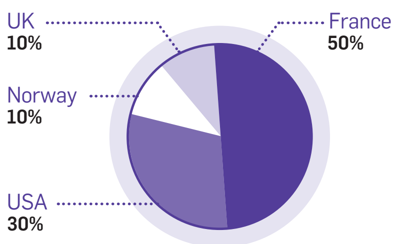
AGE

Objective	2022 Results
Reach a variety of ages among the Directors and comply with the applicable regulations, i.e. no more than one third of the Directors shall be 70 years old or older.	Average age: **61.88** 

INDEPENDENCE

Objective	2022 Results
Reach a significant portion of Independent Directors on the Board of Directors and comply with the applicable AFEP-MEDEF recommendations, i.e. the Independent Directors should account for at least half the members of the Board in publicly held corporations without controlling shareholders.	 *The only Director elected by the shareholders who is not qualified as independent is Sophie ZURQUIYAH, Chief Executive Officer.*

NATIONALITIES

Objective	2022 Results
Have a balanced composition in terms of nationalities to reflect as much as possible the geographical mix of the Company's activities.	 *For the purpose of this chart, Sophie ZURQUIYAH and Mario RUSCEV have been accounted for in both "France" and "USA" as they have both nationalities.*

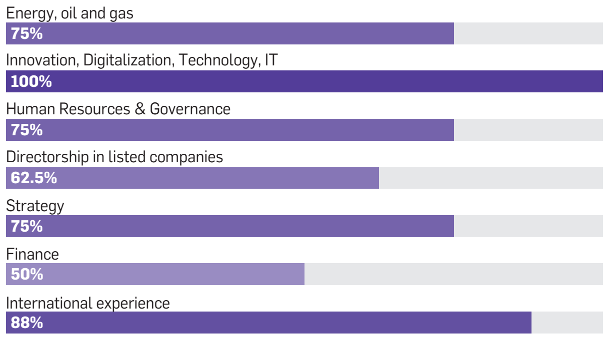
SKILLS

Objective

Have a wide variety of skills and a deep expertise in key areas for the Company's current and future activities.

2022 Results

The Board of Directors believes that with the expertise of its current members as shown in the charter, the Company is well equipped to deal with the challenges linked to its new strategy.



These criteria are reviewed each time a new candidate is proposed to be elected as a Board member.

Details on education, directorships, professional experiences and information about the age and nationality of each Director are presented in section 4.1.3.1.f) of this Document.

The gender diversity policy adopted by the Board of Directors for the Group, applicable in particular (i) to the management bodies in accordance with the recommendation of Article 7.1 of the AFEP-MEDEF Code and (ii) to the 10% of positions with greater responsibility in accordance with Article L. 22-10-10 of the French Commercial Code, is set out in section 3.3.2 of this Document.

e) Process for appointment of new Directors and onboarding program

The process to appoint new Directors (with the exception of the Director representing the employees, being appointed by the Group Committee pursuant to the provisions of Article 8 of the articles of association), is described below and has been incorporated into the Board of Directors' Internal Rules and Regulations.

PROCESS FOR APPOINTMENT OF NEW DIRECTORS

STEP 1 REVIEW OF NEEDS	Review of needs by the Appointment, Remuneration and Governance Committee ("ARGC") considering the terms of office coming to their end and the requirements to comply with the law or the Corporate Governance Code
STEP 2 LAUNCH OF THE SELECTION PROCESS	Definition of the skills sought by the ARGC in consideration of the diversity policy of the Board of Directors and the objectives to be achieved / Selection of a recruitment firm if necessary / Establishment of a list of potential candidates identified by the ARGC, including, if applicable, the proposals of the recruitment firm, the proposals of the General Management and unsolicited applications
STEP 3 RECRUITMENT	Constitution of files based on public information on the candidates / Review of the files by the ARGC and selection by the ARGC of the candidates satisfying the needs defined in step 2 / Conduct of interviews by the Chair of the ARGC with the selected candidates
STEP 4 SELECTION	Recommendations made by the ARGC to the Board of Directors Selection by the Board of Directors
STEP 5 APPROVAL	In case of a replacement of a Director in the course of his/her term of office: Co-optation approved by the Board, then submitted at the next General Meeting for ratification. In other cases : Proposal of appointment submitted for approval at the General Meeting

In addition, as the Board is looking for improving continuously its operations, it set up in 2022 an onboarding program for new Directors that is now included in the annex of its Internal Rules and Regulations. It incorporates the following steps to facilitate new Directors to take office:

ONBOARDING PROGRAM FOR NEW DIRECTORS

STEP 1	**DISTRIBUTION OF ONBOARDING DOCUMENTS PACKAGE**
STEP 2	**REVIEW AND SIGNATURE OF INTERNAL RULES AND REGULATIONS**
STEP 3	**ASSIGNMENT OF A MENTOR** (if appropriate)
STEP 4	**ORGANIZATION OF “ONE-ON-ONE” MEETINGS WITH:** – Chairman of the Board – CEO – Committees chairs
STEP 5	**TRAINING**
STEP 6	**ONBOARDING EXPERIENCE EVALUATION FORM TO BE COMPLETED**

f) Individual information about the Directors

Philippe SALLE

Chairman – Independent Director

Age: 57

Nationality: French

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2018 (by co-optation)

Last renewal: 2021

Expiry of the current term of office: 2025

Number of CGG shares held on December 31, 2022: 284,233 shares

Philippe SALLE is a graduate of the École des Mines of Paris (France) and holds an MBA from the Kellogg Graduate School of Management, Northwestern University (Chicago, USA).

Philippe SALLE began his career at Total in Indonesia before joining Accenture in 1990. He then joined McKinsey in 1995 and became senior manager in 1998. In 1999, he joined the Vedior group (which later became Randstad, a company listed on Euronext Amsterdam). He became Chairman and CEO of Vedior France in 2002; in 2003, he became a member of the Managing Board of Vedior NV and was then appointed President for South Europe in 2006 (France, Spain, Italy and Switzerland). From 2007 to 2011, he served first as Deputy CEO and then Chairman and CEO of the Geoservices group (sold to SLB in 2010, listed on the New York Stock Exchange), a technological company operating in the petroleum industry with 7,000 associates in 52 countries. From 2011 to 2015, he was Chairman and CEO of the Altran group. He then became Chairman and CEO of Elior where he remained until October 31, 2017. Since December 1, 2017, he has been Head of the Emeria group (formerly Foncia). He is a Knight of the French National Order of Merit and of the Legion of Honor and Commander of the Order of Merit of the Italian Republic.

CURRENT POSITIONS

Within the Group:
None

Outside of the Group:

French companies(non-listed):
- Chairman of Emeria, as permanent representative of Hodpar
- Chairman of Emeria Europe, as permanent representative of Emeria Holding
- Director of Gérance de Passy
- Chairman of the Supervisory Boards of Efficity & Efficity International
- Chairman of the Supervisory Board of Tech-Way
- Chairman of Finellas
- Chairman of Hodpar, as permanent representative of Hodlux
- Chairman of Artellas
- Manager of Ellas
- Director of CIC Banque Transatlantique
- Director of Mister Temp group

Foreign companies:
- Director of Emeria Res UK Limited (United Kingdom) in his own capacity and as permanent representative of Hodlon
- Director of Emeria Res Newco Limited (United Kingdom)
- Director of Emeria Belux (Belgium), as permanent representative of Emeria Holding
- Chairman of the Board of Directors of Emeria Switzerland (Switzerland)
- Co-manager of Emeria Germany Management (Germany)
- Manager of Hodlux SARL (Luxembourg)
- Chairman of Hodlon Limited (United Kingdom), permanent representative of Hodlux SARL
- Chairman of LHG Square Limited (United Kingdom) as permanent representative of Finellas

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

Within the Group:
None

Outside of the Group:
- Director of Bourbon (France, a company listed on Euronext Paris)
- Director of GTT – Gaztransport and Technigaz (France, a company listed on Euronext Paris)
- Director of Diot Siaci (France)
- Chairman of Emeria Holding, as permanent representative of Emeria (France)
- Chairman of the Supervisory Board of Foncia Saturne (France)

Sophie ZURQUIYAH

Director and Chief Executive Officer

Age: 56

Nationality: American and French

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2018

Last renewal: 2022

Expiry of the current term of office: 2026

Number of CGG shares held on December 31, 2022: 169,750 shares

Sophie ZURQUIYAH is a graduate of the École Centrale of Paris. She holds a Master's in Numerical Analysis from Pierre et Marie Curie University (Paris VI) and a Master's in Aerospace Engineering from the University of Colorado.

Sophie ZURQUIYAH started her career in 1991 in the oilfield services industry as a geophysical engineer at SLB in P&L and in positions covering R&D, Operations and Support, in France, the United States and Brazil. She was then appointed Chief Information Officer (CIO) and then President of SLB Data and Consulting Services that provided Processing, Interpretation and Consulting services for most of SLB's business lines. She was also Vice President of Sustaining Engineering, which included all support and improvements to commercial products, services and technologies worldwide. She joined CGG on February 4, 2013 as Senior Executive Vice President Geology, Geophusic & Reservoir (GGR) segment. Prior to her appointment as Chief Executive Officer of CGG SA on April 26, 2018, Sophie ZURQUIYAH was Chief Operating Officer in charge of the GGR segment, Global Operational Excellence and Technology of CGG.

CURRENT POSITIONS

Within the Group:
- Chief Executive Officer of CGG SA

Outside of the Group:

Foreign companies:
- Director and Member of the Audit and Risk Management Committee of Technip FMC (USA, a company listed on New York Stock Exchange)

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

Within the Group:
- Senior Executive Vice President of CGG Services (US) Inc. (USA)

Outside of the Group:
- Director of Bazean Corp. (United States)
- Director and Member of the Audit and Risk Management Committee of Safran (France, a company listed on Euronext Paris)

Patrick CHOUPIN

Director representing the employees

Age: 46

Nationality: French

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2021

Expiry of the current term of office: 2025

Number of CGG shares held on December 31, 2022: 0 share

Role in Board Committees:
- Member of the HSE-Sustainable Development Committee
- Member of the Appointment Remuneration and Governance Committee

Patrick CHOUPIN graduated from the École Nationale d'Ingénieurs de Brest (France) and Fachhochschule Ulm (Germany).

He began his professional activity in 2000 as a front-end developer at Xilinx International in Grenoble. After a year spent in Xilinx European HQ in Dublin, he oriented his career toward internal support and software quality. He joined Sercel Nantes in 2011 as a hardware verification engineer at the early stages of 508^{XT} development, and acts now as a senior software validation engineer for Solution Acquisition team.

CURRENT POSITIONS

Within the Group:
- Senior software validation engineer at Sercel (France)

Outside the Group:
None

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

None

Michael DALY

Independent Director

Age: 69

Nationality: British

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2015 (by co-optation)

Last renewal: 2021

Expiry of the current term of office: 2025

Number of CGG shares held on December 31, 2022: 20,000 shares

Role in Board Committees:
- Chairman of the HSE-Sustainable Development Committee
- Member of Investment Committee

Michael DALY is a graduate of The University College of Wales, Leeds University (Ph.D.) and Harvard Business School (PMD).

Michael DALY is a British geologist, oil and gas executive and academic. He joined the Geological Survey of Zambia in 1976, mapping the remote Muchinga Mountains of northeast Zambia. He began his business career with BP in 1986 as a research geologist. After a period of strategy work and exploration and production positions in Venezuela, the North Sea and London, he became President of BP's Middle East and S. Asia Exploration and Production business. In 2006, Michael DALY became BP's Global Exploration Chief and a Group Vice President. He served on BP's Group Executive team as Executive Vice President from 2010 until his retirement in 2014 after 28 years with the company. He has also served as Senior Director at Macro Advisory Partners. He currently serves as a Non-Executive Director of Tullow Oil, and as Visiting Professor in Earth Sciences at the University of Oxford. He was recently President of the Geological Society of London, a registered Charity.

CURRENT POSITIONS

Within the Group:
None

Outside of the Group:

Foreign companies and institutions:
- Director of Tullow Oil (United Kingdom, a company listed on the London Stock Exchange)[1]
- Visiting Professor in Earth Sciences at the University of Oxford (United Kingdom)
- Director of Daly Advisory and Research Ltd. (United Kingdom)

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

Outside of the Group:
- President of the Geological Society of London (United Kingdom)
- Director of Macro Advisory Partners (MAP) (United Kingdom)

(1) Office ending at the end of May 2023

Anne-France LACLIDE-DROUIN

Independent Director

Age: 55

Nationality: French

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2017

Last renewal: 2021

Expiry of the current term of office: 2025

Number of CGG shares held on December 31, 2022:
20,500 shares

Role in Board Committees:
- Chairwoman of the Audit and Risk Management Committee
- Member of the HSE-Sustainable Development Committee

Anne France LACLIDE-DROUIN is a graduate from the Institut commercial of Nancy (ICN) and Mannheim University. She also holds a Diplôme d'études supérieures comptables et financières.

Anne France LACLIDE-DROUIN began her career at PricewaterhouseCoopers before occupying various positions in the Financial division of international groups in different sectors, such as the distribution sector, where she acquired international experience. In 2001, she became Financial Director of Guilbert, then Staples, AS Watson and GrandVision. Anne France LACLIDE-DROUIN has been CFO of Oberthur Technologies, comprising the responsibility of the Financial and Legal Functions of the Group, from 2013 to 2017 and of Consolis Holding SAS and a member of the Executive Committee of Consolis Group SAS, from 2017 to 2020. From 2021 to 2022, she has been Group CFO of RATP Dev. Since 2023, she is CFO and member of the Executive Committee of Ingenico.

CURRENT POSITIONS

Within the Group:
None

Outside of the Group:

French companies:
- Director and Chairwoman of the Audit Committee of Solocal (a company listed on Euronext Paris)
- Director and Chairwoman of the Audit Committee of Believe (a company listed on Euronext Paris)
- Chief Financial Officer and member of the Executive Committee of Ingenico (a company listed on Euronext Paris)

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

Within the Group:
None

Outside of the Group:
- Chief Financial Officer and Compliance Director of RATP Dev (an affiliate of the RATP group) (France), some positions of Non-Independent Director within RATP Dev
- Chief Financial Officer of Consolis Group SAS (France), member of the Executive Committee , General Manager of Compact (BC) Lux II S.C.A. (Luxembourg), some positions of Non-Independent Director within Consolis
- Chief Financial Officer and Compliance Director of Oberthur Technologies Group SAS (France), some positions of Non-Independent Director within Oberthur
- Director and Chairperson of the Audit Committee of SFR (France, a company listed on Euronext Paris)

Helen LEE BOUYGUES

Independent Director

Age: 50

Nationality: American

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2018 (by co-optation)

Last renewal: 2020

Expiry of the current term of office: 2024

Number of CGG shares held on December 31, 2022: 20,000 shares

Role in Board Committees:
- Chairwoman of the Investment Committee
- Member of the Audit and Risk Management Committee

Helen LEE BOUYGUES received her Bachelor of Arts, magna cum laude, from Princeton University in Political Science and a Master of Business Administration from Harvard Business School.

Helen LEE BOUYGUES started her career in 1995 at J.P. Morgan in the M&A group in New York and in Hong Kong. In 1997, she joined Pathnet Inc., a telecommunications provider based in Washington DC, as Director of Development and Finance. From 2000 until 2004, she worked at Cogent Communications Inc. as Chief Operating Officer, Chief Financial Officer and Treasurer. She thereafter became a Partner at Alvarez & Marsal Paris, where she left to launch her own consulting firm specialized in corporate turnaround and transformations in 2010. In 2014, she integrated her team at McKinsey & Company in Paris where she was Partner responsible for the division Recovery and Transformation Services. Since June 2017, she is President of LB Associés, a consulting firm.

CURRENT POSITIONS

Within the Group:
None

Outside of the Group:
French companies and institutions:
- President of LB Partners
- Director, Chairwoman of the Remuneration Committee and member of the Audit Committee of Burelle SA (a company listed on Euronext Paris)
- Lead Director and member of the Audit and Remunerations Committees of NEOEN SA (a company listed on Euronext Paris)
- Director and member of the Audit Committee of Fives SAS
- Director, Chairwoman of Remuneration Committee and member of Audit Committee of Latecoere SA (a company listed on Euronext Paris)
- Chairwoman of Board of Conforama SA
- Governor and member of the Finance and Strategy Committees of the American Hospital of Paris (non-profit)

Foreign companies:
- Director of Guaranty Trust Holding Company (Nigeria)
- Director of Pepco Group NV (Poland, listed company on Warsaw Stock Exchange)

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

Within the Group:
None

Outside of the Group:
- Founder and General Manager of LEE BOUYGUES Partners (France)
- Partner of McKinsey RTS France (France)
- Director and member of the Audit Committee and Chairwoman of the Remuneration Committee of Novartex SAS (France)

Colette LEWINER

Independent Director

Age: 77

Nationality: French

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2018 (by co-optation)

Last renewal: 2019

Expiry of the current term of office: 2023 (renewal will be proposed at the 2023 Annual General Meeting)

Number of CGG shares held on December 31, 2022: 50,000 shares

Role in Board Committees:
- Chairwoman of the Appointment, Remuneration and Governance Committee
- Member of the Audit and Risk Management Committee

Colette LEWINER graduated from the École Normale Supérieure (a leading French higher education University) and has a Ph.D. in physics.

Colette LEWINER started her career as an academic at University of Paris VII as a physics researcher. In November 1979, she joined Electricité de France (EDF), first in the Research Department, before being responsible for all fuels (notably nuclear fuel) purchasing. In 1989, she became EDF's first woman Executive Vice President, in charge of the Commercial division that she created. Colette LEWINER was appointed Chairwoman of the Board and Chief Executive Officer of SGN (the engineering affiliate of Cogema) on March 1992. In 1998, Colette LEWINER joined Capgemini and headed the Utilities Global Market Unit. She was Non-Executive Chairwoman of TDF (2010-2015) and member of the European Union Consultative group on Energy (2008-2012). In 2012, she became Energy Advisor to the Capgemini Chairman. Colette LEWINER is a member of the French Academy of Technology. She is a *Grand Officier* of the French National Order of Merit and Commander of the Legion of Honor.

CURRENT POSITIONS

Within the Group:
None

Outside of the Group:

French companies:
- Director, member of the Accounts Committee, member of the Ethics Committee and Chairwoman of the Selection and Compensation Committee of Colas (a company listed on Euronext Paris and at 96.6% controlled by Bouygues)
- Director, Chairwoman of the Governance, Appointment and Remuneration Committee, and member of the Nuclear Commitments Monitoring Committee of EDF (a company listed on Euronext Paris)
- Director, Chairwoman of the Audit Committee and member of the Ethics and ESG Committee of Getlink (formerly Eurotunnel, a company listed on Euronext Paris) (1)

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

Within the Group:
None

Outside of the Group:
- Director, Chairwoman of the Selection and Compensation Committee of Bouygues (France, a company listed on Euronext Paris)
- Director, member of the Strategy and Sustainable Development Committee and member of the Selection and Compensation Committee of Nexans (France, a company listed on Euronext Paris)
- Director, member of the Strategy Committee and member of the Audit Committee of Ingenico (France, a company listed on Euronext Paris)
- Director and Chairwoman of the Selection and Compensation Committee of Cromton Greaves (India)

(1) Office ending at the Shareholders General Meeting to be held on April 27, 2023

Heidi PETERSEN

Independent Director

Age: 65

Nationality: Norwegian

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2018 (by co-optation)

Last renewal: 2020

Expiry of the current term of office: 2024

Number of CGG shares held on December 31, 2022: 20,000 shares

Role in Board Committees:
- Member of the Appointment, Remuneration and Governance Committee
- Member of the HSE-Sustainable Development Committee

Heidi PETERSEN holds an M. Sc. (cand. scient. degree) from the Norwegian University of Science and Technology in Trondheim, Department of Chemistry and Mathematics.

Heidi PETERSEN started her career as a research assistant at the Norwegian University of Science and Technology in Trondheim in 1983. She was employed at Kvaerner Oil & Gas from 1988 where she worked as an engineer, project manager and departmental manager engaged in offshore and land-based industrial assignments. She served as maintenance supervisor of the Gullfaks C platform for two years from 1995 to 1997. She was appointed head of Kvaerner Oil & Gas AS in Sandefjord in 1997, where she served as Vice President until 2000. In 2000, she headed a management buyout that led to the startup of Future Engineering AS and served as its Managing Director from 2000 to 2004. In 2004, she sold the Company to Rambøll and served after that as Managing Director of Rambøll Oil & Gas from 2004 to 2007. Heidi PETERSEN is an independent businesswoman, with 30 years of experience in the oil and offshore industry. She owns Future Technology AS, a leading consultancy and technology company located in Sandefjord and Oslo offering consulting engineering and construction solutions, notably in the oil and gas industry.

CURRENT POSITIONS

Within the Group:
None

Outside of the Group:

Foreign companies:
- Chairwoman of Future Technology AS (Norway)

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

Within the Group:
None

Outside of the Group:
- Director of Arendals Fossekompani ASA (Norway, a company listed on the Oslo Stock Exchange)
- Director of HIP (Herøya Industripark) AS (Norway)
- Director of Eitzen Chemical ASA (Norway, a company listed on the Oslo Stock Exchange)
- Director of Glamox ASA (Norway, a company listed on the Oslo Stock Exchange)
- Director of North Energy ASA (Norway, a company listed on the Oslo Stock Exchange)
- Chairwoman of SIV (Sykehuset i VestFold) (Norway)
- Director of NIVA AS (Norway)

Mario RUSCEV

Independent Director

Age: 66

Nationality: French and American

Professional address: CGG SA,
27 avenue Carnot – 91300 Massy, France

First appointment: 2018 (by co-optation)

Last renewal: 2019

Expiry of the current term of office: 2023 (renewal will be proposed at the 2023 Annual General Meeting)

Number of CGG shares held on December 31, 2022: 20,156 ADRs

Role in Board Committees:
- Member of the Investment Committee
- Member of the Appointment, Remuneration and Governance Committee

Mario RUSCEV is a Nuclear Physicist by training holding a Ph.D. from Pierre and Marie Curie University and from Yale University.

Mario RUSCEV spent 23 years with SLB in various responsibilities in the R&D and operational areas. He was the head of the Seismic, Testing, Water & Gas services and Wireline Product Lines. He has since been CEO of FormFactor, a provider of unique nanotech connectors for the semi-conductor industry, CEO of IGSS (GeoTech), CTO at Baker Hughes and EVP at Weatherford until 2017. Mario RUSCEV is now EVP TAQA International and CTO of TAQA.

During his career, Mario RUSCEV had the opportunity to evolve in many environments where technology was a differentiator and his teams successfully introduced systems as diverse as:
- luggage scanners differentiating between organic and inorganic materials still in use after 30 years;
- the first container scanner based on unique gas sensors;
- many Wireline and Testing tools including the PlatForm Express Wireline combo still unequalled after 25 years;
- the first single-sensor seismic systems called Q;
- the first ever Aquifer Storage and Recovery in the Middle East;
- simulators of the formation and propagations of fractures during Frac operations or analytics applications in the oilfield operations.

His combined technological and operational experiences give him a unique perspective on the evolution of the oilfield business.

CURRENT POSITIONS

Within the Group:
None

Outside of the Group:

Foreign Companies (non-listed):
- Director of Asco Group Ltd (United Kingdom)
- EVP TAQA International and Chief Technology Officer of TAQA (Saudi Arabia)

POSITIONS WHICH EXPIRED OVER THE LAST FIVE YEARS

Within the Group:
None

Outside of the Group:
- Director of Noven, Inc. (USA)
- Director of Expro Group Holdings International Ltd., incorporated (Cayman Islands)
- Director of Global Carbon Capture and Sequestration Institute (Australia)

4.1.3.2 General rules, structure and operation of the Board of Directors and its Committees

a) Operating rules for Board of Directors' meetings

The operating procedure of the Board is governed by the Internal Rules and Regulations of the Board of Directors which are available on the Company's website (www.cgg.com). Their main provisions are summarized below.

Chairmanship of the Board of Directors

In accordance with Article 9 of the articles of association, the Board of Directors must appoint among its members a natural person as Chairman, for a term that cannot exceed the duration of his term of office, i.e. four years. The Board may revoke the Chairman at any time. The Chairman's duties end at the latest at the end of the annual Ordinary General Meeting following the date on which he reaches the age of 65. However, the Board of Directors may extend the term of the Chairman beyond this limit, on one or more occasions, for a total period which may not exceed three years.

The Chairman represents the Board of Directors and, except in exceptional circumstances, is the only person authorized to act and speak on behalf of the Board of Directors. He organizes and directs the work of the Board of Directors and ensures the efficient functioning of the corporate bodies in accordance with the principles of good governance. He ensures, in particular, that the Directors are able to fulfill their missions and that they have all the information necessary for the accomplishment of their missions. He is kept regularly informed by the Chief Executive Officer of significant events and situations related to the day-to-day business of the Group and may ask for any information likely to enlighten the Board of Directors and its Committees. He may interview the Statutory Auditors to prepare the work of the Board of Directors. At the request of General Management, he may also represent the Company in its high-level relations with the public authorities and the Group's major partners, both nationally and internationally. He may be required to interact with shareholders, particularly on corporate governance issues.

Philippe SALLE has been Chairman of the Board of Directors since April 26, 2018. His term as Director was renewed at the General Meeting on May 12, 2021 for four years, i.e. until the Ordinary General Meeting called to approve the financial statements as of December 31, 2024. The Board of Directors, during its meeting on May 12, 2021, confirmed his functions as Chairman of the Board of Directors.

Information to be provided to Directors

In preparation of every Board meeting, the Board's Secretary sends documentation to the Directors containing all useful information on each of the points appearing on the meeting agenda. This documentation is generally uploaded on the secured website of the Board of Directors and its Committees to enable the Directors to review it before the meeting.

Furthermore, Directors are kept informed and consulted by the Chief Executive Officer between Board meetings about all events or operations of importance to the Company.

A draft version of press releases related to financial statements and all events or operations of importance to the Company are sent to Directors sufficiently in advance of their publication so they can transmit their comments to the General Management. Other press releases are systematically sent to them at the same time they are published by the Company.

Board meetings

At every meeting, the Board is informed of the evolution of the operating and financial performance of the main segments of the Group. This segment information is supplemented by a particular review of the consolidated financial situation of the Group in terms of debt, cash flow and financial resources available on a short-term basis and in the light of forecasts. All transactions with a material impact on the strategy of the Group such as acquisitions, partnerships, disposals or strategic investments are subject to the prior authorization of the Board after the Investment Committee has issued its recommendation. The Board is regularly informed on the progress of the transaction in question.

The Board of Directors meets when convened by its Chairman, as often as the interests of the Company require and at least four times a year, and in accordance with Article L. 823-17 of the Commercial Code meets in the presence of the Statutory Auditors when reviewing the annual or interim financial statements. It is specified that in accordance with the recommendation of the AFEP-MEDEF Code (12.3), the Board meets at least once a year without the presence of the executive corporate officers.

The Board of Directors deliberates validly only if at least half of the Directors are present. Board decisions are made by a majority of members present or represented. In the event of a tie vote, the vote of the Chairman of the Board of Directors is the decisive vote, in the event of the latter's absence, the vote of the Chairman of the meeting is not decisive.

In accordance with the Article L. 225-37 of the French Commercial Code and the Internal Rules and Regulations of the Board of Directors, the Directors who participate in the deliberations of the Board by videoconference or telecommunications allowing their identification and guaranteeing their effective participation are deemed present for the calculation of the quorum and the majority. However, the use of this process is expressly excluded for the transactions referred to in Articles L. 232-1 and L. 233-16 of the French Commercial Code, namely the preparation of annual and consolidated financial statements and the management report.

An attendance register is kept and the minutes of the deliberations are drawn up in accordance with the law.

Representative of the Economic and Social Committee

In accordance with Article L. 2312-72 of the French Labour Code, a representative of the Company's Economic and Social Committee attends the meetings of the Board of Directors in an advisory capacity.

Observers (Censeurs)

In accordance with Article 13 of the Company's articles of association, the Board of Directors may appoint up to a maximum of three observers *(Censeurs)* for a two-year period. They are convened to the meetings of the Board of Directors and take part in deliberations in an advisory capacity. As of the date of this Document, the Company has not appointed any observer *(Censeur).*

Rules and obligations applicable to Directors

i. Respect of social interest, duty of expression and diligence

The Director represents all the shareholders of the Company and must act in all circumstances in the corporate interest of the Company.

Each Director has a duty to clearly express his or her opinions and shall endeavor to convince the Board of the relevance of his or her position.

Each Director must devote the necessary time, care and attention to his or her duties. Before accepting any new position or office, he or she must consider whether he or she will still be able to fulfil this obligation. Unless he or she is genuinely unable to do so, he or she must attend all meetings of the Board of Directors and of any Committees of which he or she is a member, and all General Meetings of shareholders.

ii. Minimum number of shares to be held by members of the Board of Directors

In accordance with the Board's Internal Regulations, each Director should own at least 20,000 shares to be acquired no later than six months after the Director's appointment date subject to a cap of 60,000 euros.

iii. Duty to report conflicts of interest

In accordance with the Board's Internal Rules and Regulations, each Director must inform the Board of any conflict of interest situation, even potential, that may directly or indirectly involve him/her because of the duties he/she may hold in other companies or because of personal interest. In such a case, the Director shall abstain from attending the debate and taking part in voting on the related resolution. This obligation is complemented by an annual formal statement provided to the Company by each Director, testifying that he/she is not involved in any conflict of interest.

To the Company's knowledge and as of the date of this Document:

- there is no family link between the Company's corporate officers;
- none of the corporate officers *(mandataires sociaux)* has been subject to any fraud conviction, bankruptcy, sequestration or liquidation process, or received any criminal charge and/or official public penalty from statutory or regulatory authorities during the past five years;
- none of them has been prevented by a tribunal to act as member of a Board or Supervisory Board of an issuer or to participate in the management of the conduct of business of an issuer during the last five years;
- there are no potential conflicts of interests between the duties of the Directors, the Chairman of the Board and the Chief Executive Officer towards the Company and their respective private interests or their other duties;
- there is no service agreement between the Directors and corporate officers, and the Company or any of its subsidiaries, providing for specific benefits under this agreement.

iv. Stock market ethics

Directors are bound by a duty of care and due diligence, as well as an obligation to take special care with respect to any transactions involving the Company's shares or any financial instruments related to such shares. They must comply with regulations governing insider trading. In particular, they are required to comply with the applicable stock exchange regulations related to (i) the definition, use and disclosure of inside information, (ii) the provision of a list of persons closely associated with them, (iii) compliance with blackout periods, and (iv) the reporting of transactions involving the Company's shares. These rules are detailed in the Board's Internal Rules and Regulations which are available on the Company's website (www.cgg.com).

b) Evaluation of the operations of the Board of Directors and its Committees

The Board of Directors conducts an annual evaluation of its operations and those of its Committees. Every three years, this evaluation is conducted with the assistance of an external consultant.

Evaluation procedure of the Board of Directors and its Committees

The procedures for each type of evaluation (internal or external) are defined in the table below and have been incorporated into the Board of Directors' Internal Rules and Regulations.

	INTERNAL EVALUATION	EXTERNAL EVALUATION
LAUNCH OF THE EVALUATION PROCESS	Preparation of the evaluation by the Appointment, Remuneration and Governance Committee ("ARGC") based upon a proposal from the EVP Group General Counsel	Selection of the external consultant by the ARGC on the basis of a proposal by the EVP Group General Counsel / Definition of the process by the Chair of the ARGC and the external consultant
WRITTEN QUESTIONNAIRE	Written questionnaire sent by the Chair of the ARGC to all Directors, relating to the global performance of the Board and of its Committees	Written questionnaire sent by the external consultant to all Directors, relating to the global performance of the Board and of its Committees and to the individual contribution of each Director
INDIVIDUAL MEETINGS	Individual meetings held with the Chair of the ARGC on a voluntary basis, relating to any topic requested by the Director having requested the meeting, including but not limited to the individual contribution of each Director	Individual meetings held (Directors, EVP Group General Counsel, EVP Group CFO, EVP Group Human Resources) with the external consultant on a mandatory basis, and relating to the various topics listed by the Chair of the ARGC and the external consultant, including but not limited to the individual contribution of each Director
COMPILATION OF RESULTS	Compilation of the results received by the EVP Group General Counsel and review by the Chair of the ARGC	Compilation of the results received by the external consultant and review by the Chair of the ARGC, the EVP Group General Counsel and the Chair of the Board of Directors
REPORTING OF THE RESULTS	Global reporting of the results of the evaluation by the Chair of the ARGC to the ARGC and then to the Board of Directors Discussion of the results at the Board of Directors' meeting Individual reporting by the Chair of the ARGC to each director, if necessary	Global reporting of the results of the evaluation by the external consultant to the ARGC, and then to the Board Discussion of the results at the Board of Directors' meeting Individual reporting by the external consultant to each director

Results of the external evaluation performed in 2022

In 2022, the Board of Directors carried out an evaluation by an external consultant under the supervision of the Chairman of the Appointment, Remuneration and Governance Committee with the support of the General Secretary and the Legal Department. The summary of the conclusions of this external evaluation is shown in the following table.

2022 **EXTERNAL EVALUATION**

Positive feedback

- Board's dynamics, effectiveness and engagement: Relationships within the Board are respectful and professional
- Relationship between the Board and CEO is well-balanced and CEO's transparency is appreciated
- Quality of strategic debate
- Board size and composition are well adapted
- Efficient Chairman leadership
- Professional Committees
- Succession planning is well addressed
- High level of appreciation of Board processes, documentation and logistics

Action Plan for 2023

- New topics to be covered in the Board's agenda: post-mortem analysis, equity story, competition landscape
- Training on ESG and any other relevant topics to be decided by the Board for 2023
- One-on-one meetings between Chairman and Directors to be scheduled once a year

4.1.3.3 Missions and works of the Board of Directors and its Committees in 2022

a) Missions of the Board of Directors and works over 2022

NUMBER OF **MEMBERS**	NUMBER OF **MEETINGS**	AVERAGE **ATTENDANCE RATE** [(a)]	PERCENTAGE OF **INDEPENDENT MEMBERS**	
9 **in 2022**	8 **in 2022**	93% **in 2022**	78% **in 2022**	87.5% **in 2022**
vs 9 in 2021	vs 13 in 2021	vs 96.5% in 2021	vs 78% in 2021 *Including the Director representing the employees*	vs 87.5% en 2021 *Excluding the Director representing the employees*

(a) The individual attendance rates are detailed under section 4.1.3.4 of this Document.

MAIN MISSIONS AND WORKS CARRIED OUT OVER 2022 (NON-EXHAUSTIVE LIST)

Main missions	In accordance with Article L. 225-35 of the French Commercial Code, the Board of Directors determines the orientations of the Company's activity and ensures their implementation in accordance with its corporate interest, taking into account the social, environmental, cultural and sporting challenges of its activity. Subject to the powers expressly granted to the General Meetings of Shareholders and within the limits of the corporate purpose, it takes up any question concerning the smooth running of the Company and settles by its deliberations the matters that concern it.
Main activities in 2022	**Governance** – approval of the 2021 universal registration document including the management report and the report on corporate governance; – approval of draft resolutons and related reports to the Annual General Meeting; – convening of the General Meeting of May 5, 2022; – review of the qualification of Directors as independent; – annual review of the regulated agreements and periodic assessment of agreements relating to usual operations and entered into under normal conditions; – review of the voting results of the General Meeting of May 5, 2022; – review of the composition of the Board Committees; – review and update of the Board of Directors' Internal Rules and Regulations; – approval of the report on the Group Policy on equal opportunity for an equal treatment of employees, including the diversity policy applicable to the Group; – review of gender balance in governance bodies; – review of the results of the external evaluation of the Board of Directors' operations and adoption of an action plan for 2023 (see section 4.1.3.2.b) of this Document); – discussion on the succession plan of the corporate officers and members of the Executive Leadership team, on the basis of the works of the Appointment, Remuneration and Governance Committee (see below for more details); – one executive session, i.e a meeting held in the absence of the Chief Executive Officer, in accordance with AFEP-MEDEF Code recommendations. Main topics discussed were the performance and the succession plan of the Chief Executive Officer and of the Executive Leadership team.
	Remuneration – approval of the variable remuneration of the Chief Executive Officer for 2021, review of the remuneration components for the Chairman of the Board and the Chief Executive Officer for fiscal year 2022, and the method of allocation of Directors' fees for 2022; – review of the fulfillment of the performance conditions of the 2018, 2019 and 2020 stock option and performance share plans; – allocation of stock options and performance shares to the Chief Executive Officer, the members of the Executive Leadership team and certain employees of the Group.
	Finance and strategy – approval of the 2021 annual and consolidated financial statements, review of the interim quarterly and half-year results for fiscal year 2022, approval of related press releases and the 2022 forecasts; – approval of the 2023 budget review; – review, approval and monitoring of M&A projects; – approval of the 3-year Business Plan; – review of the risk matrix; – a strategy meeting during which the management team provided a detailed review of each business line activity with a particular focus on the development of Beyond the Core businesses.
	Others – discussions on Green taxonomy

Succession plan

The Company has set up a succession plan for its Chief Executive Officer and the members of its Executive Leadership team.

The succession plan is reviewed by the Appointment, Remuneration and Governance Committee and it is then presented to and discussed by the Board of Directors. This review is made on an annual basis. The last review of the succession plan by the Board of Directors took place in December 2022, during the executive session (in the absence of the Chief Executive Officer).

The Chairman of the Board of Directors' succession plan was reviewed during the Board of March 2, 2023.

b) Missions of the Board Committees and works over 2022

The Internal Rules and Regulations of the Board of Directors define the composition, duties and operating procedures of the Committees established by the Board. These rules are available on the Company's website (www.cgg.com).

The works of the Committees are recorded in minutes. Each Committee reports to the Board on its proceedings after each meeting.

Individual attendance rates are provided for in section 4.1.3.4 of this Document.

Appointment, Remuneration and Governance Committee

The Chairman of the Board of Directors and the Chief Executive Officer are regularly involved in the works of this Committee, in particular those related to the appointment of Directors and with the exception of questions concerning them personally.

COMPOSITION AS OF THE DATE OF THIS DOCUMENT

- Colette LEWINER, *Chairperson* [(a)]
- Patrick CHOUPIN [(b)]
- Heidi PETERSEN [(c)]
- Mario RUSCEV [(c)]

NUMBER OF **MEMBERS**	NUMBER OF **MEETINGS**	AVERAGE **ATTENDANCE RATE** [(d)]	PERCENTAGE OF **INDEPENDENT MEMBERS** [(e)]
4 **in 2022** vs 4 in 2021	5 **in 2022** vs 5 in 2021	100% **in 2022** vs 95% in 2021	75% **in 2022** vs 75% in 2021 *Including the Director representing the employees*
			100% **in 2022** vs 100% in 2021 *Excluding the Director representing the employees*

(a) The Committee is chaired by an independent member in compliance with the AFEP-MEDEF Code.
(b) A Director representing the employees is a member of the Committee in compliance with the AFEP-MEDEF Code.
(c) Independent Director.
(d) The individual attendance rates are detailed under section 4.1.3.4 of this Document.
(e) The Company is compliant with the AFEP-MEDEF Code under which the Committee must be composed of a majority of independent Directors.

MAIN MISSIONS AND WORKS CARRIED OUT OVER 2022 (NON-EXHAUSTIVE LIST)

Main missions	The Appointment, Remuneration and Governance Committee is responsible for monitoring governance matters, notably the appointment and renewal of Board members and corporate officers, as well as matters involving their compensation, especially with respect to the AFEP-MEDEF Code on corporate governance. The Committee is also in charge of the review of the succession planning of Board members and corporate officers as well as the Executive Leadership team, the gender equality and equal opportunity policies, including the diversity policy, the assessment of the functioning of the Board and its Committees. The missions of the Appointment, Remuneration and Governance Committee are detailed in the Board of Directors' Internal Rules and Regulations available on the Company's internet website (www.cgg.com).
Main activities in 2022	– review of the independence of the Directors and of the Directors' terms of office and renewals for 2022; – review of the remuneration of the Chairman of the Board, the Chief Executive Officer (including the determination of the criteria applicable to the variable remuneration and the determination of the achievement of these criteria) for 2021; – review and implementation of the remuneration policies applicable to corporate officers for 2022; – follow-up on meetings with proxy advisors on governance and remuneration topics; – review of the achievement of performance conditions of stock-option and performance shares plans in place and review of the stock-options and performance shares plans to be allocated in 2022; – implementation and follow-up of the external evaluation process for the Board of Directors and its Committees for 2022; – review and coordination of the update of the Board of Directors' Internal Rules and Regulations; – annual review of the succession plan for corporate officers and the members of the Executive Leadership team; – review of the report on the Group Policy on equal opportunity for and equal treatment of employees, including the diversity policy and objectives for feminization of governance bodies.

Investment Committee

COMPOSITION AS OF THE DATE OF THIS DOCUMENT	NUMBER OF MEMBERS	NUMBER OF MEETINGS	AVERAGE ATTENDANCE RATE [b]	PERCENTAGE OF INDEPENDENT MEMBERS
Helen LEE BOUYGUES, *Chairperson* [a] Michael DALY [a] Mario RUSCEV [a]	3 in 2022 vs 4[c] in 2021	3 in 2022 vs 3 in 2021	100% in 2022 vs 91.66% in 2021	100% in 2022 vs 100% in 2021

(a) Independent Director.
(b) The individual attendance rates are detailed under section 4.1.3.4 of this Document.
(c) Anne-France LACLIDE-DROUIN was previously a member of the Investment Committee. She is now a member of the HSE/Sustainable Development since May 5, 2022.

MAIN MISSIONS AND WORKS CARRIED OUT OVER 2022 (NON-EXHAUSTIVE LIST)

Main missions	The Investment Committee is responsible for reviewing and regularly monitoring the investment expenditure budget, as well as merger & acquisition transactions, and making recommendations to the Chief Executive Officer. In particular, the main tasks of the Committee are to examine in particular: – individual proposed and committed capital projects over US$10 million; – authorizations for expenditures over US$100 million; – M&A projects of US$5 million. The missions of the Investment Committee are detailed in the Board of Directors' Internal Rules and Regulations available on the Company's internet website (www.cgg.com).
Main activities in 2022	– review of the Group's investment strategy for 2022; – review and recommendations on M&A projects; – review of ongoing and proposed investments in internal HPC capacity; – review and monitoring of all investment transactions and projects falling into its assignments as described above; – review of all impairments on the Group's assets to be included in the financial statements (including but not limited to the impairment on multi-client surveys); – review of the multi-client surveys; – review of the investments' budget for 2023; – review of the Board of Directors' Internal Rules and Regulations.

HSE/Sustainable Development Committee

COMPOSITION
AS OF THE DATE
OF THIS DOCUMENT

Michael DALY,
Chairperson [(a)]

Patrick CHOUPIN [(b)]

Anne-France LACLIDE-DROUIN [(a) (c)]

Heidi PETERSEN [(a)]

NUMBER OF **MEMBERS**	NUMBER OF **MEETINGS**	AVERAGE **ATTENDANCE RATE** [(d)]	PERCENTAGE OF **INDEPENDENT MEMBERS**
4 **in 2022** vs 3 in 2021	3 **in 2022** vs 3 in 2021	91.67% **in 2022** vs 100% in 2021	75% **in 2022** vs 66.67% in 2021 *Including the Director representing the employees*
			100% **in 2022** vs 100% in 2021 *Excluding the Director representing the employees*

(a) *Independent Director.*
(b) *Director representing the employees.*
(c) *Anne-France LACLIDE-DROUIN is a member of the HSE/Sustainable Development Committee since May 5, 2022. She was previously a member of the Investment Committee.*
(d) *The individual attendance rates are detailed under section 4.1.3.4 of this Document.*

MAIN MISSIONS AND WORKS CARRIED OUT OVER 2022 (NON-EXHAUSTIVE LIST)

Main missions	The HSE/Sustainable Development Committee assists the Board of Directors in its oversight of the Group's Health, Safety, Security and Environment (HSE) and Sustainable Development (SD) policies, conduct and culture. Its main missions are: – make recommendations on the development of a strategic approach to Health, Safety, Security and Environment (HSE) & Sustainable Development (SD); – monitor and review the performance of CGG's HSE & SD systems and programs and compliance with applicable laws; – review the high rated HSE/DD operational risks such as high potential incidents(HPI) and the controls put in place to manage these risks. The missions of the HSE/Sustainable Development Committee are detailed in the Board of Directors' Internal Rules and Regulations available on the Company's internet website (www.cgg.com).
Main activities in 2022	– monitoring of the HSE/ Sustainable Development performance of the Group; – monitoring of the ESG performance of the Group including follow-up on ESG rating agencies and their ratings; – review of any operational lost time incidents (LTIs) and high potential incidents (HPIs), discussions of the root causes and requested follow up of enquiries on several incidents; – review of specific high rated risks, review of controls and mitigations in place to manage them; – review of the Group's performance in terms of carbon emissions; – review of the Statement of non-financial performance of the 2021 Universal Registration Document, and review with the independent third-party auditor of their findings and recommendations on CGG consolidated non-financial statement presented in the Universal Registration Document; – follow-up of the Group's Care & Protect awards and renewal of the program and its objectives; – ESG Materiality analysis 2022-2024; – HSE & ESG progress review following onboarding of Geocomp and Concept; – review of the Board of Directors' Internal Rules and Regulations.

Audit and Risk Management Committee

COMPOSITION AS OF THE DATE OF THIS DOCUMENT	NUMBER OF MEMBERS	NUMBER OF MEETINGS	AVERAGE ATTENDANCE RATE [(b)]	PERCENTAGE OF INDEPENDENT MEMBERS
Anne-France LACLIDE-DROUIN, *Chairperson* [(a)] Helen LEE BOUYGUES [(a)] Colette LEWINER [(a)]	3 in 2022 vs 3 in 2021	6 in 2022 vs 7 in 2021	88.89% in 2022 vs 100% in 2021	100% in 2022 vs 100% in 2021

(a) Independent Director.
(b) The individual attendance rates are detailed under section 4.1.3.4 of this Document.

All the members of the Audit and Risk Management Committee are all Independent Directors with special competencies in financial or accounting matters or legal supervision as requested for at least one of its members by Article L. 823-19 of the French Commercial Code. They were chosen for their recognized skills and expertise in financial, accounting, or internal control, internal audit and risk management. Their professional backgrounds are described in more detail in section 4.1.3.1.f). With a 100% independence rate, the Company complies with the recommendation of the AFEP-MEDEF Code, according to which the Board must be composed of two thirds or more Independent Directors.

The following persons attend the Committee meetings: the relevant members of the Executive Leadership team, the Group Chief Financial Officer, the EVP Group General Counsel, the SVP Group Controller and Chief Accounting Officer, the Group Internal Audit Director who presents an update on significant missions at least twice a year. Sometimes the Chairman of the Board of Directors and the Chief Executive Officer attend the Committee meetings. The Audit and Risk Management Committee invites the Statutory Auditors to attend each of its meetings and meets them once a year, without the presence of the Company's senior management.

The Audit and Risk Management Committee usually meets before each meeting of the Board of Directors. For practical reasons, meetings of the Audit and Risk Management Committee are held in general on the eve of the Board of Directors. In order that this constraint does not prevent the proper functioning of the Committee, the Chairman of the Board and the Chief Executive Officer ensure that the members of the Committee receive the necessary documents and information sufficiently in advance in order to have sufficient time to be able to review the accounts.

MAIN MISSIONS AND WORKS CARRIED OUT OVER 2021 (NON-EXHAUSTIVE LIST)

Main missions	The Audit and Risk Management Committee is responsible for monitoring issues relating to the preparation and control of the Company's accounting and financial information. Its main missions are: – examining the draft corporate and consolidated financial statements, annual and half-yearly and draft press releases; – monitoring the effectiveness of internal control, internal audit and risk management systems as well as compliance policies; and – monitoring the term of office, duties and independence of the Statutory Auditors. The missions of the Audit and Risk Management Committee are detailed in the Board of Directors' Internal Regulations available on the Company's internet website (www.cgg.com).
Main activities in 2022	– review of the annual consolidated financial statements for 2021 (statutory and consolidated accounts, and in particular the impairment tests on assets and goodwill, segment classification into cash generating units (CGUs), the accounting classification of the financial debt of the Group as current liabilities, the cash situation, the memo relating to the going concern, the off-balance sheet commitments), and of the first quarter, the first semester and the third quarter of 2022; – review of the detailed report from external auditors and analysis of the key audit points identified, with a focus on significant risks which may impact the financial statements; – review of the 2021 Universal Registration Document (annual report); – review of the 2022 forecasts; – meeting with external auditors without the presence of the General Management (overview of the audit work performed for the closing of the 2021 financial statements); – monitoring of the Group's situation with respect to cash and cash flow forecasts, especially refinancing and Group hedging policy; – review of the Multi-Client activity, the composition of its library and the valuation of the related surveys including accounting treatment (depreciation policy and potential depreciations) and monitoring of the impacts of the business divested; – follow-up on the restructuring plan and related financial costs;

Main activities in 2022 (continued)	– review of the risk mapping, before and after mitigation; – review of risks (shortage of components, market shift/competitive displacement; critical business IT failure); – alignment of approaches between the Internal Control and Audit Departments and the Enterprise Risk Management Department; – review of the work to be performed by the Statutory Auditors in the scope of their audit on the 2022 financial statements and approved their fee estimates; – review of non-audit services provided by the members of our auditors' network performed in 2022 and approval as necessary; – annual review of the audit and non-services pre-approval policy; – review of the activities and of the main findings of Group Internal Audit department twice a year; – validation of the annual and tri-annual audit plans established by the Group Internal Audit Director and the Executive Leadership Team; – review of the tax situation of the Group; – review of the report of the Ethic Committee; – review of compliance topics; – review of the Board of Directors' Internal Rules and Regulations.

4.1.3.4 Attendance during Board and Committee meetings in 2022

The table below summarizes detailed information concerning the individual attendance of Directors at meetings of the Board of Directors and its Committees during fiscal year 2022:

	Board meetings	Audit & Risk Management Committee meetings	Appointment, Remuneration & Governance Committee meetings	Investment Committee meetings	HSE-Sustainable Development Committee meetings
Total number of meetings in 2022	**8**	**6**	**5**	**3**	**3**
Philippe SALLE	100%	n.a.	n.a.	n.a.	n.a.
Sophie ZURQUIYAH	100%	n.a.	n.a.	n.a.	n.a.
Patrick CHOUPIN Director representing the employees	100%	n.a.	100%	n.a.	100%
Michael DALY	75%	n.a.	n.a.	100%	100%
Anne-France LACLIDE-DROUIN	100%	100%	n.a.	100%[(a)]	50%[(b)]
Helen LEE BOUYGUES	75%	83.33%	n.a.	100%	n.a.
Colette LEWINER	87.5%	83.33%	100%	n.a.	n.a.
Heidi PETERSEN	100%	n.a.	100%	n.a.	100%
Mario RUSCEV	100%	n.a.	100%	100%	n.a.
TOTAL ATTENDANCE RATE IN 2022	**93%**	**88.89%**	**100%**	**100%**	**91.67%**

(a) Anne-France LACLIDE-DROUIN was member of the Investment Committee until May 5, 2022.
(b) Anne-France LACLIDE-DROUIN is member of the HSE/Sustainable Development Committee since May 5, 2022.

4.1.4 Regulated agreements and ordinary agreements

4.1.4.1 Review of the regulated agreements entered into by the Company

During 2022 financial year, no new regulated agreement was submitted for the prior authorization of the Board of Directors and consequently none will be submitted for the approval of the General Meeting pursuant to the provisions of Articles L. 225-38 et seq. of the French Commercial Code (see the special report of the Statutory Auditors on regulated agreements under section 4.1.4.3 of this Document).

It is specified that the Board of Directors, during its meeting of December 14, 2022, acknowledged unanimously that the following agreements, previously subject to the regulated agreements procedure referred to in now repealed provisions of Article L. 225-42-1 of the French Commercial Code, no longer fell under the regulated agreements procedure referred to in the provisions of Articles L. 225-38 et seq. of the French Commercial Code:

- extension of the benefit of the Group's general benefits and health plan to Mr. Philippe Salle, Chairman of the Board of Directors and Mrs. S. ZURQUIYAH, CEO;
- international individual health insurance to the benefit of Mrs. S. ZURQUIYAH, CEO and Director;
- individual insurance covering loss of employment to the benefit of Mrs. S. ZURQUIYAH, CEO and Director;
- collective defined contribution scheme applicable to Mrs. S. ZURQUIYAH, CEO and Director (article 83 of the French Tax Code),
- non-compete commitment between the Company and Mrs. S. ZURQUIYAH, CEO and Director;
- contractual termination indemnity (protection letter) benefiting to Mrs. S. ZURQUIYAH, CEO and Director.

The Board of Directors noted that,as at this date, there were no longer any agreements or commitments concluded by the Company and falling under the regulated agreements procedure.

4.1.4.2 Assessment procedure for agreements entered into in the ordinary course of business

In accordance with Article L. 225-39 of the French Commercial Code, prior approval is not required for agreements if they relate to usual operations and if they are entered into under normal conditions or for agreements concluded between two companies, one of which holds, directly or indirectly, the entire capital of the other. Article L. 22-10-12 of the French Commercial Code requires however, for companies whose share are admitted on a regulated market, the Board of Directors to establish a procedure for regularly assessing whether the agreements relating to usual operations and entered into under normal conditions, still fulfill these conditions and for analyzing their classification.

The Board of Directors' meeting has adopted an Internal Charter applicable to the Group in that respect, which is available on the Company's website (www.cgg.com/investors/corporate-governance). In addition to describing the regulatory framework applicable to the agreements entered into in the ordinary course of business, the Internal Charter provides for an annual assessment of the conditions under which agreements are entered into in the ordinary course of business to be carried out by the Legal Department. Any parties that have a direct or indirect interest in an agreement are prohibited from taking part in the corresponding assessment.

The latest annual assessment on the agreements relating to usual operations and entered into under normal conditions was reviewed by the Board of Directors on March 2, 2023.

4.1.4.3 Statutory Auditors' special report on regulated agreements

Annual General Meeting held to approve the financial statements for the year ended December 31, 2022

This is a translation into English of the statutory auditors' report on related-party agreements issued in French and it is provided solely for the convenience of English-speaking users.

This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

To the Annual General Meeting of CGG,

In our capacity as your company's statutory auditors, we hereby report to you on related party agreements.

We are required to inform you, on the basis of the information provided to us, on the main terms, conditions and reasons underlying company's interest of agreements that have been disclosed to us or that we may have identified as part of our engagement, without commenting on their relevance or substance or identifying any undisclosed agreements. Under the provisions of article R. 225-31 of the French commercial code, it is your responsibility to determine whether the agreements are appropriate and should be approved.

Where applicable, it is also our responsibility to provide shareholders with the information required by article R. 225-31 of the French commercial code in relation to the implementation during the year of agreements already approved by the Annual General Meeting.

We performed the procedures that we deemed necessary in accordance with professional standards applicable in France to such engagements.

Agreements submitted for approval to the Annual General Meeting

Agreements authorized and signed in 2022

We hereby inform you that we have not been advised of any agreements authorized and signed during the year ended December 31, 2022 that should be submitted for approval to the Annual General Meeting in accordance with article L. 225-38 of the French Commercial Code.

Agreements previously approved by the Annual General Meeting

We hereby inform you that we have not been advised of any agreement previously approved by the Annual General Meeting, whose execution continued during the year ended December 31, 2022.

Paris-La Défense, March 14, 2023

The Statutory auditors

Mazars	ERNST & YOUNG et Autres
Daniel Escudeiro	Claire Cesari-Walch

4.2 REMUNERATION

4.2.1 Remuneration policy for corporate officers

This remuneration policy has been established in accordance with the provisions of Article L. 22-10-8 of the French Commercial Code.

As of the date of this report, the Company's corporate officers are Philippe SALLE, Chairman of The Board of Directors and Sophie ZURQUIYAH, Chief Executive Officer of the Company, as well as all the members of the Board of Directors ("the Directors").

For the purposes of this report and pursuant to the provisions of the Corporate Governance Code of Listed Corporations (hereinafter "the AFEP-MEDEF Code"), "executive corporate officers" shall mean the Chief Executive Officer. The executive corporate officers, the Chairman of the Board of Directors and the Directors are collectively referred to as "corporate officers".

4.2.1.1 Information relating to all corporate officers

a) Decision-making process and general principles

Determination of the remuneration policy

The remuneration policy for corporate officers is determined by the Board of Directors on the recommendation of the Appointment, Remuneration and Governance Committee. This policy is regularly reviewed and discussed by the Board of Directors in order to be in accordance with the corporate interest of the Company, contribute to its sustainability and be in line with its business strategy.

The Company has defined its corporate social responsibility via four cornerstones which form the heart of the Company's day-to-day focus – its employees, its sustainability as a company, the fight against corruption, and the environment. Through an ongoing and forward-looking approach, every effort has been made to identify, prevent, manage and resolve all risks linked to these four fields, both at a site and/or project level as well as at the level of governance bodies. These key areas of focus are at the foundations of the Company's commercial strategy, which is defined via promotion and development objectives within the industry, building long-term relationships, developing alliances with major clients and partners, and on a global level, sustaining operational performance. These various elements are implemented by ensuring the Company attracts and retains key skills in a stimulating work environment while maintaining the health and safety of all.

As such, the remuneration policy complies with the following general principles, which are established in accordance with the AFEP-MEDEF Code recommendation to which the Company refers specifically:

- **balancing principle:** Care is taken to ensure that there is a good balance between the different components of the remuneration package and that none of its elements is disproportionate;
- **comparability principle:** The positioning of the remuneration of the Company's corporate officers is regularly reviewed in relation to that of companies in the sector and comparable markets, on the basis of studies carried out by specialized external firms. Thus, the Group's practices are consistent and competitive with market practices to ensure the retention of key executives and to support the Company's business strategy;
- **principle of interest alignment and link to performance:** In general, the Board of Directors and the Appointment, Remuneration and Governance Committee pay particular attention to ensuring that the remuneration policy for executive corporate officers is in line with the Company's performance and oriented towards the creation of long-term value (quantifiable criteria) as well as Group's strategic priorities and corporate social and environmental responsibility (qualitative criteria). Consequently, the main purpose of the remuneration policy is to encourage the achievement of ambitious strategic objectives by setting demanding short, medium and long-term performance criteria.

The global remuneration policy for executive corporate officers focuses on the variable portion of remuneration, which is at risk for the beneficiary. Thus, their remuneration structure includes a significant variable component aimed at aligning executive remuneration more directly with the Group's business strategy and social purpose while encouraging performance. The long-term remuneration tools put in place by the Company also represent a significant part in linking the remuneration of the executive corporate officers to the interests of the shareholders.

Therefore, this policy makes it possible to compensate, in an appropriate manner, decision-making that creates long-term value for the Company, ensuring its sustainability. A suitable remuneration policy is essential, particularly taking into account the cyclical nature of the Group's activity, in order to attract, motivate and retain talent while generally ensuring a good level of competitiveness for remuneration packages. This dual objective of attracting and retaining talent was one of the principal strands of the general sustainable development policy across all employees.

The Group human resources policy enables employees to benefit from a working environment and conditions that encourage professional achievement, in order to bring the best out of its employees. The Group aims to align the remuneration system with local practices. To that end, all employees benefit from a remuneration policy built on principles of competitiveness, attractiveness and motivation, which at the same time meets market practices and encourages improvement in Company's performance in order to serve both the Company's commercial strategy and corporate purpose (please refer to Chapter 3 "Statement on non-financial performance" of this Document for more details).

The Company has implemented, at Group level, a short-term (one year) variable compensation policy which is broken down into various annual variable remuneration programs. In particular, the Global Performance Incentive Plan (GPIP) applies to employees in support functions, employees whose scope is global or cross-functional for several product lines, as well as to company managers. This same program applies to the Executive Leadership team as well as the Chief Executive Officer (executive corporate officer). The financial portion of the GPIP policy is based on financial objectives related to the business, which depends on each business line and which takes into account directives provided by the Board of Directors. The individual portion is based on non-financial objectives related to the Group's strategic and operational development. This scheme ensures the alignment of the remuneration conditions applied across the Group with Company's and shareholders' interests.

Review of the remuneration policy

The Group remuneration policy is regularly reviewed, taking into account market practices and how competitors have evolved in order to ensure consistency at both a global and industry level. Concerning executive corporate officers, the Company works with specialized external firms whose comments are submitted to the Appointment, Remuneration and Governance Committee. The latter then shares its recommendations with the Board of Directors for their decision-making process.

Implementation of the remuneration policy and role of the Appointment, Remuneration and Governance Committee

The remuneration policy applicable to the corporate officers will be implemented by the Board of Directors, in compliance with applicable legal, regulatory and statutory frameworks and in respect of the general principles outlined in section 4.2.1.1.a) of this Document.

The Appointment, Remuneration and Governance Committee meets regularly to verify that the remuneration policy adopted by the General Meeting is correctly applied.

The composition and tasks of the Appointment, Remuneration and Governance Committee in determining, reviewing and implementing the remuneration policy are defined in section 4.1.3.3.b) of this Document and in the Board's Internal Rules and Regulations.

b) Application of the remuneration policy

Principle

The remuneration policy is submitted for approval at the ordinary General Meeting each year. This vote is commonly called "*ex-ante* vote." In the event the General Meeting does not approve the resolution, the corporate officers remuneration would be determined in accordance with the remuneration awarded for the previous financial year or, in the absence of remuneration awarded for the former financial year, in accordance with the existing practices within the Company.

Appointment of new corporate officers

The principles, criteria and elements of compensation provided for in the remuneration policy are applicable to any corporate officer appointed during the financial year.

The Board of Directors, on the recommendation of the Appointment, Remuneration and Governance Committee, will then determine, adapting them to the situation of the person concerned, the objectives, performance levels, parameters, structure and maximum percentages in relation to their fixed annual remuneration, which may not exceed those of the replaced corporate officer.

Exceptions to the application of the remuneration policy

In the event of exceptional circumstances, the Board of Directors may, in accordance with Article L. 22-10-8, III paragraph 2 of the French Commercial Code, depart from the application of the remuneration policy when this departure is temporary, in accordance with the Company's interests and necessary to guarantee the Company's continuity or viability.

The Board of Directors will justify these adjustments in detail in view of the impact on the Company's performance and the economic consequences resulting from these exceptional circumstances. Under no circumstances may the ceiling of the annual variable remuneration be modified.

These exceptions will be strictly implemented. Indeed, the annual variable remuneration will be submitted to the vote of the shareholders at the General Meeting and may only be paid in the event of a positive vote by the latter in accordance with the provisions of Articles L. 22-10-8 and L. 22-10-34, II of the French Commercial Code.

c) Consideration of the last vote of the General Meeting

As each year, prior to the General Meeting, the Company initiates a dialogue with the main shareholders and proxy advisors to inform them of plans for the evolution of the Company's governance and corporate officer remuneration. It is on this occasion that the Company discusses the voting policies implemented at the previous meeting, in particular when these have led to negative votes or recommendations to vote against certain resolutions. The purpose of these regular exchanges is to ensure that the various expectations of stakeholders converge as much as possible on all governance issues while complying with corporate interest.

At the General Meeting of May 5, 2022, all of the resolutions submitted were approved by a large majority[1]. The resolutions relating to "Say on Pay" compensation were largely approved at more than 80%.

Based on the dialogue initiated with the main shareholders and proxy advisors, and given the positive results obtained at the last General Meeting, the Company did not identify a necessary modification of the principles of its remuneration policy applicable to corporate officers.

d) Changes in remuneration policy

The principles of the remuneration policy for corporate officers proposed for the 2023 financial year remain aligned with that applicable in 2022.

The remuneration policy of the Chief Executive Officer is subject to the following adjustment: the derogation clause from the remuneration policy put in place due to the Covid-19 pandemic has been removed.

The remuneration policy for the Chairman of the Board of Directors remains the same, except for his remuneration for his mandate as a director, which will henceforth vary according to his presence. The directors' remuneration policy is therefore impacted only on this point (see section 4.2.1.2.c) of this Document).

(1) Only resolution 16 related to the delegation to the Board of Directors to increase the share capital by issuing shares and/or securities granting access to the share capital of the Company to the members of a company savings plan, was approved slightly below 80% (75,86%). The Company has therefore contacted the significant shareholder who voted against this mandatory resolution to understand its reasons. The shareholder explained that they voted against because of an internal policy that was stricter than the French legal provisions concerning the level of the maximum discount on the share subscription price set out under the delegation. The Company has therefore decided to review the level of the maximum discount when this resolution will be submitted at the next General Meeting in 2023.

4.2.1.2 Information relating to each corporate officer

a) Remuneration policy applicable in 2023 to the Chairman of the Board of Directors

The remuneration of the Chairman of the Board of Directors is determined in accordance with the recommendations of the AFEP-MEDEF Code and in line with remuneration practices observed in France for non-executive Chairs of Boards. It is in line with the Company's corporate interest, contributes to its sustainability and is in line with its business strategy.

In accordance with Article L. 22-10-8 of the Commercial Code, this remuneration policy will be submitted for approval by the General Meeting to be held to approve the financial statements for the financial year ending December 31, 2022.

The Chairman of the Board of Directors' functions are described in section 4.1.3.2.a) of this Document and are currently held by Philippe Salle, whose biography is presented in section 4.1.3.1.f) of this Document.

The Chairman of the Board's term of office is identical to that of the other Directors (i.e. four years) and the Chairman of the Board term of office is aligned with the Director's term of office.

Total remuneration and benefits of any kind

i. Respective Importance of Remuneration Elements

The remuneration of the Chairman of the Board of Directors consists of fixed and variable elements.

ii. Annual fixed remuneration as Chairman of the Board of Directors

The Chairman of the Board of Directors may receive a fixed annual remuneration.

For the 2023 financial year, the annual fixed remuneration of Philippe SALLE in his capacity of Chairman of the Board of Directors is maintained at €170,000 gross on an annual basis, in accordance with the decision of the Board of Directors dated March 2, 2023, following the recommendation of the Appointment, Remuneration and Governance Committee.

iii. Remuneration as Director

The Chairman of the Board of Directors may receive remuneration related to his office as Director, the amount of which is defined in the remuneration policy applicable to Directors in 2023 presented in section 4.2.1.2.c) of this Document.

In accordance with Article L. 22-10-8 of the French Commercial Code, this remuneration policy will be submitted for approval by the General Meeting to be held to approve the financial statements for the financial year ending December 31, 2022.

For the 2023 financial year, following the recommendation of the Appointment, Remuneration and Governance Committee, and subject to the approval of the 2023 General Meeting, the Chairman of the Board of Directors will not receive any fixed portion for his term of office as Director. However, it will now be proposed to allocate a variable portion of a maximum amount of €70,000 subject to an annual presence condition of at least 90%. Below 90% attendance rate, such remuneration will be paid on a *pro rata* basis.

iv. Other short-term remuneration components

Social protection plans

The Chairman of the Board may benefit from the social protection that complements the basic scheme set up for the Group's employees.

Consequently, the Chairman may benefit from an insurance plan covering death and disability risks and may also benefit from medical coverage.

For the 2023 financial year, Philippe Salle will not benefit from such plans.

Benefits in kind

The Chairman of the Board may receive benefits in kind linked to the allocation of a company car.

For the 2023 financial year, Philippe SALLE will not benefit from a company car.

v. Other forms of remuneration

The Chairman of the Board of Directors does not receive any other form of remuneration. In particular, he does not receive:

- any annual or multi-annual variable remuneration;
- any stock options or stock purchase options;
- any free or performance shares.

The Chairman of the Board of Directors does not benefit from any retirement benefits, non-compete indemnities or contractual severance payments.

b) Remuneration policy applicable in 2023 to the Chief Executive Officer

The remuneration policy applicable to the Chief Executive Officer is designed to remunerate performance, measured in the short, medium and long term. The components of this policy have different and mutually consistent objectives. Consequently, is in line with corporate interest of the Company, contributes to its long-term sustainability and is in line with its sales strategy.

To determine the remuneration of the Group's Chief Executive Officer, the Board of Directors relies on a market survey conducted by an independent firm, resulting in a benchmark panel comprising 80% of the companies in the CAC Mid 60 index (excluding companies with revenues of more than €10 billion and financial services and insurance companies). The positioning objective is at the median in terms of total remuneration (fixed, annual variable and long-term remuneration). In addition, given its exposure to the international market, the Company also regularly analyzes the positioning of the Chief Executive Officer's remuneration in light of international market studies based on panels of comparable companies.

In addition, the Board ensures that the remuneration policy for corporate officers remains consistent with that of the Group's other executives.

In accordance with Article L. 22-10-8 of the Commercial Code, this remuneration policy will be the subject of a resolution submitted for approval to the General Meeting called to approve the financial statements for the financial year ending December 31, 2022.

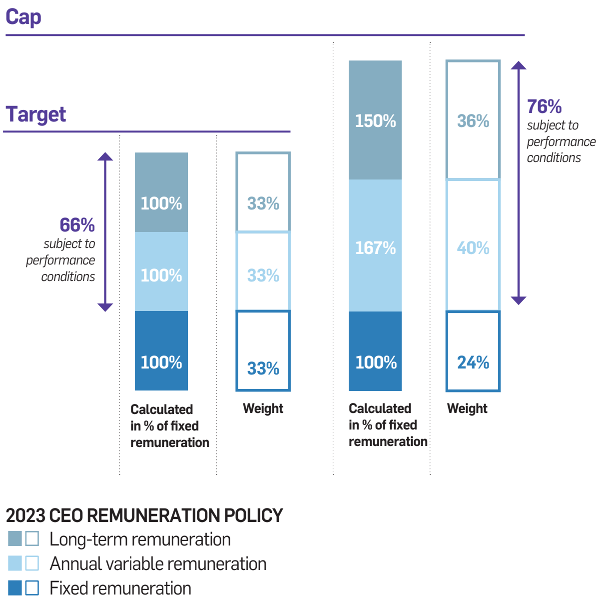
The position of Chief Executive Officer is described in section 4.1.2.1 of this Document and is currently held by Sophie ZURQUIYAH, whose biography is presented in section 4.1.3.1.f). Her term of office was renewed at the General Assembly held on May 5, 2022 for a period of four years until the end of the Ordinary General Meeting called to approve the financial statements for the financial year ending on December 31, 2025. Sophie ZURQUIYAH also combines her term of office as Chief Executive Officer with that of Director of the Company, the terms of which are aligned (see section 4.1.2.1.b).

Total remuneration and benefits of any kind

i. Respective importance of remuneration elements

The total remuneration package is structured in a balanced way around the three main remuneration components (fixed remuneration, annual variable remuneration, long-term remuneration):

2023 CEO REMUNERATION POLICY



Details of the breakdown of each element of remuneration are set out in the following sections.

ii. Fixed remuneration

In accordance with the AFEP-MEDEF Code's recommendations, the Chief Executive Officer's remuneration, including its fixed portion, is reviewed annually by the Appointment, Remuneration and Governance Committee. The annual fixed remuneration is in principle only updated at relatively long intervals and the Company has not opted for an annual change. In the event of a significant increase, the reasons for this increase are explained.

To determine the annual fixed remuneration of the Group's Chief Executive Officer, the Board of Directors relied on a market study carried out by an independent firm, which resulted in a reference panel made up of 80% of the companies in the CAC Mid 60 index (excluding those generating more than ten billion euros in revenue as well as financial and insurance companies).

The annual fixed remuneration of the Chief Executive Officer is currently positioned slightly below median (-3%) of this comparison panel, used to benchmark its positioning on the French market. This amount was increased at the Annual Shareholder Meeting held on May 5, 2022.

The fixed compensation serves as a reference to determine the percentage of annual variable compensation and the valuation of the long-term compensation. Its amount is paid monthly.

For fiscal year 2023, following the recommendation of the Appointment, Remuneration and Governance Committee, the Board of Directors meeting of March 2, 2023 decided to maintain the current fixed remuneration Sophie ZURQUIYAH, at €680,400 gross on an annual basis.

iii. Annual variable remuneration

Methods of determination

The Chief Executive Officer is eligible to participate in the GPIP short term incentive program (described in section 4.2.1.1.a) of this Document).

The Board of Directors and the Appointment, Remuneration and Governance Committee pay particular attention to ensuring that the Chief Executive Officer's annual variable remuneration policy is aligned with Company performance and focused on creating value in the long term (financial objectives) as well as the Group's strategic priorities (extra-financial objectives).

The above criteria contribute to the objectives of the remuneration policy by directly aligning executive remuneration with the Group's commercial strategy (via related to relationships with major clients and partners, promotion and development within the industry) and ESG purpose (in particular via criterion related to the governance corporate social and environmental responsibility), while encouraging operational and financial performance.

In accordance with the AFEP-MEDEF Code, and in order to ensure that they are in line with the Company's short-term strategy, the criteria for annual variable remuneration are reviewed by the Board of Directors every year, without necessarily being modified.

The variable annual remuneration of the Chief Executive Officer is broken down into two parts:

- the first part is based on quantifiable criteria (2/3);
- the second is based on qualitative criteria (1/3).

Quantifiable criteria (financial objectives) are precisely defined by the Board of Directors in relation to the Group's budgetary objectives. They may include, but are not limited to, the following: (i) the Group net cash flow, (ii) free EBITDA, (iii) the Group Segment revenues and (iv) the operating income.

Qualitative criteria (non-financial objectives) are precisely defined by the Board of Directors in relation to the annual priorities for the Group. They may, in particular, and not exclusively, concern: (i) the governance of the Group, (ii) relationships with major customers, shareholders and the financial community, (iii) social and environmental responsibility, (iv) the promotion and development of the Group in its business sector, (v) the Group's operating performance and (vi) human resources.

The Board of Directors decides on the weighting assigned to the achievement of each of the considered criteria according to the context and their importance for the Group.

The amount of variable annual target remuneration (when 100% of the quantifiable and qualitative criteria are met) set for the Chief Executive Officer is expressed as a percentage of the fixed part of the remuneration.

As an incentive to overperform on quantifiable criteria, the annual variable remuneration program allows for the payment of amounts in excess of the target remuneration. This mechanism does not apply to qualitative criteria. Therefore, annual variable remuneration may attain a maximum amount of 166.67% of the fixed remuneration.

Target objectives are not diclosed for reasons of confidentiality. Nevertheless, the rate of achievement of each of the criteria is communicated *a posteriori*.

The indicators set each year by the Board of Directors for the Chief Executive Officer apply to all Group employees eligible to GPIP in order to ensure consistency between the variable remuneration policy for the Chief Executive Officer, senior executives and, more generally, other Group employees.

Performance criteria evaluation method

The performance evaluation for the Chief Executive Officer regarding the qualitative criteria defined by non-financial objectives is carried out by the Appointment, Remuneration and Governance Committee. The level of achievement of the criteria is assessed in the presence of the Chairman who submits his observations to the Committee.

To conclude, the Appointment, Remuneration and Governance Committee shares its recommendations with the Board of Directors in order to reach a decision.

Terms of payment

The variable portion due in respect of a given financial year is determined by the Board of Directors approving the accounts for the same financial year. Thus, in accordance with Article L. 22-10-34, II of the Commercial Code, the payment of the variable portion due in respect of the year 2023 will be subject to the approval of the *ex-post* vote by the General Meeting called in 2024 to approve the financial statements for the financial year 2023. It shall be paid in the month following the validation of this payment by the General Meeting.

There is no possibility for the Company to claim back the annual variable remuneration and there are no other possible deferral periods.

Appointment or termination of mandate

In the event of the appointment or departure of the Chief Executive Officer during the year, these same principles would apply *prorata temporis* for the period of office.

However, in the event of an appointment during the second half of the year, the performance assessment would be carried out at the discretion of the Board of Directors on a recommendation from the Appointment, Remuneration and Governance Committee.

Objectives applicable to the annual variable remuneration in 2023

For the 2023 financial year, during the meeting held on March 2, 2023, the Board of Directors has decided not to modify the annual variable remuneration system applicable to the Chief Executive Officer and has determined the structure of the annual variable remuneration of Sophie ZURQUIYAH and the applicable objectives.

The Board of Directors defined the financial objectives in relation to the Group's budgetary Objectives. The Extra-financial objectives have been defined in relation with the annual priorities of the Group and are based on:

- the definition and implementation of the **Group strategic and financial plan** towards 2025. It includes among others the structuring and progress of our new business's initiatives, the communication of CGG's new technological profile as well as specific objectives, managed through indicators whose detailed criteria are confidential;
  - the achievement of these objectives will be assessed by the Board of Directors based on the status of our Beyond the Core Revenue path compared to our 2025 ambition and progress of CGG's strategic initiatives;
- the achievement of **business and operational objectives** with a strong focus on customer relations, market position, business models, as well as key technology projects delivery and technological differentiation of the company. It also includes cybersecurity objectives to continue to improve our protection level;
  - the achievement of these objectives will be measured based on the effective implementation of defined actions for each business line reviewed by the board;
- the **company organization, the management of employees** and talents, the key successions' management, the employee engagement, and the company attractiveness through an appealing employee value proposition (including compensation, work environment, flexible work and people development activities);
  - the achievement of these objectives will be measured based on various indicators that will be reviewed by the board including among others a voluntary attrition below a set threshold;
- the company's performance in terms of **Environmental and Social responsibility and Governance**, and the consolidation and development of new initiatives related to the energy transition. This area includes the following objectives and will be measured by the board as follows:
  - maintain Health Safety and Environment performance within industry benchmarks with no fatalities;
  - evaluate the path to 2025/2030 GHG Emission reduction and launch actions to address any potential gaps;
  - progress plans to improve the Environmental performance of our supply chain;
  - promotion of Diversity and Inclusion including among others the achievement of ambitious recruiting targets and progress toward the 2025 objective of 25.5% women in 10% of positions with greatest responsibilities.

The variable remuneration target amount is set at 100% of the fixed remuneration, split between 2/3 of financial objectives and 1/3 of extra-financial objectives. Its maximum amount is set at 166.67% of the fixed remuneration.

Variable remuneration for the 2023 financial year breaks down as follows:

Indicator	Target		Maximum	
	As a % of fixed remuneration	On a basis of 100	As a % of fixed remuneration	On a basis of 100
Financial objectives	**66.67%**	**66.67%**	**133.33%**	**80.00%**
Group net cash flow	16.67%	16.67%	33.33%	20.00%
Free EBITDA	16.67%	16.67%	33.33%	20.00%
Group Segment Revenues	16.67%	16.67%	33.33%	20.00%
Operating income	16.67%	16.67%	33.33%	20.00%
Non Financial objectives	**33.33%**	**33.33%**	**33.33%**	**20.00%**
Group strategic and financial plans management	10.00%	10.00%	10.00%	6.00%
Business and operational performance management	10.00%	10.00%	10.00%	6.00%
Organization and human resources management	3.33%	3.33%	3.33%	2.00%
ESG/HSE	10.00%	10.00%	10.00%	6.00%
OBJECTIVES TOTAL	**100.00%**	**100.00%**	**166.67%**	**100.00%**

In order to take into account the economic consequences resulting from exceptional circumstances, the Board of Directors may, after consultation with the Appointment, Remuneration and Governance Committee, modify the criteria and/or performance conditions of the annual variable remuneration. The Board will justify these adjustments in detail in view of the impact on the Company's performance and the economic consequences resulting from these exceptional circumstances. In any case, the annual variable remuneration may not exceed the maximums provided for in this policy.

iv. Remuneration allocated to the Directors

The Chief Executive Officer, who would also be a Director of the Company, does not receive any remuneration allocated to the Directors.

v. Exceptional remuneration

No exceptional remuneration may be granted to the Chief Executive Officer by the Board of Directors, except in very special circumstances.

In the event of the payment of exceptional remuneration, it will be justified and explained by the Board of Directors both in terms of the determination criteria and the amounts awarded.

In any case, the exceptional remuneration could not exceed 150% of the Chief Executive Officer's fixed remuneration.

In accordance with Article L. 22-10-34, II of the French Commercial Code, payment of such exceptional remuneration would be subject to the approval of the *ex-post* vote by the General Meeting convened to approve the financial statements for the previous financial year.

vi. Other short-term remuneration components

Social protection plans

The Chief Executive Officer may benefit from the social protection plans set up for the Group's employees.

Consequently, the Chief Executive Officer may benefit from an insurance plan covering death and disability risks.

For the 2023 financial year, this coverage will continue to be provided by the insurance policy subscribed with SwissLife.

Benefits are calculated on the basis of the contribution base consisting of gross annual remuneration.

This plan is capped and guarantees:

- the payment of temporary incapacity and 2nd category invalidity benefits up to a maximum amount of €119,295 per year in addition to social security payments;
- the risk of death according to several options at the beneficiary's choice, the maximum amount of which is set at 32 PASS in case of accidental death;
- the payment of a spouse's pension, if applicable.

The benefit limits are set by the insurance contract and depend on the marital status at the time of death and the option chosen by the beneficiaries.

Premiums are calculated in reference to the *plafond annuel de sécurité sociale* [annual social security ceiling] (PASS) and are set for the year 2023 at:

- tranche A – up to 100% of the PASS: 0.23% beneficiary premiums and 1.14% company premiums;
- tranche B – between 100% and 400% of the PASS: 1.52% beneficiary premiums and 1.57% company premiums;
- tranche C – between 400% and 800% of the PASS: 0.13% beneficiary premiums and 0.51% company premiums.

The Chief Executive Officer may also benefit from medical coverage covering medical fees.

For the 2023 financial year, this coverage will continue to be provided via an insurance policy subscribed with SwissLife.

Premiums are calculated in reference to the *plafond annuel de sécurité sociale* [annual social security ceiling] (PASS) and are set for the year 2023 at:

- a set monthly fee of €36.07 at the expense of the beneficiary and €44.09 at the expense of the Company;
- on top of which premiums are paid proportionally to earnings: tranches A and B: up to 400% of the PASS: 0.57% at the expense of the beneficiary and 0.69% at the expense of the Company.

Premiums are paid on the beneficiary's gross annual remuneration.

Premium amount and associated coverage are reviewed yearly, without necessarily being modified.

The above insurance contracts can be terminated by following standard legal procedure.

International medical insurance

The Chief Executive Officer may benefit from an international medical insurance policy due to frequent trips abroad.

Benefits in kind

The Chief Executive Officer may receive a benefit in kind related to the allocation of a company car.

For the 2023 financial year, Sophie ZURQUIYAH will benefit, as in 2022, from the social protection plans applicable to the Group's employees, from an international medical insurance subscribed by CGG Services (U.S.) Inc. of which the annual amount payable by the Company is estimated at €33,947 and from a company car which may not give rise to a benefit in kind in excess of €11,880. The cost of this international medical insurance is borne by CGG SA.

vii. Multi-year variable remuneration

The Board of Directors has decided not to use a long-term variable remuneration mechanism to be paid in cash, preferring to align the remuneration of the Chief Executive Officer with the interests of the shareholders by favoring equity instruments, which helps ensure that the remuneration policy respects the corporate interest.

However, it is specified that this type of remuneration could be considered in the event of regulatory changes or circumstances that would make the use of equity instruments restrictive or impossible. In this case, the principles and criteria described for share-based plans will be incorporated in the structuring of such multi-annual remuneration by adapting the terms and conditions.

viii. Long-term remuneration

The Board of Directors, on the recommendation of the Appointment, Remuneration and Governance Committee and with the authorization of the General Meeting, grants the Chief Executive Officer long-term remuneration which may take the form, in particular, of stock options covered by Articles L. 225-177 et seq. and L. 22-10-56 et seq. of the French Commercial Code or performance shares covered by Articles L. 225-197-1 et seq. and L. 22-10-59 et seq. of the French Commercial Code, or any other plan linked to the growth of the shares.

The long-term remuneration instruments implemented by the Company contribute to the objective of the remuneration policy by rewarding executives' loyalty and by linking executive corporate officer remuneration to shareholder interests and more globally to the Company's corporate purpose. This policy enables the Company to reward long-term value creation ensuring its sustainability.

In addition, these plans are not reserved solely for the Group's managers; they may also benefit employees who have contributed to the Group's performance or who have strong potential for development within the Group. As a result, the long-term remuneration policy addresses the objectives to attract and retain talents included in the Group remuneration policy.

As a rule, grants are made annually in the first half of the year after the closing of the accounts for the previous financial year in the form of stock-options and/or performance shares.

No discount is applied when stock-options are granted or acquired. The purchase price is at least equal to the average share price over the twenty trading days preceding the Board's decision.

The implementation of these plans is subject to performance and presence conditions for Group executives. Thus, the Chief Executive Officer may benefit from a stock option and performance share plan subject to the fulfilment of performance conditions in respect of the following years, with an acquisition period of at least three years.

The target of the total allocation linked to long-term remuneration in shares and options is equal to 100% of the Chief Executive Officer's fixed remuneration, without being able to exceed a ceiling of 150% of this same fixed remuneration.

As for the remuneration policy approved by the General Meeting held on May 5, 2022 for the 2022 financial year, it has been proposed for the 2023 financial year that in the event of the departure of the Chief Executive Officer, a detailed justification would need to be provided.

In accordance with the provisions of the AFEP-MEDEF Code, in the event of exceptional circumstances, the performance conditions may be modified during the period in question. In this case, these amendments shall be made public after the meeting of the Board of Directors that adopted them. Changes in performance conditions must maintain the alignment of the interests of shareholders and beneficiaries. In the event of the departure of Executive Directors before the expiration of the period provided for the performance conditions assessment, the Board of Directors will decide whether to maintain all or part of their long-term remuneration. Its decision will be duly justified if this remuneration is maintained or paid.

In the event of retirement, stock-options and/or performance shares in the process of acquisition will be reduced in proportion to the time spent in service over the acquisition period and the beneficiary will remain subject to all the provisions of the plans.

The Board of Directors also decided that, in accordance with the provisions of Article L. 225-185 of the French Commercial Code;

- the quantity of shares resulting from the exercise of stock options that Sophie ZURQUIYAH is required to keep in registered form, for the duration of her mandate, should represent 25% of the amount of the net capital gain upon exercise of the options allocated by the Board of Directors, and;

- the quantity of shares resulting from the acquisition of shares that Sophie ZURQUIYAH is required to keep in registered form, for the duration of her mandate, should represent 25% of the shares allocated by the Board of Directors.

The Board of Directors determines the minimum number of registered shares resulting from the allocations that the Chief Executive Officer must keep until the end of his/her term of office. The Chief Executive Officer must, as a Director of the Company, hold at least 20,000 shares in the Company. The combination of these obligations will enable the Chief Executive Officer to hold a significant number of securities.

The obligation to keep in registered shares resulting from the allocation of performance shares and the exercise of stock-options granted applies until the value of all the shares retained in registered form represents two years of fixed and variable annual cash remuneration.

Considering the share price at the time of grant and the authorized dilution, the Board of Directors may decide to award the Chief Executive Officer a number of shares whose overall valuation will be lower than the target of the remuneration policy.

As for the remuneration policy approved by the General Meeting held on May 5, 2022 for the 2022 financial year, it is proposed for the 2023 financial year to let the possibility of reducing the number of shares allocated to the Chief Executive Officer under the long-term remuneration plan in the event of circumstances which would make the use of equity instruments constraining.

It should be noted that the long-term remuneration of the Chief Executive Officer has been positioned, for several years, below the median of companies in the comparison panel used for the positioning benchmark on the French market. In 2022, the Chief Executive Officer's allocation is slightly above the first distribution quartile of the Group's reference market.

Allocation for the 2023 financial year

For the 2023 financial year, the Board of Directors intends to maintain the same long-term remuneration policy applicable to corporate officers as in 2022 based on a mix of stock options and performance shares. These grants will be subject to a vesting period of at least three years and to demanding performance conditions linked to financial objectives defined in line with the Company Business Plan, and ESG objectives defined in line with CGG's ESG objectives for 2025-2030.

The performance conditions precisely defined by the Board of Directors will include:

For the stock options plan: a performance condition based on a growth objective of the share price of CGG in relation to the evolution of a stock market performance index of a panel of peers including the following companies in the oil sector and related fields – TGS ASA, PGS ASA, Fugro NV, Core laboratories VV, Nov Inc, MagSeis Fairfield ASA, Valaris LTD, Technip FMC PLC and Hunting - (hereinafter " benchmark ") over the acquisition period, calculated at the date of acquisition:

- CGG share growth higher than or equal to 130 % of the median growth of the benchmark index will allow 100% of CGG options to be acquired under this condition;
- CGG share growth strictly above 100% and strictly below 130% of benchmark index median growth will result in between 75% and 100% of CGG Options to be acquired under this condition on a straight-line vesting scale;
- CGG share growth equal to 100% of the median growth of the benchmark will result in 75% of CGG options to vest under this condition;
- If CGG's share price growth is strictly less than 100% of the median growth of the benchmark, no options will vest under this condition.

For free share allocation and stock option plans:

- a performance condition based on the achievement of a cumulative Free EBITDA target for the years 2023, 2024 and 2025; if the objective is not achieved, no right is acquired on this condition of attribution;
- a performance condition based on the achievement of an average net debt to EBITDAs ratio target for the full year 2025; if the objective is not attained, no right is acquired to this condition of attribution;
- a performance condition based on the achievement of an environmental, social and governance objective; if the objective is not attained, no rights are acquired under this condition of attribution. A scorecard (hereafter, "ESG Scorecard") has been defined including the following criteria and indicators:
  - Social (40%) including indicators of diversity and employee engagement,
  - HSE (20%) and more precisely an indicator linked to the "Total recordable case frequency " (TRCF),
  - Environmental (40%) including indicators related to carbon neutrality, energy use efficiency in data centers (PUE) and carbon intensity.

For the Free EBITDA, average net debt to EBITDAs, and ESG, the thresholds for triggering the acquisition of securities are 100% of achievement of the objective that makes it possible to definitively acquire 100% of the securities under these conditions.

The maximum vesting rate for each performance criteria family may not exceed 100% of the share of the criteria family. Thus, the maximum vesting rate may not exceed 100% of the total allocation.

ix. Supplementary pension plans

Defined contribution pension plan (Article 83 of the CGI (Code général des impôts [General Tax Code]))

In order to enable the Group's senior executives to supplement the level of pension paid by the mandatory French pension plans, a supplementary funded collective pension plan has been put in place since January 1, 2005.

The Chief Executive Officer benefits from this pension plan.

This plan is capped as such and calculated with reference to the *plafond annuel de sécurité sociale* [annual social security ceiling] (PASS):

- tranche A – up to 100% of the PASS: 0.5% beneficiary contribution and 1% company contribution;
- tranche B – above 100% of the PASS and up to 400% of the PASS: 2% beneficiary contribution and 3% company contribution;
- tranche C – above 400% of the PASS and up to 800% of the PASS: 3.5% beneficiary contribution and 5% company contribution.

The contribution base consists exclusively of the gross annual remuneration for the year declared, the base salary, the annual variable remuneration and the benefits in kind (company car). This base excludes, as a matter of principle, any others element of remuneration.

Pension rights under this plan may be liquidated, at the earliest, when the beneficiary has liquidated his pension rights under the general social security scheme.

The above plan can be terminated by following standard legal procedure.

For the 2023 financial year, Sophie ZURQUIYAH will benefit from the above-mentioned defined contribution pension plan. The estimated amount for the 2023 financial year is €20,774, of which €12,341 to be borne by the Company.

Alternative pension plan

The Board of Directors may decide to set up an alternative retirement plan for the benefit of the Chief Executive Officer, giving preference to defined contribution plans or any other similar mechanism, depending on legislative and regulatory developments.

This plan would be subject to the fulfillment of demanding performance conditions defined by the Board of Directors, in accordance with the legislation in force and with the recommendations of the AFEP-MEDEF Code to which the Company refers.

x. Individual unemployment insurance

The Chief Executive Officer, not benefiting from an employment contract, is not subject to common right legislation concerning remuneration for unemployment when he/she loses his/her job. The Board of Directors may therefore authorize the Company's entering into a specific unemployment guarantee for the Chief Executive Officer's benefit.

For the 2023 financial year, Sophie ZURQUIYAH will benefit from individual unemployment insurance. The amount to be borne by the Company is €12,043.

xi. Contractual termination indemnity in the event of departure from the Group

The Chief Executive Officer of the Company may benefit from a contractual termination indemnity in the event of departure from the Group, the terms and conditions of which are defined by the Board of Directors with recommendation from the Appointment, Remuneration and Governance Committee.

The contractual termination indemnity may only be paid in the event of a forced departure (in the absence of serious or gross misconduct). The amount of this indemnity is set as the difference between (i) a gross amount equal to 200% of the annual reference remuneration of the corporate officer and (ii) any sums to which the Chief Executive Officer may be entitled as a result of the termination of his/her corporate office, in particular, the indemnity likely to be paid under the Chief Executive Officer's non-compete commitment. The total amount of the contractual termination indemnity is therefore capped at 200% of the annual reference remuneration.

The annual reference remuneration is exclusively comprised of the annual fixed remuneration paid over the 12-month period prior to the notice date, to which is added the annual average variable remuneration due over the previous three financial years before date of departure or date of notice (if applicable).

The aggregate of the contractual termination indemnity and the non-compete indemnity may under no circumstances exceed 200% of the corporate officer's Annual Reference remuneration. If the aggregate amount exceeds that amount, the contractual termination indemnity will be reduced to the level of the aforementioned cap.

No remuneration will be paid if the Chief Executive Officer is able to exercise his/her retirement rights at the time of his/her departure.

The payment of the contractual termination indemnity is contingent on achieving a performance condition. This performance condition is defined by the Board of Directors, as the average rate of achievement of the objectives related to the Chief Executive Officer's annual variable remuneration, as measured over the three complete financial years prior to the date of the Chief Executive Officer's termination.

The above performance condition, derived from the achievement of variable remuneration performance criteria, contributes to the remuneration policy's objectives by aligning the Chief Executive Officer's remuneration with Group strategy and social purpose while encouraging operational and financial performance.

The payment of the indemnity will be contingent upon the recognition by the Board of Directors of the achievement of the above performance condition as appraised on the date of termination, following the conditions contained in the applicable legal framework.

The terms of payment and the assessment of the performance conditions of the indemnity comply with the recommendations of the AFEP-MEDEF Code.

Contractual termination indemnity in force

Sophie ZURQUIYAH benefits, as Chief Executive Officer since her appointment in 2018, from a contractual termination indemnity in the event of termination of her corporate office. As part of her renewal by the Board of Directors on May 5, 2022, this indemnity was maintained under the following terms and conditions:

- Sophie ZURQUIYAH benefits from a contractual termination indemnity in the event of dismissal, and in the event of non-renewal of her term of office within twelve months following a change of control, in the absence of any situation of failure characterized by the non-achievement of the performance conditions described below;
- no payment may be made in the event of serious or gross misconduct, regardless of the reason for departure.

The payment of the contractual termination indemnity will depend on the average rate of achievement of the objectives relating to the annual variable portion of Sophie ZURQUIYAH's remuneration for the last three financial years ended prior to the departure date, in accordance with the following rule:

- if the average achievement rate is less than 80%, no contractual termination indemnity will be paid;
- if the average achievement rate is equal to or greater than 80% and less than 90%, the contractual termination indemnity will be due at 50% of its amount;
- if the average achievement rate is equal to or greater than 90%, the contractual termination indemnity will be due on a straight-line basis between 90% and 100% of its amount.

This contractual termination indemnity will be equal to the difference between (i) a gross amount capped at 200% of the Annual Reference Remuneration and including all sums of any nature whatsoever, and on any basis whatsoever, to which Sophie ZURQUIYAH may be entitled as a result of the termination, and (ii) all sums to which she may be entitled as a result of the implementation of the non-compete commitment.

The aggregate of the contractual termination indemnity and the non-compete indemnity may under no circumstances exceed 200% of the executive corporate officer's Annual Reference remuneration. Should the combined amount of the two benefits be greater, the contractual indemnity would be reduced to the level of this cap.

It is specified that the Board of Directors must acknowledge, prior to the payment of the contractual termination indemnity, (i) that the performance conditions described above have been met and (ii) that the contractual termination indemnity complies with the recommendations of the AFEP-MEDEF Code in force at the date of the departure of the person concerned.

xii. Non-compete commitment

In order to protect the Group's interests in the event of the departure of certain senior executives, including the Chief Executive Officer, the Company provides for the application of non-compete commitments.

This commitment applies to activities involving the acquisition, processing or interpretation of geophysical data, or the provision of equipment or products designed for the acquisition, processing or interpretation of geophysical data, and involving the individual's contribution to projects or activities in the same field as those in which he or she participated within the CGG group.

In consideration for this commitment for a term defined when the agreement is entered into, the Chief Executive Officer receives remuneration corresponding to a percentage of his/her annual reference remuneration. For the determination of these elements, the Company refers to the recommendations of the AFEP-MEDEF Code and also provides for a stipulation authorizing the Board of Directors to waive the implementation of the clause upon the beneficiary's departure.

The indemnity shall be paid in instalments and shall not be payable when the person concerned claims his/her pension rights and, in any event, beyond the age of 65 years.

The non-compete commitment exists for the protection of the Group's interest, and the non-compete indemnity fulfils the imperative financial remuneration in response to the restrictions incurred. However, the Board of Directors reserves the right to unilaterally renounce the enforcement of the non-compete commitment, at the date of termination of the Chief Executive Office, in which he/she would be free from any non-compete commitments and no related financial remuneration would be owed on that basis.

Non-compete commitment in force

Sophie ZURQUIYAH is bound by a non-compete commitment which applies to activities involving services for the acquisition, processing or interpretation of geophysical data, or the supply of equipment or products designed for the acquisition, processing or interpretation of geophysical data, and involving the contribution of the person concerned to projects or activities in the same field as those in which Sophie ZURQUIYAH has participated within the CGG group.

In consideration for this commitment for a period of 18 months from the date of Sophie ZURQUIYAH's departure from the Group, she would receive a remuneration corresponding to 100% of her annual reference remuneration.

The annual reference remuneration is exclusively comprised of the annual fixed remuneration paid over the 12-month period prior to the notice date, to which is added the annual average variable remuneration due over the previous three financial years before the date of departure or the date of notice (if applicable). The indemnity would be paid in instalments and would not be paid if the person concerned claims his/her pension rights and, in any event, beyond the age of 65.

xiii. Indemnity for starting the position

The Board of Directors may, if applicable grant an indemnity for starting the position to a new Chief Executive Officer coming from a company outside the Group in accordance with the AFEP-MEDEF recommendations. The payment of this indemnity, which may take different forms, is limited to compensating for the loss of the benefits enjoyed by the executive and must be duly substantiated.

xiv. Remuneration allocated for the office of Director

The Chief Executive Officer does not receive any compensation in the event of the accumulation of a directorship in accordance with the remuneration policy applicable to Directors in 2023 presented in section 4.2.1.2.c) of this Document.

For the 2023 financial year, Sophie ZURQUIYAH will not receive any compensation for her directorship.

c) Remuneration policy applicable to Directors in 2023

a. Directors

The composition of the Board of Directors as well as information relating to the beginning of, renewal of, and end of individual terms of office of each Director, are presented in the summary table in section 4.1.3.1 of this Document.

The Directors are appointed for a four-year term in accordance with the Company's articles of association.

b. Allocation rules applicable to the Directors' remuneration

i. Maximum annual remuneration for Directors proposed at the General Meeting

The General Meeting held on June 16, 2020 approved an amount of €550,000 of as aggregate annual remuneration of the Directors applicable since 2020 financial year. This total maximum remuneration remains unchanged for 2023 financial year in the absence of a new decision of the General Meeting.

ii. General distribution rules

The total amount of Directors' fees, as approved by the General Meeting, is divided into a fixed portion based on the function and a variable portion for meeting attendance, as well as a fixed indemnity per trip for Directors travelling from abroad. The variable portion based on the attendance at Board and Committee meetings has a higher weight in the total envelope compared to the fixed portion based on the function in accordance with the AFEP-MEDEF Code's recommendation (22.1).

The total amount paid to each Director is determined after taking into account the actual attendance at each Board and Board Committee meetings, knowing that for the purpose of calculating the remuneration, a strategy meeting will be assimilated to a Board of Directors' meeting. In case the final aggregate amount to be paid to the Directors reaches the maximum amount approved by the General Meeting, a *pro rata* calculation shall be done for each Director in order to respect and not exceed such maximum amount.

iii. Specific rules applicable to the Chairman of the Board, the Chief Executive Officer and the Director representing the employees

Chairman of the Boards of Directors

The Chairman of the Board receives:

- a fixed remuneration in his capacity as Chairman of the Board of Directors as described in section 4.2.1.2.a) of this Document;
- a variable portion in his capacity as Director, as well as a travel indemnity (if applicable), as set out in section 4.2.1.2.c) of this Document.

Chief Executive Officer

The Chief Executive Officer, who would also be a Director of the Company, does not receive any Directors' fees nor travel indemnity. The various remuneration components of the Chief Executive Officer are as described in section 4.2.1.2.b) of this Document.

Director representing the employees

The Director representing the employees, appointed pursuant to Article 8 of the Company's articles of association, does not receive any remuneration pursuant to his office as Director nor travel indemnity. He receives a salary pursuant to the employment agreement he entered into with the Company or any of its affiliates.

c. Amounts to be applied in 2023

For the 2023 financial year, based on the recommendations of the Appointment, Remuneration and Governance Committee and subject to the approval by the shareholders in the General Meeting to be held in 2023, the rules proposed will be broken down as follows, based on the number of Directors in office and the number of meetings expected to be held in the calendar year:

FIXED PORTION (FOR AN ENTIRE FINANCIAL YEAR) BASED ON THE FUNCTION

	Fixed portion
Director[(a)]	€10,500
Chairman of the Audit and Risk Management Committee[(a)]	€12,000
Member of the Audit and Risk Management Committee[(a)]	€6,000
Chairman of any Board Committee other than the Audit and Risk Management Committee[(a)]	€6,000
Member of any Board Committee other than the Audit and Risk Management Committee[(a)]	€3,000

(a) Chief Executive Officer, Director representing the employees and the Chairman of the Board of Directors excluded.

The fixed portion of any Director appointed in the course of the year will be calculated on a *prorata temporis* basis.

VARIABLE PORTION BASED ON ATTENDANCE AT BOARD AND BOARD COMMITTEE MEETINGS[(a)]

	Variable portion
Annual variable portion of the Chairman of the Board[(b)]	€70,000
Attendance at an ordinary Board meeting[(c)]	€3,600
Attendance at an ordinary Board Committee meeting	€2,000
Attendance at an exceptional Board meeting[(d)]	€1,800
Attendance at an exceptional Board Committee meeting	€1,000
Attendance at a Board Committee follow-up call[(e)]	€0
Attendance at a Board Committee meeting as a guest	€0

(a) Chief Executive Officer and the Director representing the employees excluded.
(b) Maximum amount subject to presence condition of at least 90%. Otherwise, remuneration on a pro rata basis. This remuneration is exclusive of any other variable remuneration for attendance at Board and Committee meetings.
(c) An ordinary meeting is a meeting that was scheduled in the annual calendar as approved by the Board during the previous financial year. Strategy meetings scheduled in the annual calendar are considered as ordinary meetings.
(d) An exceptional meeting is a meeting that was not scheduled in the annual calendar as approved by the Board during the previous financial year. It is convened in principle in order to obtain Board's approval or Board Committee's recommendation of the Committee on specific matters.
(e) A Board Committee follow-up call aims to keep the Directors informed of subjects dealt with during the ordinary or exceptional Board Committee meetings.

Compared to the remuneration policy approved by the General Meeting held on May 5, 2022, the only change to the Directors' remuneration policy relates to the Chairman's compensation for his term of office as Director, which will include a variable portion subject to a presence condition in accordance with the recommendation of the AFEP-MEDEF Code (22.1).

TRAVEL INDEMNITY, IRRESPECTIVE OF THE DIRECTOR'S NATIONALITY[(a)]

	Travel indemnity
Intercontinental travel	€2,000
Travel within the same continent	€500

(a) Chief Executive Officer and the Director representing the employees excluded.

This travel indemnity will apply to any travel for a meeting of the Board of Directors, a strategic meeting of the Board of Directors and also to the annual Board seminar, if any.

d. Stock options and performance shares

Pursuant to applicable law, Directors, except the Chief Executive Officer and the Director(s) representing the employees, are not entitled to receive stock options and/or performance shares of the Company.

e. Expenses

Travel expenses incurred by reason of the attendance to Board and Board Committee meetings are reimbursed by the Company.

f. Allocation of the annual fixed amount allocated to each Director for 2023

Director and Chairman of the Board of Directors

For the 2023 financial year, Philippe SALLE will benefit from a variable portion of Directors' fees and from a fixed remuneration pursuant to his position as Chairman of the Board of Directors, in accordance with the remuneration policy applicable to corporate officers described above.

Director and Chief Executive Officer

For the 2023 financial year, Sophie ZURQUIYAH will not benefit from any remuneration pursuant to her office as Director, but she will benefit from a remuneration in her capacity as Chief Executive Officer in accordance with the remuneration policy applicable to corporate officers described above.

Director representing the employees

For the 2023 financial year, in accordance with the remuneration policy applicable to corporate officers described above, Patrick CHOUPIN will not receive any remuneration pursuant to his office as Director representing the employees. He will receive a salary pursuant to the employment agreement he entered into with Sercel, a wholly owned subsidiary of the Company.

Other non-executive Directors

For the 2023 financial year and pursuant to their respective office as Director, Michael DALY, Anne-France LACLIDE-DROUIN, Helen LEE BOUYGUES, Colette LEWINER, Heidi PETERSEN and Mario RUSCEV will benefit from a remuneration in accordance with the remuneration policy applicable to corporate officers described above.

4.2.2 Global remuneration of corporate officers in 2022

4.2.2.1 Information relating to each corporate officer

A. Total annual remuneration of the Chairman of the Board of Directors for the 2022 financial year

a. Consideration of the last vote of the General Meeting

The General Meeting on May 5, 2022 approved resolution no. 7 regarding the information provided for in Article L. 22-10-9 of the French Commercial Code and relating to the remuneration paid or allocated to corporate officers for the financial year ended December 31, 2021 and resolution no. 11 related to the remuneration policy applicable to the Chairman of the Board of Directors.

In light of this positive vote, the Company has maintained, in 2023, the practices applied to the remuneration of corporate officers in 2022 (notably remuneration policy and information). The proposed adjustments listed in section 4.2.1.1.d) of this Document will be submitted to the vote during the 2023 General Meeting.

b. Compliance of the remuneration paid with the remuneration policy

The remuneration paid to the Chairman of the Board of Directors complies with the principles and criteria for determining, distributing and allocating the elements of fixed, variable, and exceptional remuneration and all benefits of all kinds attributable to the Chairman of the Board of Directors approved by the General Meeting held on May 5, 2022 and applicable for the 2022 financial year.

For the 2022 financial year, the Company did not depart from nor make any exception to the remuneration policy.

c. Total remuneration and benefits of any kind

The gross remuneration amounts paid by the Company and the controlled companies to Philippe SALLE for 2021 and 2022 financial years are shown in the table below.

i. Annual fixed remuneration as Chairman of the Board of Directors

The table below presents the gross fixed remuneration of the Chairman of the Board of Directors and how it has changed:

	2021	2022	2021-2022 variation
Philippe SALLE, Chairman of the Board of Directors	€170,000	€170,000	0%

The fixed remuneration of the Chairman of the Board of Directors on an annual basis remained unchanged compared to 2021.

ii. Annual fixed remuneration as Director

In accordance with the remuneration policy applicable to the Board of Directors as approved by the General Meeting on May 5, 2022, Philippe SALLE received a remuneration amounting to €72,000 for financial year 2022 (including €2,000 of travel indemnity) for his office as Director. The fixed amount of €70,000 remained unchanged compared to 2021.

As the Board of Directors is composed in compliance with the provisions of Articles L. 225-18-1 and L. 22-10-3 of the French Commercial Code, payment of the remuneration provided for in the first paragraph of Article L. 225-45 and in the Article L. 22-10-14 of the aforementioned Code has not been suspended.

iii. Other short-term remuneration elements

Social protection schemes

The Chairman of the Board may benefit from the social protection that complements the basic scheme set up for the Group's employees.

Consequently, the Chairman may benefit from an insurance plan covering death and disability risks and may also benefit from medical coverage.

For 2022, Philippe Salle do not benefit from such plans.

Benefits in kind

Philippe SALLE did not benefit from any benefit in kind (including company car) during 2022, such as for 2021 financial year.

iv. Other forms of remuneration

The Chairman of the Board of Directors did not receive any other form of remuneration. In particular, he did not receive:

- any annual or multi-annual variable remuneration;
- any stock-options;
- any performance shares.

The Chairman of the Board of Directors did not benefit from any retirement benefits, non-compete indemnities or contractual termination indemnities.

d. Remuneration paid by a company within the scope of consolidation

The Chairman of the Board of Directors did not receive any remuneration paid by the companies included in the scope of consolidation of the Company.

e. Respective importance of remuneration elements

The Chairman of the Board received only fixed elements to the exclusion of any variable or exceptional remuneration.

f. Equity/Pay ratio

(Pursuant to Article L. 22-10-9, 6th and 7th of the French Commercial Code)

The table below presents the median and average ratios of the overall remuneration of the Chairman of the Board of Directors, in accordance with the recommendation of the AFEP-MEDEF Code to which the Company refers. The ratio was calculated on the basis of the legal requirement, i.e. the top holding company CGG SA. Taking into account the small number of employees in that company, which does not allow disclosure of representative data, the ratio was also calculated on the basis of Group's scope of consolidation in France (CGG SA, CGG Services SAS and Sercel SAS).

These two ratios have been calculated on the basis of the gross fiscal remuneration *(rémunération brute fiscale)* as defined in Article L. 136-1 et seq. of the French Social Security Code, including the following main elements paid in 2022:

- fixed remuneration;
- variable remuneration;
- exceptional remuneration;
- profit-sharing and participation;
- benefits in kind;
- employer contributions paid in respect of defined contribution plans paid in respect of the financial year 2022.

The options and performance shares vested during the 2022[1] financial year and valued under IFRS 2 have been added to the gross fiscal remuneration.

In the interest of consistency, employees' remuneration considers the same following items paid in 2022:

- fixed remuneration;
- variable remuneration;
- exceptional remuneration;
- profit-sharing and participation;
- benefits in kind;
- employer contributions paid in respect of defined contribution plans paid in respect of the financial year 2022.

The options and performance shares vested during the 2022[1] financial year and valued under IFRS 2 have been added to the gross fiscal remuneration.

The above principles have been applied in the same way as in previous years.

EQUITY/PAY RATIO BETWEEN THE LEVEL OF REMUNERATION OF THE CHAIRMAN OF THE BOARD OF DIRECTORS AND THE AVERAGE AND MEDIAN REMUNERATION OF THE EMPLOYEES OF THE SCOPE

The scope taken into account is that of the Group's employees located in France, including CGG SA, CGG Services SAS and Sercel SAS.

	2018[(a)]	2019[(b)]	2020	2021	2022
Remuneration of the Chairman of the Board of Directors *(in €)*					
Rémi Dorval[(a)]	170,810	n.a.	n.a.	n.a.	n.a
Philippe Salle	n.a.	240,000	240,000	240,000	240,000
(evolution compared to the previous financial year)	*0.0%*	*40.5%*	*0.0%*	*0.0%*	*0.0%*
Ratio gross salary of the Chairman/median gross salary employees of the Group in France	3.1	4.6	4.8	4.6	4.5
(evolution compared to the previous financial year)	*(6.6)%*	*47.9%*	*4.1%*	*(4.2)%*	*(2.0)%*
Ratio gross salary of the Chairman/average gross salary employees of the Group in France	2.7	3.8	4.0	4,0	3.7
(evolution compared to the previous financial year)	*(5.7)%*	*41.7%*	*6.7%*	*(1.1)%*	*(5.8)%*
Ratio gross salary of the Chairman/median gross salary of CGG SA employees[(b)]	2.0	0.7	1.1	0.9	0.7
(evolution compared to the previous financial year)	*(1.1)%*	*(62.0)%*	*49.0%*	*(17.1)%*	*(20.1)%*
Ratio gross salary of the Chairman/average gross salary of CGG SA employees[(b)]	0.9	0.8	0.9	1.0	0.7
(evolution compared to the previous financial year)	*(7.4)%*	*(14.8)%*	*18.3%*	*5.3%*	*(24.6)%*
Company's performance					
Segment EBITDA *(in US$m)* (IFRS restated 2018-2022)	556	721	360	344	434

(a) 2018 Chairman (Rémi Dorval) Fixed remuneration is annualized.
(b) CGG SA's headcount decreased from 28 employees in 2018 to 14 employees in 2019.

In the event of a change in leadership during the year, it is specified that the remuneration taken into account for the table above is the one paid for the position.

(1) For the sake of precision, only options ("Options") and shares subject to performance conditions ("Performance shares") definitively vested during the year have been valued. As such, this equity/pay ratio does not include Options and Performance Shares which have not yet definitively vested due to the application of the various vesting periods, or have not definitively vested due to the non-achievement of the performance conditions governing their definitive award. This methodology differs from that used to calculate the equity ratio published in April 2020, which considered all of the Options and Performance Shares initially granted, thus representing a valuation of potential benefits that may not ultimately vest.

B. Total annual remuneration of the Chief Executive Officer for the 2022 financial year

a. Consideration of the last vote of the General Meeting

The General Meeting held on May 5, 2022 approved resolution no. 7 concerning the information provided for in Article L. 22-10-9 of the French Commercial Code and relating to the remuneration paid or allocated to corporate officers for the financial year ended December 31, 2021 and resolution no. 12 related to the remuneration policy applicable to the Chairman of the Board of Directors.

In light of this positive vote, the Company has maintained, in 2023, the practices applied to the remuneration of corporate officers in 2022 (notably remuneration policy and information). The proposed adjustments listed in section 4.2.1.1.d) of this Document will be submitted to the vote during the 2023 General Meeting.

b. Compliance of the remuneration paid with the remuneration policy

The remuneration paid to the Chief Executive Officer complies with the principles and criteria for determining, distributing and allocating the elements of fixed, variable, and exceptional remuneration and all benefits of all kind attributable to the Chief Executive Officer approved by the General Meeting held on May 5, 2022 and applicable for the 2022 financial year.

The remuneration paid to the Chief Executive Officer complies with the long-term financial and extra-financial performance objectives of the Company.

For the 2022 financial year, the Company did not depart from nor make any exception to from the procedure for implementing the remuneration policy.

c. Total remuneration and benefits of any kind

i. Fixed remuneration

The below table presents the fixed remuneration of the Chief Executive Officer and how it has changed:

	2021	2022	2021-2022 variation
Sophie ZURQUIYAH, Chief Executive Officer	€630,000	€680,400	8%

The fixed remuneration of the Chief Executive Officer on an annual basis increased by 8% in 2022 compared to 2021.

ii. Annual variable remuneration

The annual variable remuneration of Sophie ZURQUIYAH, Chief Executive Officer, is based on financial objectives, representing two thirds of variable remuneration, as well as on extra-financial objectives, representing one third of variable remuneration.

Her target amount is set at 100% of her fixed remuneration and the criteria for allocating the variable annual portion are of two types:

- quantifiable criteria (financial objectives); and
- qualitative criteria (extra-financial objectives).

Finally, it is specified that in order to encourage financial performance, the quantifiable (financial) objectives make it possible to reach a variable amount whose ceiling is set at 166.67% of the fixed remuneration.

→ **For financial year 2022,** the structure of the variable remuneration (performance criteria and conditions of achievement) of Sophie ZURQUIYAH was determined by the Board of Directors at its meeting held on March 3, 2022.

Details of the structure of the objectives set and their level of achievement noted by the Board of Directors' meeting on March 2, 2023, are set out below.

I**. The quantifiable criteria (financial objectives, 2/3 of the bonus),** based on the achievement of the Group's budgetary objectives, are as follows:

- Group Net Cash Flow (weighting of 25% on the financial portion);
- Free EBITDA (weighting of 25% on the financial portion);
- the Group Segment revenues (weighting of 25% on the financial portion); and
- operating income (weighting of 25% on the financial portion).

The minimum payment for each of the criteria is subject to a 70% achievement threshold for each objective. Depending on the objective's achievement rate for each criterion, the payment may be increased up to 200% of the target amount associated with the considered criterion.

→ **For financial year 2022,** taking into account the Group's financial performance and the achievement of its financial objectives, the financial portion of the variable annual remuneration amounted to 98.87% of the total variable remuneration target (see table below).

Indeed, in 2022, the net cash flow and Segment Revenues ended very close to the 2022 financial objectives while the free EBITDA and the Operating income overachieved the target. Details of the calculation of the objectives' achievement are summarized in the table below.

With regard to the achievement of those objectives at the end of the year, in order to ensure a better understanding, we have detailed below the sequencing of the financial communication of the year 2022.

2022 has been marked by the war in Ukraine, ongoing Covid restrictions in China, continued supply chain disruptions and global inflation. Although our core businesses started to see strengthening commercial activity, strong variations by client type and regional activity led to significant volatility from quarter to quarter in the business and financial performance. Within this very volatile environment, CGG has continued to update the market with business forecasts and financial performance especially in March 2022, November 2022 and January 2023.

- The 2022 financial guidance communicated on March 3, 2022, which was based on the 2022 budget set in November 2021, was expecting 2022 CGG segment revenue to increase by around 10%, sustained by 2022 DDE segment revenue growth of ~18% proforma and stable SMO revenue with Segment EBITDAs margin of around 39- 40%.
- On November 2, 2022 we revised down our 2022 financial guidance in the context of high business volatility (revenue Q1 2022 / Q1 2021: (-20)%; revenue Q3 2022 / Q3 2021: (-25)%; revenue Q2 2022 / Q1 2022: +58%); the ban on exports to Russia and its negative revenue impact in SMO; the shift of major projects in SMO from 2022 to 2023 and delays in EDA sales. This update was anticipating 2022 CGG segment revenue to be around $900 million, stable pro-forma year-on-year, with DDE 2022 segment revenue expected to be up around 18% pro-forma year-on-year – still aligned with the original guidance - and SMO 2022 segment revenue

expected to be down around 30% year-on-year (due to the ban on exports to Russia with $50 million impact, not compensated by other deliveries due to shift of major clients' projects to 2023). The 2022 segment EBITDAs was expected to be around $380 million (with a segment EBITDAs margin at 42%).

- Eventually during the fourth quarter 2022 still marked by high volatility of the business, CGG was able to deliver better than anticipated revenue growth, with a topline increase Q4 2022 / Q3 2022: +52%, due to higher than expected EDA and SMO sales that materialized late December 2022.

As a result of the higher than anticipated Q4 2022 financial performance, all the 2022 financial indicators were either close to or higher than the initial 2022 financial objectives communicated in March 2022 (unchanged during the year and based on the 2022 original budget). For further detail see detailed achievement of the Financial indicators in the table below.

II. The qualitative criteria (extra-financial objectives, 1/3 of the bonus) are targeted on:

A. Management of the Group’s strategic plans (30% weighting on the extra-financial portion)

30% of the qualitative objectives relate to the implementation of the Group's strategic and financial plan. These are specific objectives, managed through indicators whose detailed criteria are confidential. They include criteria related to the transformation and new technological positioning of the group as well as objectives related to the progress in the structuring of new initiatives in connection with the energy transition and digital transformation.

→ **For financial year 2022,** the objectives relating to the management of the group's strategic plans were 100% achieved. The performance assessment is based on the following main achievements: the acceleration of the transformation towards a more technological positioning through new initiatives and their communication, the creation of the HPC and Cloud business line and the significant progress with some initiatives such as Datahub, Structural Health Monitoring (with acquisition of Geocomp) and CCUS data sales. This performance is also related to the achievement of specific objectives managed through indicators whose detailed criteria are confidential.

B. Business and operation performance (30% weighting of the extra-financial part)

30% of the extra-financial objectives relate to maintaining the Group's operational performance through the achievement of commercial and operational objectives with a strong focus on customer relations as well as technical leadership and technological differentiation of the company. It also includes objective regarding Cybersecurity.

→ **For the financial year 2022,** the objectives relating to the Group's operational performance were 90% achieved. The performance evaluation is based on the following main achievements: the Chief Executive Officer continued to maintain and develop relationships with the Group's main customers by meeting regularly with their top managers to define appropriate strategies, extending the reach to new groups of clients like Gulf of Mexico and North Sea independents. In 2022, customer feedback confirmed the excellent quality of the work delivered and the group's position as a leader in many areas compared to its peers. CGG's key multi-client projects were delivered within the budgeted plans. We have continued to capitalize on our technological advancements, such as the new GPR-300 marine node now used at full scale with great success and our Full-Waveform Imaging, which is unique on the market and drives revenue in complex areas. Cybersecurity plan has been rolled out and made significant progress.

C. Organization and management of Human Resources (weighting of 10% of the extra-financial portion)

10% of extra-financial objectives relate to the company organization and its employee targeting talents, and key successions' management, employee engagement, and company attractiveness through an appealing employee value proposition. It includes criteria to assess engagement and development of employees, CGG attractiveness for new recruits, implementation of talent development programs, management of key successions and the continued simplification and streamlining of the Group's organization.

→ **For financial year 2022**, the objectives relating to human resources and the Group's organization were 100% achieved. Performance is assessed based on the following main achievements: Successions for key positions have been prepared and recruitment of head of HPC & Cloud business line successfully achieved. Talent management and succession plan processes were carried out during the year and presented to the Board of Directors with a strong focus on female promotions. Our new employer value proposition and the attached employer branding have been rolled out with success. As a result, we continue to successfully attract talents despite the competition from technological companies. We also ran a global employee engagement survey in 2022 that is helping us to continue to improve and ensure that our people plans are impactful. We have successfully limited voluntary attrition rate at 7% that remains overall below the current market benchmarks

D. HSE and Sustainable Development (weighting of 30% of the extra-financial part)

30% of the qualitative objectives are relative to the company's performance in terms of Environmental and Social responsibility and Governance, and the consolidation and development of new initiatives and actions related to the energy transition. This area includes environment, energy efficiency, emission, health & safety, ethics, diversity and inclusion objectives.

→ **For financial year 2022,** the objectives relating to Environmental and Social responsibility and Governance were 80% achieved. The company ESG framework has been developed, approved by the board and communicated. We have maintained the highest ratings for our industry of AA in MSCi and Top-Rated company with Sustainabilitics. The Company's position in terms of Health and Safety has been overall similar to 2021 with no fatalities. However, there was a significant increase in the subcontractor Loss Time Injury rate, which is the reason for the reduced performance, even though the combined result remained within benchmarks.

We have slightly reduced our Scope 1 and 2 emissions in 2022 in absolute numbers despite increase in activity. Our emissions of scope 1&2 reduced by around 9% compared to last year and low carbon energy account for 51% of our electricity supply (Scope 2) We have also reduced our overall carbon intensity. The group has continued the implementation of actions and investment in line with the reduction of its emissions that will allow the continuation of this dynamic in the future. The company has continued to roll out its diversity and inclusion program in 2022. We have continued to improve the percentage of women in the most senior positions (24%), in line with our 2025 objective as well as increased the number of female hired (31% in 2022). Also, in 2022, we have released a new e-learning on ethics and anti-corruption.

The variable portion linked to the qualitative criteria varies between 0% and 100% of the target amount, or between 0% and a third of the target variable remuneration (with no possibility of outperformance on these criteria).

Each of the quantitative and qualitative criteria is weighted and a target and maximum weight are determined for each criteria.

→ **For the 2022 financial year,** considering the performance achieved in relation to the extra-financial objectives, the extra-financial part of the annual variable remuneration amounted to 30.33% of the total variable remuneration target. Details of the objectives' achievement calculation are summarized in the below table.

The overall achievement rate for financial year 2022 is 129.20% of the target. In accordance with the applicable policy, this rate was applied to Sophie ZURQUIYAH's annual variable remuneration target to determine the amount to be paid in respect of financial year 2022. As a reminder, this rate was 123.53% for 2021.

	Target		Maximum		2022 Achievement rate		
Indicator	**As a % of Target Variable**	**On a basis of 100**	**As a % of Target Variable**	**On a basis of 100**	**% of achievement per criterion**	**As a % of Target Variable**	**On a basis of 100**
Financial objectives (2/3)	**66.67%**	**66.67%**	**133.33%**	**80.00%**	**148.30%**	**98.87%**	**76.52%**
Group net cash flow	16.67%	16.67%	33.33%	20.00%	99.20%	16.54%	12.80%
Free EBITDA	16.67%	16.67%	33.33%	20.00%	200.00%	33.34%	25.80%
Group Segment revenues	16.67%	16.67%	33.33%	20.00%	93.90%	15.65%	12.12%
Operating income	16.67%	16.67%	33.33%	20.00%	200.00%	33.34%	25.80%
Non Financial objectives (1/3)	**33.33%**	**33.33%**	**33.33%**	**20.00%**	**91.00%**	**30.33%**	**23.48%**
Strategic plan management	10.00%	10.00%	10.00%	6.00%	100.00%	10.00%	7.74%
Group operational performance	10.00%	10.00%	10.00%	6.00%	90.00%	9.00%	6.97%
Organization and Human Resources Management	3.33%	3.33%	3.33%	2.00%	100.00%	3.33%	2.58%
HSE/Sustainable Development	10.00%	10.00%	10.00%	6.00%	80.00%	8.00%	6.19%
CRITERIA TOTAL	**100.00%**	**100.00%**	**166.67%**	**100.00%**	**n.a.**	**129.20%**	**100.00%**

With regard to the fulfilment of the above criteria, the Board of Directors meeting on March 2, 2023 decided on the amount of annual variable remuneration for Sophie ZURQUIYAH at €879,076.

As a reminder, this amount was €778,260 for 2021 financial year, which represents a 12.95% increase of the variable remuneration.

iii. Exceptional remuneration

Sophie ZURQUIYAH did not receive any exceptional remuneration for the 2022 financial year.

iv. Remuneration allocated to Directors

Sophie ZURQUIYAH did not receive any remuneration allocated to Directors.

As the Board of Directors is composed in compliance with the provisions of Articles L. 225-18-1 and L. 22-10-3 of the French Commercial Code, the payment of the remuneration provided for in the first paragraph of Articles L. 225-45 and L. 22-10-14 of the aforementioned Code has not been suspended.

v. Other short-term remuneration elements

General benefits plan

Sophie ZURQUIYAH benefits from the general compulsory provident and health care plan of the Group applicable to all employees. For 2022, the amount corresponding to the expense borne by the Company under this plan represents €4,502 for Sophie ZURQUIYAH.

International medical insurance

Sophie ZURQUIYAH benefits from an international medical insurance subscribed by CGG Services (U.S.) Inc. due to her frequent trips abroad. The annual contribution paid by CGG Services (U.S.) Inc. under this contract amounts to €31,187 for 2022. The cost of this international medical insurance is borne by CGG SA.

Benefits in kind

Sophie ZURQUIYAH benefited from a company car during the 2022 financial year. The valued amount of the benefit is €9,600.

vi. Multi-annual variable remuneration

Sophie ZURQUIYAH did not receive any multi-annual variable cash remuneration for the 2022 financial year.

vii. Long-term remuneration

Each year, the Company's Board of Directors, on the recommendation of the Appointment, Remuneration and Governance Committee, implements a long-term remuneration system. This remuneration is allocated through stock options and/or free shares plans subject to performance conditions ("performance conditions"), and has a threefold objective:

- implement a globally harmonized variable remuneration system that is more in line with the Group's growing globalization;
- more closely link the remuneration of the main executives with the combined stock performance and the economic and extra-financial performance of the Group as a whole and over the medium term; and
- retain and maintain attractive remuneration for the most effective and high-potential employees in a context of tension on the labor market in engineering and digital professions in all countries where the Group has a presence.

Members of the Executive Leadership team (including the Chief Executive Officer), executives and employees who have contributed to the Group's performance or who have strong potential for development within the Group are eligible to this system.

2022 allocation and performance conditions for previous plans evaluated in 2022

With the approval of the 2022/2023 Long Term Incentive Plan by the shareholders, the company has been able to improve the competitiveness of CGG's Long Term Incentive program toward its employees, talents and executives. Indeed, this plan has authorized the Board of Directors to allocate more vehicles (Performance shares, restricted shares and stock options), to allocate shares with only presence condition to talents and include ESG performance conditions. Those improvements allow the company to be more competitive in the attraction and retention of talents that are crucial to its transformation as a technological company as well a providing competitive compensation package to Executives and Senior Managers.

Hence, in 2022, the Board of Directors maintained the allocation of long-term remuneration through stock option and performance shares plans and also noted the achievement rate of the performance conditions of the previous plans in accordance with their respective provisions and maturities.

The Board of Directors meeting maintained the long-term remuneration policy for the Chief Executive Officer with a cliff vesting, subject to a vesting period of 3 years.

For the Chief Executive Officer, the level of allocation of long-term remuneration for 2022 has increased by 49% in number of performance shares and options allocated. Other beneficiaries such as Executives, Senior Managers and Talents' allocation has also increased by 55% in number of performance shares and options allocated.

With this, the 2022 allocation for the Chief Executive Officer has been set at at 85% of the base salary - value amount of the benefit under IFRS 2 (compare to 52% of the base salary in 2021). The Board of Directors took into account a balanced approach based on the objective to provide a competitive package to the Chief Executive Officer together with a grant below the target set out in the current remuneration policy (100% of fixed remuneration) taking into consideration the low market price of the CGG shares. This allocation is conditioned upon performance.

I. STOCK OPTIONS

A. Grant of stock options to the Chief Executive Officer under the terms of the plan dated June 22, 2022

- Performance conditions

  The Board of Directors meeting held on June 22, 2022 maintained a performance condition relating to a growth in the CGG share price over the acquisition period, with a target rate that takes into account the volatility of CGG shares, which is greater than that of the companies making up the comparative index. Three performance conditions linked to the financial performance have been included and defined in line with the Company Business Plan and one ESG condition have been included and defined in line with CGG's ESG objectives for 2025-2030.

  The terms and conditions of the plans applicable to the Chief Executive Officer are those of the general plans plus those described below:

  The vesting of rights is subject to the condition of presence in June 2025 (i.e. three years from the grant), subject to the fulfilment of the following performance conditions, to be satisfied over a 3-year vesting period:

  - a performance condition based on a growth objective of the share price of CGG in relation to the evolution of a stock market performance index composed of the share prices of a panel of peers composed of the following companies in the oil sector and related fields – TGS ASA, PGS ASA, Fugro NV, Core laboratories VV, Nov Inc, MagSeis Fairfield ASA, Valaris LTD, Technip FMC PLC and Hunting - over the acquisition period, calculated at the date of acquisition, conditioning 40% of the award being specified that :
    - CGG share growth higher than or equal to 130 % of the median growth of the benchmark index will allow 100% of CGG options to be permanently acquired under this condition
    - CGG share growth strictly above 100% and strictly below 130% of the median growth of the benchmark index will permanently vest between 75% and 100% of CGG Options acquired under this condition on a straight-line vesting scale
    - CGG share growth equal to 100% of the median growth of the benchmark will definitively acquire 75% of CGG options acquired under this condition
    - If CGG's share price growth is strictly less than 100% of the median benchmark growth, no option will be definitively vested under this condition.
  - a performance condition based on the achievement of a cumulative Free EBITDA target for the years 2022, 2023 and 2024, conditioning 20% of the allocation; if the objective is not achieved, no right is acquired on this condition of attribution;

- a performance condition based on the achievement of an average net debt to EBITDAs ratio target for the full year 2024, conditioning 20% of the allocation; If the objective is not attained, no right is acquired to this condition of attribution.
- a performance condition based on the achievement of an environmental, social and governance objective conditioning 20% of the award; if the objective is not attained, no rights are acquired under this condition of attribution. An ESG Scorecard has been defined including the following criteria and indicators:
  - Social (40%) including indicators of diversity and employee engagement
  - HSE (20%) and more precisely an indicator linked to the "Total recordable case frequency " (TRCF),
  - Environmental (40%) including indicators related to carbon neutrality, energy use efficiency in data centers (PUE) and carbon intensity.

The fulfilment of the performance conditions entitles the beneficiary to the grant of each tranche of the options on the date on which such achievement will be noted by the Board of Directors.

On June 22, 2022, 3,530,200[(1)] options were allocated to 300 beneficiaries within the Group, including 455,000 stock options to the Chief Executive Officer. The exercise price of these options is €1.05, set on the basis of the average closing price of the CGG share during the twenty (20) trading sessions preceding the grant.

The options have a term of eight years.

- Applicable rules
  - *Obligation to retain registered shares:*

    The Board of Directors also decided that, in accordance with the provisions of Article L. 225-185 of the French Commercial Code, the quantity of shares resulting from the exercise of stock options that Sophie ZURQUIYAH is required to keep in registered form, for the duration of her mandate, should represent 25% of the amount of the net capital gain upon exercise of the options allocated by the Board of Directors.

    The Chief Executive Officer must, in his/her capacity as Director of the Company, own 20,000 (twenty thousand) shares in the Company. The combination of these obligations will enable the Chief Executive Officer to hold a significant number of securities.

    The Chief Executive Officer's obligation to keep in registered form shares resulting from the vesting of performance shares and the exercise of vested stock-options applies until the value of all the shares retained in registered form represents two years of fixed and variable annual cash remuneration.
  - *Prohibition from using hedging instruments:*

    In accordance with the provisions of the Code to which the Company refers and the recommendations of the Financial Markets Authority (AMF), Sophie ZURQUIYAH has committed not to use hedging transactions both on options and on shares resulting from the exercise of options until the end of the retention period for registered shares set by the Board of Directors in accordance with the provisions of Article L. 225-177 of the French Commercial Code.
- Stock-options exercise period:

  The Board of Directors notes that the exercise of options by Sophie ZURQUIYAH is subject to compliance with the rules for abstention from trading in the Company's shares set by the Group applicable to all of the Group's permanent insiders (see section 4.1.3.2.a) of this Document).
- Stock-options exercised in financial year 2022 by the Chief Executive Officer:

  No stock-options were exercised during the financial year 2022.

B. Status of performance conditions fulfilment for previous plans

- Rate of fulfilment of the performance criteria of the 2018 stock options plans

  In 2022, the Board of Directors noted the achievement of the performance condition on the fourth tranche (25%) of the option plans granted on June 27, 2018 and on December 11, 2018 for the members of the Executive Leadership team and the corporate officers. Consequently, 100% of the options in this fourth and final tranche have vested for the members of the Executive Leadership and corporate officers.

  In 2022, the Board of Directors noted that the performance conditions of the first tranche (25%), second tranche (25%) and the third tranche (25%) of this plan, that matured respectively in June 2019, June 2020 and June 2021, have been reassessed in accordance with the plan's rules. Performance conditions have not been achieved; consequently, no stock-options were acquired under these first, second and third tranches by the members of the Executive Leadership team and the corporate officers.

  The exercise price of these options is €2.15 for the June 27, 2018 grant and €1.39 for the December 11, 2018 grant.
- Rate of fulfilment of the performance criteria of the 2019 option plan

  In 2022, the Board of Directors noted the achievement of the performance condition on the second tranche (50%) of the option plan granted on June 27, 2019 for the members of the Executive Leadership team. Consequently, 100% of the options of this second tranche have vested for the members of the Executive Leadership team. During the same period, the Board of Directors noted that the performance condition on the tranche (100%) of the stock option plan granted on June 27, 2019 for the corporate officers had not been met. Consequently, no options have vested for corporate officers under the plan granted on June 27, 2019.

  The exercise price of these options is €1.52 for the June 27, 2019 grant.
- Rate of fulfilment of the performance criteria of the 2020 option plan

  The performance conditions pertaining to the stock option plan granted on June 25, 2020 for the Executive Leadership team and the corporate officers are appraised over a three-year period and will be assessed in June 2023.

  The exercise price of these options is €1.10 for the June 25, 2020 grant.
- Rate of fulfilment of the performance criteria of the 2021 option plan

  The performance conditions pertaining to the 2021 Plan granted on June 24, 2021 for the Executive Leadership team and the corporate officers are appraised over a three-year period and will be assessed in June 2024.

  The exercise price of these options is €0.91 for the June 24, 2021 grant.

(1) *This number includes 160,000 performance shares granted during the Board of Directors' meeting held on July 28, 2022.*

C. Summary of Stock-options granted or acquired by the Chief Executive Officer during the 2022 financial year

	Main conditions of stock options plans						Information regarding the reported financial year					
							Opening balance	During the Year		Closing balance		
Name of the Chief Executive Officer	**Grant date**	**Perfor-mance period**	**Vesting date**	**End of holding period[(a)]**	**Exercise period**	**Exercise price**	**Stock options awarded at the beginning of the year**	**Stock options awarded**	**Stock options vested**	**Stock options subject to performance conditions**	**Stock options awarded and unvested**	**Stock options subject to a holding period[(a)]**
Sophie ZURQUIYAH Chief Executive Officer	06.22.2022	3 years	06.22.2025	n.a	06.22.2030	€1.05	0	455,000	0	455,000	455,000	n.a
	06.24.2021	3 years	06.25.2024	n.a.	06.24.2029	€0.91	330,000	0	0	330,000	330,000	n.a.
	06.25.2020	3 years	06.26.2023	n.a.	06.25.2028	€1.10	360,000	0	0	360,000	360,000	n.a.
	06.27.2019	3 years	06.28.2022	n.a.	06.27.2027	€1.52	360,000	0	0	0	0	n.a.
	06.27.2018	1 year	06.28.2019	n.a.	06.27.2026	€2.15	183,140	0	0	0	0	n.a.
		2 years	06.28.2020	n.a.			183,140	0	0	0	0	n.a.
		3 years	06.28.2021	n.a.			183,139	0	0	0	0	n.a.
		4 years	06.28.2022	n.a.			183,139	0	183,139	0	0	n.a.
TOTAL							**1,782,558**	**455,000**	**183,139**	**1,145,000**	**1,145,000**	**n.a.**

(a) Considering the vesting period, no holding period has been set by the Board of Directors.

II. PERFORMANCE SHARES

A. Grant of performance shares to the Chief Executive Officer under the terms of the plan dated the June 22, 2022

- Performance conditions

  On June 22, 2022, the Board of Directors decided to maintain the financial performance metrics from 2021, but added one additional metric for ESG. The acquisition of the shares is subject to a condition of presence in June 2025 (i.e. 3 years starting from the grant date), subject to the fulfilment of two financial performance conditions defined in line with the Company Business Plan and one ESG performance condition defined in line with CGG's ESG objectives for 2025-2030 and assessed over the vesting period, and relating to:

  - a performance condition based on the achievement of a cumulative Free EBITDA target for the years 2022, 2023 and 2024, conditioning 40% of the allocation; if the objective is not achieved, no right is acquired on this condition of attribution ;
  - a performance condition based on the achievement of an average net debt to EBITDAs ratio target for the full year 2024, conditioning 40% of the allocation; if the objective is not attained, no right is acquired to this condition of attribution.
  - a performance condition based on the achievement of an environmental, social and governance objective conditioning 20% of the award; if the objective is not attained, no rights are acquired under this condition of attribution. An ESG Scorecard has been defined including the following criteria and indicators:
    - Social (40%) including indicators of diversity and employee engagement
    - HSE (20%) and more precisely an indicator linked to the "Total recordable case frequency " (TRCF),
    - Environmental (40%) including indicators related to carbon neutrality, energy use efficiency in data centers (PUE) and carbon intensity.

  Achievement of the three performance conditions is based on budgetary objectives in line with the Group's strategic plan and entitles the holder to the vesting of shares on the date on which such achievement is acknowledged by the Board.

  On June 22, 2022, the Board of Directors decided to allocate 3,491,300[(1)] performance shares subject to performance conditions to 300 beneficiaries within the Group, including 455,000 performance shares allocated to the Chief Executive Officer.

  These shares subject to the fulfillment of performance conditions will be acquired in June 2025 for the Chief Executive Officer and the Executive Leadership team. The acquisition period is set at the later of the two following dates: June 22, 2025 or the date of the General Meeting to approve the 2024 financial statements, and after the Board of Directors has noted the achievement of the performance conditions.

- Applicable rules

  - *Obligation to retain registered shares*

    The Board of Directors also decided that, in accordance with the provisions of Article L. 225-197-1 of the French Commercial Code, the quantity of shares resulting from the acquisition of shares that Sophie ZURQUIYAH is required to keep in registered form, for the duration of her mandate, should represent 25% of the shares allocated by the Board of Directors.

    The Chief Executive Officer must, in her capacity as Director of the Company, own 20,000 (twenty thousand) shares in the Company. The combination of these obligations will enable the Chief Executive Officer to hold a significant number of securities.

(1) This number includes, 848,700 shares subject to a presence condition only, granted to employees (excluding the Chief Executive Officer and the members of the Executive Leadership team) and 160,000 performance shares granted during the Board of Directors' meeting held on July 28, 2022.

The Chief Executive Officer's obligation to keep in registered form shares resulting from the allocation of performance shares and the exercise of options granted applies until the value of all the shares retained in registered form represents two years of fixed and variable annual cash remuneration.

- *Prohibition from using hedging instruments*

In accordance with the provisions of the Code to which the Company refers and the recommendations of the Financial Markets Authority, Sophie ZURQUIYAH committed not to use hedging transactions on the performance shares allocated until the end of the retention period for registered shares set by the Board of Directors in accordance with the provisions of Article L. 225-185 of the French Commercial Code.

B. Statement of performance condition fulfilment for previous performance share plans

- Rate of fulfilment of the performance criteria of the 2019 Performance share plan

In 2022, the Board of Directors noted that the performance conditions had not been achieved on the second tranche (50%) of the performance share plan granted on June 27, 2019 to all the beneficiaries but corporate officers. The Board of Directors noted as well that the performance conditions had not been achieved on th tranche (100%) of the performance shares plan granted on June 27, 2019 to the corporate officers. Consequently, no shares were acquired under this second tranche by the members of the Executive Leadership team and the corporate officers.

- Rate of fulfilment of the performance criteria of the 2020 performance share plan

In 2022, the Board of Directors noted the achievement of the performance conditions on the first tranche (50%) of the performance share plan granted on June 25, 2020 for all beneficiaries but the corporate officers and members of the Executive Leadership team. Consequently, 100% of the performance shares of this first tranche vested for all beneficiaries but the members of the Executive Leadership team and corporate officers.

The performance conditions pertaining to the 2020 Plan for the corporate officers and the members of the Executive Leadership team and to the second tranche (50%) of the 2020 Plan for all other beneficiaries will be assessed in June 2023.

- Rate of fulfilment of the performance criteria of the 2021 performance share plan

The performance conditions pertaining to the first tranche (50%) of the June 24, 2021 Plan for the all beneficiaries but corporate officers and the members of the Executive Leadership team will be assessed in June 2023.

The performance conditions pertaining to the June 24, 2021 Plan for the corporate officers and the members of the Executive Leadership team and the second tranche (50%) for the other beneficiaries will be assessed in June 2024.

C. Summary of Performance shares granted or vested for the Chief Executive Officer during the 2022 Financial year

	Main conditions of performance share award plans				Information regarding the reported financial year					
					Opening balance	During the Year		Closing balance		
Name of the executive corporate officer	Grant date	Performance period	Vesting date	End of holding period[(a)]	Shares awarded at the beginning of the year	Shares awarded	Shares vested	Shares subject to performance conditions	Shares awarded and unvested	Shares subject to a holding period[(a)]
Sophie ZURQUIYAH Chief Executive Officer	06.22.2022	3 years	06.22.2025	n.a	0	455,000	0	455,000	455,000	n.a
	06.24.2021	3 years	06.24.2024	n.a.	280,000	0	0	280,000	280,000	n.a.
	06.25.2020	3 years	06.25.2023	n.a.	220,000	0	0	220,000	220,000	n.a.
	06.27.2019	3 years	06.27.2022	n.a.	220,000	0	0	0	0	n.a.
TOTAL					**720,000**	**455,000**	**0**	**955,000**	**955,000**	**n.a.**

(a) Considering the vesting period, no holding period has been set by the Board of Directors.

III. PERFORMANCE UNITS

A. Grant of performance units to the Chief Executive Officer during the 2022 financial year

- Performance units granted to the Chief Executive Officer during the 2022 financial year

No performance unit was granted to the Chief Executive Officer during the 2022 financial year.

- Performance units permanently acquired by the Chief Executive Officer during the 2022 financial year

No performance unit was permanently acquired by the Chief Executive Officer during the 2022 financial year.

B. Statement of performance condition fulfilment for previous performance unit plans

No performance unit was permanently acquired by the Chief Executive Officer during the 2022 financial year.

viii. Supplementary pension plans

Defined contribution pension plan (Article 83 of the CGI (Code général des impôts [General Tax Code]))

Sophie ZURQUIYAH benefits from the collective defined-contribution funded pension plan implemented for the Group's executives since January 1, 2005 according to the same terms as those applicable to the said executives.

This scheme is capped as such and calculated with reference to the *plafond annuel de sécurité sociale* [Annual Social Security Ceiling] (PASS) and is set at:

- tranche A – up to 100% of the PASS: 0.5% beneficiary contribution and 1% company contribution;
- tranche B – above 100% of the PASS and up to 400% of the PASS: 2% beneficiary contribution and 3% company contribution;
- tranche C – above 400% of the PASS and up to 800% of the PASS: 3.5% beneficiary contribution and 5% company contribution.

The contribution base consists exclusively of the gross annual remuneration for the year declared, the base salary, the annual variable remuneration and the benefit in kind (company car). As a matter of principle, this base excludes any other remuneration element.

For 2022, the amount corresponding to the expense borne by the Company under this scheme represents €12,341 for Sophie ZURQUIYAH.

Alternative pension plan

Sophie ZURQUIYAH does not benefit from an alternative pension plan.

ix. Individual unemployment insurance

Sophie ZURQUIYAH benefits from a specific guarantee of unemployment insurance with the GSC.

The annual contribution paid by the Company under this guarantee amounts to €11,261 in 2022. This insurance provides for the payment of a maximum percentage of 13.30% of Sophie ZURQUIYAH's target remuneration in 2022 (i.e. €180,998) over a period of 12 months.

x. Contractual termination indemnity in the event of departure from the Group and non-compete commitment

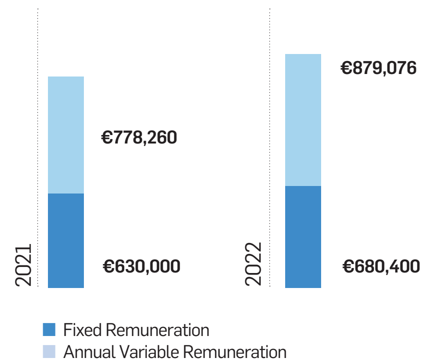
Sophie ZURQUIYAH benefits from a contractual termination indemnity in case of departure from the Group and a non-compete commitment, the details of which are presented in section 4.2.1.2.b) of this Document.

d. Remuneration paid by a company within the scope of consolidation

Sophie ZURQUIYAH did not receive any remuneration paid by the controlled companies included in the scope of consolidation of the Company.

e. Respective importance of remuneration elements

The short-term remuneration of Sophie ZURQUIYAH (fixed + variable) increased by 10.74% full-time equivalent from 2021 to 2022.



The gross remuneration amounts paid by the Company and the controlled companies to Sophie ZURQUIYAH for the 2021 and 2022 financial years are presented in the table below.

For the 2022 financial year, Sophie ZURQUIYAH's remuneration structure consisted of fixed remuneration (€680,400 gross on an annual basis), variable remuneration (€879,076 gross on an annual basis), and benefits in kind (€20,861 on an annual basis).

f. Equity/Pay ratio

(Pursuant to Article L. 22-10-9, 6o and 7o of the French Commercial Code)

The table below presents the median and average ratios of the overall remuneration of the Chief Executive Officer, in accordance with the recommendation of the AFEP-MEDEF Code to which the Company refers. The ratio was calculated on the basis of the legal requirement, i.e. the top holding company CGG SA. Taking into account the small number of employees in that company, which does not allow disclosure of representative data, the ratio was also calculated on the basis of Group's scope of consolidation in France (CGG SA, CGG Services SAS and Sercel SAS).

These two ratios have been calculated on the basis of the gross fiscal remuneration *(rémunération brute fiscale)* as defined in Article L. 136-1 et seq. of the French Social Security Code, including the following main elements paid in 2022:

- fixed remuneration;
- variable remuneration;
- exceptional remuneration;
- profit-sharing and participation;
- benefits in kind;
- employer contributions paid in respect of defined contribution plans paid in respect of the financial year 2022.

The options and performance shares vested during the 2022[1] financial year and valued under IFRS 2 have been added to the gross fiscal remuneration.

Insuring consistency, employees' remuneration considers the same following items into account:

- fixed remuneration;
- variable remuneration;
- exceptional remuneration;
- profit-sharing and participation;
- benefits in kind;
- employer contributions paid in respect of defined contribution plans paid in respect of the financial year 2022.

The options and performance shares vested during the 2022[1] financial year and valued under IFRS 2 have been added to the gross fiscal remuneration.

The above principles have been applied in the same way for previous years.

EQUITY/PAY RATIO BETWEEN THE LEVEL OF REMUNERATION OF THE CHIEF EXECUTIVE OFFICER AND THE AVERAGE AND MEDIAN REMUNERATION OF THE EMPLOYEES OF THE COMPANY

The scope taken into account is that of the Group's employees located in France, including CGG SA, CGG Services SAS and Sercel SAS.

	2018[a]	2019[b]	2020	2021	2022
Remuneration of the Chief Executive Officer *(in €)*					
Jean-Georges Malcor[a]	1,569,828	n.a.	n.a.	n.a.	n.a
Sophie Zurquiyah[b]	n.a.	1,512,729	1,681,940	860,861	1,479,521
(evolution compared to the previous fiscal year)	*51.3%*	*(3.6)%*	*11.2%*	*(48.8)%*	*71.9%*
Ratio gross salary CEO/median gross salary employees of the Group in France	28.5	28.9	33.5	16.4	27.7
(evolution compared to the previous fiscal year)	*41.2%*	*1.4%*	*15.7%*	*(51.0)%*	*68.4%*
Ratio gross salary CEO/average gross salary employees of the Group in France	24.4	23.7	28.2	14.3	23.1
(evolution compared to the previous fiscal year)	*42.7%*	*(2.8)%*	*18.7%*	*(49.4)%*	*61.9%*
Ratio gross salary CEO/median gross salary CGG SA employees[c]	18.0	4.7	7.8	3.3	4.5
(evolution compared to the previous fiscal year)	*49.7%*	*(73.9)%*	*65.7%*	*(57.6)%*	*37.3%*
Ratio gross salary CEO/average gross salary CGG SA employees[c]	8.6	5.0	6.6	3.5	4.6
(evolution compared to the previous fiscal year)	*40.0%*	*(41.6)%*	*31.5%*	*(46.1)%*	*29.6%*
Company's performance					
Segment EBITDA *(in US$m)* (IFRS restated 2018-2022)	556	721	360	344	434

(a) 2018 CEO (Jean-Georges Malcor) Fixed remuneration is annualized.
(b) 2019 CEO (Sophie Zurquiyah) Annual variable remuneration is annualized.
(c) CGG SA's headcount decreased from 28 employees in 2018 to 14 employees in 2019.

The evolution of the equity ratio between the level of remuneration of the Chief Executive Officer and the average and median remuneration of the employees between 2021 and 2022 is explained by the difference in achievement of the financial target of the short-term incentive plans for the year 2020 and 2021, paid in 2021 and 2022 respectively. The impact is more significant for the remuneration of the Chief Executive Officer for whom the financial component represents 2/3 of the short-term incentive.

In the event of a change in leadership during the year, it is specified that the remuneration taken into account for the table above is the one paid for the position.

(1) For the sake of precision, only options ("Options") and shares subject to performance conditions ("Performance shares") definitively vested during the year have been valued. As such, this equity/pay ratio does not include Options and Performance Shares which have not yet definitively vested due to the application of the various vesting periods, or have not definitively vested due to the non-achievement of the performance conditions governing their definitive award. This methodology differs from that used to calculate the equity ratio published in April 2020, which considered all of the Options and Performance Shares initially granted, thus representing a valuation of potential benefits that may not ultimately vest.

C. Total annual remuneration of Directors for the 2022 fiscal year

a. Consideration of the last vote of the General Meeting

The Annual Shareholders' Meeting of May 5, 2022 approved resolution no. 7 concerning the information provided for in Article L. 22-10-9 of the French Commercial Code and relating to the remuneration paid or allocated to corporate officers for the year ended December 31, 2021 and resolution n° 10 related to the remuneration policy of Directors.

In light of this positive vote, the Company has maintained, in 2023, the practices applied to the remuneration of corporate officers in 2022 (notably remuneration policy and information). The proposed adjustments listed in section 4.2.1.2.c) of this Document will be submitted to the vote during the 2023 General Meeting.

b. Compliance of the remuneration paid with the remuneration policy

The remuneration allocated to the Directors complies with the remuneration policy applicable to the Board of Directors as approved by the General Meeting held on May 5, 2022.

For the 2022 financial year, the Company did not deviate nor derogate from the remuneration policy.

The aggregate remuneration allocated to the Directors for 2022 amounted to €460,800 paid in February 2023 (see section 4.2.2.2.d) of this Document for more details).

c. Total remuneration and benefits of any kind

Remuneration components

i. General distribution rules

The total annual amount of Directors' fees set at €550,000 as approved by the General Meeting, is divided into a fixed portion relating to the function and a variable portion for meeting attendance, as well as a fixed indemnity per trip for Directors travelling from abroad. The variable portion based on the attendance at Board and Committee meetings has a higher weight in the total envelope compared to the fixed portion based on the function.

The total amount paid to each Director is determined after taking into account the actual attendance at each Board and Board Committee meetings. In case the final aggregate amount to be paid to the Directors reaches the maximum amount approved by the General Meeting, a prorata calculation shall be done for each Director in order to respect and not exceed such maximum amount.

ii. Specific rules applicable to the Chairman of the Board, the Chief Executive Officer and the Director(s) representing the employees

CHAIRMAN OF THE BOARD OF DIRECTORS

The Chairman of the Board received in 2022:

- in his capacity as Director: a fixed portion of Directors' fees, as well as travel indemnity (if applicable as set out in the table below); and
- in his capacity as Chairman of the Board: a fixed remuneration, as described in section 4.2.2.1 A of this Document.

The Chairman also benefits from travel indemnities, as the case may be.

CHIEF EXECUTIVE OFFICER

The Chief Executive Officer, who is a Director of the Company in 2022, did not receive any Directors' fees nor any travel indemnity. The various remuneration components of the Chief Executive Officer are as described in section 4.2.2.1 B of this Document.

DIRECTOR REPRESENTING THE EMPLOYEES

The Director representing the employees, appointed pursuant to Article 8 of the Company's articles of association, did not receive any remuneration in 2022 pursuant to his office as Director nor any travel indemnity. He received a salary pursuant to the employment agreement he entered into with the Company or any of its affiliates.

iii. Remuneration amounts allocated to Directors applicable for 2022

For 2022, the rules set by the Board of Directors for the calculation of the remuneration to be paid to the Directors, on the basis of the approval received from the General Meeting at the same day, were as follows:

FIXED PORTION (FOR AN ENTIRE FINANCIAL YEAR) BASED ON THE FUNCTION

	Fixed portion
Chairman of the Board	€70,000
Director[a]	€10,500
Chairman of the Audit and Risk Management Committee[a]	€12,000
Member of the Audit and Risk Management Committee[a]	€6,000
Chairman of any Board Committee other than the Audit and Risk Management Committee[a]	€6,000
Member of any Board Committee other than the Audit and Risk Management Committee[a]	€3,000

(a) Chief Executive Officer, Director representing the employees and the Chairman of the Board of Directors excluded.

The fixed portion of any Director appointed in the course of the year will be calculated on a *prorata temporis* basis.

VARIABLE PORTION BASED ON ATTENDANCE AT BOARD AND BOARD COMMITTEE MEETINGS[(a)]

	Variable portion
Attendance at an ordinary Board meeting[(b)]	€3,600
Attendance at an ordinary Board Committee meeting	€2,000
Attendance at an exceptional Board meeting[(c)]	€1,800
Attendance at an exceptional Board Committee meeting	€1,000
Attendance at a Board Committee follow-up call[(d)]	€0
Attendance at a Board Committee meeting as a guest	€0

(a) This does not apply to the Chief Executive Officer, the Director(s) representing the employees and the Chairman of the Board of Directors.
(b) An ordinary meeting is a meeting that was scheduled in the annual calendar as approved by the Board during the previous financial year. Strategy meetings scheduled in the annual calendar are considered as ordinary meetings.
(c) An exceptional meeting is a meeting that was not scheduled in the annual calendar as approved by the Board during the previous financial year. It is convened in principle in order to obtain Board's approval or Board Committee's recommendation of the Committee on specific matters.
(d) A Board Committee follow-up call aims to keep the Directors informed of subjects dealt with during the ordinary or exceptional Board Committee meetings.

TRAVEL INDEMNITY, IRRESPECTIVE OF THE DIRECTOR'S NATIONALITY[(a)]

	Travel indemnity
Intercontinental travel	€2,000
Travel within the same continent	€500

(a) This does not apply to the Chief Executive Officer and the Director(s) representing the employees.

This travel indemnity will apply to any travel for a meeting of the Board of Directors, a strategic meeting of the Board of Directors and also to the annual Board seminar, if any.

iv. Stock options and performance shares

Pursuant to applicable law, Directors, except the Chief Executive Officer and the Director representing the employees, are not entitled to receive stock-options nor performance shares of the Company.

v. Expenses

Travel expenses incurred by reason of the attendance to Board and Board Committee meetings are reimbursed by the Company.

d. Remuneration paid by a company within the scope of consolidation

With the exception of the Director representing the employees, who received a remuneration pursuant to his employment agreement, Directors do not receive any remuneration paid by any companies included in the scope of consolidation of the Company.

e. Respective importance of remuneration elements

With the exception of the Director representing the employees, who received a variable remuneration pursuant to his employment agreement, Directors receive only fixed elements, to the exclusion of any variable or exceptional remuneration.

f. Suspension of the remuneration paid to Directors

As the Board of Directors is composed in compliance with the provisions of Articles L. 225-18-1 and L. 22-10-3 of the French Commercial Code, the payment of the remuneration provided for in the first paragraph of Article L. 225-45 and at the Article L. 22-10-14 of the aforementioned Code has not been suspended.

g. Remuneration paid to the Non-Executive Directors for the 2022 fiscal year

The remuneration paid to the Non-Executive Directors for the 2022 fiscal year is presented on page section 4.2.2.2.D of this Document (Table 3 of the 2021–02 AMF Position-Recommendation).

4.2.2.2 Presentation tables of corporate officers' remuneration

The table below presents a summary of the remuneration elements of corporate officers for the 2021 and 2022 financial years. These elements are detailed in the rest of the report.

A. Summary table of remuneration and options and shares allocated to each corporate officer

	2021 financial year	2022 financial year
Philippe SALLE, Chairman of the Board of Directors		
TOTAL REMUNERATION DUE FOR THE FINANCIAL YEAR (DETAILED IN ONE OF THE TABLES BELOW)	**€242,000**	**€242,000**
Valuation of multi-annual variable remuneration allocated during the financial year	n.a.	n.a.
Valuation of the options allocated during the financial year	n.a.	n.a.
Valuation of the performance shares allocated during the financial year	n.a.	n.a.
Valuation of the other long-term remuneration plans	n.a.	n.a.
TOTAL POTENTIAL DEFERRED REMUNERATION RIGHTS SUBJECT TO THE FUTURE RESULTS OF THE COMPANY	**n.a.**	**n.a.**
TOTAL REMUNERATION ALLOCATED	**€242,000**	**€242,000**
Sophie ZURQUIYAH, Chief Executive Officer		
TOTAL REMUNERATION ALLOCATED FOR THE FINANCIAL YEAR (DETAILED IN ONE OF THE TABLES BELOW)	**€1,429,121**	**€1,580,377**
Valuation of multi-annual variable remuneration allocated during the financial year	n.a.	n.a.
Valuation of the options allocated during the financial year (detailed in one of the tables below)	€95,700	€166,985
Valuation of the performance shares allocated during the financial year (detailed in one of the tables below)	€232,400	€409,500
Valuation of the other long-term remuneration plans	n.a.	n.a.
TOTAL POTENTIAL DEFERRED REMUNERATION RIGHTS SUBJECT TO THE FUTURE RESULTS OF THE COMPANY	**€328,100**	**€576,485**
TOTAL REMUNERATION ALLOCATED	**€1,757,221**	**€2,156,822**

Table 1 of the 2021–02 AMF Position-Recommendation.

The valuation of options according to the method used for the consolidated accounts does not necessarily correspond to the real value that could be derived from the possible exercise of these options by their beneficiaries. Indeed, it is recalled that exercising these options is subject to the fulfilment of performance conditions and assumes an exercise price lower than the stock market price. The pre-tax profit that can, in addition, be withdrawn from the exercise of the said options will depend on the share price on the day of the transaction. The profit may be zero if, during the entire exercise period of the options, the exercise price remains higher than the share price.

B. Summary Table of Remuneration for Philippe SALLE, Chairman of the Board of Directors

The gross remuneration amounts paid by the Company and the controlled companies to Philippe SALLE for the 2021 and 2022 financial years are shown in the table below.

For the 2022 financial year, Philippe SALLE's remuneration structure consisted of:

- in his capacity as Director: a fixed amount of remuneration allocated to Directors, unchanged since 2018 (€70,000 gross on an annual basis for the Chairman); and
- in his capacity as Chairman of the Board: a fixed remuneration unchanged since 2018 (€170,000 gross on an annual basis).

	2021		2022	
Philippe SALLE Chairman of the Board of Directors since April 26, 2018	**Amounts allocated**	**Amounts paid**	**Amounts allocated**	**Amounts paid**
Fixed remuneration	€170,000	€170,000	€170,000	€170,000
Annual variable remuneration	n.a.	n.a.	n.a.	n.a.
Multi-annual variable remuneration	n.a.	n.a.	n.a.	n.a.
Exceptional remuneration	n.a.	n.a.	n.a.	n.a.
Remuneration allocated to Directors	€72,000[(a)]	€70,000[(b)]	€72,000[(c)]	€72,000[(a)]
Benefits in kind	n.a.	n.a.	n.a.	n.a.
TOTAL	**€242,000**	**€240,000**	**€242,000**	**€242,000**

Table 2 of the 2021–02 AMF Position-Recommendation.

(a) Paid in February 2022 for the 2021 financial year (including €2,000 of travel indemnity).
(b) Paid in February 2021 for the 2020 financial year.
(c) Due for the 2022 financial year (including €2,000 of travel indemnity).

C. Summary table of the remuneration for Sophie ZURQUIYAH, Chief Executive Officer

	2021		2022	
Sophie ZURQUIYAH Chief Executive Officer as of April 26, 2018	**Amounts allocated**	**Amounts paid**	**Amounts allocated**	**Amounts paid**
Fixed remuneration	€630,000	€630,000	€680,400	€680,400
Annual variable remuneration	€778,260[(a)]	€210,000[(b)]	€879,076[(d)]	€778,260[(a)]
Multi-annual variable remuneration*	n.a.	n.a.	n.a.	n.a.
Exceptional remuneration	n.a.	n.a.	n.a.	n.a.
Remuneration allocated to Directors	n.a.	n.a.	n.a.	n.a.
Benefits in kind	€20,861[(c)]	€20,861[(c)]	€20,861[(e)]	€20,861[(e)]
TOTAL	**€1,429,121**	**€860,861**	**€1,580,337**	**€1,479,521**

Table 2 of the 2021–02 AMF Position-Recommendation.

(a) Variable portion of the remuneration due for 2021 financial year for the corporate office of Sophie ZURQUIYAH as Chief Executive Officer paid in 2022, after approval of the 2021 financial statements by the General Meeting held on May 5, 2022, in accordance with the provisions of Article L. 22-10-34, II of the French Commercial Code.
(b) Variable portion of the remuneration due for 2020 financial year for the corporate office of Sophie ZURQUIYAH as Chief Executive Officer paid in 2021, after approval of the 2020 financial statements by the General Meeting held on May 12, 2021, in accordance with the provisions of Article L. 22-10-34, II of the French Commercial Code.
(c) Includes a benefit in kind in respect of a company car in the amount of €9,600 and a benefit in kind in respect of the unemployment insurance subscribed with the GSC for 2021 in the amount of €11,261.
(d) Variable portion of the remuneration due for 2022 financial year for the corporate office of Sophie ZURQUIYAH as Chief Executive Officer will be paid in 2023, after approval of the 2022 financial statements by the General Meeting to be convened to approve the financial statements for the year ended December 31, 2022, in accordance with the provisions of Articles L. 225-100 and L. 22-10-34, II of the French Commercial Code.
(e) Includes a benefit in kind in respect of a company car in the amount of €9,600 and a benefit in kind in respect of the unemployment insurance subscribed with the GSC for 2022 in the amount of €11,261.
** No multi-annual remuneration mechanism was implemented during the 2021 and 2022 financial years.*

D. Remuneration paid to Non-Executive Directors

Directors	Amount allocated and paid for fiscal year 2021 *(in €)*	Amount allocated and paid for fiscal year 2022 *(in €)*
Philippe SALLE		
Directors' fees	72,000	72,000[(a)]
Other remuneration	170,000	170,000
Patrick CHOUPIN, Director representing the employees[(b)]		
Directors' fees	n.a.	n.a.
Other remuneration	n.a.	n.a.
Michael DALY		
Directors' fees	59,410	55,100[(a)]
Other remuneration	n.a.	n.a.
Anne-France LACLIDE-DROUIN		
Directors' fees	76,120	72,300[(a)]
Other remuneration	n.a.	n.a.
Helen LEE BOUYGUES		
Directors' fees	71,335	62,100[(a)]
Other remuneration	n.a.	n.a.
Colette LEWINER		
Directors' fees	76,690	67,700
Other remuneration	n.a.	n.a.
Heidi PETERSEN		
Directors' fees	62,765	64,300[(c)]
Other remuneration	n.a.	n.a.
Mario RUSCEV		
Directors' fees	63,195	67,300[(d)]
Other remuneration	n.a.	n.a.
TOTAL PAID FOR REMUNERATION AS DIRECTORS (OTHER REMUNERATION EXCLUDED)	**481,515**	**460,800**

Table 3 of the 2021–02 AMF Position-Recommendation.

(a) Including 2,000 € of travel indemnity.

(b) The Director representing the employees does not receive any remuneration for his mandate in accordance with the remuneration policy applicable to the Directors for 2022 financial year as defined under section 4.2.2.1.C of this Document. He receives a remuneration for his employment agreement, which is not related to the performance of his Director's mandate and therefore is not disclosed in this table.

(c) Including 3,000 € of travel indemnity.

(d) Including 6,000 € of travel indemnity.

E. Stock options or stock purchase options allocated to the Chief Executive Officer by the issuer and any Group Company in the course of the 2022 fiscal year

The Chief Executive Officer was allocated, within the framework of the plans implemented by the Company during the 2022 financial year, the stock options shown in the table.

Name of the executive corporate officer	Plan date	Nature of options	Valuation of options according to the method used for the consolidated accounts *(in €)*	Maximum number of options allocated during the financial year in question[(a)]	Price[(b)]	Exercise period
Sophie ZURQUIYAH Chief Executive Officer	06.22.2022	Stock options	€166,985	455,000 0.064%*	€1.05	06.22.2025 to 06.24.2030 inclusive

Table 4 of the 2021–02 AMF Position-Recommendation.

(a) *Allocation subject to performance conditions described below.*

(b) *The exercise price corresponds to the average opening price of the CGG share during the twenty trading sessions preceding the Meeting of the Board of Directors that allocated them.*

* *Portion of the allocation in relation to the share capital on the date of allocation.*

The valuation of options according to the method used for the consolidated accounts does not necessarily correspond to the real value that could be derived from the possible exercise of these options by their beneficiaries. Indeed, it is recalled that exercising these options is subject to the fulfilment of performance conditions and assumes an exercise price lower than the stock market price. The pre-tax profit that can, in addition, be withdrawn from the exercise of the said options will depend on the share price on the day of the transaction. The profit may be zero if, during the entire exercise period of the options, the exercise price remains higher than the share price.

No discount is applied when allocating stock options.

The terms and conditions of the plans applicable to the Chief Executive Officer are those of the general plans plus those described below.

The acquisition of rights is subject to presence in June 2025 (i.e. three years from the date of grant) subject to the fulfilment of the following performance conditions defined in line with the Company Business Plan for the financial conditions and CGG's ESG objectives for 2025-2030 for the ESG conditons, to be met over a three-year vesting period:

- a performance condition based on a growth objective of the share price of CGG in relation to the evolution of a stock market performance index composed of the share prices of a panel of peers composed of the following companies in the oil sector and related fields – TGS ASA, PGS ASA, Fugro NV, Core laboratories VV, Nov Inc, MagSeis Fairfield ASA, Valaris LTD, Technip FMC PLC and Hunting - (hereinafter " benchmark ") over the acquisition period, calculated at the date of acquisition, conditioning 40% of the award being specified that:
  - CGG share growth higher than or equal to 130 % of the median growth of the benchmark index will allow 100% of CGG options to be permanently acquired under this condition
  - CGG share growth strictly above 100% and strictly below 130% of median benchmark index growth will permanently vest between 75% and 100% of CGG Options acquired under this condition on a straight-line vesting scale
  - CGG share growth equal to 100% of the median growth of the benchmark will definitively acquire 75% of CGG options acquired under this condition
  - If CGG's share price growth is strictly less than 100% of median growth of the benchmark, no option will be definitively vested under this condition.
- A performance condition based on the achievement of a cumulative Free EBITDA target for the years 2022, 2023 and 2024, conditioning 20% of the allocation; if the objective is not achieved, no right is acquired on this condition of attribution;
- A performance condition based on the achievement of an average net debt to EBITDAs ratio target for the full year 2024, conditioning 20% of the allocation; If the objective is not attained, no right is acquired to this condition of attribution.
- A performance condition based on the achievement of an environmental, social and governance objective conditioning 20% of the award; if the objective is not attained, no rights are acquired under this condition of attribution. An ESG Scorecard has been defined including the following criteria and indicators:
  - Social (40%) including indicators of diversity and employee engagement,
  - HSE (20%) and more precisely an indicator linked to the "Total recordable case frequency " (TRCF),
  - Environmental (40%) including indicators related to carbon neutrality, energy use efficiency in data centers (PUE) and carbon intensity.

The achievement of the performance conditions entitles the beneficiary to the grant of each tranche of the options on the date on which such achievement will be recognized by the Board of Directors.

The Chief Executive Officer is also subject to an obligation to keep the shares in registered form and a prohibition on the use of hedging instruments, which are set out in section 4.2.2.1.B.c) of this Document.

SUMMARY TABLE OF PERFORMANCE CONDITIONS APPLICABLE TO THE STOCK OPTION PLAN SUBJECT TO PERFORMANCE CONDITIONS GRANTED TO THE CHIEF EXECUTIVE OFFICER IN FISCAL YEAR 2022

Plan date	Indicator	Weight	Performance conditions target	Target Achievement Threshold in% for allocation	% of Allocation at Target	Maximum grant in %	Level of achievement – % achievement by criterion and total
Allocation of June 22, 2022 (Exercice price: €1.05)	TSR: CGG Price evolution/ stock market performance index peer panel	40%	The relative evolution of the share price of CGG shares must be at least equal to the evolution of a stock market performance index composed of the share prices of a panel of peers calculated over the vesting period, namely from June 22, 2022 to June 22, 2025.	100% achievement gives rise to 75% attribution	130% achievement gives rise to 100% attribution	100%	to be assessed in 2025
	Free EBITDA objective	20%	The Group's financial results are expected to reach the free EBITDA levels set by the Board of Directors for fiscal years 2022, 2023 and 2024		100%		to be assessed after the closing of the accounts for the year 2024.
	Average Net Debt over EBITDAs ratio objective	20%	Achievement of an average Net Debt over EBITDAs ratio set by the Board of Directors for fiscal year 2024.		100%		to be assessed after the closing of the accounts for the year 2024.
	ESG scorecard	20%	Achievement of an ESG objective including several criteria (social, HSE, and environmental) divided into several indicators (diversity, employee engagement, TRCF carbon neutrality, PUE, and carbon intensity)		100%		to be assessed after the closing of the accounts for the year 2024.
TOTAL FINANCIAL YEAR 2022		**100%**					

F. Stock-options exercised by the Executive Officers in the course of the 2022 fiscal year

Name of the executive officer	Date of the plan	Number of stock-options exercised during this financial year	Subscription price*
Sophie Zurquiyah Chief Executive Officer	06.26.2014	0	€107.66
	06.25.2015	0	€62.92
	06.23.2016	0	€8.52
	06.27.2018	0	€2.15
	06.27.2019	0	€1.52
	06.25.2020	n.a.	€1.10
	06.24.2021	n.a.	€0.91
	06.22.2022	n.a.	€1.05
TOTAL		**0**	

Table 5 of the 2021–02 AMF Position-Recommendation.

**Considering the adjustments done further to the capital increase of October 23, 2012 for all plans previously granted and the adjustments done further to the capital increase of February 5, 2016, to the stock reverse split of July 20, 2016 and the capital increase of February 21, 2018.*

G. Performance shares allocated to the Chief Executive Officer (Articles L. 22-10-59, l. 22-10-60 and L. 225-97-1, of the French Commercial Code) in the course of the 2022 fiscal year

In accordance with the provisions of Articles L. 22-10-59, L. 22-10-60 and L. 225-97-1 of the French Commercial Code, the Chief Executive Officer was allocated, within the framework of the plans implemented by the Company during the 2022 financial year, the performance shares shown in the table below:

Name of the executive corporate officer	Plan date	Number of shares allocated during the financial year	Valuation of shares according to the method used for the consolidated accounts *(in €)*	Acquisition date	Availability date	Performance conditions
Sophie Zurquiyah Chief Executive Officer	06.22.2022	455,000 0.064%*	€409,500	06.22.2025[(a)]	06.22.2025[(b)]	Free EBITDA Average Net Debt to EBITDAs Ratio ESG Scorecard

Table 6 of the 2021–02 AMF Position-Recommendation.

(a) The acquisition date is based on the assumption that the Annual General Meeting called to approve the accounts closed on December 31, 2024 could have been held before June 22, 2025. If it cannot be held on this date, the final acquisition date will be that of the Meeting of the 2025 Annual General Meeting.

(b) No holding period has been set by the Board of Directors

** Portion of the allocation in relation to the share capital on the date of allocation.*

The valuation of performance shares according to the method used for the consolidated accounts does not necessarily correspond to the real value that could be derived from the possible acquisition of these shares by their beneficiaries. Indeed, it is recalled that acquiring these shares is subject to the fulfilment of performance conditions.

The acquisition of the shares by the Chief Executive Officer is subject to an attendance condition in June 2025 (i.e. three years from the date of grant), subject to the fulfilment of performance conditions below - two financial performance conditions established in line with the company's business plan, and an ESG performance condition, established in line with CGG's ESG objectives for 2025-2030 over the vesting period, relating to:

- A performance condition based on the achievement of a cumulative Free EBITDA target for the years 2022, 2023 and 2024, conditioning 40% of the allocation; if the objective is not achieved, no right is acquired on this condition of attribution;
- A performance condition based on the achievement of an average net debt to EBITDAs ratio target for the full year 2024, conditioning 40% of the allocation ; If the objective is not attained, no right is acquired to this condition of attribution.
- A performance condition based on the achievement of an environmental, social and governance objective conditioning 20% of the award ; if the objective is not attained, no rights are acquired under this condition of attribution. An ESG Scorecard has been defined including the following criteria and indicators:
  - Social (40%) including indicators of diversity and employee engagement,
  - HSE (20%) and more precisely an indicator linked to the "Total recordable case frequency " (TRCF),
  - Environmental (40%) including indicators related to carbon neutrality, energy use efficiency in data centers (PUE) and carbon intensity.

The Chief Executive Officer is subject to the other conditions applicable to beneficiaries, as well as to an obligation to keep the shares in registered form and a prohibition on the use of hedging instruments, which are set out in section 4.2.2.1.B.c) of this Document.

SUMMARY TABLE OF THE PERFORMANCE CONDITIONS APPLICABLE TO THE PERFORMANCE SHARES PLAN GRANTED TO THE CHIEF EXECUTIVE OFFICER IN FISCAL YEAR 2022

Plan date	Indicator	Weight	Performance conditions target	Target achievement threshold in % for allocation	% of Allocation at Target	Maximum grant in %	Level of achievement – % achievement by criterion and total
Allocation of June 22, 2022	Free EBITDA objective	40%	The Group's financial results are expected to reach the Free EBITDA levels set by the Board of Directors for fiscal years 2022, 2023 and 2024.	100%			to be assessed after the closing of the accounts for the year 2024
	Average Net Debt over EBITDAs ratio objective	40%	Achievement of an average Net debt-to-EBITDAs ratio set by the Board of Directors for fiscal year 2024.	100%			to be assessed after the closing of the accounts for the year 2024
	ESG scorecard	20%	Achievement of an ESG objective including several criteria (social, HSE and environmental) divided into several indicators (diversity, employee engagement, TRCF, carbon neutrality, PUE, carbon intensity)	100%			to be assessed after the closing of the accounts for the year 2024
TOTAL FISCAL YEAR 2022		**100%**					

H. History of Performance shares which became available for each corporate officer as of December 31, 2022

Name of the executive officer	Date of the plan	Number of performance shares which became available in the 2022 fiscal year	Acquisition conditions
Sophie Zurquiyah Chief Executive Officer	06.27.2018	0	Free EBITDA Average net debt over EBITDAs ratio
	06.27.2019	0	Free EBITDA Average net debt over EBITDAs ratio
	06.25.2020	n.a.	Free EBITDA Average net debt over EBITDAs ratio
	06.24.2021	n.a.	Free EBITDA Average net debt over EBITDAs ratio
	06.22.2022	n.a.	Free EBITDA Average net debt over EBITDAs ratio ESG scorecard
TOTAL		**0**	

Table 7 of the 2021–02 AMF Position-Recommendation.

No performance share plan had been implemented between the 2012 and 2018 financial years.

I. History of allocations of stock options as of December 31, 2022

	2014 Plan	2015 Plan	2016 Plan	2018 Plan	2018 Plan	2019 Plan	2020 Plan	2021 Plan	2022 Plan	Total
Date of the General Meeting	05.03.2013	05.29.2015	05.29.2015	04.26.2018	04.26.2018	04.26.2018[8]	06.16.2020	06.16.2020[8]	05.05.2022	
Date of the Board of Directors' meeting	06.26.2014	06.25.2015	06.23.2016	06.27.2018	12.11.2018[f]	06.27.2019	06.25.2020	06.24.2021	06.22.2022	
Number of beneficiaries	752	749	683	530	4	247	240	219	300	
Total number of shares that can be subscribed[3]	1,655,843	1,769,890	6,658,848	6,544,389	671,171	2,353,520	2,268,512	1,950,920	3,530,200	27,403,293
Out of which the number can be exercised by:										
Executive officers										
Philippe SALLE[6]	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	n.a.	*n.a.*
Sophie Zurquiyah[7]	*60,000[a]*	*79,500[b]*	*444,000[c]*	*732,558[d]*	*n.a.*	*360,000[e]*	*360,000*	*330,000*	455,000	2,821,058
Start date of options exercise	06.27.2016	06.26.2017	06.24.2018	06.28.2019	06.28.2019	**For CEO:** 06.28.2022 **For other beneficiaries:** 06.28.2021	**For CEO and Executive Leadership team:** 06.26.2023 **For other beneficiaries:** 06.26.2022	**For CEO and Executive Leadership team:** 06.25.2024 **For other beneficiaries:** 06.25.2023	**For CEO and Executive Leadership team:** 06.22.2025 **For other beneficiaries:** 06.22.2024	
Expiration date	06.26.2022	06.25.2023	06.23.24	06.27.2026	06.27.2026	06.27.2027	06.25.2028	06.24.2029	06.22.2030	
Subscription price *(in €)*[1][2][4]	107.66	62.92	8.52	2.15	1.39	1.52	1.10	0.91	1.05	
Exercise rules[5]	options accrue rights in three batches (50% after 2 years, 25% after 3 years and 25% after 4 years)	options accrue rights in three batches (50% after 2 years, 25% after 3 years and 25% after 4 years)	options accrue rights in three batches (50% after 2 years, 25% after 3 years and 25% after 4 years)	options accrue rights in four batches (25% after 1 year, 25% after 2 years, 25% after 3 years and 25% after 4 years)	options accrue rights in four batches (25% after 1 year, 25% after 2 years, 25% after 3 years and 25% after 4 years)	**For CEO:** options accrue rights in one batch after 3 years **For other beneficiaries:** options accrue in two batches (50% after 2 years and 50% after 3 years)	**For CEO and Executive Leadership team:** options accrue rights in one batch after 3 years **For other beneficiaries:** options accrue in two batches (50% after 2 years and 50% after 3 years)	**For CEO and Executive Leadership team:** options accrue rights in one batch after 3 years **For other beneficiaries:** options accrue in two batches (50% after 2 years and 50% after 3 years)	**For CEO and Executive Leadership team:** options accrue rights in one batch after 3 years **For other beneficiaries:** options accrue in two batches (50% after 2 years and 50% after 3 years)	
Number of shares subscribed as of Dec. 31, 2022[4]	0	0	0	2,038	0	0	0	0	0	2,038
Cumulated number of stock-options which were cancelled or lapsed as of Dec. 31, 2022[4]	512,665	184,577	262,920	2,495,915	503,381	961,200	66,240	41,700	14,800	5,043,398

	2014 Plan	2015 Plan	2016 Plan	2018 Plan	2018 Plan	2019 Plan	2020 Plan	2021 Plan	2022 Plan	Total
Remaining stock-options as of Dec. 31, 2021[(4)]	0	75,325	232,393	4 046 436	167,790	1,392,320	2,202,272	1,909,220	3,515,400	13,541,156
Out of which the remaining number is held by:										
Executive officers										
Philippe SALLE[(6)]	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Sophie ZURQUIYAH[(7)]	0	*475*	*4,428*	183,139	*n.a.*	0	*360,000*	*330,000*	455,000	1,333,042

Table 8 of the 2021–02 AMF Position-Recommendation.

(1) Considering the adjustments done further to the capital increase of February 5, 2016, to the stock reverse split of July 20, 2016 and and the capital increase of February 21, 2018.
(2) The subscription price corresponds to the average of the opening share prices of the share on the last twenty trading days prior to the Meeting of the Board of Directors granting the options.
(3) Without considering the various adjustments that have occurred after the implementation of the plans.
(4) Considering the adjustments done further to the capital increase of October 23, 2012 for all plans previously granted and the adjustments done further to the capital increase of February 5, 2016, to the stock reverse split of July 20, 2016 and the capital increase of February 21, 2018.
(5) In addition, certain performance conditions are applicable to the senior executive officers and the members of Executive Committee/Corporate Committee/Executive Leadership team (depending of the allocation date) – see section 4.2.2.1.B.c) of this Document.
(6) Executive officer of CGG SA since April 26, 2018.
(7) Executive officer of CGG SA from September 1, 2015 to January 4, 2017 (member of the Corporate Committee) and since April 26, 2018 (Chier Executive Officer).
(8) Figures presented in this column include stock-options granted by the Chief Executive Officer pursuant to the subdelegation granted by the Board of Directors, to the benefit of certain employees. In such a case, the subscription price has been set to reflect the average opening price of the CGG shares for the 20 trading days preceding the allotment date.
(a) For the senior executive officers and members of the Corporate Committee, this 2014 Plan is subject to performance conditions which have not been met in 2016 for the first batch nor for the second batch in 2017, and which have been partially met (leading to a 25% vesting only) for the third batch in 2018.
(b) For the senior executive officers and members of the Corporate Committee, this 2015 Plan is subject to performance conditions which have not been met in 2017 for the first batch, which have been partially met (leading to a 25% vesting only) for the second batch in 2018, and which have not been met in 2019 for the third batch.
(c) For the senior executive officer and members of the Corporate Committee, this 2016 Plan is subject to performance conditions: which have not been met in 2018 for the first batch, and which have been partially met (leading to a 25% vesting only) for the second batch in 2019.
(d) For the senior executive officer and members of the Executive Leadership team, this 2018 Plan is subject to performance conditions which have not been met in 2019, 2020 and 2021 for the first three batches but that have been met for the fourth tranche in 2022.
(e) For the senior executive officer and members of the Executive Leadership team, this 2019 Plan is subject to performance conditions which have not been met in 2021 for the first batch.
(f) Allocation subject to the terms and conditions of the stock options plan date June 27, 2018, except for the subscription price.

J. Stock options granted to the Group's top 10 employees other than Executive Directors and options exercised by the Group's top 10 employees other than Executive Directors during 2022

	Number of options allocated/shares subscribed or purchased	Weighted average price *(in €)*	Date of the plan
Options granted during the financial year by the issuer and any companies within its group granting options to the top ten employees of the Company and any such Group company, receiving the highest number of options	1,331,400	€1.05	06.22.2022
Options held on the issuer and the companies included in the scope of allocation of the options exercised, during the year by the top 10 employees of the issuer and any company included in this scope, exercising the highest number of options	0	n.a.	n.a.

Table 9 of the 2021–02 AMF Position-Recommendation.

K. History of allocations of performance shares

As part of the 16th resolution of the Combined General Meeting held on May 5 2022, the Board of Directors, at its meeting held on June 22, 2022, decided to allocate performance shares as detailed in the table below.

(Article L. 225-97-1 of the French Commercial Code)	Information about performance shares					
Date of General Meeting	04.26.2018	04.26.2018[(a)]	04.26.2018	06.16.2020	06.16.2020	05.05.2022
Date of Board of Directors' meeting	06.27.2018	12.11.2018[(a)]	06.27.2019[(b)]	06.25.2020	06.24.2021[(d)]	06.22.2022
Total number of performance shares allocated, of which the number allocated to:	3,108,217	132,821	2,047,720	1,953,148	2,487,905	3,491,300
Sophie ZURQUIYAH, Chief Executive Officer	157,500	n.a.	220,000	220,000	280,000	455,000
Date of acquisition of performance shares (for Chief Executive Officer)	Acquisition in 2 batches: – 06.27.2020: 50% of the performance shares allocated; – 06.27.2021: 50% of the performance shares allocated.	n.a.	Acquisition in 1 batch: – 06.27.2022: 100% of the performance shares allocated.	Acquisition in 1 batch: – 06.25.2023: 100% of the performance shares allocated.	Acquisition in 1 batch: – 06.24.2024: 100% of the performance shares allocated.	Acquisition in 1 batch: – 06.22.2025: 100% of the performance shares allocated.
Date of acquisition of performance shares (Members of the Executive Leadership team)	Acquisition in 2 batches: – 06.27.2020: 50% of the performance shares allocated; – 06.27.2021: 50% of the performance shares allocated.	Acquisition in 2 batches: – 12.11.2020: 50% of the performance shares allocated; – 06.27.2021: 50% of the performance shares allocated.	Acquisition in 2 batches: – 06.27.2021: 50% of the performance shares allocated; – 06.27.2022: 50% of the performance shares allocated.	Acquisition in 1 batch: – 06.25.2023: 100% of the performance shares allocated.	Acquisition in 1 batch: – 06.24.2024: 100% of the performance shares allocated.	Acquisition in 1 batch: – 06.22.2025: 100% of the performance shares allocated
Date of acquisition of performance shares (other beneficiaries)		n.a.		Acquisition in 2 batches: – 06.25.2022: 50% of the performance shares allocated; – 06.25.2023: 50% of the performance shares allocated.	Acquisition in 2 batches: – 06.24.2023: 50% of the performance shares allocated; – 06.24.2024: 50% of the performance shares allocated	Acquisition in 2 batches: – 06.22.2024: 50% of the performance shares allocated; – 06.22.2025: 50% of the performance shares allocated
Date of the end of the retaining period	n.a.[(c)]	n.a.[(c)]	n.a.[(c)]	n.a.[(c)]	n.a.[(c)]	n.a.[(c)]
Performance conditions	Free EBITDA and Average Net Debt over EBITDAs ratio	Free EBITDA and Average Net Debt over EBITDAs ratio	Free EBITDA and Average Net Debt over EBITDAs ratio	Free EBITDA and Average Net Debt over EBITDAs ratio	Free EBITDA and Average Net Debt over EBITDAs ratio	Free EBITDA and Average Net Debt over EBITDAs ratio ESG Score card
Number of performance shares acquired as of December 31, 2022	1,357,341	66,412	271,724	564,774	0	0
Cumulative number of performance shares cancelled or lapsed as of December 31, 2022	1,750,876	66,409	1,775,996	78,200	68,500	30,600
Performance shares remaining at the end of the financial year as of December 31, 2022	0	0	0	1,310,174	2,419,405	3,460,700

Table 10 of the 2021–02 AMF Position-Recommendation.

(a) Allocation subject to the terms and conditions of the performance shares plan of June 27, 2018, except for the first batch's vesting date.

(b) In addition, 40,000 shares granted on January 6, 2020 to an employee under the terms and conditions of the performance shares plan adopted June 27, 2019 are included in this column, except for the first batch's vesting date.

(c) Considering the vesting period, no holding period has been set by the Board of Directors.

(d) In addition, 60,000 shares granted on June 28, 2022 to an employee under the terms and conditions of the performance shares plan adopted June 24, 2021.

The individual details of the performance shares allocated to the Company's corporate officers are presented above in this section

No performance share plan had been implemented between the 2012 and 2018 financial years.

L. Summary Table as of December 31, 2022

Executive corporate officers	Employment contract		Supplementary pension plan		Indemnities or benefits due or likely to be due owing to the termination or change of position		Non-compete clause indemnity	
	Yes	No	Yes	No	Yes	No	Yes	No
Philippe SALLE *Chairman of the Board of Directors* First appointment: 2018 End of term of office: 2025		X		X		X		X
Sophie ZURQUIYAH *Chief Executive Officer and Director* First appointment: 2018 End of term of office: 2026[(a)]		X	X[(b)]		X[(c)]		X[(d)]	

Table 11 of the 2021–02 AMF Position-Recommendation.

(a) Renewal as Director was confirmed at the 2022 General Meeting.
(b) The details of the supplementary pension plan are in section 4.2.2.1.B of this Document. Executive corporate officers are beneficiaries of a defined-contribution funded pension plan implemented for Group executives. This plan is partly covered by the Company. For 2022, the amount corresponding to the expense borne by the Company under this scheme represents €12,341 for Sophie ZURQUIYAH.
(c) The details of the indemnities due owing to departure from the Group are in section 4.2.2.1.B of this Document.
(d) The details of the indemnities due for non-compete commitments are in section 4.2.2.1.B of this Document.

4.2.3 Remuneration elements paid or allocated for 2022 financial year submitted to the shareholders for approval

In accordance with Article L. 22-10-34, II, III of the French Commercial Code, the fixed, variable and exceptional elements making up the total remuneration and benefits of any kind paid or allocated for the 2022 financial year to executive corporate officers, presented below, will be submitted to the vote of the shareholders, by separate resolutions for each person concerned, at the 2023 General Meeting.

A. Remuneration elements paid or allocated for 2022 financial year to Philippe SALLE, Chairman of the Board of Director submitted to the shareholders for approval

Remuneration elements put to the vote	Amounts paid in 2022	Amount allocated for 2022 or Accounting valuation	Information
Fixed remuneration	€170,000	€170,000	In accordance with the 2022 remuneration policy applicable to the Chairman of the Board of Directors approved by the Shareholders' Meeting of May 5, 2022, Philippe Salle received a fixed annual remuneration of €170,000 for his duties as Chairman of the Board of Directors (unchanged since 2018).
Annual variable remuneration	Not applicable	Not applicable	Philippe SALLE does not receive any variable remuneration.
Deferred variable remuneration	Not applicable	Not applicable	Philippe SALLE does not receive any deferred variable remuneration.
Multi-annual variable remuneration (cash)	Not applicable	Not applicable	Philippe SALLE does not receive any multi-annual variable remuneration.
Exceptional remuneration	Not applicable	Not applicable	Philippe SALLE does not receive any exceptional remuneration.
Stock options, performance shares, and any other long-term remuneration element	Not applicable	Not applicable	Philippe SALLE does not receive any allocation of stock options or performance shares.

Remuneration elements put to the vote	Amounts paid in 2022	Amount allocated for 2022 or Accounting valuation	Information
Remuneration allocated to Directors	€72,000 (allocated for 2021 and paid in 2022)	€72,000 (allocated for 2022 and to be paid in 2023)	On April 26, 2018, the Board of Directors decided that Philippe SALLE would receive a fixed annual amount of remuneration allocated to Directors of €70,000 for his duties as Chairman of the Board of Directors. In accordance with the remuneration policy applicable to the Board of Directors approved by the Shareholders' Meeting of May 5, 2022, Philippe SALLEwill receive in 2023, for the year 2022, a fixed amount of €72,000, including €2,000 of travel indemnity.
Valuation of benefits of any kind	Not applicable	Not applicable	Philippe SALLE does not benefit from any benefit in kind.
Severance pay	Not applicable	Not applicable	Philippe SALLE is not entitled to any severance pay.
Non-compete indemnity	Not applicable	Not applicable	Philippe SALLE is not entitled to any non-compete indemnity.
General Benefits plan	Not applicable	Not applicable	The Chairman of the Board may benefit from the social protection that complements the basic scheme set up for the Group's employees. Consequently, the Chairman may benefit from an insurance plan covering death and disability risks and may also benefit from medical coverage. For 2022, Philippe Salle do not benefit from such plans.
Supplementary pension plan	Not applicable	Not applicable	Philippe SALLE does not benefit from a supplementary pension plan.

B. Remuneration elements paid or allocated for 2022 financial year to Sophie ZURQUIYAH, Chief Executive Officer, submitted to the shareholders for approval

Remuneration elements put to the vote	Amounts paid in 2022	Amount allocated for 2022 or Accounting valuation	Information
Fixed remuneration	€680,400	€680,400	On May 5, 2022, the General Meeting approved Sophie ZURQUIYAH's fixed annual remuneration to be increased to €680,400 for her duties as Chief Executive Officer. This annual fixed remuneration was increased by 8% between 2021 and 2022.
Annual variable remuneration *(Payment of the annual variable remuneration is subject to approval by the 2023 General Meeting under the conditions provided for in Article L. 22-10-34, II of the French Commercial Code)*	€778,260 (allocated for 2021 and paid in 2022)	€879,076 (allocated for 2022 and to be paid in 2023)	Sophie ZURQUIYAH receives a variable remuneration subject to fulfilling qualitative objectives (representing one third of variable remuneration) and quantifiable objectives (representing two thirds of variable remuneration). The quantifiable criteria are based on fulfilling the Group's budgetary objectives, set by the Board of Directors. Her target amount is set to 100% of her fixed remuneration. The performance criteria and/or conditions were established by the Board meeting of March 3, 2022. **The quantifiable criteria (financial objectives)** are as follows: – Group Net Cash Flow (25%); – Free EBITDA (25%); – Group Segment revenues (25%); and – Operating income (25%). **The qualitative criteria (non-financial objectives)** are focused on: – Group Strategic and Financial Plan Management (30%) – Business and Operational Performance Management (30%) – Organization and Human Resources Management (10%) – ESG/HSE (30%) On the basis of fulfilling the above qualitative and quantifiable criteria and the financial statements for the year 2022, and upon recommendation of the Appointment, Remuneration and Governance Committee, the Board of Directors, at its meeting of March 2, 2023, set this variable remuneration at €879,076. This payment corresponds to an overall fulfilment rate of 129.20% of the objectives (out of a possible maximum of 166.67%). This rate is applied to the target amount of variable remuneration (corresponding to 100% of the annual fixed remuneration of Sophie ZURQUIYAH). Payment of this remuneration will be subject to the approval by the 2023 General Meeting.
Deferred variable remuneration	Not applicable	Not applicable	Sophie ZURQUIYAH does not receive any deferred variable remuneration.
Exceptional remuneration	Not applicable	Not applicable	Sophie ZURQUIYAH did not receive any exceptional remuneration in 2022.
Remuneration allocated to Directors	Not applicable	Not applicable	Sophie ZURQUIYAH does not receive any remuneration allocated to Directors.

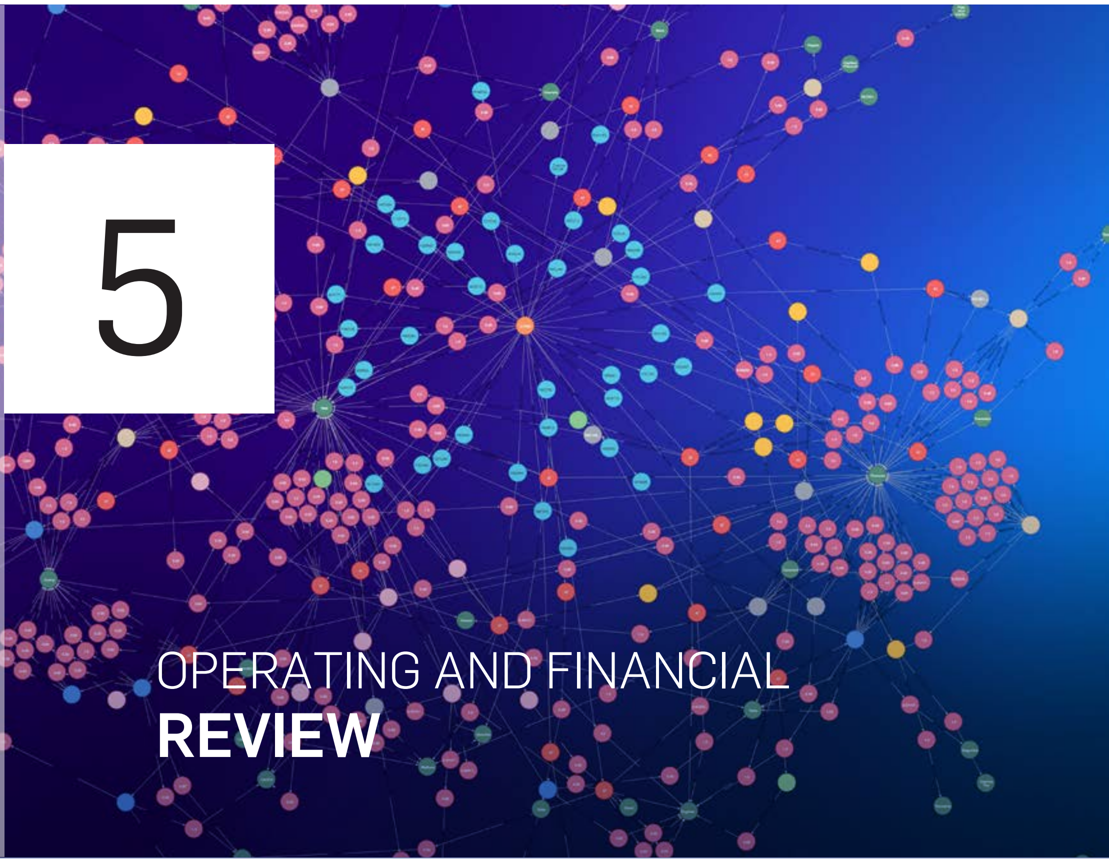
Remuneration elements put to the vote	**Amounts paid in 2022**	**Amount allocated for 2022 or Accounting valuation**	**Information**
General benefits plan	Not applicable	€4,502	Sophie ZURQUIYAH benefits from the general compulsory benefits plan of the Group applicable to all employees. For 2022, the amount corresponding to the expense borne by the Company under this scheme represents €4,502 for Sophie ZURQUIYAH.
International medical insurance	Not applicable	€31,187	Sophie ZURQUIYAH benefits from an international medical insurance contract. For 2022, the amount corresponding to the expense borne by the Company under this contract is €31,187 (US$32,838 converted in euros on the basis of an average conversation rate for the year 2022 of 0,9497). The cost of this international medical insurance is borne by CGG SA.
Valuation of benefits in kind (company car)	Not applicable	€9,600	The Board of Directors, at its meeting of April 26, 2018, decided that for her duties as Chief Executive Officer, Sophie ZURQUIYAH would benefit from a company car, the reinstatement of which cannot give rise to a benefit in kind greater than an annual amount of €11,880.
Valuation of benefits of any kind (unemployment insurance)	Not applicable	€11,261	Sophie ZURQUIYAH benefits from an individual unemployment insurance plan with the GSC. This guarantee provides for the payment of a maximum percentage of 13.30% of Sophie ZURQUIYAH's target remuneration in 2022 (i.e. €180,998) over a period of 12 months.
Multi-annual variable remuneration (cash)	Not applicable	Not applicable	No multi-annual variable remuneration plan was implemented by the Company during the 2022 financial year.

Stock options, performance shares, and any other long-term remuneration element
 	
(Valuation according to the method used for the consolidated accounts for the 2022 financial year)
		Stock options: €166,985	At its meeting of June 22, 2022, and on the basis of the 15th resolution of the General Meeting of May 5, 2022, the Board of Directors granted Sophie ZURQUIYAH 455,000 stock options, i.e. 0.064% of the Company's share capital at the date of the grant.
			
			The acquisition of rights is subject to presence in June 2025 (i.e. 3 years from the award by the Board of Directors).
			
			The acquisition of rights is subject to the fulfilment of four performance conditions,to be achieved over the vesting period relating to:
			– a performance condition based on a growth objective of the share price of CGG in relation to the evolution of a stock market performance index composed of the share prices of a panel of peers composed of companies in the Petroleum sector and related fields – TGS ASA, PGS ASA, Fugro NV, Core laboratories VV, Nov Inc, MagSeis Fairfield ASA, Valaris LTD, Technip FMC PLC and Hunting - (hereinafter "benchmark") over the acquisition period, calculated at the date of acquisition, conditioning 40% of the award, it being specified that:
			  – CGG sharegrowth above or equal to 130% of the median growth of the benchmark will allow 100% of CGG options to be permanently acquired under this condition;
			  – CGG share growth strictly above 100% and strictly below 130% of benchmark index median growth will permanently acquire between 75% and 100% of CGG Options acquired under this condition on the basis of a linear acquisition scale;
			  – CGG share growth equal to 100% of the median growth of the benchmark will allow for the definitive acquisition of 75% of CGG options acquired under this condition;

Remuneration elements put to the vote	Amounts paid in 2022	Amount allocated for 2022 or Accounting valuation	Information
			– If CGG's share price growth is strictly less than 100% of the median of the benchmark, no option will be definitively vested under this condition. – a performance condition based on the achievement of a cumulative Free EBITDA target for the years 2022, 2023 and 2024, conditioning 20% of the award; if the objective is not achieved, no right is acquired on this condition of attribution; – a performance condition based on the achievement of an average net debt to EBITDAs ratio target for the year 2024, conditioning 20% of the allocation; if the objective is not achieved, no right is acquired on this condition of attribution; – a performance condition based on the achievement of an environmental, social and governance objective conditioning 20% of the award; if the objective is not attained, no rights are acquired under this condition of attributio. An ESG scorecard has been defined including the following criteria and indicators: – Social (40%) including indicators of diversity and employee engagement – HSE (20%) and more precisely an indicator linked to the "Total recordable case frequency" (TRCF), – Environmental (40%) including indicators related to carbon neutrality, energy use efficiency in data centers (PUE) and carbon intensity. The fulfilment of the performance conditions entitles the holder to the grant of 100% of the options on the date on which this realization is determined by the Council. The exercise price of these options is €1.05, set on the basis of the average closing price of the CGG share during the twenty (20) trading days preceding the grant. The options have a duration of eight years. Other conditions applicable to this plan are set out in paragraph 4.2.2.1.B of the Universal Registration Document 2022.
		Performance shares: €409,500	At its meeting of June 22, 2022, and on the basis of the 14th resolution of the General Meeting of May 5, 2022, the Board of Directors granted Sophie ZURQUIYAH 455,000 performance shares, i.e. 0.064% of the Company's share capital at the date of the grant. The acquisition of rights is subject to presence in June 2025 (i.e. three years from the date of grant) subject to the fulfilment of the following performance conditions, to be met over a three-year vesting period:· – a performance condition based on the achievement of a cumulative Free EBITDA target for the years 2022, 2023 and 2024, conditioning 40 % of the allocation ; if the objective is not achieved, no right is acquired on this condition of attribution ; – a performance condition based on the achievement of an average net debt to EBITDAs ratio target for the full year 2024, conditioning 40 % of the allocation ; If the objective is not attained, no right is acquired to this condition of attribution.

Remuneration elements put to the vote	Amounts paid in 2022	Amount allocated for 2022 or Accounting valuation	Information
			– a performance condition based on the achievement of an environmental, social and governance objective conditioning 20% of the award ; if the objective is not attained, no rights are acquired under this condition of attributio. An ESG scorecard has been defined including the following criteria and indicators: – Social (40%) including indicators of diversity and employee engagement, – HSE (20%) and more precisely an indicator linked to the "Total recordable case frequency " (TRCF), – Environmental (40%) including indicators related to carbon neutrality, energy use efficiency in data centers (PUE) and carbon intensity Other conditions applicable to this plan are set out in paragraph 4.2.2.1.B of the Universal Registration Document 2022.
Supplementary pension plan	Not applicable	€12,341	Sophie ZURQUIYAH benefits from a collective defined-contribution funded pension plan implemented for the Group's executives since January 1, 2005. The contribution is calculated with reference to the Annual Social Security Ceiling: – tranche A – up to 1 Annual Social Security Ceiling: 0.5% employee contribution and 1% employer contribution; – tranche B – between 1 and 4 Annual Social Security Ceilings: 2% employee contribution and 3% employer contribution; – tranche C – between 4 and 8 Annual Social Security Ceilings: 3.5% employee contribution and 5% employer contribution. The contribution base consists exclusively of the gross annual remuneration for the year declared, the base salary, the annual variable remuneration and the benefit in kind (company car). As a matter of principle, this base excludes any other remuneration element. For 2022, the amount corresponding to the expense borne by the Company under this plan represents €12,341 for Sophie ZURQUIYAH.
Contractual termination indemnity	No amount paid to Sophie ZURQUIYAH for the 2022 financial year	No amount allocated to Sophie ZURQUIYAH for the 2022 financial year	For the duration of her term of office, Sophie ZURQUIYAH would benefit from a contractual termination indemnity in the event of termination of her corporate office. These benefits have the following characteristics: Sophie ZURQUIYAH benefits from a contractual termination indemnity in the event of revocation and non-renewal of her term of office within twelve months following a change of control, in the absence of any situation of failure characterized by the non-achievement of the performance conditions described below; No payment shall be made in the event of serious or gross misconduct regardless of the reason for leaving. The payment of the contractual termination indemnity will depend on the average achievement rate of the objectives relating to the annual variable portion of Sophie ZURQUIYAH's remuneration for the last three financial years ended prior to the departure date, in accordance with the following rule:

Remuneration elements put to the vote	Amounts paid in 2022	Amount allocated for 2022 or Accounting valuation	Information
			(a) If the average achievement rate is less than 80%, no contractual termination indemnity will be paid; (b) If the average achievement rate is equal to or greater than 80% and less than 90%, the contractual termination indemnity will be due at 50% of its amount; (c) If the average achievement rate is equal to or greater than 90%, the contractual termination indemnity will be due on a straight-line basis between 90% and 100% of its amount.
			This contractual termination indemnity will be equal to the difference between (i) a gross amount capped at 200% of the Annual Reference Remuneration and including all sums of any nature whatsoever, and on any basis whatsoever, to which Sophie ZURQUIYAH may be entitled as a result of the termination, and (ii) all sums to which she may be entitled as a result of the implementation of the non-compete commitment. The aggregate of the contractual termination indemnity and the non-compete indemnity may under no circumstances exceed 200% of the corporate officer's Annual Reference Remuneration. Should the combined amount of the two benefits be greater, the contractual termination indemnity would be reduced to the amount of this cap. The Annual Reference Remuneration consists exclusively of the annual fixed remuneration received during the twelve rolling months prior to the notice date, plus the annual average of the variable remuneration due for the last three financial years ended prior to the departure date or beginning of the notice period, if applicable. It is specified that, the Board of Directors must acknowledge, prior to the payment of the special termination indemnity, (i) that the performance conditions described above have been met and (ii) that the contractual termination indemnity complies with the Corporate Governance Code in force at the date of the departure of the person concerned.
Non-compete commitment indemnity	No amount paid to Sophie ZURQUIYAH for the 2022 financial year	No amount allocated to Sophie ZURQUIYAH for the 2022 financial year	Sophie ZURQUIYAH has a non-compete commitment applicable to activities involving services for the acquisition, processing or interpretation of geophysical data, or the supply of equipment or products designed for the acquisition, processing or interpretation of geophysical data, and involving the contribution of the person concerned to projects or activities in the same field as those in which she participated within the CGG group. In consideration for this commitment for a period of 18 months from the date of the termination of Sophie ZURQUIYAH's duties, she would receive remuneration corresponding to 100% of her Annual Reference Remuneration. The allowance will be paid in instalments and will not be payable when the person concerned claims his or her pension rights and, in any event, beyond the age of 65.



Machine learning classification of data extracted from technical documents and files as part of a data transformation workflow.
CGG Data Hub.

5 OPERATING AND FINANCIAL **REVIEW**

5.1 OPERATING AND FINANCIAL REVIEW

References to a numbered "note" in this chapter are to the notes to our Consolidated Financial Statements.

5.1.1 Group organization

Segment presentation and discontinued operations

The financial information by segment is reported in accordance with our internal reporting system and provides internal segment information that is used by the chief operating decision maker to manage and measure performance.

To reflect the evolution of the Group into a Technology company, new segment reporting names were designed and used from the first quarter 2022 financial reporting.

The Group continues to present its financial information under two reporting segments, Data, Digital & Energy Transition (DDE) and Sensing & Monitoring (SMO) as described in Note 19 to our consolidated financial statements.

Internal reporting and segment presentation

Before the implementation of IFRS 15, the Group applied the percentage of completion method for recognizing Earth Data prefunding revenues. Following the implementation of IFRS 15, the Group recognizes Earth Data prefunding revenues only upon delivery of processed data (when the performance obligation is fulfilled).

For internal reporting purposes CGG's management continues to apply the pre-IFRS 15 revenue recognition principles, with Earth Data prefunding revenues recorded based on percentage of completion. CGG's management believes this method aligns revenues closely with the activities and resources used to generate them and provides useful information as to the progress made on Earth Data surveys, while also allowing for useful comparison across time periods.

CGG therefore presents the Group's results of operations in two ways:

- the "Reported" or "IFRS" figures, prepared in accordance with IFRS, with Earth Data prefunding revenues recognized upon delivery of the data (when the performance obligation is fulfilled);
- the "Segment" figures, for purposes of internal management reporting, prepared in accordance with the Group's previous method for recognizing Earth Data prefunding revenues.

Segment figures are not a measure of financial performance under IFRS and should not be considered as indicators of our operating performance or an alternative to other measures of performance in accordance with IFRS.

For the twelve months ended December 31, 2022 please refer to the table below for the reconciliation between segment and reported figures.

	December 31, 2022		
In millions of US$	**Segment figures**	**IFRS 15 adjustment**	**As reported**
Operating revenues	**928.5**	**(1.6)**	**926.9**
Of which			
Earth Data Prefunding revenues	*135.8*	*(1.6)*	*134.1*
Operating expenses	(748.4)	3.1	(745.3)
Of which			
Earth Data prefunding surveys amortization	*(83.8)*	*3.1*	*(80.7)*
Operating income	**180.1**	**1.5**	**181.6**
NET INCOME	**41.8**	**1.5**	**43.3**

Earth Data prefunding revenue is reported to US$134 million in 2022, mainly due to the delivery of the data from Brazil, Gulf of Mexico and UK North Sea surveys. During the year we recognized US$136 million of segment revenues including programs offshore Norway and Latin America. Regarding operating expenses and based on delivery, the Earth Data prefunding surveys amortization as reported amounted to US$81 million, compared to a segment amortization of US$84 million. According to IFRS 15 standards, we recorded a negative adjustment of the operating revenue for US$2 million, and a positive adjustment of US$3 million on the amorization costs. A positive net impact of US$2 million was booked at net income level.

Impairment and non-recurring and restructuring costs

To adjust to the volatile market environment, the Group may have to incur non-recurring or restructuring costs as well as impairment losses or write-offs due to events or changes in circumstances that reduce the fair value of an asset below its book value.

In 2022, the Group pursued the implementation of restructuring measures in continuing operations. These measures negatively impacted the statement of cash flows by US$9 million in 2022.

Seasonality

We have historically benefited from higher levels of activity during the fourth quarter since our clients seek to fully spend their annual budget before year-end. Sensing and Monitoring deliveries and Earth Data after-sales usually reflect this pattern.

Accounting policies

This operating and financial review and prospects should be read in conjunction with our consolidated annual financial statements and the notes thereto.

Our significant accounting policies are fully described in note 1 to our 2022 consolidated annual financial statements.

Market environment

The year 2022 was a year of continued high volatility with the shock of Russia's invasion of Ukraine and inflationary tensions. This has significantly increased energy security and energy availability concerns and hence demand for energy. In this context, oil and, especially, gas are expected to keep on playing a prominent role in the coming years, at the core of the energy mix, especially as the development of renewable energy will be a long process and will require significant investments.

In 2022, the rebound in commercial activity, the increased visibility in lease rounds, and the tensions in available resources are all positive market signals confirming that the energy industry is entering a favorable multi-year up-cycle, as highlighted by many observers. After years of underinvestment, we expect our clients to grow their E&P expenditures significantly, especially focusing on increasing production from existing assets and near-field exploration. We believe that we are fundamentally well positioned in these domains thanks to our unique technologies and solutions as key enablers to increase the effectiveness of our clients' projects while meeting their ESG objectives.

Beyond the core, we further invested in new businesses, leveraging on our expertise and long-time leading capabilities, to accompany our traditional and new client base in their energy transition challenges. These Beyond the Core new businesses addressing the fast expanding markets of Digital Sciences, Energy transition and Monitoring and Observation solutions are expected to contribute significantly to the growth of the activities of the group in the future. The Beyond the Core revenues, which increased to 8% of the total 2022 revenue from 4% in 2021 excluding revenues from divested businesses (GeoSoftware and Smart Data Solutions), are expected to generate around 20% of total revenues in 2025.

Commenting on Q4 Results, Sophie Zurquiyah, CGG's CEO said:

"I am pleased to see our strong Q4 financial performance delivering higher than anticipated multi-client data and equipment sales. For CGG, 2022 was a year of continued high market volatility and transition with Beyond the Core revenue contributing 8% of total revenue. We are entering 2023 with improved visibility thanks to our higher backlog and cash generation. Looking forward, our Core businesses are expected to grow supported by our leadership positions, enabling us to further develop our Beyond the Core businesses and transform CGG into a global technology & HPC leader."

5.1.2 Significant events, acquisitions and divestures

Please refer to note 2 for a discussion of major events during the period.

5.1.3 Twelve months ended December 31, 2022 compared to twelve months ended December 31, 2021

Unless otherwise specified, comparisons made in this section are between the twelve months ended December 31, 2022 and the twelve months ended December 31, 2021. References to 2022 correspond to the twelve months ended December 31, 2022 and references to 2021 correspond to the twelve months ended December 31, 2021.

Operating revenues

The following table sets forth our operating revenues by division for each of the periods stated:

	December 31						Increase/(Decrease)	
	2022			2021			2022 vs. 2021	
In millions of US$	Segment figures	IFRS 15 adjustment	As reported	Segment figures	IFRS 15 adjustment	As reported	Segment figures	As reported
Geoscience	284.2	-	284.2	309.5	-	309.5	(8)%	(8)%
Earth Data	374.9	(1.6)	373.3	276.2	120.8	397.0	36%	(6)%
DDE revenues	**659.1**	**(1.6)**	**657.5**	**585.7**	**120.8**	**706.5**	**13%**	**(7)%**
SMO revenues	**269.3**	**-**	**269.3**	**356.5**	**-**	**356.5**	**(24)%**	**(24)%**
Eliminated revenues and others	0.1	-	0.1	(0.8)	-	(0.8)	(113)%	(113)%
TOTAL OPERATING REVENUES	**928.5**	**(1.6)**	**926.9**	**941.4**	**120.8**	**1,062.2**	**(1)%**	**(13)%**

Our consolidated operating revenues as reported decreased by 13% to US$927 million in 2022 from US$1,062 million in 2021. Before IFRS 15 adjustments, our consolidated operating revenues decreased by 1% to US$928 million in 2022 from US$941 million in 2021. They are up 3% year-on-year adjusted for revenues from the GeoSoftware and Smart Data Solutions businesses that we divested.

The growing activity worldwide of our Geoscience business and the solid increase of our Earth Data after sales were offset by severe commercial restrictions in Russia and several projects shifting to 2023 especially impacting our SMO business. The respective contributions from the Group's businesses to our segment operating revenues were 71% from DDE and 29% from SMO in 2022.

Data, Digital & Energy Transition (DDE)

Operating revenues as reported from our DDE segment decreased by 7% to US$658 million in 2022 compared to US$707 million in 2021. Before IFRS 15 adjustments, DDE segment revenues increased by 13% to US$659 million from US$586 million in 2021. They were up 21% year-on-year adjusted for revenues from the GeoSoftware and Smart Data Solutions businesses that we divested. The main drivers regarding the change in operating revenues are detailed below.

Geoscience

Operating revenues as reported from Geoscience were down 8% year-on-year to US$284 million in 2022 from US$309 million in 2021. They were up 6% year-on-year adjusted for US$41 million of revenues from divested businesses. Our Geoscience business had a solid activity sustained by increasing demand in the Americas for high-end imaging technology, including demand for OBN imaging.

Earth Data

Earth Data revenues as reported decreased by 6% to US$373 million in 2022 compared to US$397 million in 2021. Before IFRS 15 adjustments, Earth Data segment revenues increased by 36% to US$375 million from US$276 million in 2021.

Prefunding revenues as reported decreased by 51% to US$134 million in 2022 from US$271 million in 2021. Excluding IFRS 15 adjustment, prefunding revenues decreased by 10% year-on-year to US$136 million in 2022 from US$150 million in 2021, due to the shift of prefunding from 2022 to 2023. The level of our Earth Data cash capex amounted to US$205 million in 2022, up from US$168 million in 2021, with two vessels working on Earth Data programs in the Norwegian North Sea and one in offshore Brazil. The cash-prefunding rate was 66% in 2022 from 89% in 2021.

After-sales revenues increased significantly by 90% at US$239 million in 2022 compared to US$126 million in 2021 sustained by higher transfer fees and confirmation from the local regulators of upcoming licensing rounds offshore Brazil and in the US Gulf of Mexico.

Sensing & Monitoring (SMO)

In 2022, the worldwide demand for geophysical equipment has decreased by 18%. Total revenues for our SMO segment were down 24% year-on-year to US$269 million in 2022, due to the ban on exports to Russia and delayed large projects, particularly in the Middle East, from US$357 million in 2021 which included large mega-crews deliveries and higher marine sales.

- Land equipment sales represented 54% of total revenues in 2022, compared to 63% in 2021. Land equipment sales were US$144 million in 2022, down 35% year-on-year due to sanctions on Russia and delayed projects, from US$223 million in 2021, which included recording systems and vibrators deliveries in various geographies (China, Russia and North Africa) and to large mega-crews in Saudi Arabia.
- Marine equipment sales represented 27% of total revenues in 2022 compared to 28% in 2021, a 29% decrease in sales to US$72 million in 2022 from US$101 million in 2021. The OBN market for shallow water application remains active, especially in the Middle East. The marine market for streamers was still limited to equipment upgrades and spare streamer sections deliveries
- Downhole equipment sales were up 25% at US$19 million in 2022 from US$15 million in 2021.
- New market sales significantly increased 98% to US$33 million in 2022, including a US$13 million Geocomp Corporation contribution, from US$17 million in 2021. The acquisition of Geocomp Corporation, which is specialized in high-value services and products for geotechnical risk management and infrastructure monitoring in the US, was finalized during the second quarter of 2022.

Operating expenses

The following table sets forth our operating expenses for each of the periods stated:

	December 31				Increase/(Decrease)	
	2022		2021		2022 vs. 2021	
In millions of US$	Segment figures	As reported	Segment figures	As reported	Segment figures	As reported
Operating revenues	928.5	926.9	941.4	1,062.2	(1)%	(13)%
Costs of operations	(658.0)	(654.9)	(755.9)	(853.2)	(13)%	(23)%
% of operating revenues	*(71)%*	*(71)%*	*(80)%*	*(80)%*		
Gross margin	**271.0**	**272.5**	**186.3**	**209.8**	**45%**	**30%**
% of operating revenues	*29%*	*29%*	*20%*	*20%*		
Research and Development	(19.0)	(19.0)	(17.0)	(17.0)	12%	12%
% of operating revenues	*(2)%*	*(2)%*	*(2)%*	*(2)%*		
Marketing and Selling	(29.6)	(29.6)	(29.9)	(29.9)	(1)%	(1)%
% of operating revenues	*(3)%*	*(3)%*	*(3)%*	*(3)%*		
General and Administrative	(68.2)	(68.2)	(62.9)	(62.9)	8%	8%
% of operating revenues	*(7)%*	*(7)%*	*(7)%*	*(6)%*		
Other income (expense)	25.9	25.9	(125.1)	(123.2)	(121)%	(121)%
Operating income	**180.1**	**181.6**	**(48.6)**	**(23.2)**	**(471)%**	**(883)%**
% of operating revenues	*19%*	*20%*	*(5)%*	*(2)%*		
Net cost of financial debt	(98.5)	(98.5)	(120.5)	(120.5)	(18)%	(18)%
Other financial income (loss)	0.4	0.4	(42.4)	(42.4)	(101)%	(101)%
Financial income and expenses	**(98.1)**	**(98.1)**	**(162.9)**	**(162.9)**	**(40)%**	**(40)%**
Net income (loss) from equity affiliates	(18.5)	(18.5)	0.1	0.1		
Income taxes	(17.2)	(17.2)	4.4	4.4	(491)%	(491)%
Net income from continuing operations	**46.3**	**47.8**	**(207.0)**	**(181.6)**	**(122)%**	**(126)%**
Net income from discontinuing operations	(4.5)	(4.5)	1.6	1.6	(381)%	(381)%
Net income	**41.8**	**43.3**	**(205.4)**	**(180.0)**	**(120)%**	**(124)%**

As a percentage of operating revenues as reported, cost of operations as reported decreased to 71% in 2022 from 80% in 2021. Excluding IFRS 15 adjustments, segment cost of operations, as a percentage of the segment operating revenues, was 71% in 2022 from 80% in 2021, mainly due to the mix of activities in an overall more favorable foreign exchange environment.

Excluding impairment loss, the amortization cost of our Earth Data library as reported corresponded to 41% of the Earth Data revenues as reported in 2022 compared to 66% in 2021. Excluding impairment loss and IFRS 15 adjustments, the segment amortization cost of our Earth Data library decreased to 42% of the Earth Data segment revenues in 2022 compared to 59% in 2021, mainly due to the significant increase in sales of the Earth Data business.

Gross profit as reported strongly increased to US$273 million in 2022 from US$210 million in 2021, representing 29% and 20% of operating revenues, respectively, as a result of the factors discussed above, impacts from inflation being generally reflected in our sales price. Segment gross profit was US$271 million in 2022 from US$186 million in 2021, representing 29% of segment operating revenues compared to 20% in previous year.

Research and development costs were up US$2 million or a 12% increase in 2022 compared to 2021, the lower capitalization of costs year-over-year exceeding the net reduction in research and development spending (due to the divestment of Geosoftware and despite the aquisition realized by SMO).

Marketing and selling expenses decreased by 1% year-on-year.

General and administrative expenses increased by 8% to US$68 million in 2022 from US$63 million in 2021. This mainly comes from the growth in perimeter with the acquisitions of Geocomp Corporation and ION software associated with post-Covid activity recovery (travel expenses in particular), and inflationary trends (salaries impact) in an overall favorable foreign exchange rate environment (the average exchange rate was US$1.05 per euro in 2022 compared to US$1.19 per euro in 2021).

Other income of US$26 million in 2022 was mainly composed of i) a US$34 million gain on the sale of the US land Earth Data library and ii) a US$ 5 million net gain from sale and lease back transaction involving our headquarters building, partly offset by iii) a hedging instrument loss of US$7 million, iv) US$4 million of non-recurring impairment loss on one offshore Earth Data survey, and v) US$2 million losses related to the sale of GeoSoftware and Smart Data Solutions. In 2021 other expenses of US$123 million were mainly composed of a US$102 million impairment loss on goodwill for our EDA CGU associated with US$21 million of impairment loss on our offshore Earth Data library.

Operating income

Operating income as reported was a gain of US$182 million, a significant increase from a US$23 million loss in 2021. Excluding IFRS 15 adjustments, segment operating income amounted to US$180 million in 2022, with overall contained inflationary tensions and favorable foreign exchange rate environment. To be compared to a US$49 million loss in 2021.

Segment operating income from DDE strongly increased to US$216 million in 2022 driven by significant increase of Earth Data revenues and the gain on the sale of the US land Earth Data library. This result compares to a US$21 million loss reported last year due to partial impairment of the EDA CGU goodwill.

Segment operating income from SMO was a loss of US$11 million in 2022 compared to a US$5 million income in 2021, mainly due to a lower sales volume.

Financial income and expenses

Net cost of financial debt in 2022 was US$99 million, compared to US$121 million in 2021, due to lower interest rate charges and elimination of capitalized interest obligations pursuant to a bond refinancing transaction carried out in 2021.

Other financial income and expenses are at breakeven in 2022, to be compared to a US$42 million loss in 2021, mainly coming from refinancing costs with US$26 million of transaction fees and US$14 million of call premium for early redemption of our First Lien notes.

Net income from equity affiliates

The contribution of equity affiliates in the income statement was a loss of US$19 milllion in 2022, from a breakeven result in 2021.

As a result of downgraded outlooks, the recoverable amount of our stakes in Argas and Reservoir Evaluation Services joint-ventures were revised and impairment losses of respectively US$16 million and US$2 million were booked.

Please refer to note 8 of our 2022 consolidated annual financial statements

Income taxes

In 2022, income taxes as reported amounted to an expense of US$17 million mainly due to foreign income (Norway and Mexico), compared to an income of US$4 million recorded in 2021.

Please refer to note 24 of our 2022 consolidated annual financial statements

Net Income from continuing operations

Net income from continuing operations as reported was a US$48 million gain in 2022 compared to a loss of US$182 million in 2021 as a result of the factors discussed above.

Net Income from discontinued operations

Operating revenues for Contractual Data Acquisition were null in 2022 compared to US$19 million in 2021, as the sale of our Multi-Physics business was finalized on June 30, 2021.

Net income from discontinued operations amounted to a US$5 million loss in 2022 compared to an income US$2 million in 2021.

Please refer to note 3 of our 2022 consolidated annual financial statements.

Net income

Net income as reported was a profit of US$43 million in 2022 compared to a loss of US$180 million in 2021.

Statutory financial statements of CGG SA

CGG SA revenue amounted to €22 million in 2022, compared to €29 million in 2021, down €7 million due to the end of Group Functions downsizing process and a slightly revised scheme between 2021 and 2022 on the contribution of subsidiaries to the expenses borne centrally by the Group Holding.

Operating income showed a loss of €14 million in 2022, compared to a loss of €30 million in 2021. 2021 operating income was strongly impacted by €22 million in debt refinancing costs. Personnel expenses were stable year-on-year at €8 million.

The 2022 financial result showed a profit of €132 million compared to a profit of €250 million in 2021 mainly related to (i) dividends received from subsidiaries for €674 million, (ii) a provision reversal of €150 million following the capital reduction of CGG Services SAS and (iii) the creation of a provision for impairment of the company's equity securities in the amount of €652 million. Net interest income and expenses improved by €24 million in 2022 compared to 2021 thanks to the push down of part of the Group's debt to subsidiaries. About 90% of the Group's debt is now carried by subsidiaries.

Exceptional income and charges for 2022 amounted to €29 million, mainly corresponding to the capital gain on the disposal of our headquarters building (called Galileo).

The net income tax in 2022 was an income of €3 million compared to an income of €4 million in 2021 from the proceeds of the tax integration regime.

After considering the items described above, the Company's net income was a profit of €150 million in 2022 compared to a loss of €291 million in 2021.

Shareholders' equity including the result for the period amounted to €0.7 billion at December 31, 2022 compared to €0.5 billion at December 31, 2021.

No dividends have been distributed in the last three years.

5.1.4 Comments on the financial situation of the Company and the Group

Liquidity and capital resources

Our principal financing needs are the funding of ongoing operations and capital expenditures, investments in our Earth data library, the funding of the restructuring costs and other expenses of the "CGG 2021 Plan" as well as our debt service obligations.

With the refinancing completed on April 1, 2021, we do not have any major debt repayment scheduled before 2027, the maturity date of our new senior secured notes. We intend to fund our capital requirements through cash generated by operations and liquidity on hand. In the past, we have obtained financing through bank borrowings, capital increases and issuances of debt and equity-linked securities.

Our ability to make scheduled payments of principal, or to pay the interest or additional amounts, if any, or to refinance our indebtedness, or to fund planned capital expenditures will depend on our future performance, which, to a certain extent, is subject to general economic, financial, competitive, legislative, regulatory, and other factors that are beyond our control.

Going concern assumptions

As of December 31, 2022, in light of the Group's cash flow projections based on the current operations, CGG had enough cash liquidity to fund its operations, taking into account a period twelve months from the closing date.

Cash flows from continuing operations

Operating activities

The following table presents a summary of the net cash as reported related to operating activities for each of the periods stated:

	December 31	
In millions of US$	**2022**	**2021**
Net cash before changes in working capital	397.6	421.6
Change in working capital	(52.1)	(84.9)
NET CASH PROVIDED BY OPERATING ACTIVITIES	**345.5**	**336.7**

Before changes in working capital, net cash as reported provided by operating activities in 2022 was US$398 million compared to US$422 million in 2021. Changes in working capital had a negative impact on cash from operating activities of US$52 million in 2022 mainly due to the building up of SMO inventory in view of major deliveries expected early 2023, partially offset by a sustained level of collection over the year for all our activities.

Excluding IFRS 15 adjustments, changes in working capital had a negative impact on cash from operating activities of US$54 million.

Net cash provided by operating activities was US$346 million in 2022 compared to US$337 million in 2021.

Investing activities

The following table presents the main items linked to investing activities for each of the periods stated:

	December 31	
In millions of US$	**2022**	**2021**
Net cash used in investing activities	**198.9**	**138.8**
Of which		
Industrial capital expenditures	33.3	29.0
Capitalized development costs	21.3	29.6
Earth Data surveys	205.3	168.3
Proceeds and acquisitions	(63.5)	(89.3)

The net cash used in investing activities increased to US$199 million in 2022 from US$139 million in 2021.

Capitalized development costs decreased by US$8 million to US$21 million in 2022 from US$30 million in 2021 mainly as a consequence of the sale of our GeoSoftware business in 2021.

Expenditures on Earth Data surveys were up by US$37 million at US$205 million in 2022 as we operated three marine surveys in the Brazil basin, Suriname and the Norwegian North Sea, as well as five reprocessing programs in Gulf of Mexico and Brazil, from US$168 million in 2021.

As of December 31, 2022, the net book value of our Earth data library as reported was US$419 million compared to US$393 million as of December 31, 2021. Excluding IFRS 15 adjustments, the segment net book value of our Earth Data library was US$304 million as of December 31, 2022, compared to US$283 million as of December 31, 2021.

From our acquisitions and proceeds of assets, we recorded a net inflow of US$64 million, mainly due the US$63 million inflows from the sale of the US land Earth-Data library, US$32 million net inflows from the sale and leaseback of the our headquarters building and US$5 million inflows from the sale of GeoSoftware, partly offset by US$16 million and US$19 million outflows from the acquisition of Geocomp Corporation and ION respectively, compared to US$89 million in 2021 mainly due to the divestiture of our Multi-Physics activity.

Financing activities

Net cash used by financing activities was US$129 million in 2022, mainly composed of lease payments and financial expenses paid, compared to a net cash used of US$218 million in 2021 which included the cash outflow related to our bond refinancing in April 2021.

Please refer to note 28 of our 2022 consolidated annual financial statements

Net cash flows from discontinued operations

The following table presents a summary of the cash flow of the discontinued operations for each of the periods stated:

	December 31	
In millions of US$	2022	2021
Net cash flow incurred by discontinued operations	(21.9)	(36.0)

Net cash flow incurred by discontinued operations was US$22 million in 2022 and correspond mainly to the outflows of Idle Vessel Compensation compared to an outflow of US$36 million in 2021.

Please refer to notes 5 and 17 of our 2022 consolidated annual financial statements

Net financial debt

Net financial debt as of December 31, 2022 was US$951 million compared to US$989 million as of December 31, 2021. The ratio of net financial debt to equity was 94% as of December 31, 2022 compared to 103% as of December 31, 2021.

"Gross financial debt" is the amount of bank overdrafts, plus current portion of financial debt, plus financial debt, and "net financial debt" is gross financial debt less cash and cash equivalents. Net financial debt is presented as additional information because we understand that certain investors believe that netting cash against debt provides a clearer picture of our financial liability exposure. However, other companies may present net financial debt differently than we do. Net financial debt is not a measure of financial performance under IFRS and should not be considered as an alternative to any other measures of performance derived in accordance with IFRS.

The following table presents a reconciliation of net financial debt to financing items of our statement of financial position at December 31, 2022 and December 31, 2021:

	December 31	
In millions of US$	2022	2021
Bank overdrafts	-	-
Current portion of financial debt	60.4	90.3
Financial debt	1,188.8	1,218.1
Gross financial debt	**1,249.2**	**1,308.4**
Less cash and cash equivalents	(298.0)	(319.2)
NET FINANCIAL DEBT	**951.2**	**989.2**

EBIT, EBITDAs and Free EBITDA (unaudited)

EBIT is defined as operating income plus our share of income in companies accounted for under the equity method. As a complement to operating income, EBIT may be used by management as a performance indicator because it captures the contribution to our results of the businesses that we manage through our joint ventures.

EBITDAs is defined as earnings before interest, tax, income from equity affiliates, depreciation, amortization net of amortization expense capitalized to Earth Data and share-based compensation cost. Share-based compensation includes both stock options and shares issued under our share allocation plans. EBITDAs is presented as additional information because we understand that it is one measure used by certain investors to determine our operating cash flow and historical ability to meet debt service and capital expenditure requirements.

Free EBITDA is defined as segment EBITDAs less capital expenditures for the period (tangible and intangible assets) and investment in Earth Data surveys, excluding variation of fixed assets suppliers.

However, other companies may present these indicators differently. EBIT, EBITDAs and Free EBITDA are not a measure of financial performance under IFRS and should not be considered as an alternative to cash flow from operating activities or as a measure of liquidity or an alternative to net income as indicators of our operating performance or any other measures of performance derived in accordance with IFRS.

The following table presents a reconciliation of EBITDAS and EBIT to net income for the periods indicated:

	December 31, 2022		
In millions of US$	Segment figures	IFRS 15 adjustments	As reported
EBITDAs	**433.8**	**(1.6)**	**432.2**
Depreciation and amortization	(92.2)	-	(92.2)
Earth Data surveys impairment and amortization	(174.5)	3.1	(171.4)
Depreciation and amortization capitalized to Earth Data surveys	16.0	-	16.0
Share-based compensation expenses	(3.0)	-	(3.0)
Operating income	**180.1**	**1.5**	**181.6**
Share of (income) loss in companies accounted for under equity method	(18.5)	-	(18.5)
EBIT	**161.6**	**1.5**	**163.1**
Cost of financial debt, net	(98.5)	-	(98.5)
Other financial income (loss)	0.4	-	0.4
Total income taxes	(17.2)	-	(17.2)
NET INCOME FROM CONTINUING OPERATIONS	**46.3**	**1.5**	**47.8**

	December 31, 2021		
In millions of US$	Segment figures	IFRS 15 adjustments	As reported
EBITDAs	**344.1**	**120.8**	**464.9**
Depreciation and amortization	(225.7)	-	(225.7)
Earth Data surveys impairment and amortization	(186.2)	(95.3)	(281.5)
Depreciation and amortization capitalized to Earth Data surveys	17.3	-	17.3
Share-based compensation expenses	1.8	-	1.8
Operating income	**(48.7)**	**25.5**	**(23.2)**
Share of (income) loss in companies accounted for under equity method	0.1	-	0.1
EBIT	**(48.6)**	**25.5**	**(23.1)**
Cost of financial debt, net	(120.5)	-	(120.5)
Other financial income (loss)	(42.4)	-	(42.4)
Total income taxes	4.4	-	4.4
NET INCOME FROM CONTINUING OPERATIONS	**(207.1)**	**25.5**	**(181.6)**

In millions of US$	December 31, 2022 Segment figures	IFRS 15 adjustments	As reported
DDE	436.3	(1.6)	434.7
SMO	19.2		19.2
Eliminations and other	(21.7)		(21.7)
EBITDAS	**433.8**	**(1.6)**	**432.2**

In millions of US$	December 31, 2021 Segment figures	IFRS 15 adjustments	As reported
DDE	334.4	120.8	455.2
SMO	40.4		40.4
Eliminations and other	(30.7)		(30.7)
EBITDAS	**344.1**	**120.8**	**464.9**

The following table presents a reconciliation of segment EBITDAs to Free EBITDA for the periods indicated:

In millions of US$	December 31 2022	2021
Segment EBITDAs	**433.8**	**344.1**
Total capital expenditures (tangible and intangible assets), excluding variation of fixed assets suppliers	(53.8)	(57.8)
Investments in Earth Data surveys	(205.3)	(168.3)
FREE EBITDA	**174.7**	**118.0**

Net cash flow

Net cash flow is defined as net cash flow provided by operating activities plus “proceeds from disposals of tangible and intangible assets and activities” less (i) “total capital expenditures including acquisitions of activities” and “cash investments in Earth Data surveys”, as set out in the “Investing activities” section of the consolidated statement of cash flows, (ii) “interest expenses paid”, as set out in the “Financing activities” section of the consolidated statement of cash flows, (iii) “lease repayments”, as set out in the “Financing activities” section of the consolidated statement of cash flows, and (iv) "payments and/or proceeds net from asset financing transactions", included in the “Financing activities” section of the consolidated statement of cash flows.

We present net cash flow as additional information because we understand that it is one measure used by certain investors to determine our operating cash flow and our historical ability to meet debt service and capital expenditure requirements. However, other companies may present net cash flow differently than we do. Net cash flow is not a measure of financial performance under IFRS and should not be considered as an alternative to cash flow from operating activities or any other measure of performance derived in accordance with IFRS.

In millions of US$	December 31 2022	2021
Net cash flow provided by operating activities	345.5	336.7
Total capital expenditures (including variation of fixed assets suppliers, excluding Earth Data surveys)	(54.5)	(58.6)
Investments in Earth Data surveys, net cash	(205.3)	(168.3)
Proceeds from disposals of tangible and intangible assets	95.0	3.7
Acquisition of investments, net of cash & cash equivalents acquired	(36.4)	(2.0)
Proceeds from divestment of activities and sale of financial assets	4.9	89.3
Variation in subsidies for capital expenditures	(0.1)	0.3
Lease repayments	(48.4)	(57.0)
Payments and/or proceeds net from asset financing transactions	10.6	-
Financial expenses paid	(92.4)	(89.8)
Net cash flow before net cash flows incurred by discontinued operations	**19.0**	**54.3**
Net cash flows incurred by discontinued operations	(21.9)	(35.0)
NET CASH FLOW	**(2.9)**	**19.3**

Net cash flow amounted to outflows of US$3 million in 2022 compared to outflows of US$19 million in 2021. Net cash flow before net cash flow incurred by Discontinued Operations represented inflows of US$19 million in 2022, compared to inflows of US$54 million in 2021.

Contractual obligations, commitments and contingencies

The following table sets forth our future cash obligations (not discounted) as of December 31, 2022:

In millions of US$	Payments due by period: Less than 1 year	1-3 years	4-5 years	After 5 years	Total
Long-term debt obligations:					
Financial debt	2.4	9.0	1,125.2	0.4	1,137.0
Other long-term obligations (cash interest)	95.1	188.6	134.6	-	418.3
Total long-term debt obligations	**97.5**	**197.6**	**1,259.8**	**0.4**	**1,555.3**
Lease obligations	43.3	41.4	10.5	11.7	106.9
TOTAL CONTRACTUAL CASH OBLIGATIONS [(a) (b)]	**140.8**	**239.0**	**1,270.3**	**12.1**	**1,662.2**

(a) Payments in other currencies are converted into US dollar at December 31, 2022 exchange rates.
(b) These amounts are principal amounts and do not include any accrued interest.

Please refer to note 17 of our 2022 consolidated annual financial statements.

Capacity Agreement and Idle Vessels Compensation

On January 8, 2020, CGG and Shearwater signed a Capacity Agreement, which is a marine data acquisition service contract, under the terms of which CGG is committed to using Shearwater's vessel capacity in its Earth Data business over a five-year period, at an average of 730 days per year.

The Capacity Agreement provides compensation of Shearwater for days when more than one of its high-end seismic vessels are idle, up to a maximum of three vessels.

The maximum Idle Vessel Compensation amount for a full year is US$22 million. At December 31, 2022 the residual commitment in respect of Idle Vessel Compensation through to the end of the five-year period was US$44 million.

Step-In Agreements

As indicated in note 2 to our 2022 consolidated annual financial statements, under the Payment Instructions Agreement CGG committed to paying part of the amounts due under the Capacity Agreement directly to the GSS subsidiaries to cover Shearwater CharterCo's obligations under its bareboat charter agreements.

The Step-In Agreements will not impact our balance sheet unless a triggering event, as described in note 2 to our 2022 consolidated annual financial statements, occurs. In that event, our obligations under the Capacity Agreement would be terminated and replaced by our obligations under the Step-In Agreements, representing a lower amount of commitment compared to the Capacity Agreement.

Legal proceedings, claims and other contingencies

From time to time we are involved in legal proceedings arising in the normal course of our business. To date, there are no legal proceedings underway, either individually or collectively, which we believe are likely to result in a material adverse effect on our consolidated financial statements.

For more information, please refer to note 17 "Contractual obligations, commitments and contingencies" to our Consolidated Financial Statements

Off-balance sheet arrangements and contractual obligations

We have not entered into any other off-balance sheet arrangements that have or are reasonably likely to have a current or future material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors.

For more information, please refer to note 17 "Contractual obligations, commitments and contingencies" to our Consolidated Financial Statements.

Currency fluctuations

As a company that derives a substantial amount of its revenue from sales internationally, we are subject to risks relating to fluctuations in currency exchange rates. Our revenues and expenses are mainly denominated in US dollars and euros, and to a significantly lesser extent, in Brazilian reais, Chinese yuan, Norwegian kroner, British pounds, Canadian dollars, and Australian dollars.

As of December 31, 2022, we estimated our net annual recurring expenses in euros at the Group level to be approximately €220 million and as a result, an unfavorable variation of US$0.10 in the average yearly exchange rate between the US dollar and the euro would reduce our net income and our shareholders' equity by approximately US$22 million.

For further details on the effect of fluctuations in the exchange rate upon our results of operations, please refer to note 14 to our 2022 consolidated annual financial statements.

Interest rates

Since the bond refinancing in April 2021, CGG Group's sources of financing have consisted of secured bonds and loans subject only to fixed interest rates. Only financial assets are subject to variable interest rates. As a result, the Group's financial expenses are exposed to a very limited interest rate risk.

For more information about our variable interest rate exposure, please refer to note 14 to our Consolidated Financial Statements.

Income taxes

We conduct the majority of our activities outside of France and pay taxes on income earned or deemed profits in each foreign country pursuant to local tax rules and regulations.

We have significant tax losses carried forward that are available to offset future taxation on income earned in certain OECD countries. Deferred tax assets are recognized only when their recovery is considered as probable or when there are existing taxable temporary differences, of an appropriate type, that reverse in an appropriate period. When tax laws limit the extent to which unused tax losses can be recovered against future taxable profits in each year, the amount of deferred tax assets recognized from unused tax losses as a result of suitable existing taxable temporary differences is restricted as specified by the applicable tax laws. When financial forecasts are revised downward, we consider the depreciation of our deferred tax assets recognized in prior periods.

5.2 INFORMATION ON THE USE OF FINANCIAL INSTRUMENTS

Our turnover is mainly denominated in US dollars, representing respectively 73% in 2022, 66% in 2021 and 68% in 2020 of our total operating revenue, and to a significantly lesser extent in euro, Brazilian reais, Chinese yuan, British pounds, Norwegian kroner, Australian dollars and Canadian dollars.

Most of our expenses in 2022 were paid in US dollars, euro, Brazilian reais and Chinese yuan, British pounds, and Norwegian kroner.

We aim to match our foreign currency revenues and expenses in order to balance, to the extent possible, our net position of receivables and payables denominated in foreign currencies, in particular currencies that are not readily available or are difficult to convert. Nevertheless, in past years, the Group did not succeed in totally balancing its foreign currency revenues and expenses, especially for euros, due to personnel costs and suppliers payable in euros in France and in certain other European countries.

In addition, our general policy is, when possible, to hedge major currency exposures related to forecasted excess currency originating from operational contracts at the time such contracts are entered in the backlog. This strategy to reduce foreign exchange risks led us to mitigate, without eliminating the positive or negative impact of the foreign exchange rate variation on the operating income of the Group. The Group might need also to use energy derivatives as part of its energy risk management.

We can hedge a part of the recurring fixed expenses, mainly euros, into forward foreign currency exchange contracts on a budget rate basis.

Since the 2021 refinancing, a large portion of the group indebtedness is denominated in euros, as of December 31, 2022 and 2021, our total outstanding debt (without giving effect to the adoption of IFRS 16) denominated in US dollars was stable at US$509 million, representing 44% and 43%, respectively of our total financial debt outstanding at such dates.

As of December 31, 2022, forward contracts were outstanding for the US dollar equivalent of US$71.4 million (of which US$43.9 million were applied), of which US$42.0 million were against the euro, €16.3 million were against the Chinese yuan, 9,5 million of Chinese yuan against the euro, US$1.7 million were against the Chinese yuan, €0,5 million were against the British pound, and US$1.4 million were against the Brazilian reais.

5.3 SUBSIDIARIES MAIN AGGREGATES

The following table provides the main aggregates for the top holding company CGG SA, the DDE segment and the SMO segment (Sercel and its subsidiaries).

IFRS *In millions of US$ except for personnel*	**CGG SA**	**DDE subsidiaries**	**SMO subsidiaries**	**Consolidation adjustments**	**Total CGG group**
2022					
Non-current assets	3,016.3	1,354.7	306.9	(2,805.5)	1,872.4
Financial debt	1,157.3	98.5	15.8	(22.4)	1,249.2
Cash and cash equivalents	174.9	43.0	80.1	-	298.0
Dividends paid to CGG SA	-	569,4	107,1	(676,5)	-
Operating revenues	22.8	657.5	269.3	(22.7)	926.9
Operating income	5.4	217.3	(10.9)	(30.2)	181.6
Net income (loss) from continuing operations	825.9	218.6	(9.0)	(987.7)	47.8
Total equity	1,545.1	949.4	382.5	(1,818.2)	1,058.8
Personnel	15	1,830	1,571	-	3,416
2021					
Non-current assets	2,188.0	1,402.9	283.1	(1,992.1)	1,881.9
Financial debt	1,219.6	93.3	14.3	(18.8)	1,308.4
Cash and cash equivalents	191.9	72.7	54.6	-	319.2
Dividends paid to CGG SA	-	97.4	170.4	(267.8)	-
Operating revenues	34.5	684.0	356.6	(12.9)	1,062.2
Operating income	(634.8)	(220.5)	6.2	825.9	(23.2)
Net income (loss) from continuing operations	(334.7)	(293.5)	11.0	435.7	(181.6)
Total equity	825.2	641.5	753.3	(1,213.6)	1,006.4
Personnel	14	1,937	1,361	-	3,312

Interpreted horizon with seismic attribute overlay shows the interplay between salt bodies and channel formation in the South Basin, Offshore Gabon. *CGG Earth Data.*

6

2022 FINANCIAL STATEMENTS - FINANCIAL INFORMATION ON THE COMPANY'S ASSETS, FINANCIAL POSITON AND RESULTS

6.1 2021-2022 CGG CONSOLIDATED FINANCIAL STATEMENTS

6.1.1 Consolidated statement of operations

In millions of US$	Notes	December 31 2022	December 31 2021
Operating revenues	18, 19	926.9	1,062.2
Other income from ordinary activities		0.5	0.8
Total income from ordinary activities		**927.4**	**1,063.0**
Cost of operations		(654.9)	(853.2)
Gross profit		**272.5**	**209.8**
Research and development expenses – net	20	(19.0)	(17.0)
Marketing and selling expenses		(29.6)	(29.9)
General and administrative expenses		(68.2)	(62.9)
Other revenues (expenses) – net	21	25.9	(123.2)
Operating income	**19**	**181.6**	**(23.2)**
Cost of financial debt – gross		(100.2)	(121.5)
Income from cash and cash equivalents		1.7	1.0
Cost of financial debt – net	**13, 22**	**(98.5)**	**(120.5)**
Other financial income (loss)	23	0.4	(42.4)
Income (loss) before income taxes and share of income (loss) from companies accounted for under the equity method		**83.5**	**(186.1)**
Income taxes	24	(17.2)	4.4
Net income (loss) before share of net income (loss) from companies accounted for under the equity method		**66.3**	**(181.7)**
Net income (loss) from companies accounted for under the equity method	8	(18.5)	0.1
Net income (loss) from continuing operations		**47.8**	**(181.6)**
Net income (loss) from discontinued operations	5	(4.5)	1.6
Consolidated net income (loss)		**43.3**	**(180.0)**
Attributable to:			
Owners of CGG	$	43.1	(180.5)
Non-controlling interests	$	0.2	0.5
Weighted average number of shares outstanding	29	712,088,021	711,526,474
Weighted average number of shares outstanding adjusted for dilutive potential ordinary shares	29	714,608,919	711,526,474
Net income (loss) per share			
– Base	$	0.06	(0.25)
– Diluted	$	0.06	(0.25)
Net income (loss) from continuing operations per share			
– Base	$	0.07	(0.25)
– Diluted	$	0.07	(0.25)
Net income (loss) from discontinued operations per share [(a)]			
– Base	$	(0.01)	-
– Diluted	$	(0.01)	-

The accompanying notes are an integral part of the consolidated financial statements.

Consolidated statement of comprehensive income (loss)

In millions of US$	December 31 2022 [(a)]	2021 [(a)]
Net income (loss) from consolidated statement of operations	**43.3**	**(180.0)**
Other comprehensive income to be reclassified in profit (loss) in subsequent period:		
Net gain (loss) on cash flow hedges	(2.6)	(0.1)
Variation in translation adjustments	(41.8)	(25.8)
Net other comprehensive income to be reclassified in profit (loss) in subsequent period (1)	**(44.4)**	**(25.9)**
Other comprehensive income not to be classified in profit (loss) in subsequent period:		
Net gain (loss) on actuarial changes on pension plan	6.5	8.7
Net other comprehensive income not to be reclassified in profit (loss) in subsequent period (2)	**6.5**	**8.7**
Total other comprehensive income (loss) for the period, net of taxes (1)+(2)	**(37.9)**	**(17.2)**
Total comprehensive income (loss) for the period	**5.4**	**(197.2)**
Attributable to:		
Owners of CGG	8.8	(198.7)
Non-controlling interests	(3.4)	1.5

(a) Including other comprehensive income related to discontinued operations which is not material.

The accompanying notes are an integral part of the consolidated financial statements.

6.1.2 Consolidated statement of financial position

In millions of US$	Notes	Dec 31, 2022	Dec 31, 2021
ASSETS			
Cash and cash equivalents	28	298.0	319.2
Trade accounts and notes receivable, net	3, 18	308.3	350.7
Inventories and work-in-progress, net	4	257.2	197.3
Income tax assets		53.4	68.7
Other current financial assets, net	7, 14	0.1	1.7
Other current assets, net	4	99.9	105.1
Total current assets		**1,016.9**	**1,042.7**
Deferred tax assets	24	24.2	19.6
Other non-current assets, net	16	8.2	-
Investments and other financial assets, net	7	18.4	17.8
Investments in companies accounted for under the equity method	8	10.8	28.1
Property plant & equipment, net	9	167.3	212.1
Intangible assets, net	10	554.2	520.7
Goodwill, net	11	1,089.4	1,083.6
Total non-current assets		**1,872.5**	**1,881.9**
TOTAL ASSETS		**2,889.4**	**2,924.6**
LIABILITIES AND EQUITY			
Financial debt – current portion	13	60.4	90.3
Trade accounts and notes payable		92.0	76.4
Accrued payroll costs		85.6	105.4
Income taxes payable		27.2	30.4
Advance billings to customers		29.4	27.1
Provisions – current portion	16	17.6	18.2
Other current financial liabilities	14	20.0	19.2
Other current liabilities	12	222.1	218.2
Total current liabilities		**554.3**	**585.2**
Deferred tax liabilities	24	18.7	14.1
Provisions – non-current portion	16	28.6	30.6
Financial debt – non-current portion	13	1,188.8	1,218.1
Other non-current financial liabilities	14	21.8	37.4
Other non-current liabilities	12	18.4	32.8
Total non-current liabilities		**1,276.3**	**1,333.0**
Common stock [(a)]	15	8.7	8.7
Additional paid-in capital		118.6	464.1
Retained earnings		967.9	570.0
Other Reserves		50.0	5.0
Treasury shares		(20.1)	(20.1)
Cumulative income and expense recognized directly in equity		(3.4)	(0.8)
Cumulative translation adjustments		(102.4)	(64.2)
Equity attributable to owners of CGG SA		**1,019.3**	**962.7**
Non-controlling interests		39.5	43.7
Total Equity		**1,058.8**	**1,006.4**
TOTAL LIABILITIES AND EQUITY		**2,889.4**	**2,924.6**

(a) Common stock: 1,151,069,239 shares authorized and 712,357,321 shares with a nominal value of €0.01 outstanding at December 31, 2022.

The accompanying notes are an integral part of the consolidated financial statements.

6.1.3 Consolidated statement of cash flows

In millions of US$	Notes	December 31 2022	2021
OPERATING ACTIVITIES			
Consolidated net income (loss)	1, 19	43.3	(180.0)
Less: Net income (loss) from discontinued operations	5	4.5	(1.6)
Net income (loss) from continuing operations		**47.8**	**(181.6)**
Depreciation, amortization and impairment	1, 19, 28	92.2	225.7
Impairment and amortization of Earth Data surveys	1, 10, 28	171.4	281.5
Amortization and depreciation of Earth Data surveys, capitalized	10	(16.0)	(17.3)
Variance on provisions		1.4	(37.7)
Share-based compensation expenses		3.0	(1.8)
Net (gain) loss on disposal of fixed and financial assets		(37.6)	(2.7)
Share of (income) loss in companies recognized under equity method		18.5	(0.1)
Dividends received from companies accounted for under the equity method		-	-
Other non-cash items		(0.4)	42.4
Net cash flow including net cost of financial debt and income tax		**280.3**	**308.4**
Less: Cost of financial debt		98.5	120.5
Less: Income tax expense (gain)		17.2	(4.4)
Net cash flow excluding net cost of financial debt and income tax		**396.0**	**424.5**
Income tax paid		1.6	(2.9)
Net cash flow before changes in working capital		**397.6**	**421.6**
Changes in working capital		(52.1)	(84.9)
– Change in trade accounts and notes receivable		45.0	(97.3)
– Change in inventories and work-in-progress		(68.5)	28.8
– Change in other current assets		(20.8)	3.2
– Change in trade accounts and notes payable		16.8	(23.4)
– Change in other current liabilities		(24.6)	3.8
Net cash flow from operating activities		**345.5**	**336.7**
INVESTING ACTIVITIES			
Total capital expenditures (tangible and intangible assets) net of variation of fixed assets suppliers and excluding Earth Data surveys)	9	(54.5)	(58.6)
Investments in Earth Data surveys	10	(205.3)	(168.3)
Proceeds from disposals of tangible and intangible assets	28	95.0	3.7
Acquisition of investments, net of cash & cash equivalents acquired	28	(36.4)	(2.0)
Proceeds from divestment of activities and sale of financial assets	28	4.9	89.3
Variation in subsidies for capital expenditures		(0.1)	0.3
Variation in other non-current financial assets	28	(2.5)	(3.2)
Net cash-flow used in investing activities		**(198.9)**	**(138.8)**

In millions of US$	Notes	December 31 2022	2021
FINANCING ACTIVITIES			
Repayment of long-term debt	13, 28	(0.1)	(1,227.5)
Total issuance of long-term debt	13, 28	10.7	1,162.3
Lease repayments	13, 28	(48.4)	(57.0)
Change in short-term loans		-	(0.2)
Financial expenses paid	13, 28	(92.4)	(89.8)
Loan granted	5	1.6	(1.8)
Dividends paid and share capital reimbursements			
— to owners of CGG		0.4	-
— to non-controlling interests of integrated companies		(0.9)	(3.6)
Net cash-flow from (used in) financing activities		**(129.1)**	**(217.6)**
Effect of exchange rate changes on cash		(16.8)	(10.5)
Net cash flows incurred by discontinued operations	**5**	**(21.9)**	**(36.0)**
Net increase (decrease) in cash and cash equivalents		**(21.2)**	**(66.2)**
Cash and cash equivalents at beginning of year		319.2	385.4
Cash and cash equivalents at end of period		298.0	319.2

The accompanying notes are an integral part of the consolidated financial statements.

6.1.4 Consolidated statement of changes in equity

In millions of US$, except for share data	**Number of shares issued**	**Share capital**	**Additional paid-in capital**	**Retained earnings**[b]	**Other reserves**	**Treasury shares**	**Income and expense recognized directly in equity**	**Cumu-lative translation adjust-ment**	**CGG SA - Equity attributable to owners of CGG SA**	**Non-controlling interests**	**Total equity**
Balance at January 1, 2021 Restated [a]	**711,392, 383**	**8.7**	**1,687.1**	**(480.6)**	**(37.3)**	**(20.1)**	**(0.7)**	**(37.4)**	**1,119.7**	**44.9**	**1,164.6**
Net gain (loss) on actuarial changes on pension plans (1)				8.7					**8.7**		**8.7**
Net gain (loss) on cash flow hedges (2)							(0.1)		**(0.1)**		**(0.1)**
Net gain (loss) on translation adjustments (3)								(26.8)	**(26.8)**	1.0	**(25.8)**
Other comprehensive income (1)+(2)+(3)		**-**	**-**	**8.7**	**-**	**-**	**(0.1)**	**(26.8)**	**(18.2)**	**1.0**	**(17.2)**
Net income (4)				(180.5)					**(180.5)**	0.5	**(180.0)**
Comprehensive income (1)+(2)+(3)+(4)		**-**	**-**	**(171.8)**	**-**	**-**	**(0.1)**	**(26.8)**	**(198.7)**	**1.5**	**(197.2)**
Exercise ofwarrants	6,162								**0.0**		**0.0**
Dividends									**0.0**	(3.6)	**(3.6)**
Cost of share-based payment	265,380			(0.6)					**(0.6)**		**(0.6)**
Transfer to retained earnings of the parent company			(1,223.0)	1,223.0					**0.0**		**0.0**
Variation in translation adjustments generated by the parent company					42.3				**42.3**		**42.3**
Changes in consolidation scope and other									**0.0**	0.9	**0.9**
Year ended December 31, 2021	**711,663 ,925**	**8.7**	**464.1**	**570.0**	**5.0**	**(20.1)**	**(0.8)**	**(64.2)**	**962.7**	**43.7**	**1,006.4**

In millions of US$, except for share data	Number of shares issued	Share capital	Additional paid-in capital	Retained earnings	Other reserves	Treasury shares	Income and expense recognized directly in equity	Cumulative translation adjustment	CGG SA - Equity attributable to owners of CGG SA	Non-controlling interests	Total equity
Balance at January 1, 2022	**711,663,925**	**8.7**	**464.1**	**570.0**	**5.0**	**(20.1)**	**(0.8)**	**(64.2)**	**962.7**	**43.7**	**1,006.4**
Net gain (loss) on actuarial changes on pension plans (1)				6.5					**6.5**		**6.5**
Net gain (loss) on cash flow hedges (2)							(2.6)		**(2.6)**		**(2.6)**
Net gain (loss) on translation adjustments (3)								(38.2)	**(38.2)**	(3.6)	**(41.8)**
Other comprehensive income (1)+(2)+(3)	**-**	**-**	**-**	**6.5**	**-**	**-**	**(2.6)**	**(38.2)**	**(34.3)**	**(3.6)**	**(37.9)**
Net income (4)				43.1					**43.1**	0.2	**43.3**
Comprehensive income (1)+(2)+(3)+(4)	**-**	**-**	**-**	**49.6**	**-**	**-**	**(2.6)**	**(38.2)**	**8.8**	**(3.4)**	**5.4**
Exercise of warrants	122,278		0.4						**0.4**		**0.4**
Dividends									**-**	(0.9)	**(0.9)**
Cost of share-based payment	571,118			2.6					**2.6**		**2.6**
Transfer to retained earnings of the parent company			(346.0)	346.0					**-**		**-**
Variation in translation adjustments generated by the parent company					45.0				**45.0**		**45.0**
Changes in consolidation scope and other			0.1	(0.3)					**(0.2)**	0.1	**(0.1)**
Year ended December 31, 2022	**712,357,321**	**8.7**	**118.6**	**967.9**	**50.0**	**(20.1)**	**(3.4)**	**(102.4)**	**1,019.3**	**39.5**	**1,058.8**

The accompanying notes are an integral part of the consolidated financial statements.

6.1.5 Notes to the consolidated financial statements

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

CGG S.A. ("the Company"), along with its subsidiaries (together, the "Group") is a global geoscience technology and scientific High Performance Computing (HPC) leader. Employing around 3,400 people worldwide, CGG provides a comprehensive range of data, products, services and solutions in the fields of earth sciences, data science, sensing and monitoring. The Group's unique portfolio helps its clients to more efficiently and responsibly solve complex digital, energy transition, natural resource, environmental and infrastructure challenges.

As the Company is listed in a European country, and pursuant to European Regulation (EU) no. 1606/2002 dated July 19, 2002, the consolidated financial statements for the year ending December 31, 2022 have been prepared in accordance with International Financial Reporting Standards ("IFRS") and their interpretations, as issued by the International Accounting Standards Board (IASB) and as adopted by the European Union and in force at December 31, 2022.

The consolidated financial statements for the year ending December 31, 2022 were authorized for issue by the Board of Directors on March 2, 2023 and will be submitted to the 2023 General Meeting for approval.

1.1 Summary of significant accounting policies

The significant accounting policies applied by the Group are described below. The accounting policies related to the accounts impacted by the judgments and estimates are particularly important to reflect our financial position and results of operations. As we must exercise significant judgment when we apply these policies, their application is subject to an inherent degree of uncertainty.

These accounting policies are consistent with those used to prepare our consolidated financial statements as at December 31, 2021, except for the first-time adoption of the following standards, amendments, and interpretations:

- Amendments to IFRS 3 Business Combinations; IAS 16 Property, Plant and Equipment; IAS 37 Provisions, Contingent Liabilities and Contingent Assets as well as Annual Improvements 2018-2020.

These newly-adopted standards and interpretations have no impact on the consolidated financial statements.

At the date of issuance of these consolidated financial statements, the following Standards, Amendments, and Interpretations were adopted by the European Union but were not effective:

- Amendments to IAS 1 "Presentation of Financial Statements" and IFRS Practice Statement 2: Disclosure of Accounting policies;
- Amendments to IAS 8 "Accounting policies, Changes in Accounting Estimates and Errors: Definition of Accounting Estimates";
- Amendments to IAS 12 "Income Taxes": Deferred Tax related to Assets and Liabilities arising from a Single Transaction.

The Group does not expect these standards to have a material impact on the consolidated financial statements.

The Group has not applied the following Standards, Amendments, and Interpretations not adopted by the European Union at the date of issuance of these consolidated financial statements:

- Amendments to IAS 1 "Presentation of Financial Statements": Classification of Liabilities as Current or Non-current and Non-current Liabilities with Covenants;
- Amendment to IFRS 16 "Leases": Lease liability arising from a sale and leaseback.

A review of the amendments not yet adopted is currently underway with a view to measuring their potential impact on the consolidated financial statements.

1.2 Key items and where to find them

	Consolidated statement of operations	Consolidated statement of financial position	Consolidated statement of cash flows
Continuing operations **Acquisition of businesses and assets** Acquisition of Geocomp Corporation ("Geocomp") and ION Geophysical ("Ion")	In 2022, from the acquisition date onwards, revenue from Geocomp and Ion was respectively US$13.0 million and US$5.5 million and the operating margin was US$(0.1) million and US$1.6 million. *Note 2*	At December 31, 2022, goodwill arising from Geocomp and Ion acquisitions were respectively US$5.9 million and US$6.2 million. *Note 2*	Net cash flows incurred of US$(15.7) million for the acquisition of Geocomp and US$(19.3) million for the acquisition of Ion. *Notes 2 and 28*
Continuing operations **Divestment of assets** Sale of US land Earth Data library	In 2022, the net proceeds from the sale of US land Earth Data library were US$34.0 million. *Notes 2, 21 and 28*	At December 31, 2022, there are no remaining intangible assets related to the US land Earth Data library.	A net cash inflows of US$62.5 million for the sale of US land Earth Data library. *Notes 2 and 28*
Continuing operations **Sale and leaseback** Sale and leaseback of CGG headquarters	In 2022, the net proceeds were US$5.2 million. *Notes 2, 21 and 28*	At December 31, 2022, right-of-use and lease liability for respectively US$11.1 million and US$(13.3) million from the leaseback. *Notes 2, 9 and 13*	A net cash inflows of US$32.2 million for the sale and leaseback. *Notes 2 and 28*
Continuing operations Segment figures	In 2022, Segment Revenue of US$928.5 million. Segment Operating Income of US$180.1 million. Segment EBITDAs of US$433.8 million. *Note 19*	At December 31, 2022, the capital employed were US$1.5 billion and US$0.6 billion respectively for our DDE and SMO segments. *Note 19*	Segment EBITDAs of US$433.8 million. Capital expenditures from continuing operations of US$(259.8) million. *Note 19*
Continuing operations Redundancy costs and Impairment	In 2022, the net result from continuing operations included a loss of US$(23.9) million, broken down into US$(1.8) million of severance costs and US$(22.1) million of impairment. *Notes 21 et 28*	At December 31, 2022, US$(2.0) million in respect of the redundancy provision. *Note 16*	Net cash flows of US$(8.9) million in respect of redundancy plan.
Discontinued operations **CGG 2021 Plan** Exit from Data Acquisition business	In 2022, loss in respect with discontinued operations of US$(4.5) million. *Note 5*	All of the Contractual Data Acquisition businesses have been sold or wind down, with the exception of the interest in Argas joint venture in Saudi Arabia reclassified as continuing operations since 2021. *Note 5*	Net cash flows incurred of US$(21.9) million in respect of Idle Vessel Compensation.

1.3 Use of judgments and estimates

The preparation of consolidated statement of financial position in accordance with IFRS requires management to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates due to the change in economic conditions, changes in laws and regulations, changes in strategy and the inherent imprecision associated with the use of estimates.

The key judgments and estimates used in the financial statements are summarized in the following table:

Note	Judgments and estimates	Key assumptions
Note 11	Recoverable amount of goodwill and intangible assets	Trajectory and recovery outlook of E&P spending New businesses growth dynamic Discount rate (WACC)
Notes 10 and 21	Recoverable value of Earth Data surveys	Expected sales for each survey
Note 14	Idle Vessel Compensation (Capacity Agreement)	Shearwater fleet utilization assumptions over the commitment period
Note 12	Off-Market Component (Capacity Agreement)	Market rate over the commitment period as estimated at the “Marine Closing” date
Note 8	Valuation of investments in companies accounted for under the equity method	Estimated recoverable value
Notes 18 and 19	Revenue recognition	Estimated Geoscience contract completion rates
Note 24	Income tax liabilities – Uncertain tax positions	Estimate of most likely tax amount
Note 24	Deferred tax assets	Assumptions supporting the achievement of future taxable profits
Notes 16 and 21	Provisions for restructuring	Assessment of future costs related to restructuring plans
Notes 9 and 13	Discount rate IFRS 16	Assessment of incremental borrowing rate
Note 3	Recoverability of client receivables	Assessment of clients' credit default risk
Notes 9 and 10	Depreciation and amortization of tangible and intangible assets	Useful life of assets
Note 10	Development costs	Assessment of future benefits of each project
Note 16	Post-employment benefits	Discount rate Enrollment rate in post-employment benefit plans Inflation rate
Note 16	Provisions for risks, claims and litigations	Assessment of risks considering court rulings and attorney's positions

1.4 Significant accounting principles

1. Basis of consolidation

Our consolidated financial statements include CGG SA and all its subsidiaries.

Subsidiaries are fully consolidated from the date of acquisition, being the date on which we obtain control. They continue to be consolidated until the date when such control ceases. Control is achieved when we are exposed or have rights to variable returns from our involvement with the investee and have the ability to affect those returns through our power over the investee. When we have less than a majority of the voting or similar rights of an investee, we consider all relevant facts and circumstances in assessing whether we have power over the investee, including contractual arrangements with the other holders or potential voting rights.

The financial statements of the subsidiaries are prepared for the same reporting period as the parent company, using consistent accounting policies. All intra-group balances, transactions, unrealized gains and losses resulting from intra-group transactions and dividends are eliminated in full.

Losses within a subsidiary are attributed to the non-controlling interest even if that results in a deficit balance. A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction.

We use the equity method for investments classified as joint venture. A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement. The Group effectively owns companies under joint arrangements under which control of the business is shared by virtue of a contractual agreement. Key financial and operational activities require the unanimous consent of the parties sharing control.

2. Foreign currencies

The Group's consolidated financial statements are presented in US dollars. This currency reflects the profile of our revenues, costs and cash flows, which are primarily generated in US dollars, thus providing the best representation of the Group's financial performance.

The functional currency is the currency in which the subsidiaries primarily conduct their business. The functional currency of most of our subsidiaries is the US dollar. Goodwill attributable to subsidiaries is accounted for in the functional currency of the applicable entities.

For the subsidiaries with a functional currency different to US dollar, the financial statements are translated to US dollars using the following method:

- year-end exchange rates are applied to the statement of financial position;
- average annual exchange rates are applied to consolidated statement of operations;
- adjustments resulting from this process are recorded in translation adjustments.

With respect to affiliates accounted for using the equity method, the effects of exchange rate changes on the net assets of the affiliates are recorded under translation adjustments in equity.

Transactions denominated in currencies other than the functional currency are recorded at the exchange rate prevailing on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are revalued at year-end exchange rates. Any resulting gains and losses are included directly in income. Unrealized exchange gains and losses arising from monetary assets and liabilities for which settlement in neither planned nor likely to occur in the foreseeable future are recorded in a separate component of shareholder's equity.

3. Business combinations

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured at the fair value of the consideration transferred at the acquisition date. Goodwill is measured as the difference between (i) the value of the consideration transferred, the amount of any non-controlling interest and, if applicable, the fair value of the previously-held equity interest, and (ii) the fair value of the identifiable assets acquired and liabilities assumed. For each business combination, we measure the non-controlling interest in the acquiree either at fair value or at the proportionate share in the recognized amounts of the acquiree's identifiable net assets. Acquisition costs incurred are expensed and included in administrative expenses.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. For the purposes of impairment testing, goodwill acquired in a business combination is allocated to each of the Group's cash-generating units (or group of cash generating units) that are expected to benefit from the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

Where goodwill forms part of a cash-generating unit and part of the operation within that unit is disposed of, the goodwill associated with the operation disposed of is included in the carrying amount of the operation when determining the gain or loss on disposal of the operation. Goodwill disposed of in this circumstance is measured based on the relative values of the operation disposed of and the portion of the cash-generating unit retained.

4. Operating revenues

Revenues from contracts with customers are recognized using the five-step model of the IFRS 15 standard. The following provides a description of the main nature of our performance obligations broken down by business line, the timing of their satisfaction, and detail on the transaction prices and their allocations, if applicable.

New Segment Reporting Names

With CGG continuing to accelerate its development of a portfolio of unique technologies and proven expertise focused on rapidly growing new beyond the core markets, and to reflect the evolution of the Group into a Technology company, new segment reporting names were designed and used from the first quarter 2022 financial reporting.

While CGG continue to present its financial information under two reporting segments, they were renamed as follows:

- Geophysics, Geology and Reservoir (GGR) reporting segment was renamed into Data, Digital & Energy Transition (DDE):

(i) Geoscience business kept its name as Geoscience (GEO), and

(ii) Multi-Client business was renamed into Earth Data (EDA);

- Equipment reporting segment was renamed into Sensing & Monitoring (SMO).

Data Digital & Energy Transition

Geoscience contracts

Under our Geoscience contracts, we process seismic data for a specific customer. These contracts may encompass one or several performance obligations. For each performance obligation, we recognize the revenues over time as the services are rendered. The measure of revenue recognized is based on the time spent over the total time expected to satisfy the performance obligation. The balance of revenue recognized that has not yet been invoiced to the clients is recorded as an unbilled revenue, i.e. as a contract asset. When the services have been invoiced but have not yet been rendered under the percentage of completion method, the Group recognizes deferred revenues, i.e. a contract liability.

We also recognize revenue related to the sale of software upon delivery of the software and of the access code/key as the case may be, to the client. Software maintenance revenues are recognized over the term of the contract. Where a contract provides for both the sale and maintenance of software, the price allocation is based on the stand-alone selling price of each service and the software revenue is recognized upon delivery, while the maintenance revenue is recognized over the term of the contract. In most cases, we issue only one invoice, issued upon license delivery, and the amount corresponding to maintenance is recorded as deferred revenues, i.e. as a contract liability, at invoicing.

We also provide geological consulting services or training for specific customers. We recognize the revenues over time as the services are rendered.

We provide licenses to use geological data to several clients. We recognize the revenue upon delivery of the data to the client.

In addition, we provide licenses to access dynamic geological databases for a specific duration. We recognize the revenue related to such licenses over the duration of the contract. In most cases, only one invoice is issued for such contracts at the beginning of the year and the total amount is recorded as deferred revenues, as a contract liability, at invoicing.

Earth Data after sales contracts and prefunding contracts

Pursuant to our Earth Data contracts, we provide non-exclusive licenses to use seismic processed data to several clients. We recognize the revenue upon delivery of the final data to the client.

In certain cases, significant after sales agreements contain multiple surveys, and the associated revenues are allocated to the various elements based on specific objective evidence of the stand-alone sale price for such elements, regardless of any separate allocations stated within the contract for each element.

In certain circumstances, revenues can also be recognized in respect of a performance obligation that has already been fulfilled in the past. This happens when a customer is already in possession of the license for certain data and either (i) the customer is taken-over by a competitor who does not yet have the license for such data (and is thus required to pay a transfer fee), or (ii) the customer involves another partner, not already having access to the licensed data, for the exploration of a block (farm-in, uplift). Revenues are then recognized when there is an agreement on the fee and, in the case of transfer fees, when the buyer notifies us that they will not return the data to the Group.

Sensing & Monitoring

We recognize revenues on equipment sales upon delivery to the customer, when control is transferred. When such contracts require a partial or total advance payment, such payments are recorded as advance billings to customers, as a contract liability.

Contractual Data Acquisition (classified as discontinued operations)

Pursuant the announcement of the new strategy for the Group in November 2018 and the ensuing actions undertaken, we have presented our contractual data acquisition operations in discontinued operations, in accordance with IFRS 5.

Please refer to note 5 “Assets held for sale and discontinued operations”.

5. Cost of net financial debt

Cost of net financial debt includes:

- the expenses related to long-term financial debt composed of bonds and other loans;
- interest expense on leases;
- other charges paid to financial institutions for financing operations;
- net income from cash and cash equivalents.

6. Income taxes and deferred taxes

Income taxes includes all tax based on taxable profit.

Deferred taxes are recognized on all temporary differences between the carrying value and the tax value of assets and liabilities, as well as on carry-forward losses. Deferred tax assets are recognized only when their recovery is considered as probable or when there are existing taxable temporary differences, of an appropriate type, that reverse in an appropriate period. When tax laws limit the extent to which unused tax losses can be recovered against future taxable profits in each year, the amount of deferred tax assets recognized from unused tax losses as a result of suitable existing taxable temporary differences is restricted as specified by the tax law.

Deferred tax assets and deferred tax liabilities are not discounted.

7. Intangible and tangible assets

In accordance with IAS 16 “Property, Plant and equipment” and IAS 38 “Intangible assets” only items for which cost can be reliably measured and for which the future economic benefits are likely to flow to us are recorded in our consolidated financial statements.

Property, plant and equipment

Property, plant and equipment are valued at historical cost less accumulated depreciation and impairment losses. Depreciation is generally calculated over the following useful lives:

- equipment and tools: 3 to 10 years;
- vehicles: 3 to 5 years;
- buildings for industrial use: 20 years;
- buildings for administrative and commercial use: 20 to 40 years.

Depreciation expense is determined using the straight-line method.

Residual value is excluded from our calculation of the depreciable amount. We segregate tangible assets into their separate components if there is a significant difference in their expected useful lives, and depreciate them accordingly.

Lease agreements

IFRS 16 standard requires that almost all leases be recognized on the consolidated statement of financial position, as the distinction between operating and finance leases is removed for lessees. Under the new standard, both a right-of-use asset (the right to use the leased asset) and an associated liability (corresponding to the minimum lease payments) must be recognized. The right-of-use asset is depreciated on a straight-line basis over the term of the lease. The lease liability, which is initially measured at the present value of lease payments over the term of the lease, is accreted using the interest rate implicit in the lease when that rate is easily determined, or at the incremental borrowing rate. The only exemptions are for short-term leases and leases of low-value assets, and the Group has decided to use them both. Moreover, initial direct costs were not taken into account for the measurement of the right-of-use asset at the date of first-time application from January 1, 2019, the date of first-time application of IFRS 16.

The lease term to be applied for the measurement of lease assets and liabilities is the length of time the lessee is reasonably certain to pursue the lease. For legal purposes, the tacit extension period constitutes an extension of the initial lease, and is used to determine the initial lease term to be recognized when the lessee can reasonably anticipate that it will be in their interest to use said extension and/or the lessor cannot then give notice of termination without incurring a substantial penalty. In this case, the date applied is that on which the lessee is reasonably certain to end the lease after an extension past the initial contractual term date. When an event or significant change in circumstances on the lessee side gives rise to a tacit extension that was not initially anticipated, the lease term is remeasured to reflect the additional time during which the lessee is reasonably certain to pursue the lease.

The assumptions applied to determine the term of the lease are aligned with those applied in respect of the amortization period for non-reusable fixtures.

Goodwill

Goodwill is determined according to IFRS 3 “Revised – Business Combinations”. Goodwill is not amortized but subject to an impairment test at least once a year at the statement of financial position dates or when a triggering event occurs.

Earth Data surveys

Earth Data surveys consist of seismic surveys to be licensed to customers on a non-exclusive basis. All costs of data acquisition, processing and finalization of surveys are recognized as intangible assets. Earth Data surveys are valued on the basis of capitalized costs less accumulated amortization, or at recoverable value, if the latter is the lower. The recoverable value of our Earth Data library depends on the expected sales for each survey. An impairment test of all delivered surveys is performed at least when the surveys are available for use and at year-end. Whenever there is an indication that a survey may be impaired, an impairment test is performed.

The Group applies the straight-line amortization method over four years when the survey becomes available for use, in accordance with the industry standard. The depreciable amount is the survey net book value at the date the survey becomes available for use.

Development cost

Expenditures on research activities undertaken with the prospect of gaining new scientific or technological knowledge and understanding are recognized in the income statement as expenses as incurred and are presented as “Research and development expenses – net”. Expenditures on development activities, whereby research findings are applied to a plan or design for the production of new or substantially improved products and processes, are capitalized if:

- the project is clearly defined, and costs are separately identified and reliably measured;
- the product or process is technically and commercially feasible;
- we have sufficient resources to complete development; and
- the intangible asset is likely to generate future economic benefits, either because it is useful to us or through an existing market for the intangible asset itself or for its products.

The expenditures capitalized include the cost of materials, direct labor and an appropriate proportion of overhead. Other development expenditures are recognized in the income statement as expenses as incurred and are presented as “Research and development expenses – net”.

Capitalized development expenditures are stated at cost net of subsequent subsidies less accumulated amortization and impairment losses.

Capitalized development costs are amortized over five years in “Cost of sales”.

“Research and development expenses” in our income statement represent the net cost of development costs that are not capitalized, research costs and government grants acquired for research and development (for the portion not related to capitalized development costs).

Other intangible assets

Other intangible assets consist primarily of customer relationships, technology and trade name acquired in business combinations. Customer relationships are generally amortized over periods ranging from 10 to 20 years and acquired technology are generally amortized over periods ranging from 5 to 10 years.

Impairment of assets

The carrying amounts of the Group's assets (excluding inventories, non-current assets recognized as held for sale as per IFRS 5, deferred tax assets, assets arising from pension plans and financial assets) are reviewed for the purpose of identifying impairment risk, in compliance with IAS 36 "Impairment of assets". Whenever any such indication exists, the recoverable value must be measured. Factors we consider important that could trigger an impairment test include the following:

- significant underperformance relative to expected operating results based upon historical and/or projected data;
- significant changes in the manner of our use of the tested assets or the strategy for our overall business; and
- significant negative industry or economic trends.

The recoverable amount of tangible and intangible assets is the greater of their fair value less costs of disposal and value in use.

Goodwill, assets that have an indefinite useful life and intangible assets are allocated to cash-generating units or groups of cash-generating units whose recoverable value is assessed at least once a year and as soon as an indication of loss of value of a cash-generating unit arises.

We determine the value in use by estimating future cash flows expected from the assets or from the cash-generating units, discounted to their present value using the sector weighted average cost of capital (WACC) estimated on a yearly basis by the Group. When the recoverable amount applied is the fair value less costs to sell, the fair value is determined by reference to the price at which the asset would sell in an orderly transaction between market participants at the measurement date.

We recognize an impairment loss whenever the carrying amount of an asset exceeds its recoverable amount. For an asset that does not generate largely independent cash inflows, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

Impairment losses are recognized in the statement of operations. Impairment losses recognized in respect of a group of non-independent assets allocated to a cash-generating unit are allocated first to reduce the carrying amount of any goodwill allocated to cash-generating units (group of units) and subsequently, to reduce the carrying amount of the other assets in the unit (group of units) on a pro rata basis, provided that the carrying amount of an individual asset is not reduced below its value in use or fair value less costs of disposal.

A previously recognized impairment loss is reversed only if there has been a change in the assumptions used to determine the asset's recoverable amount since the last impairment loss was recognized. The reversal is limited so that the carrying amount of the asset does not exceed its recoverable amount, nor exceed the carrying amount that would have been determined, net of depreciation or amortization, had no impairment loss been recognized for the asset in prior years.

Impairment losses recognized on goodwill cannot be reversed.

Non-current assets held for sale and discontinued operations

Non-current assets and disposal groups comprising assets and liabilities that are expected to be recovered primarily through sale rather than through continuing use are classified as held for sale. They are valued at the lower of carrying amount and fair value less costs to sell.

Non-current assets classified as held for sale and the assets of a disposal group classified as held for sale are presented separately from the other assets in the consolidated statement of financial position. The liabilities of a disposal group are presented separately from other liabilities in the consolidated statement of financial position.

A discontinued operation is a component of an entity that has either been disposed of or is classified as held for sale, and represents a separate major line of business or geographical area of operations or is a part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations; or is a subsidiary acquired exclusively with a view to resale.

Any gains or losses from disposals, together with the results of these operations until the date of disposal, are reported separately as discontinued operations in the consolidated statement of operations, in the consolidated statement of cash flows and in the appended notes. The prior periods are restated accordingly.

Further information on discontinued operations can be found in note 5.

8. Investments in companies accounted for under the equity method

Under the equity method, the investments in our associates or joint ventures are carried in the statement of financial position at cost plus post acquisition changes in our share of net assets of the associates or joint ventures. Goodwill relating to the associates is included in the carrying amount of the investment and is neither amortized nor individually tested for impairment.

After application of the equity method, we determine whether it is necessary to recognize an additional impairment loss on our investment in the associates. We determine at each reporting date whether there is any objective evidence that the investments in our associates are impaired. If this is the case we calculate the amount of impairment as the difference between the recoverable amount of the associates and their carrying value and usually recognize the amount in the 'share of profit of an associate' in the statement of operations.

From the date when an investment ceases to be an associate or a joint venture and becomes a financial asset we discontinue the use of the equity method. The retained interests are measured at fair value. We recognize in profit or loss any difference between (i) the fair value of any retained interest and any proceeds from disposing of a part interest in the associate or joint venture; and (ii) the carrying amount of the investment at the date the equity method was discontinued.

9. Investments, other non-current and current financial assets

Investments and other financial assets include investments in non-consolidated entities, loans and non-current receivables.

Investments and other financial assets currently in our statement of financial position are measured at fair value through profit and loss. The fair value for listed securities is their market price at the statement of financial position date. If a reliable fair value cannot be established, securities are valued at historical cost.

10. Treasury shares

We value treasury shares at their cost, as a reduction of shareholders' equity. Proceeds from the sale of treasury shares are included in shareholders' equity and have no impact on the statement of operations.

11. Inventories

We value inventories at the lower of cost (including direct production costs where applicable) and net realizable value.

We calculate the cost of inventories on a weighted average price basis.

The additions and deductions in valuation allowances for inventories and work-in-progress are presented in the consolidated statement of operations as "Cost of sales".

12. Trade accounts and notes receivable

In the Data Digital & Energy Transition ("DDE") segments, customers are generally large national or international oil and gas companies, which management believes reduces potential credit risk.

In the Sensing & Monitoring segment, a significant portion of sales is paid by irrevocable letters of credit.

The Group maintains an allowance for doubtful accounts based upon factors surrounding the credit risk of specific customers, historical trends and other information. Credit losses have not been material for the periods presented and have consistently been within management's expectations.

Contract assets represent the Group's right to consideration in exchange for goods or services that the Group has transferred to a customer when that right is conditioned by something other than the passage of time (e.g. revenue recognized from the application of the Percentage of Completion method before the Group has a right to invoice).

13. Provisions

We record a provision when the Group has a present obligation (legal or constructive) as a result of a past event for which it is probable that an outflow of resources embodying economic benefits (that can be reliably determined) will be required to settle the obligation.

Onerous contracts

We record a provision for onerous contracts equal to the excess of the unavoidable costs of meeting the obligations under the contract over the economic benefits expected to be received under it, as estimated by the Group.

Pension and other post-employment benefits

We record obligations for contributions to defined contribution pension plans as an expense in the income statement as incurred. We do not record any provision for such plans as we have no further obligation.

Our net obligation in respect of defined benefit pension plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods. We perform the calculation by using the projected unit credit method.

The methodology of calculation and booking of the defined benefit pension plan is as follows:

- the benefit is discounted to determine its present value, and the fair value of any plan assets is then deducted;
- net interest is calculated by applying the discount rate to the net defined benefit liability or asset. Interest is recorded in the profit and loss;
- past service costs are recognized as an expense when a plan amendment or curtailment occurs;
- we record actuarial gains and losses on defined benefits plans directly in equity.

Warranty for sales of geophysical equipment

The geophysical equipment we sell come with a customer warranty. The duration and cover provided by these warranties are in line with standard industry practice. A provision is therefore recorded on the basis of the estimated cost of the warranties by product line in respect of products sold. This provision is reversed when the warranty expires or is used.

14. Financial debt

Bond debts and other interest-bearing loans are initially recognized at their fair value less transaction costs directly attributable to the issuance of the debt. These financial liabilities are then valued at their amortized cost using the effective interest method. Where applicable, the financial debt is increased by capitalized interest.

15. Other financial liabilities (Idle Vessel Compensation)

The Idle Vessel Compensation was initially recorded at fair value, i.e. the present value of estimated disbursements based on fleet utilization assumptions over the commitment period. This financial liability was subsequently carried at amortized cost. The effects of changes in assumptions on the financial liability amount are recorded in the consolidated statement of operations under "Other financial income (loss)" *(note 14).*

16. Derivative financial instruments

Recognition and presentation of hedging instruments

The Group uses over-the-counter financial instruments to hedge its exposure to foreign exchange risk arising activities denominated in currencies different from its functional currency. We may also use interest rate swaps to limit our exposure to variations in said rates. In accordance with our treasury policy, we do not hold or issue derivative financial instruments for trading purposes. However, derivatives that do not qualify for hedge accounting are accounted for as trading instruments in "Other financial income (loss)".

Over-the-counter derivatives are entered into in the frame master agreements that provide a right of set-off in the event of default, insolvency or bankruptcy of one of the parties to the agreement (those netting agreements do not fulfill IAS 32 criteria to offset the fair value of derivatives on the statement of financial position).

Exchange gains or losses on foreign currency financial instruments that represent the efficient portion of an economic hedge of a net investment in a foreign subsidiary are reported as translation adjustments in equity under "Translation adjustments", the inefficient portion being recognized in the statement of operations. The cumulative value of foreign exchange gains and losses recognized directly in equity will be transferred to statement of operations when all or part of the foreign subsidiary is sold.

Where derivatives qualify for cash flow hedge accounting, we account for changes in the fair value of the effective portion of the hedging instruments in equity. The ineffective portion is recorded in "Other financial income (loss)". Amounts recorded in other comprehensive income are reclassified into the statement of operations when the hedged risks impact the statement of operations.

Recognition and presentation of derivatives not qualifying for hedge accounting

These notably included a put option on securities held by third parties.

Derivative instruments not qualifying for hedge accounting are measured at fair value upon initial recognition. The fair value of derivatives not qualifying for hedge accounting is subsequently remeasured at each reporting date and any successive variations in fair value are immediately recognized in the consolidated statement of operations for that period under "Other financial income (loss)" Derivative financial instruments are presented in the statement of financial position under current items, for derivatives expiring in under 12 months, and non-current items for other derivatives.

17. Other liabilities (Off-Market Component)

This item pertains to an operating liability initially recognized at fair value, i.e. the present value of the difference between the day rate set by the Capacity Agreement and the estimated market rate over the period of the five-year commitment. This liability is reversed at its rate of consumption, i.e. usage per day as set out in the Capacity Agreement, over the term of the contract *(note 12)*.

18. Cash flow statement

The cash flows of the period are presented in the cash flow statement within three activities: operating, investing and financing activities:

Operating activities

Operating activities are the principal revenue-producing activities of the entity and other activities that are not investing or financing activities.

Investing activities

Investing activities are the acquisition and disposal of long-term assets and other investments not included in cash equivalents. When a subsidiary is acquired, a separate item, corresponding to the consideration paid net of cash and cash equivalents held by the subsidiary at the date of acquisition, provides the cash impact of the acquisition.

Investments in Earth Data surveys are presented net of depreciation and amortization capitalized in Earth Data surveys. Depreciation and amortization capitalized in Earth Data surveys are also restated in operating activities.

Financing activities

Financing activities are transactions involving equity financing and borrowings taken out by the entity.

They include the cash impact of financial expenses and lease repayments.

Cash and cash equivalents

Cash and cash equivalents in the consolidated statement of financial position comprise cash at banks and on hand and short-term deposits with a maturity of three months or less that are readily convertible to known amounts of cash.

19. Share-based payments, including stock options

Employees (including senior executives) of the Group receive remuneration in the form of share-based payments. These rights can be settled either in equity (equity-settled transactions) or in cash (cash-settled transactions).

Equity-settled transactions

We include stock options granted to employees in the financial statements using the following principles: the stock option's fair value is determined on the grant date and is recognized in personnel costs, with a corresponding increase in equity, on a straight-line basis over the period between the grant date and the end of the vesting period. We calculate stock option fair value using the Monté Carlo mathematical model.

Cash-settled transactions

The cost of cash-settled transactions is measured initially at the grant date using a binomial model. A provision is recognized over the period until the vesting date. This liability is re-measured at fair value at each reporting date up to and including the settlement date, with changes in fair value recognized in the statement of operations.

20. Grants

Government grants, including non-monetary grants at fair value, are not recognized until there is reasonable assurance that the entity will comply with the conditions of the grant and that the grants will be received.

Government grants are recognized as income over the periods necessary to match them with the related costs which they are intended to compensate. They are presented as a reduction of the corresponding expenses in the item "Research and development expenses, net" in the statement of operations.

Refundable grants are presented in the statement of financial position as "Other non-current liabilities".

21. Earnings per share

Basic earnings per share amounts are calculated by dividing net income (loss) for the year attributable to ordinary equity holders of the Company by the weighted average number of ordinary shares outstanding during the year.

When the net income (loss) for the year is a profit, a diluted earnings per share amounts are calculated by dividing the net income attributable to ordinary equity holders of the Company, by the weighted average number of ordinary shares outstanding during the year plus the weighted average number of ordinary shares that would be issued on the exercise of stock options and shares from performance share plans.

NOTE 2 SIGNIFICANT EVENTS, ACQUISITIONS AND DIVESTITURES

New Segment Reporting Names

With CGG continuing to accelerate its development of a portfolio of unique technologies and proven expertise focused on rapidly growing new beyond the core markets, and to reflect the evolution of the Group into a Technology company, new segment reporting names were designed and used from the first quarter 2022 financial reporting.

While CGG continue to present its financial information under two reporting segments, they were renamed as follows:

- Geophysics, Geology and Reservoir (GGR) reporting segment was renamed into Data, Digital & Energy Transition (DDE):

(i) Geoscience business kept its name as Geoscience (GEO), and

(ii) Multi-Client business was renamed into Earth Data (EDA);

- Equipment reporting segment was renamed into Sensing & Monitoring (SMO).

War in Ukraine

CGG Group has no activity in Ukraine and a rather limited operational presence in Russia. In 2022:

- CGG Group has 2 Russian subsidiaries, one for Geoscience activity and the other for sales representation, repair and maintenance of Sercel equipment;
- revenue derived from Russia in 2022 was less than 1% of CGG Group revenue;
- capital employed (including cash) from Russian subsidiaries was less than 0.2% of the CGG Group's capital employed; and
- the cash locally available at 2 Russian subsidiaries to independently run their business and to meet their obligations, first and foremost the payment of local personnel costs was less than 1% of the CGG Group's cash.

CGG is closely monitoring the evolution of the conflict, regulations and applicable sanctions regarding Russia in order to ensure its operations are carried out in full compliance.

CGG has, since the beginning of the conflict, reinforced its vigilance and its audit and control procedures to ensure that the potential transactions carried out with Russian third parties and clients (very limited) are compliant with regulations and applicable international sanctions. In a highly evolving context, CGG has appointed a dedicated team to strengthen the monitoring of new regulations and international sanctions and to raise the awareness of CGG employees. Considering the internal organization deployed and that Russian revenue is less than 1% of CGG revenue in 2022, we assess that the risk of liability or reputation is not significant.

Completion of the sale and leaseback of CGG headquarters

As a result of the exit from Contractual Data Acquisition business and successive employment reductions that have affected the head office, CGG occupied barely more than 40% of the building.

With a twofold purpose of monetizing the asset and significantly reducing the cost of its underuse, the sale and leaseback of CGG headquarters building has been completed on 19 April 2022.

This transaction occurred in euro has the following impacts (converted at the EUR/USD average rate):

- net proceeds from sale of assets for US$32.2 million:

(i) sale price less transaction fees for US$61.2 million, and

(ii) less purchase option exercised to acquire the building and to repay the lease liability for US$(29.0) million *(note 13)*;

- disposal of asset for US$(54.1) million being the net book value at the time of the sale including the option exercised *(note 9)*;
- right-of-use and liability arising from the leaseback for respectively US$11.9 million and US$(13.7) million *(notes 9 and 13)*; and
- net gain of US$5.2 million in the consolidated statement of operations *(note 21)*.

Market environment

The year 2022 was a year of continued high volatility with the shock of Russia's invasion of Ukraine and inflationary tensions. This has significantly increased energy security and energy availability concerns and hence demand for energy. In this context, oil and, especially, gas are expected to keep on playing a prominent role in the coming years, at the core of the energy mix, especially as the development of renewable energy will be a long process and will require significant investments.

In 2022, the rebound in commercial activity, the increased visibility in lease rounds, and the tensions in available resources are all positive market signals confirming that the energy industry is entering a favorable multi-year up-cycle, as highlighted by many observers. After years of underinvestment, we expect our clients to grow their E&P expenditures significantly, especially focusing on increasing production from existing assets and near-field exploration. We believe that we are fundamentally well positioned in these domains thanks to our unique technologies and solutions as key enablers to increase the effectiveness of our clients' projects while meeting their ESG objectives.

Beyond the core, we further invested in new businesses, leveraging on our expertise and long-time leading capabilities, to accompany our traditional and new client base in their energy transition challenges. These Beyond the Core new businesses addressing the fast expanding markets of Digital Sciences, Energy transition and Monitoring and Observation solutions are expected to contribute significantly to the growth of the activities of the group in the future. The Beyond the Core revenues, which increased to 8% of the total 2022 revenue from 4% in 2021 excluding revenues from divested businesses (GeoSoftware and Smart Data Solutions), are expected to generate around 20% of total revenues in 2025.

Acquisition of Geocomp Corporation

Effective on June 1, 2022, Sercel has acquired US-based Geocomp Corporation (hereafter "GeoComp"), specialized in high-value services and products for geotechnical risk management and infrastructure monitoring.

The acquisition price of US$23.3 million includes:

(i) a fixed purchase price of US$16.8 million; and

(ii) an earn-out estimated at US$6.5 million.

As of the effective acquisition date, the statement of financial position was as follows:

In millions of US$	**As of June 1, 2022**
Final goodwill [(a)]	5.9
Intangible assets [(a)]	6.9
Property, plant and equipment	5.9
Current assets	11.2
Cash and cash equivalent	1.1
Total assets	**31.0**
Financial debt (lease liabilities)	3.4
Current and non-current liabilities	4.3
Total liabilities	**7.7**
Fair value of the earn-out estimated	6.5
FIXED PURCHASE PRICE	**16.8**

(a) At December 31,2022, the purchase price allocation has been completed and carried out by an independent valuation firm.

The significant elements of the statement of operations for 2022 were as follows:

In millions of US$	
Revenue	22.0
Operating margin	0.1
Net loss	(0.9)

The significant elements of the statement of operations for the period since effective acquisition date were as follows:

In millions of US$	
Revenue	13.0
Operating margin	(0.1)
Net loss	(0.9)

Acquisition of ION's Software Business

Effective on September 7, 2022, Sercel has completed the acquisition of the software division of ION Geophyisical Corporation's (hereafter "Ion") including:

- Orca: a navigation system dedicated to streamers;
- Gator: a navigation system dedicated to OBN;
- Mesa: a set of tools for optimizing land and marine seismic crews;
- Marlin: a software for managing simultaneous marine operations, used for marine seismic crews, as well as for various other offshore operations and harbors.

The fixed purchase price amounts to US$20 million.

As of the effective acquisition date, the statement of financial position was as follows:

In millions of US$	**As of September 7, 2022**
Preliminary goodwill [(a)]	6.2
Intangible assets	13.9
Property, plant and equipment	1.1
Current assets	2.7
Cash and cash equivalent	0.7
Total assets	**24.6**
Financial debt (lease liabilities)	0.7
Current and non-current liabilities	3.9
Total liabilities	**4.6**
FIXED PURCHASE PRICE	**20.0**

(a) Purchase price allocation will be finalized within the 12 months following the acquisition of the business and the changes in the allocation will be recognized through goodwill adjustment.

The significant elements of the statement of operations for 2022 were as follows:

In millions of US$	
Revenue	13.8
Operating margin	1.7
Net income	(1.4)

The significant elements of the statement of operations for the period since effective acquisition date were as follows:

In millions of US$	
Revenue	5.5
Operating margin	1.6
Net income	1.8

Sale of US land Earth Data library

On December 15, 2022, CGG entered into an agreement with Bon Ton for the sale of its US land seismic data library encompassing approximately 20,000 square miles (about 52 000 km^2) of 3D seismic data for a total cash consideration of US$63 million.

The net proceed amounts to US$34.0 million in our 2022 consolidated statement of operations. Cash inflows less costs to sell amounts to US$62.5 million in the consolidated cash flow statement.

NOTE 3 TRADE ACCOUNTS AND NOTES RECEIVABLE

Analysis of trade accounts and notes receivable is as follows:

In millions of US$	December 31 2022	2021
Trade accounts and notes receivable, gross – current portion	283.8	337.5
Less: allowance for doubtful accounts – current portion	(30.2)	(32.4)
Trade accounts and notes receivable, net – current portion	**253.6**	**305.1**
Contract assets	54.7	45.6
TOTAL TRADE ACCOUNTS AND NOTES RECEIVABLE	**308.3**	**350.7**

Allowances for doubtful accounts only relate to overdue receivables at the closing date.

As of December 31, 2022, the ageing analysis of net trade accounts and notes receivable is as follows:

In millions of US$	Not past due	30 days	30-60 days	60-90 days	90-120 days	> 120 days	Total
2022	154.6	30.1	10.6	8.3	4.3	45.7	**253.6**
2021	191.0	41.9	14.8	8.0	2.2	47.2	**305.1**

Litigation

ONGC Arbitration proceedings in India

On March 18, 2013, CGG Services SAS, a fully owned subsidiary of CGG SA, initiated arbitration proceedings against ONGC, an Indian company, to recover certain unpaid amounts under three commercial contracts entered into by ONGC and CGG Services SAS on one hand and ONGC and Wavefield Inseis AS on the other hand, between 2008 and 2010.

The Arbitration Tribunal issued an award in favor of CGG on July 26, 2017. ONGC submitted an appeal against the Tribunal award on October 27, 2017. On January 6, 2020, ONGC's application to set aside the Tribunal awards was dismissed by the Bombay High Court without costs. ONGC submitted an appeal against the Bombay High Court's decision on March 2, 2020. On March 3, 2021, the Court ordered and ONGC made a deposit of INR 2,686,439,944 to the Bombay High Court, equivalent to approximately US$36 million.

We believe that the Tribunal's award will be confirmed again by the Bombay High Court, which should allow us to recover at least the amount of the receivables that are recorded on our balance sheet as unpaid receivables as of December 31, 2022.

At the date the financial statements were approved, legal proceedings are still ongoing.

Factoring agreements

There were no factoring agreements at December 31, 2022 nor at December 31, 2021.

NOTE 4 INVENTORIES, WORK IN PROGRESS AND OTHER CURRENT ASSETS

	December 31, 2022			December 31, 2021		
In millions of US$	Gross value	Valuation Allowance	Net value	Gross value	Valuation Allowance	Net value
Consumables and spares parts	0.1	-	0.1	1.2	–	1.2
Raw materials and sub-assemblies	95.1	(12.8)	82.3	72.4	(14.4)	58.0
Work in progress	154.0	(17.2)	136.8	123.3	(17.7)	105.6
Finished goods	51.7	(13.7)	38.0	50.4	(17.9)	32.5
INVENTORIES AND WORK IN PROGRESS	**300.9**	**(43.7)**	**257.2**	**247.3**	**(50.0)**	**197.3**

Variation of inventories and work in progress

VARIATION OVER THE PERIOD

	December 31	
In millions of US$	2022	2021
Balance at beginning of period	**197.3**	**237.8**
Variations	64.8	(51.8)
Movements in valuation allowance [(a)]	3.7	23.0
Translation adjustments	(12.0)	(12.8)
Change in consolidation scope [(b)]	2.3	–
Other [(c)]	1.1	1.1
BALANCE AT END OF PERIOD	**257.2**	**197.3**

(a) Mainly concerns reversals of provisions for scrapped inventories in the SMO segment.
(b) Related to the acquisition of Geocomp and Ion in 2022 (note 2).
(c) Related to the reclassification of finished goods to asset under construction in the SMO segment.

Other current assets

	December 31	
In millions of US$	2022	2021
Personnel and other tax assets	44.6	51.1
Fair value of financial instruments	2.8	2.4
Restricted cash	9.6	10.2
Prepaid expenses	14.9	13.8
Supplier prepayments	11.5	8.8
Other receivables	16.5	18.8
OTHER CURRENT ASSETS	**99.9**	**105.1**

NOTE 5 ASSETS HELD FOR SALE AND DISCONTINUED OPERATIONS

Exit from Contractual Data Acquisition business - CGG 2021 Plan

In November 2018, CGG announced its new strategic roadmap aiming at implementing an asset light business model by reducing CGG's exposure to the Contractual Data Acquisition business. As asult of the strategic announcements and actions undertaken subsequently, we presented our contractual data acquisition operations and the costs of implementation of the related measures, referred to as the CGG 2021 Plan, in accordance with IFRS 5, as discontinued operations and assets held for sale.

All of the Contractual Data Acquisition businesses have been sold or wind down, with the exception of the stake in the Argas joint venture in Saudi Arabia reclassified to continuing operations at the end of 2021 as its monetization seemed unlikely within 12 months.

Divestment of Multi-Physics business

Effective June 30, 2021, the Multi-Physics business, except its processing and multi-client library, has been sold to Xcalibur Group.

GeoSoftware

On October 1, 2021, the sale of CGG's GeoSoftware business to Topicus and Vela Software for the total cash consideration of US$95 million was completed, subject to certain closing adjustments, mainly related to working capital adjustments.

CGG and TSS have reached an agreement on all open issues and net cash flow generated by the GeoSoftware activity from October 1, 2021 to May 31, 2022. This resulted in a net cash outflow for US$(1.7) million paid by CGG on July 5 2022.

At December 31, 2022, the settlement has the following impacts on the net proceeds (less residual transaction costs):

- US$ (1,5) million in the consolidated statement of operations *(notes 21 and 28)*; and
- US$ 4.7 million in the consolidated statement of cash flows *(note 28)*.

A net payable of US$(1.6) million remains to be transferred to TSS in respect of the sale at December 31, 2022.

GeoSoftware activity does not meet the criteria of a major line of business under IFRS 5, therefore this is not presented as discontinued operations in the consolidated statements of operations and in the consolidated statements of cash flows.

Smart Data Solutions

On December 31, 2021, CGG has completed the sale of the physical storage assets and associated services of its Smart Data Solutions business to OASIS and Access.

Smart Data Solutions activity does not meet the criteria of a major line of business under IFRS 5, therefore this is not presented as discontinued operations in the consolidated statements of operations and in the consolidated statements of cash flows.

Net income (loss) from discontinued operations

	December 31	
In millions of US$	**2022**	**2021**
Operating revenues	-	18.6
Operating expenses	3.3	(20.1)
Other revenues (expenses) – net	(1.4)	3.0
Operating income	**1.9**	**1.5**
Interest expense on leases	-	-
Other financial income (loss)	(7.1)	(0.9)
Income taxes	0.7	1.0
Share of (income) loss in companies formerly accounted under equity method	-	-
NET INCOME (LOSS) FROM DISCONTINUED OPERATIONS	**(4.5)**	**1.6**

For the financial year ended December 31, 2022, the net income from discontinued operations amounted to US$(4.5) million and was impacted by the main following items:

(i) US$(7.1) million of financial expenses in relation with the Idle Vessel Compensation of which US$(2.7) million of discount of the Idle Vessel Compensation as well as US$(4.4) million increase of the Idle Vessel Compensation liability following revised assumptions on Shearwater fleet utilization over the remaining commitment period of the Capacity Agreement *(note 14)*;

(ii) US$(2.0) million of provision for a litigation from Land Data Acquisition business. Pursuant the agreement terms for the sale of CGG's stake in SBGS to Fugro in 2020, the provision is related to a request for partial reimbursement made by Fugro for costs incurred due to an intellectual property dispute in relation with SBGS;

(iii) US$2.3 million regarding the reversal of a provision for withholding taxes related to Marine Data Acquisition and Multi-Physics businesses; and

(iv) US$1.8 million for the reversal of an accrual for personnel costs (social contributions and personnel income tax).

For the financial year ended December 31, 2021, the net income from discontinued operations amounted to US$1.6 million and was impacted by the following items:

(i) US$1.9 million for the gain on the sale of our Multi-Physics business;

(ii) US$0.7 million related to ramp down costs;

(iii) US$(7.2) million of financial expenses in relation with the Idle Vessel Compensation of which US$(3.6) million of discount of the Idle Vessel Compensation as well as US$(3.6) million increase of the Idle Vessel Compensation following revised assumptions on Shearwater fleet utilization assumptions over the remaining commitment period of the Capacity Agreement; and

(iv) US$5.6 million of foreign exchange gain on a tax liability.

Net cash flows incurred by discontinued operations

The net cash flow from discontinued operations for each period is presented below:

	December 31	
In millions of US$	**2022**	**2021**
Net cash flow from operating activities	-	(12.9)
Net cash flow used in investing activities	-	0.1
Net cash flow from financing activities	(21.9)	(22.2)
Impact of changes in consolidation scope	-	(1.0)
NET CASH FLOWS GENERATED BY DISCONTINUED OPERATIONS	**(21.9)**	**(36.0)**

In 2022, the net cash flow generated by discontinued operations included US$(21.9) million of Idle Vessel Compensation.

In 2021, the net cash flow generated by discontinued operations included disbursements in respect of the CGG 2021 Plan for an amount of US$(33.3) million, of which US$(8.4) million was severance cash outflows and US$(21.9) million was cash outflows in respect of Idle Vessel Compensation.

NOTE 6 ASSETS VALUATION ALLOWANCE

	December 31, 2022					
In millions of US$	Balance at beginning of year	Additions	Deductions	Unused Deductions	Other [(a)]	Balance at end of period
Trade accounts and notes receivable	32.4	0.4	(3.3)	-	0.7	30.2
Inventories and work-in-progress	50.0	0.9	(4.6)	-	(2.6)	43.7
Tax assets	6.1	-	(2.0)	-	-	4.1
Other current assets	5.2	-	(1.7)	-	(0.3)	3.2
TOTAL ASSETS VALUATION ALLOWANCE	**93.7**	**1.3**	**(11.6)**	**-**	**(2.2)**	**81.2**

(a) Includes effects of translation adjustments and changes in the scope of consolidation.

	December 31, 2021					
In millions of US$	Balance at beginning of year	Additions	Deductions	Unused Deductions	Other [(a)]	Balance at end of period
Trade accounts and notes receivable	36.2	1.9	(5.3)	-	(0.4)	32.4
Inventories and work-in-progress	77.9	0.5	(23.5)	-	(4.9)	50.0
Tax assets	6.1	0.1	-	-	(0.1)	6.1
Other curent assets	3.8	1.8	(0.4)	-	-	5.2
TOTAL ASSETS VALUATION ALLOWANCE	**124.0**	**4.3**	**(29.2)**	**-**	**(5.4)**	**93.7**

(a) Includes effects of translation adjustments and changes in the scope of consolidation.

NOTE 7 INVESTMENTS, OTHER NON-CURRENT AND CURRENT FINANCIAL ASSETS

In millions of US$	2022	2021
Non-consolidated investments [(a)]	1.0	0.9
Loans and advances	0.1	1.5
Deposits and other [(b)]	17.3	15.4
Investments and other financial assets	**18.4**	**17.8**
Xcalibur Group Loan [(c)]	-	1.7
Others	0.1	-
Other current financial assets	**0.1**	**1.7**
TOTAL INVESTMENTS, OTHER FINANCIAL ASSETS AND OTHER CURRENT FINANCIAL ASSETS	**18.5**	**19.5**

(a) Mainly shares in Interactive Network. There is no existing restriction or no commitment between CGG and the non-consolidated investments.
(b) At December 31, 2022, the amount of pledged financial assets is US$17.3 million and is mainly related to customer contracts and building rentals.
(c) Credit facility granted to Xcalibur Group and fully reimbursed in 2022.

Xcalibur Group Loan

Effective June 30, 2021, the sale agreement for the Multi-Physics activity included a one-year maturity degressive over time facility for a maximal amount €2.5 million, guaranteed by assets. This facility, which was drawn for €1.5 million on July 9, 2021, has been fully repaid during the second quarter 2022.

NOTE 8 INVESTMENTS IN COMPANIES ACCOUNTED FOR UNDER THE EQUITY METHOD

In millions of US$	Country/Head office	% interest held	December 31 2022	December 31 2021
DDE				
Reservoir Evaluation Services LLP	Kazakhstan/Almaty	49.0%	0.3	2.8
Versal AS	Norway/Oslo	33.3%	1.5	–
Contractual Data Acquisition			–	
Argas	Saudi Arabia/Al-Khobar	49.0%	9.0	25.0
PT Elnusa-CGGVeritas Seismic [(a)]	Indonesia/Jakarta	49.0%	–	0.3
PTSC CGGV Geophysical Survey Limited	Vietnam/Vung Tau City	49.0%	–	–
INVESTMENTS IN COMPANIES ACCOUNTED FOR UNDER THE EQUITY METHOD			**10.8**	**28.1**

(a) The PT Elnusa joint venture is in process of liquidation, a capital reduction was carried out in 2022 prior its definitive closure. The legal process should be completed during the first quarter of 2023.

Argas

At December 31, 2022, the net book value of our stake in Argas was greater than its recoverable value. As a result of downgraded outlook in highly competitive and capital intensive data acquisition market in the Middle East, the recoverable amount of our stake in Argas joint-venture has been revised at US$9.0 million, and an impairment loss of US$16 million has been booked in the consolidated statement of operations in 2022.

Reservoir Evaluation Services

The commercial prospects of the Reservoir Evaluation Services LLP joint venture being below expectations, the recoverable value of the share held by CGG at the closing date was revised downwards to US$0.3 million.

Versal

The joint-venture Versal AS (CGG, PGS and TGS) was set up on 11 June 2021 with the aim to offer a unified seismic data ecosystem giving access to three of the world's largest multi-client libraries via a single log-in.

A capital increase by conversion of debt towards Versal shareholders against consideration in shares was completed at the end of December 2022.

The variation of "Investments in companies accounted for under the equity method" is as follows:

In millions of US$	December 31 2022	December 31 2021
Balance at beginning of period	**28.1**	**28.6**
Change in consolidation scope [(a)]	-	(0.7)
Investments made during the year	-	-
Share of income (loss)	(0.3)	0.1
Impairment [(b)]	(18.2)	-
Capital increase [(c)]	1.5	-
Dividends received during the period and return of capital [(d)]	(0.3)	
Translation adjustments and other	-	0.1
BALANCE AT END OF PERIOD	**10.8**	**28.1**

(a) In 2021, Autonomous Mobile Blast Paint Robot is fully consolidated.

(b) The remeasurement to recoverable value of our stake in Argas and Reservoir Evaluation Services LLP triggers an impairment loss of respectively US$16.0 million and US$2.2 million in our 2022 consolidated statement of operations.

(c) Versal AS capital increase.

(d) PT Elnusa-CGGVeritas Seismic capital reduction.

For transactions with investments in companies accounted for under the equity method, please see note 27 "Related party transactions".

NOTE 9 PROPERTY, PLANT AND EQUIPMENT

	December 31					
	2022			2021		
In millions of US$	Gross	Accumulated depreciation	Net	Gross	Accumulated depreciation	Net
Land	4.7	-	4.7	5.7	-	5.7
Buildings	126.8	(102.1)	24.7	153.8	(115.0)	38.8
Machinery & Equipment	269.4	(234.5)	35.0	276.4	(233.4)	43.0
Other tangible assets	132.8	(100.7)	32.1	110.2	(104.0)	6.2
Right-of-use assets	179.2	(108.4)	70.8	254.9	(136.5)	118.4
– Property	115.2	(77.1)	38.2	197.9	(106.9)	91.0
– Machinery & Equipment	64.0	(31.3)	32.6	57.0	(29.6)	27.4
TOTAL PROPERTY, PLANT AND EQUIPMENT	**712.9**	**(545.7)**	**167.3**	**801.0**	**(588.9)**	**212.1**

Sale and Lease-back of CGG headquarters

The sale and leaseback of CGG headquarters building, which had the twofold purpose of monetizing the asset and significantly reducing the cost of its underuse, has been completed on 19 April 2022.

This transaction has the following impacts in the fixed assets:

- disposal of asset for US$(54.1) million (note 2);
- right-of-use arising from the leaseback for US$11.9 million *(note 2)*.

Short-term leases and leases of low-value assets

As allowed by IFRS 16, the Group decided to use exemptions for short-term leases (<12 months) and leases of low-value assets (<US$5,000), which were not material at December 31, 2022 nor at December 31, 2021.

Revenues from subleases

The Group signed arrangements with third parties to sublease leased real estate assets. The income generated by these sub-lease agreements, which are classified as operating leases, was not material at December 31, 2022 nor at December 31, 2021.

Variation over the period

	December 31	
In millions of US$	2022	2021
Balance at beginning of period	**212.1**	**268.1**
Acquisitions [(a)]	62.3	55.7
Depreciation [(b)]	(59.7)	(74.9)
Disposals	(0.1)	(0.8)
Sale & leaseback [(c)]	(42.2)	-
Translation adjustments	(7.8)	(9.6)
Change in consolidation scope [(d)]	6.9	0.8
Impairment of assets [(e)]	(1.6)	(10.5)
Reclassification of tangible assets as "Assets held for sale" [(f)]	-	(14.1)
Other	(2.6)	(2.6)
BALANCE AT END OF PERIOD	**167.3**	**212.1**

(a) Including US$30.2 million additional right-of use assets in 2022, compared to US$25.7 million in 2021.
(b) Including US$34.5 million depreciations of right-of-use assets in 2022, compared to US$46.0 million in 2021.
(c) Related to the sale and leaseback of CGG headquarters. US$(54.1) million for disposal of assets following the sale of the headquarters and US$11.9 million for the right-of-use assets derived from the leaseback (note 2).
(d) Related to the acquisition of Geocomp and Ion in 2022 (note 2). In 2021, related to Autonomous Mobile Blast Paint Robot SAS being fully consolidated (note 8).
(e) US$1.6 million relates to impairment of a building right-of-use assets (note 21).
(f) Including US$13.2 million of assets related to Smart Data Solutions and US$1.0 million of land asset. These assets were sold as of December 31, 2021 (note 5).

Reconciliation of acquisitions with the consolidated statements of cash flows and capital expenditures in note 19

In millions of US$	December 31 2022	2021
Acquisitions of tangible assets, excluding leases	32.1	30.0
Capitalized development costs *(notes 10 and 20)*	21.3	29.6
Acquisitions of other intangible assets, excluding Earth Data surveys *(note 10)*	0.4	0.1
Change in fixed asset suppliers	0.7	(0.8)
Reclassification of tangible assets in "Assets held for sale"	-	(0.3)
TOTAL PURCHASES OF TANGIBLE AND INTANGIBLE ASSETS ACCORDING TO CASH FLOW STATEMENT ("CAPITAL EXPENDITURES")	**54.5**	**58.6**

NOTE 10 INTANGIBLE ASSETS

	December 31					
	2022			2021		
In millions of US$	Gross	Accumulated depreciation	Net	Gross	Accumulated depreciation	Net
Earth Data surveys - Marine	5,562.6	(5,143.5)	419.1	5,332.9	(4,975.9)	357.0
Earth Data surveys - Land	-	-	-	813.6	(777.5)	36.1
Capitalized development costs	393.6	(305.5)	88.1	379.1	(289.1)	90.0
Software	76.5	(75.0)	1.5	79.2	(77.4)	1.8
Customer relationships	218.4	(194.6)	23.8	218.0	(189.9)	28.1
Other intangible assets [(a)]	209.4	(187.7)	21.7	195.5	(187.8)	7.7
TOTAL INTANGIBLE ASSETS	**6,460.5**	**(5,906.3)**	**554.2**	**7,018.3**	**(6,497.6)**	**520.7**

(a) The increase in other intangible assets is mainly explained by technologies and trade names assets arising from the acquisition of Geocomp for US$2.6 million and Ion for US$12.8 million.

Variation over the period

In millions of US$	December 31 2022	2021
Balance at beginning of period	**520.7**	**639.2**
Increase in Earth Data surveys	221.3	185.6
Capitalized development costs	21.3	29.6
Other acquisitions	0.4	0.1
Amortization and impairment on Earth Data surveys [(a)]	(171.4)	(281.5)
Other depreciation	(30.8)	(45.0)
Disposals [(b)]	(28.5)	(1.1)
Translation adjustments	0.2	(6.4)
Change in consolidation scope [(c)]	20.6	-
Other	0.4	0.2
BALANCE AT END OF PERIOD	**554.2**	**520.7**

(a) Includes US$(17.3) million and US$(21.2) million of impairment loss in 2022 and 2021, respectively.
(b) Related to the sale of US land Earth Data library (note 2).
(c) Related to the purchase price allocation of Liss, Geocomp and Ion (note 2).

Earth Data library

Impairment test and key assumptions

The recoverable value of our Earth Data library depends on the expected sales for each survey. The sales forecasts are subject to numerous change factors such as the survey location, the basin dynamics depending on the lease rounds, the political, economic and tax situation in the country, the operators expectations and are revised regularly. The expected sales are discounted at the WACC rate used for our EDA CGU *(note 11)*.

Impairment loss

In 2022, Earth Data surveys have been impaired for US$(17.3) million as a consequence of (i) the downward revision of sales forecasts for certain surveys in Brazil and United-Kingdom and (ii) the agreement between government and anti-oil factions to seriously delay licensing rounds until after 2025 in the area of one specific survey in Norway *(note 21)*.

In 2021, Earth Data surveys have been impaired for USS$(21.2) million following the downward revision of expected sales of surveys located in the United Kingdom due to the unfavorable development of the political context for exploration in the country *(note 21)*.

Sensitivity to changes in assumptions

An increase by 50 basis points of the discount rate would reduce by approximately US$(3.8) million the net present value of the expected sales of our Earth Data library. It would trigger an impairment loss of about US$(0.1) million.

A reduction by 10% of the expected sales in 2024 and 2025 would reduce by approximately US$(22.8) million the net present value of expected sales. It would trigger an impairment loss of about US$(4.3) million.

Reconciliation of acquisitions with the consolidated statement of cash flows and capital expenditures in note 19

	December 31	
In millions of US$	**2022**	**2021**
Investments in Earth Data surveys	221.3	185.6
Amortization & depreciation capitalized in Earth Data surveys	(16.0)	(17.3)
INVESTMENT IN EARTH DATA SURVEYS ACCORDINGTO CASH-FLOW STATEMENT	**205.3**	**168.3**

NOTE 11 GOODWILL

Goodwill is analyzed as follows:

Variation over the period

	December 31	
In millions of US$	**2022**	**2021**
Balance at beginning of period	**1,083.6**	**1,186.5**
Additions	-	-
Impairment	-	(101.8) [(b)]
Perimeter change [(a)]	12.4	
Translation adjustments	(6.6)	(1.1)
BALANCE AT END OF PERIOD	**1,089.4**	**1,083.6**

(a) Related to the Purchase Price Allocation of Liss, Geocomp and ION companies' parts of the SMO CGU.
(b) Impairment of goodwill in 2021 recognized in respect of EDA.

Impairment tests

The Group management performs at least one annual impairment test, at each balance sheet date, on the goodwill, intangible assets and indefinite-life assets allocated to the cash-generating units (CGU) to assess whether an impairment loss needs to be recognized.

These tests are also performed whenever there is any indication of potential loss of value.

The information disclosed in this note corresponds to the estimated discounted cash flows at the balance sheet date and capital employed as at December 31, 2022.

The recoverable amount corresponds to the value in use of the assets, cash-generating units or group of cash-generating units, defined as the estimated discounted cash flows. A cash-generating unit refers to a homogeneous group of assets generating cash inflows that are largely independent of the cash inflows from other groups of assets.

Following the exit from Acquisition business and completion of the divestures of the GeoSoftware and the Physical Asset Storage and Services businesses, the Group's continuing operations are divided into three cash-generating units (CGU): Geoscience CGU, EDA CGU and SMO CGU.

In 2022, we are pursuing efforts initiated in 2021 to further develop the Company's business outside its core areas. Leveraging on its existing assets and its long-time leading capabilities, especially in high-performance computing, we are developing new businesses around near-to-core step out diversification opportunities and establishing new businesses to address the growing requirement for a low carbon world. Digital, Energy Transition, Infrastructure Monitoring and Defense markets rooted in the core capabilities, are integral parts of the three CGUs.

The following table provides the breakdown of goodwill per segment:

	December 31	
In millions of US$	**2022**	**2021**
EDA CGU	182.2	182.2
Geoscience CGU	723.1	724.0
DDE	**905.3**	**906.2**
SMO	**184.1**	**177.4**
TOTAL	**1,089.4**	**1,083.6**

Key assumptions used in the determination of the recoverable amount

In determining the recoverable amount of assets through value in use, the Group management makes estimates, judgments and assumptions on uncertain matters.

Our financial projections are based on internal estimates in matters of expected operating conditions, market dynamics, commercial penetration of new technologies and change in competitive landscape. Additionally, we support our projections with external sources of information, such as the yearly budgets of oil and gas companies, various analyses and reports on E&P spending, forecasted activities for the group and outlook for the sector provided by sell side analysts of brokerage firms and investment banks.

The main factors influencing our activities are the level of E&P spending and its evolution, which itself depends on various other factors such as oil price and its volatility, but also the importance of fossil fuels within the energy mix and the transition trajectory to a low carbon world.

The value in use is determined as follows:

- budgeted cash-flow and forecasted perspectives on the business plan duration for each CGU, with these periods forming the explicit period. Explicit period covers 3 years for the Geoscience CGU and 5 years for the EDA and SMO CGUs. The last two explicit periods have been extended by 2 years to cover the operational transition period of these CGUs extending beyond 2025, towards nodes acquisition for EDA and toward new businesses for SMO. Cash flows have been approved by Group management;
- use of normative cash flows beyond explicit period, the discounted normative cash flows weighing more than 80% of the Geoscience value in use and more than 70% for EDA and SMO CGUs;
- long-term growth rate of 2.0% for all the CGUs; with the expected fading in the O&G activities in the long term being compensated by the strong dynamics of BTC new businesses, especially in the energy transition;
- differentiated discount rates we consider reflecting the weighted average cost of capital (WACC) of the segment concerned, factoring in the risk associated with the development of BTC new businesses:
  - 10.0% for the SMO CGU (compared to 9.650% in 2021) corresponding to a pre-tax rate of 12.1%,
  - 10.0% for Geoscience and EDA CGUs parts of the DDE segment (compared to 9.525% in 2021) corresponding to a pre-tax rate of 12.3% and 11.9% respectively.

The WACC is calculated using the standard capital asset pricing model methodology (CAPM). We requested an independent firm to run this computation, factoring in the uncertainty around the pace of the development of BTC activities. The net asset value (NAV) of each CGU is computed using pre-tax WACC, with tax expenses being included in our cash flow projections. The pre-tax WACC is then calculated iteratively, i.e. applying the discount rate leading to the same NAV with tax expenses excluded from cash flow projections.

In 2022

The year 2022 was a year of continued high volatility affected by the war in Ukraine and inflationary tensions. This has significantly increased energy security and energy availability concerns and hence demand for energy. In this context, oil and, especially, gas are expected to play a prominent role in the coming years, at the core of the energy mix, especially as the development of renewable energy will be a long process and will require significant investments.

In 2022, the rebound in commercial activity, the increased visibility in lease rounds, and the tensions in available resources are all positive market signals confirming that the energy industry is entering a favorable multi-year up-cycle, as highlighted by many observers expecting a two-digit growth for the next two years. After years of underinvestment, we expect our clients to grow their E&P expenditures significantly, especially focusing on increasing production from existing assets and near-field exploration. We believe that we are fundamentally well positioned in these domains, thanks to our unique technologies and solutions, to increase the effectiveness of our clients' projects while meeting their ESG objectives.

Beyond the core, we further invested in new businesses, leveraging on our expertise and long-time leading capabilities, to accompany our traditional and new client base in their energy transition challenges. These Beyond the Core new businesses addressing the fast expanding markets of Digital Sciences, Energy transition and Monitoring and Observation solutions are expected to contribute significantly to the growth of the activities of the group in the future. The Beyond the Core revenues, which increased to 8% of the total 2022 revenue from 4% in 2021 excluding revenues from divested businesses (GeoSoftware and Smart Data Solutions), are expected to generate around 20% of total revenues in 2025.

Our financial projections are based on these growth trajectories and include in the explicit period the latest assumptions relating to inflation.

DDE

Our Geoscience business confirms its recovery sustained by increased demand for high-end technologies and improved images of the subsurface, as our imaging helps energy companies to efficiently optimize their investments.

With the continued rapid and global advance of digital technology and solutions, companies are increasingly considering their data as one of their core assets. In this context, we are concentrating our long-standing expertise in digital technologies, especially as applied to geoscience, to provide expert digital solutions to our clients. These solutions include digital transformation, cloud-ready data processing, high performance computing (HPC) and cloud services, data management and delivery solutions and Data and Software as a Service offerings (DaaS, SaaS). In 2022 these new businesses represent 7% of Geoscience revenues from 5% in 2021.

Value in use of Geoscience CGU is slightly down year on year, unfavorably impacted by the discount rate increase.

At December 31, 2022, the capital employed of the Geoscience CGU amount to US$843 million including US$723 million of goodwill.

No impairment of goodwill is recognized for our Geoscience CGU at December 31, 2022.

Earth Data core business should continue to develop with announced increases in spending by our clients and the gradual resumptions of lease rounds in our key offshore basins. With our technological advantages and the unique positioning of our library in mature basins, we believe our business is adapted to capture the increase demand for best-in-class data. In addition, oil & gas companies are increasingly asking for reprocessing of existing data sets to benefit from the development of new imaging algorithms. This allows our customers to maximize the return from exploration investments at a lower cost, compared with acquisition of new data.

Node data will gradually become a more important component of our investment portfolio, especially in these high potential mature basins where we are focused on filling streamer data gaps. Combined with the latest generation of our algorithms, thanks to node technology we are able to deliver better sub-surface images than with streamer data and added value remain improved even with higher acquisition costs. From 2026 we expect more than half of acquisition investments to come from nodes; the explicit period was extended for 2 additional years in order to reflect this transition.

Leveraging on our high-end data library, we see CCUS and data platform solutions as additional growth levers positively complementing our offering in domains where our clients are expanding rapidly. In 2022, these new businesses represent 6% of Earth Data revenues from 1% in 2021.

Cash on cash ratio (ie ratio of our revenue over our investments) combined to an estimated level of investments, enables us to forecast our revenue. With an anticipated decreasing node technology cost and supported by the combined effect of less capital intensive new businesses and existing data reprocessing, we anticipate an increasing cash on cash ratio during the explicit period before going back to historical trends in normative year.

Value in use of EDA CGU is up year on year, unfavorably impacted by the discount rate increase is fully compensated by better perspective on the business plan duration.

At December 31, 2022, the capital employed of the EDA CGU amount to US$538 million including US$182 million of goodwill.

No impairment of goodwill is recognized for our EDA CGU at December 31, 2022.

SMO

We estimate that the worldwide demand for geophysical equipment decreased in the range of 15% to 20% in 2022 following a 20% increase in 2021. The equipment market is highly competitive and is characterized by continuous and rapid technological change to achieve high-resolution imaging. Thanks to our best-in-class products and technologies, the revenues of our Sensing & Monitoring segment are expected to increase fueled by its large installed base, its portfolio of new solutions and the development of BTC activities and diversification streams through acquisitions performed in 2022.

More specifically, for land equipment, we see opportunities for the latest generations of products, both for cable and wireless. On the marine equipment front, our nodal seismic acquisition solution is expected to increase, while the demand for streamers should progressively recover as current fleets are aging and their excess equipment inventories are shrinking.

We anticipate the acceleration of the development of BTC activities such as structural health monitoring, earthworks monitoring and underwater acoustic solutions, by taking advantage of our unique portfolio of industry leading sensor technology. The explicit period was extended for 2 additional years in order to reflect these changes. In 2022, these new businesses represent 12% of Sensing & Monitoring (SMO) revenues from 5% in 2021.

Value in use of SMO CGU is down year on year, unfavorably impacted by the discount rate increase.

At December 31, 2022, the capital employed of our SMO CGU amount to US$606 million including US$184 million of goodwill.

No impairment of goodwill is recognized for our SMO CGU at December 31, 2022.

In 2021

At December 31, 2021, the capital employed at the Geoscience cash-generating units amounted to US$914 million, including US$724 million in goodwill.

At December 31, 2021, the capital employed at the EDA cash-generating unit amounted to US$534 million, including US$182 million in goodwill, net of a US$102 million impairment loss.

At December 31, 2021, the capital employed at the SMO cash-generating unit amounted to US$537 million, including US$177 million in goodwill.

US$102 million impairment loss of goodwill was recognized at December 31, 2021 regarding EDA CGU

Sensitivity to changes in assumptions

A change in certain assumptions, in particular the discount rate and the normative cash flows, could significantly impact the measurement of the value in use of our CGU and, hence, the impairment test outcomes. The cyclical business profile of our operations can have an impact on the value in use, albeit to a lesser extent than the two previous factors. The structuring assumptions are the recovery in E&P spending as well as the growth of our BTC new businesses which are expected to represent half of the Group's activity in the long term. The cash flows generated in the explicit period as well as in the normative year could vary based on the timing and breadth of these assumptions. The impacts on value in use coming from reasonably possible changes in the explicit period as well as in the normative year are disclosed in the template below.

Changes in these assumptions have the following impact on value in use:

			Sensitivity of cash flow over explicit period		Sensitivity to long-term growth rates		Sensitivity to long-term growth rates		Sensitivity to discount rate (after tax)	
In millions of US$	**Goodwill**	**Difference between the CGUs' value in use and the carrying value of assets including goodwill**	**Decrease of 10%**	**Increase of 10%**	**Decrease of 10%**	**Increase of 10%**	**Decrease of 0.50 bps**	**Increase of 0.50 bps**	**Decrease of 0.50 bps**	**Increase of 0.50 bps**
Geoscience CGU	723.1	301	(21)	21	(93)	93	(55)	62	78	(69)
EDA CGU	182.2	19	(14)	14	(41)	41	(24)	28	40	(35)
SMO CGU	184.1	67	(20)	20	(47)	47	(28)	31	46	(40)
TOTAL	**1,089.4**									

More specifically regarding EDA CGU, additional changes in the assumptions could significantly impact the measurement of the value in use, such as level of investment in the normative year as well as the normative cash-on-cash ratio. The impacts on value in use coming from reasonably possible changes are disclosed in the template below.

	Sensitivity on normative investments (a)		**Sensitivity on normative cash-on-cash ratio (b)(c)**	
In millions of US$	**Decrease of 10% (or US$25 million)**	**Increase of 10% (or US$25 million)**	**Decrease of 10 bps (or US$45 million of revenues)**	**Increase of 10 bps (or US$45 million of revenues)**
EDA CGU	(125)	125	(162)	162

(a) At fixed cash-on-cash ratio.
(b) Cash-on-cash ratio is revenue over investments ratio.
(c) At fixed investments.

NOTE 12 OTHER CURRENT AND NON-CURRENT LIABILITIES

	December 31	
In millions of US$	**2022**	**2021**
Value added tax and other taxes payable	36.8	40.1
Deferred revenues *(note 18)*	142.9	148.8
Fair value of financial instruments *(note 14)*	4.5	1.2
Off-Market Component [(a)]	13.8	13.8
Other current liabilities [(b)]	24.1	14.3
OTHER CURRENT LIABILITIES	**222.1**	**218.2**

(a) Operating debt in respect of Capacity Agreement.
(b) The increase between 2022 and 2021 mainly includes the second payment to finalize the acquisition of Liss for US$(1.5) million and the earn-out clause related to the acquisition of Geocomp for US$6.5 million (notes 2 and 28).

	December 31	
In millions of US$	**2022**	**2021**
Research and development subsidies	0.1	0.5
Profit-sharing scheme	1.6	2.0
Off-Market Component [(a)]	16.6	30.1
Other non-current liabilities	0.1	0.2
OTHER NON-CURRENT LIABILITIES	**18.4**	**32.8**

(a) Operating debt in respect of Capacity Agreement.

NOTE 13 FINANCIAL DEBT

Gross financial debt as of December 31, 2022 was US$1,249.2 million compared to US$1,308.4 million as of December 31, 2021.

The breakdown of our gross debt is as follows:

	December 31					
	2022			2021		
In millions of US$	Current	Non-current	Total	Current	Non-current	Total
2027 Notes	-	1,124.0	1,124.0	-	1,162.6	1,162.6
Bank loans and other loans	2.8	10.0	12.8	-	2.5	2.5
Lease liabilities	37.9	54.8	92.7	69.8	53.0	122.8
Sub-total	**40.7**	**1,188.8**	**1,229.5**	**69.8**	**1,218.1**	**1,287.9**
Accrued interests	19.7	-	19.7	20.5	-	20.5
Financial debt	**60.4**	**1,188.8**	**1,249.2**	**90.3**	**1,218.1**	**1,308.4**
Bank overdrafts	-	-	-	-	-	-
TOTAL	**60.4**	**1,188.8**	**1,249.2**	**90.3**	**1,218.1**	**1,308.4**

Changes in liabilities arising from financing activities

In 2022, CGG has completed the sale and leaseback of its headquarters. *The impacts of this transaction on the Group's financial debt are detailed in the table below as well as in note 2*.

Furthermore the Group entered into an asset financing arrangement to further develop its HPC and Cloud solutions capabilities *(note 28)*.

In 2021, CGG issued (i) 8.75% Secured 2027 Bonds for a nominal amount of US$500 million and 7.75% Secured 2027 Bonds for a nominal amount of 585 million euros and (ii) use the net proceeds of these bonds to dispose of the existing bonds.

	December 31	
In millions of US$	2022	2021
Balance at beginning of period	**1,308.4**	**1,389.1**
Decrease in long term debts [(a)]	(0.1)	(1,227.5)
Increase in long-term debts [(a)]	10.7	1,188.2
Lease repayments	(48.4)	(57.3)
Sale and leaseback [(b)]	(29.0)	-
Financial interests paid [(c)]	(92.4)	(89.8)
Total Cash flows	**(159.2)**	**(186.4)**
Cost of financial debt, net [(c)]	98.5	120.5
Call premium	-	13.8
Increase in lease liabilities [(d)]	43.9	25.7
Translation adjustments [(e)]	(46.5)	(50.8)
Change in consolidation scope [(f)]	4.1	-
Other	-	(3.5)
BALANCE AT END OF PERIOD	**1,249.2**	**1,308.4**

(a) In 2022, new asset financing to expand our HPC and Cloud solutions capabilities.
(b) Purchase option exercised for US$(29.0) million in relation with CGG headquarters sale and leaseback (note 2).
(c) In 2021, capitalized interests were booked until the refinancing of our long-term debt on 1 April 2021.
(d) Including lease liability arising from the leaseback of CGG headquarters for $13.7 million (note 2).
(e) Mainly EUR/USD exchange rate fluctuation on 2027 Notes - tranche EUR.
(f) Related to the acquisition of Geocomp and Ion in 2022 (note 2).

Financial debt by financing sources

	Issuing date	Maturity	Nominal amount 12.31.2022 *(in millions of currency)*	Net balance 12.31.2022 *(in US$m)*	Interest rates
2027 Notes tranche USD	2021	2027	US$500.0	500.0	8.75%
2027 Notes tranche EUR	2021	2027	€585.0	624.0	7.75%
Sub-total 2027 Notes				**1,124.0**	
Other loans				12.8	
Sub-total bank loans and other loans				**12.8**	
Lease liabilities				92.7	
Sub-total lease liabilities				**92.7**	
TOTAL FINANCIAL DEBT, EXCLUDING ACCRUED INTERESTS AND BANK OVERDRAFTS				**1,229.5**	

Financial debt by currency

	December 31	
In millions of US$	**2022**	**2021**
USD	564.8	562.9
EUR	646.4	704.2
GBP	7.7	8.3
AUD	1.9	3.2
CAD	3.9	4.3
NOK	0.9	1.6
SGD	2.5	1.7
RUB	-	0.2
Other	1.4	1.5
TOTAL FINANCIAL DEBT, EXCLUDING ACCRUED INTERESTS AND BANK OVERDRAFTS	**1,229.5**	**1,287.9**

Financial debt by interest rate

	December 31	
In millions of US$	**2022**	**2021**
Variable rates (average effective rate December 31, 2022: nil, 2021: nil)	-	-
Fixed rates (average effective rate at December 31, 2022: 8.05%, 2021: 7.94%)	1,229.5	1,287.9
TOTAL FINANCIAL DEBT, EXCLUDING ACCRUED INTERESTS AND BANK OVERDRAFTS	**1,229.5**	**1,287.9**

High Yield Bonds (US$500 million of 8.75% Senior Notes and €585 million of 7.75% Senior Notes, maturity 2027)

On April 1, 2021, CGG issued US$500 million in aggregate principal amount of 8.75% Senior Secured Notes due 2027 and €585 million in aggregate principal amount of 7.75% Senior Secured Notes due 2027 (together, the "2027 Notes").

These notes are listed on the Euro MTF of the Luxembourg Stock Exchange and are guaranteed on a senior secured basis by certain subsidiaries of CGG SA. The fair value measurement of the 2027 Notes is categorized within Level 1 of the fair value hierarchy.

The 2027 Notes do not include any financial "maintenance covenant", thus CGG is not committed to continuously satisfy one or more financial obligations. Nevertheless, they include specific limitations on incurrence of additional indebtedness, pledges, asset sales, issuances and sales of equity instruments, investments in minority owned companies and dividend payments.

The above operations are permitted within certain limits, this is particularly the case for the drawing of the RCF credit facility detailed below, which is authorized under the clause of the authorized debts "Permitted Debt".

The sale of assets is permitted, among other things, if the sale price is at fair market value and if the Group reinvests the proceed of the sale in a replacement assets within 365 days.

- On April 19, 2022, CGG has completed the sale and leaseback of its headquarters. This transaction is permitted as per the senior debt covenants, under the sale-leaseback clause for the leaseback for US$14 million, and is subject to investment in replacement assets for US$19 million.
- On December 15 2022, CGG sold its US land seismic Earth Data library for $63 million. This sale is permitted but is subject to investment in replacement assets or CAPEX within 365 days.

The 2027 Notes were issued at a price of 100% of their principal amount.

The net proceeds from the issuance of the 2027 Notes were used, together with cash on hand, to:

(i) settle the Tender Offer;

(ii) satisfy and discharge on April 1, 2021 and subsequently redeem on May 1, 2021 in full the Existing First Lien Notes that were not repurchased in the Tender Offer;

(iii) satisfy and discharge on April 1, 2021 and subsequently redeem on April 14, 2021 in full the Existing Second Lien Notes; and

(iv) pay all fees and expenses in connection with the foregoing.

- The 2027 Notes and the revolving credit facility share the same security package encompassing notably the US Earth Data library, the shares of the main Sercel entities (Sercel SAS and Sercel Inc.), the shares of significant DDE operating entities, and certain intercompany loans.

First lien secured notes due 2023

The first lien secured notes due 2023 were redeemed in full at the time of the refinancing.

The first lien secured notes due 2023 represented at issuance on April 24, 2018 a total principal amount of US$645 million (using an exchange rate of $1.2323 per €1.00) at a weighted average coupon of 8.40%.

Second lien secured notes due 2024

The second lien secured notes due 2024 were redeemed in full at the time of the refinancing.

The second lien secured notes represented due 2024 at issuance on February 21, 2018, a total principal amount of US$453.4 million (using an exchange rate of $1.2229 per €1.00).

These notes bore a Libor-based floating rate of interest (with a floor of 1%) for the USD series and a Euribor-based floating rate of interest (with a floor of 1%) for the EUR series + 4% in cash, and 8.5% of capitalized interest (known as "payment in kind" or "PIK interest).

US$ 100 million Revolving Credit Facility

(In millions of US$)	Date	Maturity	Authorized amount	Used amount	Mobilized amount	Available amount
Revolving Credit Facility	2021	2025	100.0	–	–	100.0

On April 1, 2021 CGG entered into a US$100 million Super Senior Revolving Credit Facility Agreement with a 4.5 year maturity and secured by the same security package as the 2027 Notes. Interest rate is calculated according to SOFR rate increased by a 5% margin, downward revisable depending Group rating and greenhouse gas emission reduction targets.

The revolving credit facility include some limitations, the same as those aforementioned on the 2027 Notes, on additional indebtedness subscriptions, pledges arrangements, asset sale, issuance and sale of equity instruments, investment in minority owned companies and dividends payments.

The 2027 Notes and RCF share the same security package encompassing notably the US Earth Data library, the shares of the main Sercel entities (Sercle SAS and Sercel Inc.), the shares of significant DDE operating entities, and certain intercompany loans.

Pursuant to the RCF agreement, solely if the drawing exceeds 40 % of the facility, the Group is required to quarterly comply with a maximum ratio of total "Consolidated Senior Secured Net Leverage" to "Consolidated EBITDA" of 3.50:1 for each rolling 12-months period. These terms are defined in the aforementioned RCF agreement as follows:

- "Consolidated Senior Secured Net Leverage" is defined as Senior Secured Indebtedness less cash and cash equivalents;
- "Consolidated EBITDA" is computed on Segment figures and is defined as net income before interest, tax, depreciation, amortization and non-recurring items.

At December 31, 2022, the credit facility is not drawn, thus there is no commitment regarding the ratio depicted above. For information purpose, it is of 2.50:1 at December 31, 2022.

Other loans

In September 2022, CGG has entered into an asset financing arrangement to further develop its HPC and Cloud solutions capabilities. Under this agreement, the financial institution agreed to pay on CGG's behalf and upon CGG instructions some selected supplier's invoices. In return CGG is committed to repay this loan under a repayment schedule previously agreed upon. Each invoice being considered in this agreement is treated as a separate loan with specific repayment schedule. The financing arrangement is accounted as a financial debt and is not considered as payables. The cash flows are presented as financing activities in the consolidated statement of cash flows.

In October 2021, BPI granted to the SMO division an innovation loan of €2 million at a preferential rate with a 7 year maturity and quarterly repayment in tranches of €0.1 million from March 2024 onward.

NOTE 14 CURRENT AND NON-CURRENT FINANCIAL LIABILITIES

Because we operate internationally, we are exposed to general risks linked to operating abroad. Our major market risk exposures are currency fluctuations. We do not enter into or trade financial instruments including derivative financial instruments for speculative purposes.

Foreign currency risk management

As a company that derives a substantial amount of its revenue from sales internationally, we are subject to risks relating to fluctuations in currency exchange rates. The Group's revenue and expenses are mostly denominated in US dollar and euro, as well as to a lesser extent in currencies such as the Brazilian real, the Chinese yuan, the Norwegian krone, the pound sterling, the Canadian dollar, the Australian dollar and the Malaysian ringgit.

Foreign currency sensitivity analysis

Fluctuations in the exchange rate of other currencies, particularly the euro, against the US dollar, have had in the past and will have in the future a significant effect upon our results of operations. We manage our balance sheet exposures (including debt exposure) by maintaining, as far as possible, a balance between our monetary assets and liabilities in the same currency, and readjusting for any variance through spot and forward currency sales or equity transactions. Although we attempt to minimize this risk, we cannot guarantee that exchange rate fluctuations will not have a materially adverse impact on our future operating results.

As of December 31, 2022, we estimate our net annual recurring expenses in euros at the Group level to be approximately €220 million and as a result, an unfavorable variation of US$0.10 in the average yearly exchange rate between the US dollar and the euro would reduce our net income (loss) and our shareholders' equity by approximately US$22 million.

The following table shows our exchange rate exposure at December 31, 2022

	December 31, 2022					
	Assets	Liabilities	Currency commitments	Net position before hedging	Forward contracts applied	Net position after hedging
Converted in millions of US$	(a)	(b)	(c)	(d) = (a) – (b) ± (c)	(e)	(f) = (d) + (e)
US$ [(a)]	1,095.9	1,085.2	-	10.7	(20.2)	(9.5)
EUR [(b)]	38.1	31.4	-	6.7	-	6.7

(a) US$-denominated assets and liabilities in the entities whose functional currency is the euro.

(b) Euro-denominated assets and liabilities in the entities whose functional currency is the US dollar.

In addition to our euro exposure depicted above, our net foreign exchange exposure at December 31, 2022, is also impacted by the Brazilian real (with a net passive position of US$26 million equivalent), the British pound (with a net asset position of US$6 million equivalent), the Norwegian Krone (with a net passive position of US$20 million equivalent), and the Canadian Dollar (with a net passive position of US$8 million equivalent).

"Gross financial debt" includes bank overdrafts, the short-term portion of financial liabilities and long-term financial liabilities. "Net financial debt" is defined as gross financial debt less cash and cash equivalents. Net financial debt is presented as additional information because we understand that certain investors believe that netting cash against debt provides a clearer picture of the financial liability exposure. However, other companies may present their net debt differently to us. Net financial debt is not a measure of financial performance under IFRS and should not be considered as an alternative to any other measures of performance derived in accordance with IFRS.

Our financial debt is partly denominated in euros and converted in US dollars at the closing exchange rate. As at December 31, 2022, the euro-denominated component of our US$951 million in net financial debt came to €561 million, based on the closing exchange rate of US$1.0666 per euro. A variation of US$0.10 in the closing exchange rate between the US dollar and the euro would impact our net debt by approximately US$56 million.

Forward exchange contracts

Forward exchange transactions are aimed at hedging future cash flows against fluctuations in exchange rates involving sales contracts awarded. These forward exchange contracts usually have a maturity of less than one year.

We do not enter into foreign currency forward contracts for trading purposes.

As at December 31, 2022, the Group had currency forward contracts for the US dollar equivalent of US$71.4 million (of which US$43.9 million were applied on issued invoices), of which US$42 million were against the euros, €16.3 million were against the Chinese yuan and 9.5 million of Chinese yuan were against the euros, US$1.7 million were against the Chinese yuan, €0.5 million were against the pound sterling, and US$1.4 million were against the Brazilian real.

Effects of forward exchange contracts on the financial statements:

	December 31	
In millions of US$	**2022**	**2021**
Carrying value of forward exchange contracts *(notes 4 and 12)*	2.1	1.2
Gains (losses) recognized in profit and loss *(note 21)*	(7.1)	1.9
Gains (losses) recognized directly in equity	0.3	(0.1)

Interest rate risk management

Following the last refinancing exercise carried out in 2021, the Group has achieved its objective of having only fixed-rate debt, in order to avoid being subject to interest rate risk. Changes in the monetary policy of the US federal Banks and European Central Bank, developments in the financial markets and changes in the perception of our credit quality may increase our cost of refinancing and therefore adversely affect our ability to refinance our debt, which may affect our business, liquidity, results of operations and financial conditions.

Interest rate sensitivity analysis

The following table shows our variable interest rate exposure by maturity at December 31, 2022:

	Financial assets*		Financial liabilities*		Net position before hedging		Off-balance sheet position		Net position after hedging	
	(a)		(b)		(c) = (a) - (b)		(d)		(e) = (c) + (d)	
12.31.2022 *In millions of US$*	**Fixed rate**	**Variable rate**	**Fixed rate**	**Variable rate**	**Fixed rate**	**Variable rate**	**Fixed rate**	**Variable rate**	**Fixed rate**	**Variable rate**
Overnight to 1 year	54.7	153.1	40.3	-	14.4	153.1	-	-	14.4	153.1
1 to 2 years	-	-	45.7	-	(45.7)	-	-	-	(45.7)	-
3 to 5 years	-	-	1,133.3	-	(1,133.3)	-	-	-	(1,133.3)	-
More than 5 years	-	-	10.2	-	(10.2)	-	-	-	(10.2)	-
TOTAL	**54.7**	**153.1**	**1,229.5**	**-**	**(1,174.8)**	**153.1**	**-**	**-**	**(1,174.8)**	**153.1**

* *Excluding bank overdrafts and accrued interest.*

Since the last refinancing exercise, CGG Group's sources of financing have consisted of secured loans subject only to fixed interest rates. Only financial assets are subject to variable interest rates. As a result, the Group's financial expenses are exposed to a very limited interest rate risk.

Commercial and counterparty risk

Our trade receivables and investments do not represent a significant concentration of credit risk due to the wide variety of markets in which we sell our services and products. Nevertheless, some of our clients are national oil companies, which can lengthen payment deadlines and expose us to political risks. Finally, in relation with our international operations, we work with a wide network of banks and are therefore subject to counterparty risks.

Specific procedures have been implemented to manage client payments and reduce risk. The Group's two largest clients respectively contributed 8.8% and 7.6% of consolidated revenues in 2022. In 2021, they respectively contributed 6.1% and 6.0%.

The loss of any of our significant customers or deterioration in our relations with any of them could affect our business, results of operations and financial condition.

Liquidity risk management

We rely primarily on our ability to generate cash from operations and our access to external financing to fund our working capital needs.

Our cash generation depends on, among other factors, market conditions, the credit quality of customers and other contractual counterparties, the countries of cash collection and any transfer restrictions that may be in place, as well as the strength of our bank partnerships.

Our ability to repay or refinance our indebtedness and fund our working capital needs and planned capital expenditures depends, among other things, on our future operating results, which will be partly the result of economic, financial, competitive and other factors beyond our control.

In this context, the following measures have been put in place to manage our liquidity risk:

- we have implemented extended cash pooling arrangements in order to circulate cash inside the group and supply funds where needed;
- we seek to anticipate liquidity position (with daily reporting on cash in, weekly reporting on free cash flow, regular reporting to Finance Committee, and to the Audit and Risk Management Committee and, on a long-term basis, assessments of our budget and business plan;
- we manage short term cash needs by targeting reserves of available liquidity, and, as appropriate, reducing capital expenditures and costs, selling assets, and, if required, adjusting the group profile and footprint;
- we manage long term cash needs by planning refinancing long before maturity, maintaining regular discussions with banks and regularly communicating with investors regarding our strategy;
- our Trade Compliance Officer and treasury functions are regularly informed about countries where cash could be trapped or difficult to move within the group. We also check our counterparty risk for sales and our bank partners' quality (rating);
- we aim to maintain access to guarantee lines by seeking good relations with bank partners.

Energy risk management

The Group may enter into energy derivatives contracts as part of energy risk management. At December 31, 2022, the Group has booked the following hedging impacts:

	December 31	
In millions of US$	**2022**	**2021**
Amount in the financial statement of the electricity contracts *(note 12)*	(3.8)	-
Profits (losses) recognized in profit or loss	-	-
Gains (losses) recognized directly in equity	(2.9)	-

Financial instruments by categories in the statement of financial position

The impact and breakdown of the Group's financial instruments in the statement of financial position at December 31, 2022 are as follows:

	As at December 31, 2022						
In millions of US$	**Fair value hierarchy [(a)]**	**Carrying amount**	**Fair value**	**Fair value in income statement**	**Loans, Receivables**	**Debt at amortized cost**	**Derivatives**
Non-consolidated investments	Level 3	1.0	1.0	1.0	-	-	-
Non-current financial assets	Level 3	17.4	17.4	-	17.4	-	-
Trade accounts and notes receivables	Level 3	308.3	308.3	-	308.3	-	-
TOTAL ASSETS		**326.7**	**326.7**	**1.0**	**325.7**	**-**	**-**
2027 Notes	Level 1	1,124.0	908.6	-	-	1,124.0	-
Bank loans and other loans	Level 3	12.8	12.8	-	-	12.8	-
Trade and other payables	Level 3	92.0	92.0	-	92.0	-	-
Current and non-current financial liabilities	Level 2	41.8	41.8	-	-	41.8	-
Derivatives	Level 2	1.8	1.8	-	-	-	1.8
TOTAL LIABILITIES		**1,272.4**	**1,057.0**	**-**	**92.0**	**1,178.6**	**1.8**

(a) Level 1 – Listed (unadjusted) market prices in active markets for identical assets or liabilities. Level 2 – Valuation techniques for which the lowest level input that is significant to the fair value measurement is directly or indirectly observable. Level 3 – Valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable.

As in 2021, there was no change in the fair value hierarchy in 2022.

Due to their short maturities, the fair value of cash, cash equivalents, bank overdrafts, trade receivables and trade payables is deemed equivalent to carrying value.

At December 31, 2022:

- the **first lien senior secured notes due 2027** denominated in US dollars were traded at a discounted price of 81.0% of their nominal value;
- the **first lien senior secured notes due 2027** denominated in euros were traded at a discounted price of 80.7% of their nominal value.

Other current and non-current financial liabilities

	December 31	
In millions of US$	**2022**	**2021**
Other current financial liabilities: *Idle Vessel Compensation*	20.0	19.2
Other non-current financial liabilities: *Idle Vessel Compensation*	21.8	37.4
TOTAL	**41.8**	**56.6**

Idle Vessel Compensation

The Idle Vessel Compensation is a financial obligation in relation to the Capacity Agreement, the contract for marine seismic data acquisition services between CGG and Shearwater effective until January 2025. The agreement provides compensation in the event of inactivity of more than one of the premium 3D vessels in the Shearwater fleet, up to three vessels. Compensation for inactive vessels is the net present value of the related estimated cash outflows, based on assumptions of use of the Shearwater fleet over the commitment period. The Idle Vessel Compensation is a debt at amortized cost.

The assumptions for the utilization of the Shearwater fleet over the remaining term were revised and resulted in an increase of the Idle Vessel Compensation of US$(4.4) million in 2022, after an increase of US$(3.6) million in 2021 due to a capacity return deferral. CGG estimates that the return of capacity won't happen during the remaining term of the Capacity Agreement. The Group recognized in 2022 the maximum financial obligation in relation to the Capacity Agreement over the remaining term of the commitment *(note 5).*

At December 31, 2022, the total amount of the financial liability for Idle Vessel Compensation amounts to US$(41.8) million with a current portion of US$(20.0) million and a non-current at US$(21.8) million.

NOTE 15 SHARE CAPITAL AND STOCK OPTION PLANS

At December 31, 2022, CGG SA's share capital consisted of 712,357,321 ordinary shares with a nominal value of €0.01 each. At December 31, 2021, CGG SA's share capital consisted of 711,663,925 ordinary shares with a nominal value of €0.01 each.

Rights and privileges attaching to ordinary shares

Ordinary shares give right to dividend. Ordinary registered shares held for more than two years qualify for double voting rights.

Dividends may be distributed from the CGG SA's statutory retained earnings, subject to the requirements of French law and the Company's articles of incorporation.

Retained earnings available for distribution amounted to €656.5 million (US$700.2 million) at December 31, 2022. We did not pay any dividend during the years ended December 31, 2022 and 2021.

Share capital, warrants and allocation of performance shares in 2022

Common stock operations during the 2022 fiscal year included the exercise of warrants for 122,278 shares and the definitive allocation of performance shares for 571,118 shares.

Share capital, warrants and allocation of performance shares in 2021

Common stock operations during the 2021 fiscal year included the exercise of warrants for 6,162 shares and the definitive allocation of performance shares for 265,380 shares.

Stock options

Pursuant to various resolutions adopted by the Board of Directors, the Group has granted options to purchase ordinary shares to certain employees, executive officers and directors.

The details of the beneficiaries and performance conditions for the plans prior to 2018 are not disclosed below, as the related expense recorded in the consolidation statement is not material. Details regarding adjustments to the number of options are not presented for these aforementioned plans.

On June 27, 2018, the Board of Directors allocated:

- 732,558 options to the Chief Executive Officer. These have an exercise price of €2.15 and vest in four batches, in June 2019 (for 25% of the options allocated), June 2020 (for 25% of the options allocated), June 2021 (for 25% of the options allocated) and June 2022 (for 25% of the options allocated). Vesting of these options is subject to performance conditions related to CGG share price. The options have a term of eight years;
- 1,141,088 options to the Executive Leadership members. These have an exercise price of €2.15 and vest in four batches, in June 2019 (for 25% of the options allocated), June 2020 (for 25% of the options allocated), June 2021 (for 25% of the options allocated) and June 2022 (for 25% of the options allocated). Vesting of these options is subject to performance conditions related to CGG share price. The options have a term of eight years;
- 4,670,743 options to certain employees. These have an exercise price of €2.15 and vest in four batches, in June 2019 (for 25% of the options allocated), June 2020 (for 25% of the options allocated), June 2021 (for 25% of the options allocated) and June 2022 (for 25% of the options allocated). The options have a term of eight years.

The exercise price of each option is the average market value of the share during the twenty-day period ending the day before the date the option is allocated.

On December 11, 2018, the Board of Directors allocated:

- 671,171 options to the members of the Executive Committee. These have an exercise price of €1.39 and vest in four batches, in June 2019 (for 25% of the options allocated), June 2020 (for 25% of the options allocated), June 2021 (for 25% of the options allocated) and June 2022 (for 25% of the options allocated). Vesting of these options is subject to performance conditions related to CGG's share price. The options have a term of seven years and seven months.

On June 27, 2019 and November 5, 2019, the Board of Directors allocated:

- 360,000 options to the Chief Executive Officer. These have an exercise price of €1.52 and vest in one batch in June 2022. Vesting of these options is subject to performance conditions related to CGG's share price. The options have a term of eight years;
- 851,330 options to the members of the Executive Committee. These have an exercise price of €1.52 and vest in two batches, in June 2021 (for 50% of the options allocated) and June 2022 (for 50% of the options allocated). Vesting of these options is subject to performance conditions related to CGG's share price. The options have a term of eight years;
- 1,062,190 options to certain Group employees. Their exercise price is €1.52 and vest in two batches, in June 2021 (for 50% of the options allocated) and June 2022 (for 50% of the options allocated). The options have a term of eight years.

The exercise price of each option is the average market value of the share during the twenty-day period ending the day before the date the option is allocated.

On June 25, 2020, the Board of Directors allocated:

- 360,000 options to the Chief Executive Officer. These have an exercise price of €1.10 and vest in one batch, in June 2023, subject to a performance condition relating to CGG's share price. The options have a term of eight years;
- 940,000 options to the Executive Leadership members. These have an exercise price of €1.10 and vest in one batch, in June 2023, subject to a performance condition relating to CGG's share price. The options have a term of eight years;
- 968,512 options to certain Group employees. These have an exercise price of €1.10 and vest in two batches, in June 2022 (for 50% of the options allocated) and June 2023 (for 50% of the options allocated). The options have a term of eight years.

On June 24, 2021, the Board of Directors allocated:

- 330,000 options to the Chief Executive Officer. These have an exercise price of €0.91 and vest in one batch, in June 2024, subject to a performance condition relating to CGG's share price. The options have a term of eight years;
- 710,000 options to the Executive Leadership members. These have an exercise price of €0.91 and vest in one batch, in June 2024, subject to a performance condition relating to CGG's share price. The options have a term of eight years;
- 870,920 options to certain Group employees. These have an exercise price of €0.91 and vest in two batches, in June 2023 (for 50% of the options allocated) and June 2024 (for 50% of the options allocated). The options have a term of eight years.

On June 22, 2022, the Board of Directors allocated:

- 455,000 stock options to the Chief Executive Officer. Their exercise price is €1.05. The options vest in one batch, in June 2025. Such vesting is subject to a performance condition relating to CGG's share price. The options have a term of eight years;
- 1,140,000 stock options to the Executive Leadership members. Their exercise price is €1.05. The options vest in one batch, in June 2025. Such vesting is subject to a performance condition relating to CGG's share price. The options have a term of eight years;
- 1,775,200 stock options to certain employees. Their exercise price is €1.05. The options vest in two batches, in June 2024 (for 50% of the options allocated) and June 2025 (for 50% of the options allocated). The options have a term of eight years.

Information related to options outstanding at December 31, 2022 is summarized below:

Date of Board of Directors' Resolution	Options granted	Options granted after capital operations (a)	Options outstanding at Dec. 31, 2022 (b) (c)	Exercise price per share *(in €)* (b) (c)	Expiration date	Remaining duration
June 25, 2015 and June 26, 2016	8,428,738	700,312	307,718	62.92-8.52	June 25, 2023 to June 23, 2024	5,8 to 17,8 months
June 28, 2018	6,544,389	6,544,389	4,046,436	2.15	June 28, 2026	41,9 months
December 11, 2018	671,171	671,171	167,790	1.39	June 28, 2026	41,9 months
June 27, 2019 and November 5, 2019	2,273,520	2,273,520	1,352,320	1.52	June 27, 2027	53,9 months
January 6, 2020	80,000	80,000	40,000	2.72	June 27, 2027	53,9 months
June 25, 2020	2,268,512	2,268,512	2,202,272	1.10	June 25, 2028	65.9 months
June 24, 2021	1,910,920	1,910,920	1,869,220	0.91	June 24, 2029	77.9 months
June 22, 2022	3,370,200	3,370,200	3,355,400	1.05	June 22, 2030	89.8 months
TOTAL	**25,547,450**	**17,819,024**	**13,341,156**			

(a) Options granted adjusted following 2016 and 2018 capital increases and 2016 reverse split.
(b) Following the reverse split in July 2016, the stock options were adjusted as follows.
(c) Following the capital increase in February 2018, the stock option plans were adjusted as follows.

Date of stock option plans	Adjustment of number of options at 20 July, 2016	Exercise price before adjustment per share *(in €)*	Adjusted exercise price per share *(in €)*
June 23, 2016	208,089	0.68	21.76

Date of stock option plans	Adjustment of number of options at February 21, 2018	Exercise price before adjustment per share *(in €)*	Adjusted exercise price per share *(in €)*
June 23, 2016	471,856	21.76	8.52

A summary of the Company's stock option activity, and related information for the years ended December 31, 2022 follows:

	2022		2021	
Weighted average exercise price in €	Number of options	Weighted average exercise price	Number of options	Weighted average exercise price
Options outstanding at beginning of year	**11,904,700**	**2.81**	**10,919,030**	**4.27**
Granted	3,370,200	1.05	1,910,920	0.91
Adjustments following the reverse split	–	–	-	-
Adjustments following the capital increase	–	–	-	-
Exercised	–	–	-	-
Forfeited	(1,933,744)	5.98	(925,250)	16.09
Option outstanding at year-end	**13,341,156**	**1.91**	**11,904,700**	**2.81**
Exercisable at year-end	6,384,380	2.87	5,337,214	4.65

The average price of the CGG share was €0.87 in 2022 and €0.82 in 2021.

Performance units

Allocation plan dated June 25, 2020

On June 25, 2020, the Board of Directors allocated:

- 220,000 performance shares to the Chief Executive Officer. The performance shares vest in one batch, in June 2023. The vesting period for the batch of these performance shares is due to end on the latest of the following two dates: June 25, 2023 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2022, and provided that the Board of Directors deems the performance conditions to have been fulfilled;
- 530,000 performance shares to the Executive Leadership members. The performance shares vest in one batch, in June 2023. The vesting period for the batch of these performance shares is due to end on the latest of the following two dates: June 25, 2023 or the date of the Shareholders' Meeting convened to approve the financial statements for fiscal year 2022, and provided that the Board of Directors deems the performance conditions to have been fulfilled;
- 1,203,148 performance shares to certain Group employees. The performance shares vest in two batches, in June 2022 (for 50% of the shares allocated) and June 2023 (for 50% of the shares allocated). The vesting period for the first batch of these performance shares is due to end on the latest of the following two dates: June 25, 2022 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2021, provided that the Board of Directors deems the performance conditions set forth in the plan regulation to have been fulfilled. The vesting period for the second batch of these performance shares is due to end on the latest of the following two dates: June 25, 2023 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2022, provided that the Board of Directors deems the performance conditions to have been fulfilled.

Allocation plan dated June 24, 2021

On June 24, 2021, the Board of Directors allocated:

- 280,000 performance shares to the Chief Executive Officer. The performance shares vest in one batch, in June 2024. The vesting period for the batch of these performance shares is due to end on the latest of the following two dates: June 24, 2024 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2023, and provided that the Board of Directors deems the performance conditions to have been fulfilled;
- 740,000 performance shares to the Executive Leadership members. The performance shares vest in one batch, in June 2024. The vesting period for the batch of these performance shares is due to end on the latest of the following two dates: June 24, 2024 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2023, and provided that the Board of Directors deems the performance conditions to have been fulfilled;
- 1,407,905 performance shares to certain Group employees. The performance shares vest in two batches, in June 2023 (for 50% of the shares allocated) and June 2024 (for 50% of the

shares allocated). The vesting period for the first batch of these performance shares is due to end on the latest of the following two dates: June 24, 2023 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2022, provided that the Board of Directors deems the performance conditions set forth in the the plan regulation to have been fulfilled. The vesting period for the second batch of these performance shares is due to end on the latest of the following two dates: June 24, 2024 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2023, provided that the Board of Directors deems the performance conditions to have been fulfilled.

Allocation plan dated June 22, 2022

On June 22, 2022, the Board of Directors allocated:

- 455,000 performance shares to the Chief Executive Officer. The performance shares vest in one batch, in June 2025. The vesting period for the batch of these performance shares is due to end on the latest of the following two dates: June 22, 2025 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2024, and provided that the Board of Directors deems the performance conditions to have been fulfilled;
- 1,140,000 performance shares to the Executive Leadership members. The performance shares vest in one batch, in June 2025. The vesting period for the batch of these performance shares is due to end on the latest of the following two dates: June 22, 2025 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2024, and provided that the Board of Directors deems the performance conditions to have been fulfilled;
- 887,600 performance shares to certain Group employees. The performance shares vest in two batches:
  - in June 2024 (for 50% of the shares allocated). The vesting period for the first batch of these performance shares is due to end on the latest of the following two dates: June 22, 2024 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2023, provided that the Board of Directors deems the performance conditions set forth in the the plan regulation to have been fulfilled, and
  - in June 2025 (for 50% of the shares allocated). The vesting period for the second batch of these performance shares is due to end on the latest of the following two dates: June 22, 2025 or the date of the Annual Shareholders' Meeting convened to approve the financial statements for fiscal year 2024, provided that the Board of Directors deems the performance conditions to have been fulfilled;
- 848,700 restricted shares subject to presence condition to certain employees. The restricted shares subject to presence conditions vest in two batches, in June 2024 (for 50% of the shares allocated) and June 2025 (for 50% of the shares allocated).

The following table lists the assumptions used to value the 2018, 2019, 2020, 2021 and 2022 stock options plans and the 2020, 2021 and 2022 performance unit allocation plans in accordance with IFRS 2, and the resulting fair values. The other previous plans have a non-significant impact on IFRS 2 expense. The Group uses the Monté Carlo model to value the options granted. Dividend yield used is nil for all plans.

	Options granted	**Volatility** (a)	**Risk-free rate**	**Exercise price per share** *(in €)*	**Estimated maturity** *(in years)*	**Fair value per option at the grant date** *(in €)*	**Total cost** *(in € million)*
June 2018 stock options plan	6,544,389	56%	0%	2.15	2.5	0.63	4.1
December 2018 stock options plan	671,171	56%	0%	1.39	2.5	0.57	0.4
June 2019 stock options plan	2,273,520	57%	0%	1.52	2.5	0.50	1.1
June 2020 stock options plan	2,268,512	65%	(0.6)%	1.10	2.5	0.34	0.8
June 2021 stock options plan	1,910,920	63%	(0.6)%	0.91	2.5	0.25	0.5
June 2022 stock options plan	3,370,200	63%	1.3%	1.05	2.75	0.30	1.0

(a) Corresponds to restated historical average volatility and implied volatility.

	Free shares granted subject to performance conditions	**Performance Conditions fulfilled** (a)	**Fair value per share at the grant date** *(in €)* (b)	**Dividend yield**
June 2020 performance units plan	1,953,148	100%	1.10	0
June 2021 performance units plan	2,427,905	100%	0.91	0
June 2022 performance units plan	2,482,600	100%	1.05	0
June 2022 restricted shares plan	848,700	100%	1.05	0

(a) Estimated.
(b) Corresponds to CGG share price on grant date.

Under IFRS 2, the fair value of the stock options granted since November 7, 2002 must be recognized as an expense over the life of the plan. The expenses break down as follows:

	Expense under IFRS 2		In respect of executive managers of the Group	
In millions of US$	**2022**	**2021**	**2022**	**2021**
2018 stock options plan	0.1	0.5	-	0.2
2019 stock options plan	0.1	0.4	0.1	0.2
2020 stock options plan	0.3	0.4	0.2	0.2
2021 stock options plan	0.2	0.1	0.1	0.1
2022 stock options plan	0.2	-	0.1	-
2018 performance units plans – paid in shares	-	(2.0)	-	(0.3)
2019 performance units plans – paid in shares	-	(2.0)	-	(0.7)
2020 performance units plans – paid in shares	0.7	1.0	0.3	0.4
2021 performance units plans – paid in shares	0.8	0.5	0.4	0.2
2022 performance units and restricted shares plans – paid in shares	0.6	-	0.2	-
TOTAL EXPENSE FOR EQUITY-SETTLED TRANSACTIONS	**3.0**	**(1.1)**	**1.4**	**0.3**

NOTE 16 PROVISIONS

	December 31, 2022							
In millions of US$	Balance at beginning of year	Addi-tions	Deductions (used)	Deductions (unused)	Other [(a)]	Balance at end of period	Short term	Long term
Provisions for redundancy plan	2.1	-	(0.2)	-	(0.2)	1.7	1.7	-
Provision for other restructuring costs	0.5	-	(0.1)	-	-	0.4	0.4	-
Provisions for onerous contracts	0.4	-	(0.1)	(0.1)	-	0.2	-	0.2
Total CGG 2021 plan	**3.0**	**-**	**(0.4)**	**(0.1)**	**(0.2)**	**2.3**	**2.1**	**0.2**
Provisions for redundancy plan	2.5	1.5	(1.8)	-	(0.2)	2.0	2.0	-
Provisions for pensions [(b)]	17.5	1.5	(0.8)	-	(3.5)	14.7	-	14.7
Provisions for customer guarantees	2.8	3.2	(2.8)	-	(0.1)	3.1	-	3.1
Other provisions for restructuring costs	0.3	0.2	(0.5)	-	-	-	-	-
Provisions for cash-settled share-based payment arrangements [(c)]	0.4	0.4	-	-	-	0.8	-	0.8
Other provisions for onerous contracts	0.5	-	(0.3)	0.1	-	0.3	0.2	0.1
Other provisions (other taxes and miscellaneous risks)	21.8	3.7	(2.1)	(0.7)	0.3	23.0	13.3	9.7
Total other provisions	**45.8**	**10.5**	**(8.3)**	**(0.6)**	**(3.5)**	**43.9**	**15.5**	**28.4**
TOTAL PROVISIONS	**48.8**	**10.5**	**(8.7)**	**(0.7)**	**(3.7)**	**46.2**	**17.6**	**28.6**

(a) *Includes translation adjustments, reclassification and actuarial gains (losses). The defined benefit pension plan in the United Kingdom has been reclassified in other non-current assets during 2022.*
(b) *The change in provisions for pensions mainly relates to the revision of actuarial assumptions.*
(c) *Relating to social security costs.*

Provision for restructuring costs

In 2022, the Group used US$(2.0) million of provision for redundancy costs and US$(0.6) million for other restructuring costs.

In 2021, the Group used US$(25.9) million of provision for redundancy costs and US$(1.2) million for other restructuring costs.

Provisions for retirement benefit obligations

The Group's main obligations in respect of pensions and related employee benefits are in France and the UK. The UK scheme was closed to new entrants on December 1, 1999 and closed to future accruals in 2016.

Contributions amounting to US$(0.8) million and US$(0.8) million were paid in France in 2022 and 2021, respectively.

The Group records provisions for retirement benefits based on the following actuarial assumptions:

- staff turnover and mortality factors;
- legal retirement age with consideration of any changes in the contribution period;
- actuarial rate and average rate of increase in future compensation;
- taxes on pension plans and supplemental pension plans.

As of December 31, 2022, the net liability for these plans amounted to US$(6.5) million:

(i) US$8.2 million of assets in relation with the UK defined benefits scheme following the improvement of yield on corporate bonds (AA) issued in GBP. *The balance of the UK defined benefits scheme is presented in "other non-current assets" in the consolidated statement of financial position*; and

(ii) US$(14.7) million of liabilities for the other obligations in respect of pension and related employee benefits.

On the basis of the actuarial assumptions referred to above, details of the retirement benefit obligations, provisions recognized in the balance sheet, and the retirement benefit expenses recognized in 2022 are provided below:

	December 31	
In millions of US$	**2022**	**2021**
AMOUNTS RECOGNIZED IN THE STATEMENT OF FINANCIAL POSITION		
Present value of the obligation [(a)]	76.0	132.1
Fair value of plan assets	(69.5)	(114.6)
Deficit (surplus) of funded plans	**6.5**	**17.5**
Net liability (asset) recognized in the statement of financial position	**6.5**	**17.5**
AMOUNTS RECOGNIZED IN THE INCOME STATEMENT		
Current service cost	1.2	1.5
Interest expense (income) for the financial year	0.1	0.2
Effects of curtailments/settlements	-	(0.1)
Past service cost	-	(3.3)
Net expense (income) for the period	**1.3**	**(1.7)**
MOVEMENTS IN THE NET LIABILITY RECOGNIZED IN THE STATEMENT OF FINANCIAL POSITION		
Net Liability at January 1st	**17.5**	**36.0**
Expense as above	1.3	(1.7)
Actuarial gains (losses) recognized in other comprehensive income [(b)]	(7.9)	(11.0)
Contributions paid	(3.2)	(3.6)
Benefits paid by the Company	(0.8)	(0.8)
Consolidation scope entries, reclassifications and translation adjustments	(0.4)	(1.4)
Net Liability at December 31	**6.5**	**17.5**
CHANGE IN DEFINED BENEFIT OBLIGATION		
Defined benefit obligation at January 1st	**132.1**	**141.0**
Payroll tax adjustment	-	-
Current service cost	1.2	1.5
Contributions paid	-	-
Interest Cost	2.0	1.6
Past service cost	-	(3.3)
Benefits paid from plan	(3.4)	(2.6)
Actuarial gains (losses) recognized in the other comprehensive income	(44.2)	(2.9)
Effects of curtailments/settlements	-	(0.1)
Consolidation scope entries, reclassifications and translation adjustments	(11.7)	(3.1)
Obligation in respect of benefits accrued at December 31	**76.0**	**132.1**

In millions of US$	December 31 2022	2021
CHANGE IN PLAN ASSETS [c]		
Fair value of plan assets at January 1st	**114.6**	**104.9**
Interest income for the financial year	1.9	1.4
Contributions paid	3.2	3.6
Benefits paid from plan	(2.6)	(1.8)
Actuarial gains (losses) recognized in the other comprehensive income	(36.3)	8.2
Effects of curtailments/settlements	-	-
Consolidation scope entries, reclassifications and translation adjustments	(11.3)	(1.7)
Other	-	-
Obligation in respect of benefits accrued at December 31	**69.5**	**114.6**
KEY ASSUMPTIONS USED IN ESTIMATING THE GROUP'S RETIREMENT OBLIGATIONS ARE:		
Discount rate [d]	3.75%	1.00%
Average rate of increase in future compensation [e]	2.00%	2.00%

(a) In 2022, these commitments amount to US$76.0 million of which US$14.7 million for defined-benefit plans not covered by plan assets (US$17.7 million in 2021). The average duration of the defined benefit plans was 14.1 years at December 31, 2022 (19.0 years at December 31, 2021).

(b) Other comprehensive income.

Cumulative actuarial losses recognized in other comprehensive income amounted to US$15.3 million at December 31, 2022.

Changes in the defined benefit obligation and fair value of plan assets are, as follows:

In millions of US$	December 31 2022	2021
Actuarial gains (losses) recognized in the other comprehensive income		
Experience adjustment	0.8	1.5
Actuarial changes arising from changes in demographic assumptions	(0.2)	(1.8)
Actuarial changes arising from changes in financial assumptions	(44.7)	(2.6)
Return on plan assets (excluding amounts included in net interest expense)	36.2	(8.1)
Sub-total included in the other comprehensive income	**(7.9)**	**(11.0)**

(c) Plan assets

The major categories of plan assets as a percentage of the fair value of total plan assets are as follows:

	December 31 2022	2021
Equity securities	6%	42%
Debt securities	29%	21%
Real estate	9%	7%
Other	56%	30%

(d) Discount rate

The discount rate applied by the Group for entities operating in the euro zone is 3.75% in 2022 (1.00% in 2021). The discount rate is determined by reference to the yield on private investment grade bonds (AA) issued in euro.

The discount rate used for the United Kingdom is 4.70% in 2022 (1.75% in 2021).

An increase of 25 basis point in the discount rate would decrease the defined-benefit plan obligation by US$2.5 million, and a decrease of the discount rate of 25 basis point would increase that obligation by US$2.6 million.

A variation of 25 basis point in the discount rate would have no material impact, less than US$0.1 million, on service cost or on interest expense (income).

(e) Increase in future compensation

An increase of 25 basis point in the average rate of growth in future compensation would increase the defined-benefit obligation by US$0.4 million, and a 25 basis point decrease would reduce that obligation by US$0.4 million.

A variation of 25 basis point in the average rate of growth in future compensation would have no material impact, less than US$0.1 million, on service cost or on interest expense (income).

NOTE 17 CONTRACTUAL OBLIGATIONS, COMMITMENTS AND CONTINGENCIES

Status of contractual obligations

	December 31	
In millions of US$	**2022**	**2021**
Long-term debt obligations	1,555.3	1,691.3
Lease obligations	106.9	135.2
TOTAL CONTRACTUAL OBLIGATIONS	**1,662.2**	**1,826.5**

The following table presents payments in future periods relating to contractual obligations as at December 31, 2022:

	Payments due by period				
In millions of US$	**Less than 1 year**	**2-3 years**	**4-5 years**	**After 5 years**	**Total**
Financial debt	2.4	9.0	1,125.2	0.4	1,137.0
Other long-term obligations (cash interests)	95.1	188.6	134.6	0.0	418.3
Total long-term debt obligations	**97.5**	**197.6**	**1,259.8**	**0.4**	**1,555.3**
Lease obligations	43.3	41.4	10.5	11.7	106.9
TOTAL CONTRACTUAL OBLIGATIONS [(a)] [(b)]	**140.8**	**239.0**	**1,270.3**	**12.1**	**1,662.2**

(a) Payments in other currencies are converted into US dollar at December 31, 2022 exchange rates.
(b) These amounts are principal amounts and do not include any accrued interests.

Capacity Agreement and Idle Vessel Compensation

CGG and Shearwater signed a Capacity Agreement on January 8, 2020, a marine data acquisition service contract, under the terms of which CGG is committed to using Shearwater's vessel capacity in its Earth Data business over a five-year period, at an average of 730 days per year.

The Capacity Agreement provides compensation of Shearwater for days when more than one of its high-end seismic vessels are idle, up to a maximum of three vessels.

The maximum Idle Vessel Compensation amount for a full year came to US$(21.9) million. At December 31, 2022, the residual commitment in respect of Idle Vessel Compensation through to the end of the five-year period was US$(44.3) million.

Step-In Agreements

Following of our strategic partnership with Shearwater in Marine Data Acquisition and our exit from of seismic vessel operations, Shearwater CharterCo AS has entered into five-year bareboat charter agreements with the GSS subsidiaries, guaranteed by Shearwater, for the five high-end vessels equipped with streamers. As part of the Step-In Agreement, CGG has agreed to substitute itself for Shearwater CharterCo AS as charterer of GSS subsidiaries' five high-end seismic vessels (equipped with streamers) in the event of a payment default under the charter party between the GSS subsidiaries and Shearwater CharterCo AS. In accordance with the Payment Instruction Agreement, the payments of the payables in relation with the Capacity Agreement and due by Shearwater CharterCo AS to the subsidiaries of GSS, under the Shearwater bareboat charters, are made directly by CGG.

Were the Step-in Agreements to be triggered:

- CGG would be entitled to terminate the Capacity Agreement;
- CGG would become the charterer of the five high-end seismic vessels equipped with streamers under bareboat charter agreements;
- CGG would be entitled, through pledge in its favor, to acquire all the share capital of GSS, knowing that GSS and its subsidiaries' principal assets would be the vessels and streamers and its principal liabilities would be the external debt associated with the vessels.

The Step-In Agreements will not impact the statement of financial position unless a trigger, as described above, occurs. In such circumstances, the obligations under the Capacity Agreement should be terminated and replaced by the obligations under the Step-In Agreements, representing a lower amount of commitment compared to the Capacity Agreement.

Legal proceedings, claims and other contingencies

From time to time the Company and/or its subsidiaries are involved in disputes and proceedings arising in the normal course of their business. To the best of the Company's knowledge, there are no pending or impending administrative, judicial or arbitration procedures that are likely to have, or have had over the last twelve-month period, any significant impact on the Group's financial position or profitability.

Legal proceedings related to the Safeguard Plan

Certain holders of convertible bonds ("Oceanes") due 2019 and 2020 lodged an appeal against the judgement dated December 1, 2017 approving the Safeguard Plan. The Appeals Court of Paris confirmed this judgment in a ruling dated May 17, 2018. By ruling dated February 26, 2020, the French Supreme Court rejected the appeal lodged by certain Oceanes bondholders against the ruling of the Appeals Court of Paris, thus putting a definitive end to this litigation.

By a ruling issued on November 24, 2020, the Commercial court of Paris acknowledged the completion of CGG's Safeguard Plan, following the early repayment in full of all its remaining debt under the Safeguard plan. In this context, CGG reiterated its undertaking made as part of the safeguard plan to maintain, and procure that the French-law subsidiaries it controls within the meaning of article L.233-3 of the French Commercial Code maintain in France their decision-making centres currently located in France, including the headquarters of CGG, until December 31, 2022.

Third opposition to the decision issued by the Commercial Court of Paris

On December 22, 2020, Mr. Jean Gatty in his capacity as former representative of each of the two bodies of OCEANE bondholders and JG Capital Management (a management company of JG Partners, itself a former holder of the Oceanes) of which he is the director, filed three third-party appeals against the decision dated November 24, 2020 which had acknowledged the anticipated completion of CGG's Safeguard Plan.

Further to Mr. Jean Gatty's withdrawal of his judicial proceedings, the Commercial court of Paris Court rejected the third-party appeal by ruling (which is now final) dated May 7, 2021.

Criminal complaints

Furthermore, on February 2, 2021, CGG was informed that JG Capital Management also filed a criminal complaint seeking to call into question again the terms of the CGG's financial restructuring approved in 2017 under CGG's Safeguard Plan. However, this point regarding the differential treatment of creditors holding high yield bonds and Oceanes has been debated at length before various courts in a wholly transparent fashion.

On April 29, 2021, CGG filed a complaint for slanderous denunciation in connection with the complaint filed by JG Capital Management.

Writ of summons

On March 29, 2021, JG Capital Management issued a writ of summons to CGG before the Commercial Court of Paris in order to try and obtain, through an appeal for modifying an existing judgement ("*recours en révision*"), the cancellation of the judgment dated December 1, 2017, which approved the CGG Safeguard Plan. Two former Oceanes bondholders (i.e. SA Schelcher Prince Gestion and HMG Finance) joined JG Capital Management in this writ of summons in 2022.

As of the date the financial statements were approved, the corresponding judicial proceedings are still ongoing.

Guarantees

In millions of US$	December 31 2022	2021
OPERATIONS		
Guarantees issued in favor of clients (guarantees issued by the Company to mainly support bids made at the subsidiaries level)	165.6	168.5
Other guarantees and commitments issued (guarantees issued by the Company on behalf of subsidiaries and affiliated companies in favor of customs or other governmental administrations)	25.7	30.9
FINANCING ACTIVITIES		
Guarantees issued in favor of banks (mainly to support credit facilities)	0.1	-
TOTAL	**191.4**	**199.4**

The maturity dates of the net guarantees and commitments are as follows:

In millions of US$	Maturity: Less than 1 year	2-3 years	4-5 years	After 5 years	Total
OPERATIONS					
Guarantees issued in favor of clients	74.9	52.6	37.9	0.2	165.6
Other guarantees and commitments issued	1.3	0.5	-	24.0	25.8
TOTAL	**76.2**	**53.1**	**37.9**	**24.2**	**191.4**

Other

The Group has no other material off-balance sheet commitments that are not described above.

NOTE 18 OPERATING REVENUES

Disaggregation of operating revenues

The following table disaggregates our operating revenues by major sources for the period ended December 31, 2022:

	December 31, 2022			December 31, 2021		
In millions of US$	DDE	SMO	Consolidated Total	DDE	SMO	Consolidated Total
EDA prefunding	134.1	-	134.1	271.0	-	271.0
EDA after sales	239.2	-	239.2	126.0	-	126.0
Total EDA	**373.3**	-	**373.3**	**397.0**	-	397.0
Geoscience	**284.2**	**-**	**284.2**	**309.5**	**-**	**309.5**
SMO	**-**	**269.3**	**269.3**	**-**	**356.5**	**356.5**
Inter-segment revenues	**0.1**	**-**	**0.1**	**-**	**(0.8)**	**(0.8)**
TOTAL OPERATING REVENUES	**657.6**	**269.3**	**926.9**	**706.5**	**355.7**	**1,062.2**

Analysis by geographical area – Analysis of operating revenues by customer location

In millions of US$	2022		2021	
North America	273.8	29.5%	170.1	16.0%
Central and South Americas	133.0	14.4%	232.3	21.9%
Europe, Africa and Middle East	340.2	36.7%	392.7	37.0%
Asia Pacific	179.9	19.4%	267.1	25.1%
TOTAL OPERATING REVENUES	**926.9**	**100%**	**1,062.2**	**100%**

Analysis of operating revenues by category

In millions of US$	2022		2021	
Services rendered and royalties	458.5	49.5%	600.0	56.4%
Sales of goods	226.9	24.5%	332.3	31.3%
After sales on Earth Data surveys	239.2	25.8%	126.0	11.9%
Leases	2.3	0.2%	3.9	0.4%
TOTAL OPERATING REVENUES	**926.9**	**100%**	**1,062.2**	**100%**

In 2022, the Group's two most significant customers accounted for 8.8% and 7.6% of the Group's consolidated revenues, compared with 6.1% and 6.0% in 2021.

Contracts balances

The contracts balances are presented below:

In millions of US$	Balance at December 31, 2022	Balance at December 31, 2021
Receivables	**253.6**	**305.1**
Unbilled revenue	54.7	45.6
Total contract assets	**54.7**	**45.6**
Advance billing	(29.4)	(27.1)
Deferred revenues	(142.9)	(148.8)
Total contract liabilities	**(172.3)**	**(175.9)**

The level of deferred revenues is a direct consequence of the impact of IFRS 15 as the Earth Data prefunding revenue not recognized before the final data are made available for use to customers increase the deferred revenues balance.

The revenues generated for the period ended December 31, 2022 from contract liability balances as at January 1, 2022 amount to US$89,8 million.

The revenues generated for the period ended December 31, 2022 from performance obligations satisfied (or partially satisfied) prior to January 1, 2022 amount to US$104,2 million.

The revenues generated for the period ended December 31, 2021 from contract liability balances as at January 1, 2021 amount to US$235.6 million.

The revenues generated for the period ended December 31, 2021 from performance obligations satisfied (or partially satisfied) prior to January 1, 2021 amount to US$50.1 million.

Backlog – Transaction price allocated to remaining performance obligations

The aggregate amount of the transaction price allocated to the performance obligations that are unsatisfied or partially unsatisfied (i.e. the contractual backlog) as at December 31, 2022 amounts to US$587.7 million for continuing operations. Out of this amount, the Group expects to recognize US$378.3 million in 2023 and US$209.4 million in 2024 and beyond for continuing operations. These amounts include Earth Data prefunding revenues recognized upon the final data are made available for use to customers.

As of December 31, 2021, the aggregate amount of the transaction price allocated to the performance obligations that were unsatisfied or partially unsatisfied amounts to US$472.3 million for continuing operations.

Assets recognized in respect of the costs to obtain or fulfill a contract

The Group has no cost falling into the definition of a cost to obtain or fulfill a contract.

NOTE 19 ANALYSIS BY OPERATING SEGMENT

Group organization

Segment presentation and discontinued operations

The financial information by segment is reported in accordance with our internal reporting system and provides internal segment information that is used by the management to drive and measure performance.

In November 2018, we announced the new strategy for our Group that included the transition to an asset-light model by reducing CGG's exposure to the Contractual Data Acquisition business. As a result of these strategic announcements and actions undertaken since then, our Contractual Data Acquisition segment and part of our Non-Operated Resources segment have been presented as discontinued operations in our income statement and as assets held for sale in our balance sheet in accordance with IFRS 5. The costs of implementation of our Strategic Plan described above, referred to as the "CGG 2021 Plan", are reported in discontinued operations in the related Contractual Data Acquisition business lines.

Our DDE and SMO segments are reported in continuing operations.

DDE

This operating segment comprises the Geoscience business lines (processing and imaging of geophysical data, reservoir characterization, geophysical consulting and software services, geological data library and data management solutions) and the Earth Data business line (development and management of a seismic and geological data library that we undertake and license to a number of clients on a non-exclusive basis). Both activities regularly combine their offerings, generating overall synergies between their respective activities.

Beyond the core, we leveraged on our technologies and expertise to address the fast growing markets of Digital Sciences and Energy Transition.

In Digital Sciences, we focused on our long-standing leadership in digital technology, especially as applied to geoscience, to develop an integrated expert solution including the hardware platform, middleware and software services that are required to cost effectively support advanced cloud-based High-Performance Computing (HPC) workflows and data transformation services. In this platform, we notably propose data, algorithm and software as a service (DaaS/SaaS) on our CGG cloud.

In the Energy Transition, we propose services and technologies dedicated to Carbon Capture Utilization and Storage (CCUS), Geothermal, Environmental Sciences and Minerals and Mining. CCUS, which represents a substantial submarket, is one of the key enablers to reduce carbon footprint. Many energy companies are planning CCUS significant projects and increasingly incorporate such technologies in their development. Low carbon energy, such as hydrogen, will also require long term storage and monitoring. To be successful, these new businesses require a detailed understanding of the subsurface, domain where CGG excels, through its advanced geoscience and digital science technologies and its global earth data library.

SMO

This operating segment comprises our manufacturing and sales activities for geophysical equipment used for data seismic acquisition, both on land and marine. Additionally, its unique portfolio of industry leading sensor technology allows to bring the benefits of its advanced sensor technology to the fast growing Monitoring and Observation market, from structural health monitoring (SHM) to monitoring solutions for energy transition (CCUS notably) and environment. The SMO segment carries out its activities through our subsidiary Sercel.

Internal reporting and segment presentation

Before the implementation of IFRS 15, the Group applied the percentage of completion method for recognizing Earth Data prefunding revenues. Following the implementation of IFRS 15, the Group recognizes Earth Data prefunding revenues only upon delivery of final processed data (when the performance obligation is fulfilled).

Although IFRS fairly presents the Group's statement of financial position, for internal reporting purposes CGG's management continues to apply the pre-IFRS 15 revenue recognition principles, with Earth Data prefunding revenues recorded based on percentage of completion. CGG's management believes this method aligns revenues closely with the activities and resources used to generate it and provides useful information as to the progress made on Earth Data surveys, while also allowing for useful comparison across time periods.

CGG therefore presents the Group's results of operations in two ways:

- the "Reported" or "IFRS" figures, prepared in accordance with IFRS, with Earth Data prefunding revenues recognized upon delivery of the final data (when the performance obligation is fulfilled); and
- the "Segment" figures, for purposes of internal management reporting, prepared in accordance with the Group's previous method for recognizing Earth Data prefunding revenues.

Other companies may present segment and related measures differently than we do. Segment figures are not a measure of financial performance under IFRS and should not be considered as indicators of our operating performance or an alternative to other measures of performance in accordance with IFRS.

Alternative performance measures

As a complement to Operating Income, EBIT may be used by management as a performance measure for segments because it captures the contribution to our results of the significant businesses that are managed through our joint ventures. We define EBIT as Operating Income plus our share of income in companies accounted for under the equity method.

We define EBITDAs as earnings before interest, tax, income from equity affiliates, depreciation, amortization net of amortization expense capitalized to Earth Data, and cost of share-based compensation. Share-based compensation includes both stock options and shares issued under our share allocation plans. EBITDAs is presented as additional information because we understand that it is a measure used by certain investors to determine our operating cash flow and historical ability to meet debt service and capital expenditure requirements.

Inter-segment transactions are made at arm's length prices. They related primarily to geophysical equipment sales made by the SMO segment to the Contractual Data Acquisition business lines. These inter-segment revenues and the related earnings are eliminated in consolidation in the tables that follow under the column "Eliminations and other".

Operating Income and EBIT may include non-recurring or restructuring items, which are disclosed in the reportable segment if material. General corporate expenses, which include Group management, financing, and legal activities, have been included in the column "Eliminations and other" in the tables that follow. The Group does not disclose financial expenses or financial revenues by segment because they are managed at the Group level.

Identifiable assets are those used in the operations of each segment. Unallocated and corporate assets consist of "Investments and other financial assets, net" and "Cash and cash equivalents" of our consolidated statement of financial position. The group does not track its assets based on country of origin.

Capital employed is defined as "total assets" excluding "Cash and cash equivalents" less (i) "Current liabilities" excluding "Bank overdrafts" and "Current portion of financial debt" and (ii) non-current liabilities excluding "Financial debt".

Seasonality

We have historically experienced higher levels of activity during the fourth quarter, since our clients seek to fully spend their annual budget before year-end. SMO deliveries and Earth Data after-sales usually reflect this pattern.

Analysis by segment (continuing operations)

The tables below provide a reconciliation of the Group's Segment figures to the Group's IFRS figures:

	2022					
In millions of US$, except for assets and capital employed in billions of US$	**DDE**	**SMO**	**Eliminations and other** [(b)]	**Segment figures**	**IFRS 15 adjustments**	**Consolidated Total / IFRS figures**
Revenues from unaffiliated customers	659.1	269.3	0.1	928.5	(1.6)	926.9
Inter-segment revenues		-	-	-	-	-
Operating revenues	**659.1**	**269.3**	**0.1**	**928.5**	**(1.6)**	**926.9**
Depreciation and amortization (excluding Earth Data surveys)	(60.8)	(29.8)	(1.6)	(92.2)	-	(92.2)
Impairment and amortization of Earth Data surveys	(174.5)	-	-	(174.5)	3.1	(171.4)
Operating income [(a)]	**215.8**	**(10.9)**	**(24.8)**	**180.1**	**1.5**	**181.6**
EBITDAs	**436.3**	**19.2**	**(21.7)**	**433.8**	**(1.6)**	**432.2**
Share of income from companies accounted for under the equity method[(c)]	(2.5)	-	(16.0)	(18.5)	-	**(18.5)**
Earnings Before Interest and Tax	**213.3**	**(10.9)**	**(40.8)**	**161.6**	**1.5**	**163.1**
Capital expenditures (excluding Earth Data surveys) [(d)]	29.9	24.3	0.3	54.5	-	54.5
Investments in Earth Data surveys, net of cash	205.3	-	-	205.3	-	205.3
Capital employed [(e)]	**1.5**	**0.6**	**(0.1)**	**2.0**	-	**2.0**
TOTAL IDENTIFIABLE ASSETS	**1.8**	**0.7**	**0.1**	**2.6**	**-**	**2.6**

(a) Includes US$(22.1) million of impairment loss.
(b) "Eliminations and other" includes US$(19.9) million of general corporate expenses.
(c) includes impairment losses of CGG's stake for Reservoir Evaluation Services for US$(2.2) million and for Argas for US$(16.0) million.
(d) Capital expenditures included capitalized development costs of US$(21.3) million.
(e) Capital employed related to discontinued operations are included under the column "Eliminations and other".

In millions of US$, except for assets and capital employed in billions of US$	DDE	SMO	Eliminations and other [(b)]	Segment figures	IFRS 15 adjustments	Consolidated Total / IFRS figures
	2021					
Revenues from unaffiliated customers	585.7	355.7	-	941.4	120.8	1,062.2
Inter-segment revenues		0.8	(0.8)	-	-	-
Operating revenues	**585.7**	**356.5**	**(0.8)**	**941.4**	**120.8**	**1,062.2**
Depreciation and amortization (excluding Earth Data surveys)	(187.2)	(35.5)	(3.0)	(225.7)	-	(225.7)
Impairment and amortization of Earth Data surveys	(186.2)	-	-	(186.2)	(95.3)	(281.5)
Operating income [(a)]	**(20.6)**	**5.2**	**(33.3)**	**(48.7)**	**25.5**	**(23.2)**
EBITDAs	**334.4**	**40.4**	**(30.7)**	**344.1**	**120.8**	**464.9**
Share of income from companies accounted for under the equity method	0.1	-	-	0.1	-	**0.1**
Earnings Before Interest and Tax	(20.5)	5.2	(33.3)	(48.6)	25.5	(23.1)
Capital expenditures (excluding Earth Data surveys) [(c)]	30.5	27.7	0.4	58.6	-	58.6
Investments in Earth Data surveys, net of cash	168.3	-	-	168.3	-	168.3
Capital employed [(d)]	**1.5**	**0.6**	**(0.1)**	**2.0**	**-**	**2.0**
TOTAL IDENTIFIABLE ASSETS	**1.9**	**0.6**	**0.1**	**2.6**	**-**	**2.6**

(a) Includes US$(101.8) million impairment loss on Earth Data goodwill and US$(31.6) million for the impairment of other tangible and intangible assets at December 31, 2021.

(b) For the year ended December 31, 2021, "Eliminations and other" included US$(22.9) million of general corporate expenses.

(c) Capital expenditures included capitalized development costs of US$(29.6) million for the year ended December 31, 2021. "Eliminations and other" corresponds to the change in payables to fixed asset suppliers for the year ended December 31, 2021.

(d) Capital employed related to discontinued operations are included under the column "Eliminations and other".

NOTE 20 RESEARCH AND DEVELOPMENT COSTS

Research and development expenses breakdown is as follows:

	December 31	
In millions of US$	**2022**	**2021**
Research and development costs	(57.4)	(64.7)
Development costs capitalized	21.3	29.6
Research and development expensed	**(36.1)**	**(35.1)**
Government grants recognized in income	17.1	18.1
RESEARCH AND DEVELOPMENT COSTS – NET	**(19.0)**	**(17.0)**

Research and development expenditures relate mainly to:

- for DDE segment, projects related to Geoscience activities; and
- for SMO segment, projects relating to seismic data recording equipments and improvement of existing systems.

NOTE 21 OTHER REVENUES AND EXPENSES

In millions of US$	December 31 2022	December 31 2021
Impairment of assets	(5.9)	(131.8)
Restructuring costs	(2.8)	(27.5)
Change in restructuring provisions	1.0	31.5
Other restructuring expenses	–	-
Impairment and restructuring expenses – net	**(7.7)**	**(127.8)**
Other revenues (expense)	3.1	0.5
Exchange gains (losses) on hedging contracts	(7.1)	1.9
Gains (losses) on sales of assets	37.6	2.2
OTHER REVENUES (EXPENSES) – NET [(a)]	**25.9**	**(123.2)**

(a) Other revenues (expenses) – net excluding income (loss) on discontinued operations as explained in note 5.

Year ended December 31, 2022

In 2022, the other revenues (expenses) - net amounted to US$25.9 million. It mainly encompasses:

- some impairment losses for US$(5.9) million:
  - a US$(1.6) million impairment loss on buildings right-of-use assets, and
  - a US$(4.3) million non-recurring impairment loss on one Earth Data survey in Norway due to an agreement between government and anti-oil factions to seriously delay licensing rounds until after 2025 in the area of one specific survey in Norway *(note 10)*;
- some gains and losses on sales of assets for US$37.6 million:
  - a US$34.0 million gain related to the sale of the US land Earth Data library *(note 2)*,
  - a US$5.2 million gain related to the sale and leaseback of CGG headquarters *(note 2)*, and
  - a US$(1.5) million and US$(0.3) million losses related to the sale of GeoSoftware and Smart Data Solutions *(note 5)*;
- a US$(1.8) million of restructuring costs and a US$3.1 million of other revenues, mainly corresponding to the early termination of a lease regarding SMO segment and severance payments from DDE; and
- a US$(7.1) million loss on hedging instruments.

Year ended December 31, 2021

In 2021, the other revenues (expenses) - net amounted to US$(123.2) million. It mainly encompasses:

- a US$(101.8) million goodwill impairment loss related to the goodwill affected to our Earth Data CGU *(note 11)*;
- a US$(21.2) million non-recurring impairment loss on the Earth Data library. This non-recurring loss is related to the downward revision of expected sales of surveys due to the unfavorable development of the political context for exploration in the United Kingdom *(note 10)*;
- a US$1.8 million and US$(1.4) million of net proceeds respectively for the sale of GeoSoftware and Smart Data Solutions *(notes 2 and 5)*;
- a US$(10.5) million impairment loss on buildings right-of-use and related assets;
- a US$1.7 million gain on a sale of a building;
- a US$4.0 million cost on restructuring cost; and
- a US$1.9 million gain on hedging instruments.

NOTE 22 COST OF FINANCIAL DEBT

	December 31	
In millions of US$	**2022**	**2021**
Current interest expenses related to financial debt	(93.2)	(113.1)
Interest expense on lease liabilities	(7.0)	(8.4)
Income from cash and cash equivalents	1.7	1.0
COST OF FINANCIAL DEBT, NET	**(98.5)**	**(120.5)**

NOTE 23 OTHER FINANCIAL INCOME (LOSS)

	December 31	
In millions of US$	**2022**	**2021**
Exchange gains (losses), net	(0.3)	(4.6)
Other financial income (loss), net	0.7	(37.8)
OTHER FINANCIAL INCOME (LOSS)	**0.4**	**(42.4)**

At December 31, 2022, other financial income (loss) amount to a US$0.4 million gain, including:

- a US$(1.5) million loss related to hedging transactions costs;
- a US$1.9 million gain related to financial interests income mainly due to interest rate applicable to brazilian tax receivables;
- a US$(0.3) million foreign exchange loss, mainly driven by the Euro and the Brazilian real exposures.

At December 31, 2021, other financial income (loss) amount to a US$(42.4) million charge, including:

- a US$(25.9) million charge related to refinancing transaction costs;
- a US$(13.8) million charge related to the prepayment premium of the existing senior notes;
- a US$1.3 million dollar of interest income related to an R&D tax credit claim in the US; and
- a US$(4.6) million foreign exchange loss.

NOTE 24 INCOME TAXES

Income tax benefit (expense)

CGG SA and its subsidiaries compute income taxes in accordance with the applicable tax legislations in numerous countries where the Group operates. The tax regimes and income tax rates legislated by these taxing authorities vary substantially.

	December 31	
In millions of US$	**2022**	**2021**
Current income tax expense	(15.0)	(8.2)
Adjustments on income tax recognized in the period for prior periods	(0.3)	0.2
Deferred taxes on temporary differences for the period	6.9	6.0
Deferred taxes recognized in the period for prior periods	(8.8)	6.4
TOTAL INCOME TAX BENEFIT (EXPENSE)	**(17.2)**	**4.4**

Income tax reconciliation

The reconciliation between income tax benefit (expense) in the income statement and the theoretical tax benefit (expense) is detailed below:

In millions of US$	2022	2021
Consolidated net income (loss) from continuing operations	**66.3**	**(181.6)**
Income taxes	**(17.2)**	**4.4**
Income (loss) from continuing operations before taxes	83.5	(186.0)
Net income (loss) from companies accounted for under the equity method [(a)]	(18.5)	0.1
Theoretical tax basis	**65.0**	**(186.1)**
Enacted tax rate in France	25.83%	28.41%
Theoretical tax	**(16.8)**	**52.9**
TAX DIFFERENCES:		
Differences in tax rates between France and foreign countries [(b)]	1.1	(10.0)
Adjustments on the tax expense recognized in the period for prior periods	(0.3)	0.2
Adjustments on the deferred tax expense recognized in the period for prior periods [(C)]	(8.8)	6.4
Valuation allowance on deferred tax assets previously recognized on losses on foreign entities [(d)]	7.1	(7.3)
Other permanent differences (including withholding taxes)	(8.9)	(30.5)
Deferred tax unrecognized on losses and other items of the period [(e)]	(45.5)	(14.7)
Deferred tax unrecognized on losses of prior periods [(f)]	54.9	7.4
INCOME TAXES	**(17.2)**	**4.4**

(a) Related to the impairment loss triggered by the remeasurement to recoverable value of our Stake in Argas and Reservoir Evaluation Services LLP.
(b) Mainly corresponds to the decrease of the french tax rate in 2022 and to the difference in tax rates between France and US, UK, Norway and Brazil.
(c) Corresponds to deferred prior year adjustments in UK, Norway and Australia.
(d) Mainly corresponds to the reassessment of the deferred tax assets on losses in UK.
(e) Related to the French and US tax groups deferred tax not recognized on losses carried forward of the period according to short and medium-term uncertainties and revised tax planning.
(f) Mainly corresponds to the use of tax losses carried forward for which no DTA was recognized in US.

Deferred tax assets and liabilities

	December 31	
In millions of US$	2022	2021
Total deferred tax assets	**24.2**	**19.6**
Total deferred tax liabilities	**(18.7)**	**(14.1)**
TOTAL DEFERRED TAXES, NET	**5.5**	**5.5**

NET DEFERRED TAX ASSETS (LIABILITIES) BY NATURE

In millions of US$	December 31 2022	2021
Non-deductible provisions (including provisions for pensions and profit sharing)	5.3	11.4
Tangible assets	6.2	13.1
Effects of translation adjustments not recognized in income statement	(0.6)	(4.1)
Earth Data surveys (including deferred revenues)	(33.1)	(46.9)
Assets reassessed in purchase accounting of acquisitions	(18.1)	(17.6)
Development costs capitalized	(11.1)	(14.9)
Other deferred revenues	(0.7)	2.8
Research tax credits	18.8	20.6
Other	3.6	4.1
Total deferred tax assets net of deferred tax assets (liabilities) related to timing differences	**(29.7)**	**(31.5)**
Tax losses carried forward	35.2	37.0
TOTAL DEFERRED TAX ASSETS NET OF DEFERRED TAX (LIABILITIES)	**5.5**	**5.5**

DEFERRED TAX ASSETS (LIABILITIES) PER TAX GROUP AS AT DECEMBER 31, 2022

In millions of US$	France	Foreign countries	Total [(a)]
Net deferred tax assets (liabilities) related to timing differences	-	(29.7)	(29,7)
Deferred tax assets recognized on tax loss carried forward [(b)]	-	35.2	35,2
TOTAL	**-**	**5.5**	**5.5**

(a) *The deferred taxes recognized in respect of tax losses carried forward are indefinitely recoverable.*
(b) *Notes 1.5.6 to the consolidated financial statements on the recognition method used for deferred tax assets.*

Net operating losses carried forward not recognized at December 31, 2022

In millions of US$	France	Foreign countries	Total
Losses scheduled with a maturity date less than 1 year	–	–	–
Losses scheduled with a maturity date more than 1 year	–	72.1	72.1
Losses carried-forward indefinitely	2,236.3	283.3	2,519.6
TOTAL	**2,236.3**	**355.4**	**2,591.7**

Tax audit and litigation

US

The tax audit for the years 2007 to 2016 has been concluded as well as the Appeal that followed.

CGG Holding (US) Inc received all the expected refunds, for a total of 23MUSD, between 2020 and 2022. The case is closed.

Brazil

ISS disputes

The Municipality of Rio de Janeiro (hereafter "the Municipality") has assessed Veritas do Brasil Ltda services taxes (ISS) on MCDL revenues for 2001 to 2008 - which has been duly disputed. In the meanwhile, in June 2004, Veritas do Brasil Ltda has launched a declaratory to recognize that there is no ISS on Earth Data licenses and requesting the refund for amounts unduly paid in the past for an amount of US$3.3 million.

Veritas do Brasil Ltda has obtained a final decision in its favor in the declaratory action in February 2014. Further to this decision, the tax foreclosure covering 2001 to May 2003 has been officially terminated in March 2015 and the tax assessment cancelled in January 2016.

In February 2016, the Municipality filed a Rescission Action in order to have the favorable decision from the declaratory action cancelled based on two arguments: i) on the merit of the refund and ii) on the refund approved. Veritas do Brasil Ltda filed the response to the action in June 2016. In December 2016, the Public attorney's office agreed that there are no grounds to re-discuss the merit of the case, but understood that the action should be ruled. In February 2017, CGG filed a petition to object the ruling. After several actions from the Municipality of Rio a new judge has been appointed in April 2019. The case is still on-going. The Group considers that there is no proper ground for this action, but it can jeopardize the refund from the declaratory action as it is possible that judge requests Veritas do present proof of taking ISS burden or presenting an authorization from clients to receive such amounts both of which Veritas do not have at this point. Because of that, refund amounts are fully reserved (US$ 3.3 million).

With regards to the paperwork from the refund related to the declaratory action, paperwork is being discussed for a long time. In May 2021, judge decides to request issuance of the refund paperwork without the interest portion and requests that interest paperwork is issued only after ruling of the rescission action. In June 2021, paperwork related to principal plus monetary correction (US$ 1.8 million) was issued while the paperwork related to the interest portion (US$ 1.5 million) has been postponed due to such decision. In June 2021 Veritas filed an appeal to have paperwork from interest issued without waiting ruling on the rescission action.

On June 29, 2021, the refund paperwork was issued and signed by the judge (without the interest portion). Following some back and forth on November 19, 2021, the Judge denied appeal from municipality to rediscuss application of interest on the refund. On March 26, 2022, we were notified of the decision in rescission action that suspended the case until decision of rescission action.

REFIS payments 2009

Veritas do Brasil Ltda participated in November 2009 in a voluntary disclosure and settlement program, allowing companies to settle old debts in exchange for total abatement of penalties and rebate of interest, provided they abandoned their ongoing litigations. The Brazilian IRS issued a tax assessment charging penalty on the non-recognition of the offset request that paid the debts later included in Refis. On June 24, 2019, Veritas do Brasil Ltda was notified of the first instance decision which was unfavorable to Veritas do Brasil Ltda. On July 24, 2019, Veritas do Brasil Ltda filed an appeal against the unfavorable decision. Considering that Veritas do Brasil Ltda has all proper documentation, the risk (US$2.3 million) is considered remote and is not reserved. No update in 2022.

Withholding tax and CIDE disputes

Following a 2012 audit on year 2009, CGG do Brasil Participacoes Ltda was reassessed US$5.3 million of withholding tax on charter contracts. The reassessment was disputed. In August 2018, the decision from the Administrative Court on WHT reassessment was confirmed. In October 2018, CGG do Brasil Participacoes Ltda filed a motion to clarify the decision. In November 2019, CGG do Brasil Participacoes Ltda was notified of the unfavorable decision from the motion to clarify and has filed a special appeal. On April 7, 2020, the TaxPayers Council denied ruling our special appeal. On June 5, 2020 CGG do Brasil Participacoes Ltda filed an appeal from this decision. On June 30, 2020, the special appeal was accepted for ruling. On December 14, 2021, counselors decided to take a step back and after a tie on the votes, they applied the Minerva vote (in theory extinguished in 2020) to decide that they would not accept the special appeal for ruling based on the facts that the divergent rulings presented were related to different services. In February 2022 CGG filed a Writ of Mandamus to try and have our special appeal accepted for ruling. The Judge granted CGG an injunction to suspend administrative case until final decision on the new writ but this was overturned following an appeal from the tax authorities. CGG filed a petition in response of the tax authorities answer in March 2022. On September 30, 2022, the Judge issued a decision recognizing the illegality of the application of the administrative tie breaking vote and annulling the judgement of the special appeal filed in the records of Administrative proceedings.The tax authorities filed an appeal on October 13, 2022.

No provision is recognized as CGG do Brasil Participacoes Ltda considers the risk less likely than not to happen.

In 2016, a new audit was conducted for fiscal year 2013. CGG do Brasil Participacoes Ltda received tax reassessments on December 20, 2017, for amounts of US$10.4 million for withholding tax and US$7.8 million for CIDE. The company appealed in January 2018 against the reassessments. In August 2018, both WHT and CIDE on charter were ruled favorably to CGG do Brasil Participacoes Ltda and the Brazilian Tax authorities appealed against such decisions.

In July 2019, the Taxpayers Council ruled the CIDE tax case against CGG do Brasil Participacoes Ltda. and the company filed a motion to clarify such decision. In November 2021, our motion to clarify in the CIDE tax case was ruled in our favor, but it did not change the merit of the second instance decision. We were notified of the decision on our motion to clarify in March 2022 and following this we filed our special appeal. On August 22, 2022, our special appeal was dismissed and CGG were notified to pay the debt by December 6, 2022. As the last administrative decision was not issue by CARF´s President (requirement of the law), CGG filed a writ to cancel the last administrative decision and have a new decision. IRS presented the counterarguments saying that they do not agree, but to avoid any claim reopened the administrative case for a new decision on December 21, 2022. Waiting the case to be sent to IRS again. As the writ decision was published after the payment deadline, CGG filed an action to cancel the assessment. Injunction granted suspending the debt with no need to present guarantee, for now. Waiting IRS counterargument.

No provision is recognized as CGG do Brasil Participacoes Ltda considers the risk less likely than not to happen.

In October 2019, the Taxpayers Council ruled the withholding tax case in favor of CGG do Brasil Participacoes Ltda. On March 31, 2020, the Federal Public Attorney filed a special appeal against the second instance decision based on the decision from the 2009 case (see above). On April 22, 2020, the Tax Payers Council accepted the special appeal for ruling. On June 17, 2020, CGG do Brasil Participacoes Ltda has filed its counterarguments to the special appeal. On October 25, the special appeal of the IRS was dismissed and CGG won the case. Waiting IRS to be notified to close the case. Litigation closed.

Exclusion of ISS from PIS and COFINS basis

Following a Supreme Court decision with general application to exclude ICMS from PIS/COFINS basis because it is not a revenue and therefore is excluded from the scope of such taxes, CGG do Brasil Participacoes Ltda decided to pursue the same discussion regarding ISS included in the PIS/COFINS basis. CGG do Brasil Participacoes Ltda requested to stop paying it for the future and to get a refund of amounts unduly paid from 2015 to 2020 for an amount of US$2.0 million. A Writ of mandamus was filed on July 20, 2020. On July 23, 2020, injunction was granted to start excluding ISS from PIS/COFINS basis suspending its liability (US$ 0.3 million has been excluded so far). On July 27, 2020, the IRS appealed from the injunction decision. On August 21, 2020, a first instance decision decided in favor of CGG do Brasil Participacoes Ltda allowing the exclusion of ISS from PIS/COFINS basis and also the compensation of amounts unduly paid from 2015 to 2020. On August 31, 2020, a judge dismissed the IRS appeal from injunction. On September 04, 2020 , the company filed a motion to clarify asking judge to say that we can both ask for a refund or compensate the amounts paid from 2015 to 2020 and also state the period where interest should be applied (from the date of payment onwards). On September 18, 2020, the judge ruled our motion to clarify in our favor. On September 21, 2020, the Brazilian Tax Authorities appealed from such decision. CGG do Brasil Participacoes Ltda presented its counterarguments in November 2020. On December 22, 2020, Public prosecutors presented an opinion that the IRS appeal should be denied. On April 6, 2022, a ruling session occurred (following our opposition to a virtual ruling). Judges decided to maintain a favorable decision to CGG on the merit and to limit the refund according to ICMS precedent from Supreme Court (from March 2017 onwards). On September 30, 2022, the motion to clarify against the decision that was made by both CGG and IRS on May 6, 2022, was denied. On October 25, 2022, the IRS filed a Special and an Extraordinary Appeal. On October 31, 2022, CGG filed a Special Appeal and on November 22, 2022, CGG presented counter arguments to both IRS appeal (Special and Extraordinary).

No asset has been recognized so far as the Group believes Supreme Court can try to reduce the rights related to refunds.

Exclusion of PIS/COFINS from its own basis

Following a Supreme Court decision with general application to exclude ICMS from PIS/COFINS basis because it is not a revenue and therefore should be out of the scope of such taxes, CGG do Brasil Participacoes Ltda decided to pursue the same discussion regarding PIS/COFINS included in its own basis. CGG do Brasil Participacoes Ltda requested to stop paying it for the future and to get a refund of amounts unduly paid from 2015 to 2020 for US$5.4 million. CGG do Brasil Participacoes Ltda filed a Writ of mandamus on July 21, 2020. On July 22, 2020, an injunction was granted to start excluding PIS/COFINS from its own basis suspending its liability. On July 27, 2020, the IRS appealed from the injunction decision and judge maintained our injunction in the same date. On September 18, 2020, a judge decided in favor of CGG do Brasil Participacoes Ltda allowing the exclusion of PIS/COFINS from its own basis and also the compensation of amounts unduly paid from 2015 to 2020 with interest counting from undue payment. On September 21, 2020, tax authorities appeal from this decision. On October 1, 2020, CGG do Brasil Participacoes Ltda presented a motion to clarify asking the judge to say that we can both ask for a refund or compensate the amounts paid from 2015 to 2020 and to make it say that interest needs to be applied until compensation/refund. On October 7, 2020, the judge denied our motion to clarify saying he can opt for the refund or compensation in his decision and saying he already ruled about interest application in his decision. On October 22, 2020, CGG do Brasil Participacoes Ltda filed counterarguments to the IRS appeal and on October 28, CGG filed an appeal to first instance decision to discuss application of interest/right for compensation or refund. CGG do Brasil Participacoes Ltda. In March 2021, second instance decision was unfavorable to CGG. Starting from there, all amounts at stake for future exclusion of PIS/COFINS from their own basis are being deposited judicially (US$ 2.7 million of deposits so far). In August 2021, CGG filed appeals to Superior Court of Justice and Supreme Court. On September 26, 2021, tax authorities presented counterarguments to our appeals. On October 27, 2021, decision to suspend ruling on the case until a final decision is reached at Supreme Court level on the general repercussion case.

No provision on the deposits is recognized as CGG do Brasil Participacoes Ltda considers the risk less likely than not to happen.

Also, no asset has been recognized so far as the Group believes Supreme Court can try to reduce the rights related to refunds.

CGG Services SAS

CGG Services SAS initiated in 2011 an action in order to obtain that withholding taxes not be applied to services payments received from Brazil in application of the tax treaty between France and Brazil. Amounts of WHT supposedly due on services paid to France between April 2012 and June 2014 were deposited judicially in such proceeding. In mid 2014, following a public decision rendered by the Public Attorney office that states that non-technical services should not be subject to withholding taxes if a treaty applies, the IRS published a new Declaratory Act 5/2014 that envisages correct application of treaties. The recoverable judicial deposit and the recoverable WHT paid are booked as receivables (US$9.3 million) in CGGS SAS's books. There is no reserve on the principal.

CGG Services SAS first filed the case in Rio de Janeiro Court. In August 2011, the company filed a request to withdraw the action in order to enter it in Brasilia court instead of Rio Court to avoid jurisdiction issues. In September 2011, the judge approved the withdrawal. CGG Services SAS then filed the case in Brasilia Court in September 2011. On January 31, 2014, the Brasilia Courts considered that the decision should be rendered by Rio Courts and we are now back in front of Rio Courts. In May 2017, the Tax Authorities filed a petition claiming that CGGS SAS had a Permanent Establishment (PE) in Brazil and/or that the remittances were royalties, trying to deny the application of the French-Brazilian Tax Treaty. On August 1, 2017, CGGS SAS presented a petition to refute the arguments brought by the national treasury, especially the one related to the existence of a PE in Brazil. On September 1, 2017, CGGS SAS filed a petition attaching a new power of attorney to avoid problems with absence of valid procedural representation. On October 30, 2017, the Brazilian Tax Authorities filed a petition refuting the Company's arguments.

An opinion from an academic expert was attached to the case on December 02, 2019. On March 10, 2020, the judge requested both parties to present their final arguments in the case. Public Attorneys presented it on April 23 and CGGS SAS on May 11. On June 02, 2020, our lawyers had a VC with the judge. The judge mentioned that this is one of the most difficult cases he has worked on, that the issue is very complex and new to him and that we should have a decision by year-end. On June 10, 2020, we filed a petition with a very recent precedent from the STJ. On September 1, 2020, the judge decided unfavorably to CGG Services SAS considering that article 7 of French-Brazilian Tax Treaty only prevents WHT on payment of profits of business and not on any income/revenue. On September 24, 2020, CGG Services SAS filed an appeal from such decision. On December 1, 2020, the Brazilian Tax Authorities presented their counterarguments to the CGG Services SAS appeal.

In 2021, several meetings between judges in charge were held without a final decision and on December 28, 2022, a decision against CGG was published. On January 26, 2023 CGG filed a motion to clarify trying the annulment of the judgement. The IRS also filed a motion to clarify.

Peru

The Peru tax authorities assessed additional withholding taxes on technical services for 2012 and 2013 for CGG Land (U.S.) Inc. Sucursal del Peru for an amount of US$16.2 million. The company disputed the reassessment. A final resolution in favor of CGG was notified in May 2017. A nullity action was launched against this resolution by the Tax Authorities. In February 2019, the nullity action was denied by the judge. In February 2019, SUNAT appealed against the decision and in September 2019, CGG Land (U.S.) Inc. Sucursal del Peru was notified of the second instance decision in which the Superior Court declared the nullity of the first instance decision and ordered to the first instance to rule again the case. CGG Land (U.S.) Inc. Sucursal del Peru filed an annulment action to cancel this decision, which has been rejected. CGG Land (U.S.) Inc. Sucursal del Peru has provided all relevant documents for the new first instance decision and is waiting for the decision. Oral report occurred in August 2021. Waiting for the decision of the case, expected to be released in 2023.

No provision has been recognized, as the risk is considered as less likely than not to happen.

NOTE 25 PERSONNEL

The analysis of personnel (including discontinued operations) is as follows:

	December 31	
	2022	**2021**
Personnel employed under French contracts	955	949
Personnel employed under local contracts	2,461	2,363
TOTAL	**3,416**	**3,312**

The total cost of personnel employed amounted to US$334 million in 2022 (or US$332 million excluding Contactual Data Acquisition, the CGG 2021 Plan, Smart Data Solutions and Geosoftware).

The total cost of personnel employed amounted to US$382 million in 2021 (or US$347 million excluding Contactual Data Acquisition and the CGG 2021 Plan, Smart Data Solutions and Geosoftware).

NOTE 26 KEY MANAGEMENT PERSONNEL COMPENSATION

The table below presents the director fees and the CEO compensation paid.

	December 31	
in US$	2022	2021
Short-term employee benefits paid [(a)]	1,812,700	1,308,679
Directors' fees	409,392	486,822
Post-employment benefits – pension [(b)]	12,995	14,671
Share-based payments [(c)]	379,325	30,699

(a) Excludes employers' contributions.
(b) Cost of services rendered and interest expense.
(c) Expense recognized in the income statement related to stock option and performance shares plans.

Contractual termination indemnity in force – Chief Executive Officer

Sophie ZURQUIYAH benefits, as Chief Executive Officer since her appointment in 2018, from a contractual termination indemnity in the event of termination of her corporate office. As part of her renewal by the Board of Directors on May 5, 2022, this indemnity was maintained under the following terms and conditions:

- Sophie ZURQUIYAH benefits from a contractual termination indemnity in the event of dismissal, and in the event of non-renewal of her term of office within twelve months following a change of control, in the absence of any situation of failure characterized by the non-achievement of the performance conditions described below;
- no payment may be made in the event of serious or gross misconduct, regardless of the reason for departure.

The payment of the contractual termination indemnity will depend on the average rate of achievement of the objectives relating to the annual variable portion of Sophie ZURQUIYAH's remuneration for the last three financial years ended prior to the departure date, in accordance with the following rule:

(i) if the average achievement rate is less than 80%, no contractual termination indemnity fee will be paid;

(ii) if the average achievement rate is equal to or greater than 80% and less than 90%, the contractual termination indemnity will be due at 50% of its amount;

(iii) if the average achievement rate is equal to or greater than 90%, the contractual termination indemnity will be due on a straight-line basis between 90% and 100% of its amount.

This contractual termination indemnity will be equal to the difference between (i) a gross amount capped at 200% of the Annual Reference Remuneration and including all sums of any nature whatsoever, and on any basis whatsoever, to which Sophie ZURQUIYAH may be entitled as a result of the termination, and (ii) all sums to which she may be entitled as a result of the implementation of the non-competition commitment.

The aggregate of the contractual termination indemnity and the non-competition indemnity may under no circumstances exceed 200% of the Corporate Officer's Annual Reference remuneration. Should the combined amount of the two benefits be greater, the contractual indemnity would be reduced to the level of this cap.

It is specified that the Board of Directors must acknowledge, prior to the payment of the contractual termination indemnity, (i) that the performance conditions described above have been met and (ii) that the contractual termination indemnity complies with the recommendations of the AFEP-MEDEF Code in force at the date of the departure of the person concerned.

NOTE 27 RELATED PARTY TRANSACTIONS

CGG Joint Ventures and Associates are mainly related to Land and Marine Data Acquisition.

The following table presents the transactions with our joint ventures and associates.

	December 31					
	2022			2021		
In millions of US$	Joint ventures [(a)]	Associates [(b)]	Total	Joint ventures [(a)]	Associates [(b)]	Total
Sales of geophysical equipment	-	0.7	0.7	-	37.2	37.2
Equipment rentals and services rendered	-	2.1	2.1	-	0.4	0.4
Operating Revenue	**-**	**2.8**	**2.8**	**-**	**37.6**	**37.6**
Other revenues (expenses)	-	-	-	(0.7)	-	(0.7)
Cost of operations	**-**	**-**	**-**	**(0.7)**	**-**	**(0.7)**
Other financial income (loss)	**-**	**-**	**-**	**-**	**-**	**-**
Trade accounts and notes receivable,including agency arrangements	1.6	0.8	2.4	1.6	2.3	3.9
Receivables and assets	**1.6**	**0.8**	**2.4**	**1.6**	**2.3**	**3.9**
Trade accounts and notes payable,including agency arrangements	-	-	-	-	0.9	0.9
Payables and liabilities	**-**	**-**	**-**	**-**	**0.9**	**0.9**

(a) Mainly correspond to related party transactions with a company accounted for under the equity method from our Marine Data Acquisition business. This company is in process of liquidation.

(b) Mainly correspond to related party transactions with Argas (note 8).

No credit facility or loan was granted to the Company by shareholders during the last two years.

NOTE 28 SUPPLEMENTARY CASH FLOW INFORMATION

Operating activities

Before changes in working capital, net cash provided by operating activities in 2022 was stable at US$397.6 million compared to US$421.6 million in 2021. The change in working capital had a negative effect on cash flow from operations of US$(52.1) million 2022, mainly due to the build-up of inventory in SMO segment in anticipation of significant deliveries expected in 2023, partially offset by a sustained level of collection over the year for all our activities.

Depreciation, amortization and impairment

In 2022, depreciation and amortization included a US$(22.1) million impairment loss related to:

- US$(17.3) million impairment loss on the Earth Data library;
- US$(3.2) million impairment loss on the capitalized developments costs for Geoscience; and
- US$(1.6) million impairment losses on a building right-of-use.

In 2021 depreciation and amortization included a US$(133.4) million of impairment loss including:

- US$(101.8) million impairment loss of our Earth Data CGU goodwill;
- US$(21.2) million impairment loss on the Earth Data library; and
- US$(10.5) million impairment losses on buildings right-of-use.

Net gain (loss) on disposal of assets

In 2022, the net gain (loss) on disposal of assets amounts to US$ 37.6 million including:

- US$34.0 million net gain from the sale of US land Earth Data library *(note 2)*;
- US$5.2 million net gain from the sale and leaseback of CGG headquarters *(note 2)*; and
- US$(1.5) million loss from the sale of GeoSoftware.

In 2021, the net gain (loss) on disposal of assets was US$2.7 million and notably encompasses the net proceeds from the sale of GeoSoftware and Smart Data Solutions respectively for US$1.8 million and US$(1.4) million.

Net income (loss) from companies accounted for under the equity method

In 2022, the recoverable amount of our shares in Argas and Reservoir Evolution LLP was revised, triggering an impairment loss of respectively US$(16.0) million and US$(2.2) million.

Net cash flow from operating activities

Net cash provided by operating activities amounted to US$345.5 million in 2022 compared to US$336.7 million in 2021.

Investing activities

The net cash used in investing activities amounted to US$(198.9) million in 2022 compared to US$(138.8) million in 2021.

Investment in Earth Data

Expenditures on Earth Data surveys were up by US$37 million at US$205 million in 2022 as we operated three marine surveys in the Brazil basin, Suriname and the Norwegian North Sea, as well as five reprocessing programs in Gulf of Mexico and Brazil, from US$168 million in 2021.

Net proceeds from disposal of fixed assets

In 2022, the net proceeds from disposals of tangible and intangible assets amount to US$95.0 million and include the net proceeds related to the sale of the US land Earth Data library for US$62.5 million and to the sale and leaseback of CGG headquarters for US$32.2 million *(note 2)*.

Acquisition of business and assets

In 2022, the Group acquired activities for US$(36.4) million regarding the SMO segment related to:

- US$(15.7) million for the acquisition of Geocomp *(note 2)*;
- US$(19.3) million for the acquisition of Ion *(note 2)*; and
- US$(1.4) million for the second and last payment related to the acquisition of Liss (acquired in 2021).

In 2021, the SMO segment acquired the shares of two companies for a net cash consideration of US$(1.9) million.

Net Gain (loss) on disposal of business

GeoSoftware and Smart Data Solutions were sold in 2021. The net proceeds from the sale these businesses amounted to US$4.9 million in 2022 and US$91.8 million in 2021 *(note 5)*.

In 2021, the Group had a loss of US$(2.4) million related to the net cash outflow from the exercise of the put option by Eidesvik and the acquisition of all shares of Shearwater held by CGG by Rasmussengruppen.

Variation in other non-current financial assets

The variation in other non-current financial assets mainly related to short-term investment securities and long-term deposits pledged to fulfill certain collateral requirements.

Financing activities

In 2022, net cash flow used by financing activities was mainly related to:

- a new asset financing arrangement to further develop HPC and Cloud Solutions activities for US$10.6 million *(note 13)*;
- lease repayments of US$(48.4) million;
- financial interests paid related to long-term debt for (92.4) million;
- the repayment of the loan granted to Xcalibur Group as part of the sale of the Multi-Physics business for US$1.6 million;
- exercise of warrants for US$0.4 million;
- dividends paid to minority shareholders for US$(0.9) million.

In 2021, net cash flow used by financing activities was mainly related to:

- US$(96.7) million of net proceeds from the refinancing:
  - US$(1,227.5) million of repayment of long-term debt composed of (a) US$(628.3) million of first lien notes principal repayment, (b) US$(585.3) million of second lien notes principal repayment (including capitalized interest, and (c) US$(13.8) million of first lien call premium,
  - US$1,159.8 million of total issuance of long-term debt made up of (a) US$1,185.9 million of 2027 Notes proceeds and (b) US$(25.9) million of transaction costs,
  - US$(29.3) million of accrued interest from existing notes until redemption included in financial interests paid for US$(89.8) million;
- an innovation loan received for US$2.0 million;
- lease repayments of US$(57.0) million;
- a loan granted to Xcalibur Group as part of the sale of Multi-Physics business for US$(1.8) million; and
- dividends paid to minority shareholders for US$(3.6) million.

In millions of US$	December 31 2022	2021
Property lease	(28.2)	(34.3)
Property formerly classified as financial lease [(a)]	(3.2)	*(7.8)*
Other property	(25.0)	(26.5)
Machinery & equipment lease	(20.2)	(22.7)
Total cash flow for leases	**(48.4)**	**(57.0)**

(a) It doesn't include the sale and leaseback of CGG headquarters, that is the option exercised to acquire the building and to repay the remaining lease liability for US$(29.0) million (note 2 and 13). These items are presented in the proceeds from disposals of tangible and intangible assets in the consolidated statement of cash flows.

Cash and cash equivalents

In millions of US$	December 31 2022	2021
Cash and bank deposits	105.1	216.8
Cash equivalents and short-term deposits	192.9	102.4
TOTAL CASH AND CASH EQUIVALENTS	**298.0**	**319.2**

Cash and cash equivalents included trapped cash amounting to US$47.5 million as at December 31, 2022, compared to US$37.5 million as at December 31, 2021. Trapped cash means any cash and cash equivalent held by a subsidiary that operates in a country where exchange controls or other legal restrictions prevent these cash balances from being available for use by the Group or one of its subsidiaries. In 2022, cash equivalents and short-term deposits excludes US$26.9 million of cash pledged to fulfill certain collateral requirements. The cash pledged for more than one year is recorded for US$17.3 million in other financial assets *(note 7)* and the cash pledged for less than one year is recorded for US9.6 million in restricted cash *(note 4).*

NOTE 29 EARNINGS PER SHARE

	December 31	
In millions of US$	2022	2021
Net income attributable to shareholders (a)	43.1	(180.5)
Effect of dilution		
Ordinary shares outstanding at the beginning of the year (b)	711,663,925	711,392,383
Weighted average number of ordinary shares outstanding during the period resulting from the exercise of stock options and delivery of performance shares (c)	449,092	159,087
Weighted average number of treasury shares (d)	(24,996)	(24,996)
Weighted average number of ordinary shares outstanding ((e) = (b) + (c) - (d))	**712,088,021**	**711,526,474**
Total dilutive potential shares from stock options	-	-
Total dilutive of potential shares from performance share plans	2,520,898	-
Total dilutive of potential shares from warrants	-	-
Dilutive weighted average number of shares outstanding adjusted when dilutive (f)	**714,608,919**	**711,526,474**
Earnings per share		
– **Basic (a)/(e)**	**0.06**	**(0.25)**
– **Diluted (a)/(f)**	**0.06**	**(0.25)**
Net income from continuing operations attributable to owners of the Group	47.6	(182.1)
– Earnings per share, basic	0.07	(0.25)
– Earnings per share, diluted	0.07	(0.25)
Net income from discontinued operations attributable to owners of the Group	(4.5)	1.6
– Earnings per share, basic	(0.01)	-
– Earnings per share, diluted	(0.01)	-

NOTE 30 SUBSEQUENT EVENTS

None.

NOTE 31 LIST OF MAIN CONSOLIDATED SUBSIDIARIES AS AT DECEMBER 31, 2022

Subsidiaries are fully consolidated from the date of their acquisition, being the date on which the Group obtains the control.

Dormant subsidiaries of the Group have not been included in the list below.

Percentage of interest generally corresponds to the percentage of control in the Company.

Siren Number [(a)]	Company Names	Country of incorporation	% ownership interest
403 256 944	CGG Services SAS	France	100.0
413 926 320	Geomar SAS	France	100.0
	CGG Holding BV	Netherlands	100.0
	CGG Services (Norway) AS	Norway	100.0
	CGG Services (UK) Limited	United Kingdom	100.0
	CGG do Brasil Participaçoes Ltda	Brazil	100.0
	Veritas do Brasil Ltda	Brazil	100.0
	CGG Mexico, SA de CV	Mexico	100.0
	CGG Holding (US) Inc.	Delaware, United States of America	100.0
	CGG Services (US) Inc.	Delaware, United States of America	100.0
	CGG Land (US) Inc.	Delaware, United States of America	100.0
	CGG Services (Canada) Inc.	Canada	100.0
	CGG Services (Australia) Pty Ltd	Australia	100.0
	CGGVeritas Services (B) Sdn Bhd	Brunei	100.0
	PT CGG Services Indonesia [(b)]	Indonesia	95.0
	CGG Services India Private Ltd	India	100.0
	CGG Technology Services (Beijing) Co. Ltd	China	100.0
	CGG Services (Singapore) Pte Ltd	Singapore	100.0
	CGG Services (Malaysia) Sdn Bhd	Malaysia	100.0
	CGG Vostok	Russia	100.0
866 800 154	Sercel Holding SAS	France	100.0
378 040 497	Sercel SAS	France	100.0
	Concept Systems Limited	United Kingdom	100.0
	Sercel Inc.	Oklahoma, United States of America	100.0
	Sercel GeoComp	Delaware, United States of America	100.0
	Hebei Sercel-Junfeng Geophysical Prospecting Equipment Co. Ltd [(b)]	China	51.0
	Sercel Singapore Pte Ltd	Singapore	100.0
	De Regt Marine Cables BV	Netherlands	100.0

(a) Siren number is an individual identification number for company registration purposes under French law.
(b) CGG Group controls these entities.

Non-controlling interests

The Group does not fully consolidate any significant entity in which it holds less than a majority of voting rights.

Subsidiaries with non-controlling interests do not contribute materially to the activities of the Group, the consolidated income, cash flows, liabilities nor assets as at December 31, 2022.

Hebei Sercel-Junfeng Geophysical Prospecting Equipment Co. Ltd, a subsidiary of Sercel SAS based in China, is the main entity owned by CGG with non-controlling interests.

NOTE 32 AUDIT FEES

The table below shows the fees from our external auditors and their affiliated companies paid by the Group:

	December 31			
	2022		2021	
In thousands of US$	EY	Mazars	EY	Mazars
Audit fees	1,600	756	1,610	798
Audit-related fees [(a)]	18	16	172	105
Tax fees	35	-	60	26
Other fees [(b)]	35	-	-	1
TOTAL	**1,688**	**772**	**1,842**	**930**

(a) Audit-related fees are mainly linked to refinancing in 2021 and the verification of the non-financial performance statement and support for CGG's European green taxonomy in 2022 and 2021.
(b) Other fees are relating to a training about accounting standards.

6.1.6 Statutory auditors' report on the consolidated financial statements

Year ended December 31, 2022

This is a translation into English of the statutory auditors' report on the consolidated financial statements of the Company issued in French and it is provided solely for the convenience of English-speaking users.

This statutory auditors' report includes information required by European regulation and French law, such as information about the appointment of the statutory auditors or verification of the information concerning the Group presented in the management report and other documents provided to shareholders. This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

To the Annual General Meeting of CGG,

Opinion

In compliance with the engagement entrusted to us by your Annual General Meeting, we have audited the accompanying consolidated financial statements of CGG for the year ended December 31, 2022.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the Group as at December 31, 2022 and of the results of its operations for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union.

The audit opinion expressed above is consistent with our report to the Audit Committee.

Basis for opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the "Statutory Auditors' Responsibilities for the Audit of the Consolidated Financial Statements" section of our report.

Independence

We conducted our audit engagement in compliance with independence requirement rules required by the French Commercial Code *(Code de commerce)* and the French Code of Ethics *(Code de déontologie)* for statutory auditors for the period from January 1, 2022 to the date of our report, and specifically we did not provide any prohibited non-audit services referred to in Article 5(1) of Regulation (EU) No. 537/2014.

Justification of Assessments - Key Audit Matters

In accordance with the requirements of Articles L. 823-9 and R. 823-7 of the French Commercial Code *(Code de commerce)* relating to the justification of our assessments, we inform you of the key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period, as well as how we addressed those risks.

These matters were addressed in the context of our audit of the consolidated financial statements as a whole and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the consolidated financial statements.

Valuation of goodwill

Key audit matter	Our response
As presented in note 11 to the consolidated financial statements as of December 31, 2022, the goodwill amounts to a net value of US$1,089 million breaking down as follows: • Geoscience : US$723 million; • Earth Data : US$182 million; • Sensing & Monitoring : US$184 million. Management ensures, at least once a year at the statement of financial position date, that the carrying amount of goodwill is not higher than its recoverable amount and presents no risk of impairment. The principles of the impairment test performed, and the applicable assumptions are described in note 11 to the consolidated financial statements. The determination of the recoverable amount of goodwill is very largely based on management judgment, in particular with regard to: • the future cash flows expected from the cash-generating units assessed, including normative cash flows that are used beyond the explicit period. These normative cash flows include flows from new businesses addressing the fast-growing markets of Digital Science, Energy Transition and Monitoring and Observation Solutions; • the discount rates applied to the future cash flows; • the long-term growth rate retained for the cash flow projection. We considered the valuation of goodwill as a key audit matter, due to its importance in the accounts and the necessary management estimates and judgments, particularly in the context of energy transition.	Our procedures thus mainly consisted in: • obtaining an understanding of the methodology used by management to assess the recoverable amount of goodwill and examining the compliance with the applicable accounting standards; • assessing the consistency of the estimated future cash flows with the main underlying operating assumptions, from the 2023 budget and the outlook for the explicit period, approved by management; • obtaining an understanding and examining the assumptions retained for the purpose of estimating normative cash flows, especially with regard to the outlook for the oil and gas market on the one hand, and the Digital Science, Energy Transition and Monitoring and Observation Solutions markets on the other hand; • performing a retrospective analysis of the cash flow estimates; • assessing the existence of any external information which could contradict management's assumptions. We have incorporated valuation specialists in our team for the purpose, in particular, of assessing the discount rates and long-term growth rate retained by management and assess the appropriateness of the discount rates to the level of risk embedded in the cash flows. They independently determined acceptable rate ranges and examined the rates used by management in relation to those ranges. We have also examined the appropriateness of the information relating to the valuation of goodwill presented in the consolidated financial statements. In particular, we have assessed the consistency of the sensitivities presented in the consolidated financial statements especially with regard to the choice of variables and the assumptions of variations. We also verified the arithmetical accuracy of these expectations.

Valuation of Earth Data surveys

Key audit matter	Our response
As presented in note 10 to the consolidated financial statements as of December 31, 2022, the carrying amount of the Earth Data surveys totals US$419.1 million. As presented in note 1.7 to the consolidated financial statements, the Group's Earth Data surveys regroup seismic surveys for which non-exclusive licenses are granted to customers. All the costs of acquisition, processing and finalization of the surveys are recognized as intangible assets. The Earth Data surveys are valued at the aggregate of those costs less accumulated amortization, or at their fair values if the latter is the lower. Management ensures, at least once a year and more frequently in the event of any indication of impairment, that the carrying amount of Earth Data surveys does not exceed their recoverable amounts. The assessment of the recoverable amount of Earth Data surveys is very largely based on management judgment, in particular with regard to the forecasting of future sales. In that respect, and as indicated in note 10, US$17.3 million of impairment losses were recognized at the end of 2022. Given the elements described above, we considered measurement of the Earth Data surveys as a key audit matter.	We have obtained an understanding of the methodology used by the Group's management to assess the recoverable amount of Earth Data surveys and have examined its compliance with the applicable accounting standards. We have assessed the consistency of future sales forecasts: • in relation to the forecasts made by management as part of the impairment test for the previous year, by comparing actual sales with previous forecasts; • and with surveys' attractiveness for potential customers. We assessed the existence of external information that could contradict management's assumptions. When management judged that impairment should be recognized, we inquired management about the reasons for the impairment and assessed its consistency with our understanding of the market. We have also examined the appropriateness of the information relating to the valuation of Earth Data surveys presented in the consolidated financial statements.

Specific verifications

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by laws and regulations of the Group's information relating to the Group given in the management report of the Board of Directors.

We have no matters to report as to their fair presentation and their consistency with the consolidated financial statements.

We attest that the consolidated non-financial statement required by Article L. 225-102-1 of the French Commercial Code *(Code de commerce)* is included in the Group's information given in the management report, it being specified that, in accordance with article L. 823-10 of this Code, we have verified neither the fair presentation nor the consistency with the consolidated financial statements of the information contained therein. This information should be reported on by an independent third party.

Report on Other Legal and Regulatory Requirements

Format of presentation of the financial statements intended to be included in the annual financial report

We have also verified, in accordance with the professional standard applicable in France relating to the procedures performed by the statutory auditor relating to the annual and consolidated financial statements presented in the European single electronic format, that the presentation of the consolidated financial statements intended to be included in the annual financial report mentioned in Article L. 451- 1-2, I of the French Monetary and Financial Code *(Code monétaire et financier)*, prepared under the responsibility of the Chief Executive Officer, complies with the single electronic format defined in Commission Delegated Regulation (EU) No. 2019/815 of December 17, 2018. As it relates to consolidated financial statements, our work includes verifying that the tagging thereof complies with the format defined in the above mentioned regulation.

Based on the work we have performed, we conclude that the preparation of the consolidated financial statements intended to be included in the annual financial report complies, in all material respects, with the European single electronic format.

Due to the technical limitations inherent to the block-tagging of the consolidated financial statements according to the European single electronic format, the content of certain tags of the notes may not be rendered identically to the accompanying consolidated financial statements.

Furthermore, we have no responsibility to verify that the consolidated financial statements that will ultimately be included by your company in the annual financial report filed with the AMF (*Autorité des marchés financiers*) are in agreement with those on which we have performed our work.

Appointment of the Statutory Auditors

We were appointed as statutory auditors of CGG by the Annual General Meeting held on May 15, 2003 for MAZARS and on June 29, 1977 for ERNST & YOUNG et Autres.

As at December 31, 2022, MAZARS was in the twentieth year of total uninterrupted engagement and ERNST & YOUNG et Autres in the forty-sixth year (out of which forty-two years since securities of the Company were admitted to trading on a regulated market).

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the European Union and for such internal control as management determines necessary to enable the preparation of consolidated financial statements free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, the matters related to going concern and using the going concern basis for accounting unless it is expected to liquidate the Company or to cease operations.

The Audit Committee is responsible for monitoring the financial reporting process and the effectiveness of internal control and risk management systems and where applicable, its internal audit, regarding the accounting and financial reporting procedures.

The consolidated financial statements were approved by the Board of Directors.

Statutory Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Objectives and audit approach

Our role is to issue a report on the consolidated financial statements. Our objective is to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatements. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users made on the basis of these consolidated financial statements.

As specified in Article L. 823-10-1 of the French Commercial Code *(Code de commerce)*, our statutory audit does not include assurance on the viability of the Company or the quality of management of the affairs of your Company.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises professional judgment throughout the audit and furthermore:

- identifies and assesses the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for his opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;

- obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control.
- evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management in the consolidated financial statements;
- assesses the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the consolidated financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein;
- evaluates the overall presentation of the consolidated financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation;
- obtains sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. The statutory auditor is responsible for the direction, supervision and performance of the audit of the consolidated financial statements and for the opinion expressed on these consolidated financial statements.

Report to the Audit Committee

We submit a report to the Audit Committee which includes in particular a description of the scope of the audit and the audit program implemented, as well as the results of our audit. We also report, if any, significant deficiencies in internal control regarding the accounting and financial reporting procedures that we have identified.

Our report to the Audit Committee in cludes the risks of material misstatement that, in our professional judgment, were of most significance in the audit of the consolidated financial statements of the current period and which are therefore the key audit matters that we are required to describe in this report.

We also provide the Audit Committee with the declaration provided for in Article 6 of Regulation (EU) No. 537/2014, confirming our independence within the meaning of the rules applicable in France such as they are set in particular by Articles L. 822-10 to L. 822-14 of the French Commercial Code *(Code de commerce)* and in the French Code of Ethics *(Code de déontologie)* for statutory auditors. Where appropriate, we discuss with the Audit Committee the risks that may reasonably be thought to bear on our independence, and the related safeguards.

Paris-La Défense, March 14, 2023

The Statutory Auditors

MAZARS	ERNST & YOUNG et Autres
Daniel Escudeiro	Claire Cesari-Walch

6.2 2021-2022 STATUTORY FINANCIAL STATEMENTS OF CGG SA

6.2.1 Balance sheet

This section is in French only.

6.2.2 Income statement

This section is in French only.

6.2.3 Cash flow statement

This section is in French only.

6.2.4 Notes

This section is in French only.

6.2.5 Information on terms of payment

As of December 31, 2022, the parent company's trade payables totaled €14.6 million, which can be broken down as follows:

ARTICLE D. 441 L.-1°: INVOICES RECEIVED AND NOT PAID AS OF THE END OF THE FINANCIAL YEAR ALTHOUGH THE DUE DATE HAS PASSED

	0 days	1 to 30 days	31 to 60 days	61 to 90 days	91 days or more	Total (1 day or more)
(A) Late payment periods (see note below)						
Total number of invoices concerned	27					8
Total amount of invoices concerned, in millions of euros (incl. VAT)	13.6	0.9				0.9
Percentage of the total amount of invoices concerned	93.6%	6.4%				6.4%
(B) Invoices excluded from (A) that relate to unrecorded liabilities						
Number of excluded invoices	11					
Total amount of excluded invoices, in millions of euros (incl. VAT)	0.1					
(C) Reference payment terms used (contractual or statutory - Article L. 441-6 or Article L. 443-1 of the French Commercial Code [*Code du commerce*])						
Payment terms used to calculate late payments	Contractual payment terms					
	Statutory payment terms					

As of December 31, 2022, the parent company's trade receivables totaled €12.0 million, which can be broken down as follows:

ARTICLE D. 441 L.-1°: INVOICES RECEIVED AND NOT PAID AS OF THE END OF THE FINANCIAL YEAR ALTHOUGH THE DUE DATE HAS PASSED

	0 days	1 to 30 days	31 to 60 days	61 to 90 days	91 days or more	Total (1 day or more)
(A) Late payment periods (see note below)						
Total number of invoices concerned	36					
Total amount of invoices concerned, in millions of euros (incl. VAT)	12.0					
Percentage of the total amount of invoices concerned	100%					
(B) Invoices excluded from (A) that relate to unrecorded liabilities						
Number of excluded invoices	None					
Total amount of excluded invoices, in millions of euros (incl. VAT)	None					
(C) Reference payment terms used (contractual or statutory - Article L. 441-6 or Article L. 443-1 of the French Commercial Code [*Code du commerce*])						
Payment terms used to calculate late payments	**Contractual payment terms**					
	Statutory payent terms					

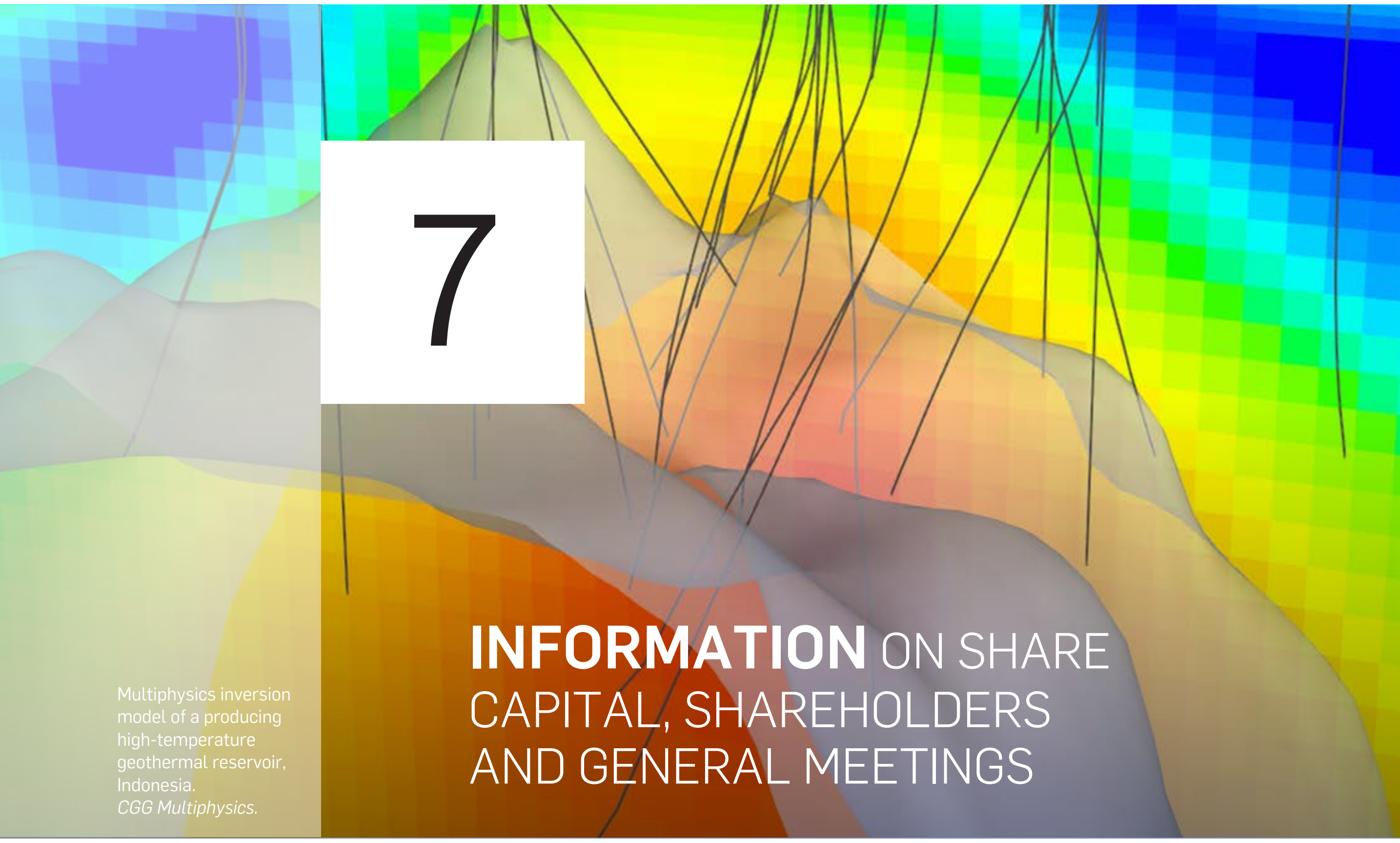
6.2.6 Financial results of CGG SA (group holding company) over the last five years

In €	2018	2019	2020	2021	2022
I. Financial position at year-end					
a) Capital stock	7,099,448	7,099,563	7,113,923	7,116,639	7,123,573
b) Number of shares outstanding	709,944,816	709,956,358	711,392,383	711,663,925	712,357,321
c) Maximal number of shares resulting from convertible bonds (see note below)	-	-	-	-	
d) Total Equity	1,790,163,681	1,887,496,882	811,891,486	520,894,173	671,349,382
II. Earnings					
a) Sales net of sales tax	27,549,575	26,389,011	16,884,801	29,013,250	21,636,719
b) Earnings before taxes, employee profit sharing, depreciation and reserves	52,664,150	60,121,733	12,844,224	(377,765,039)	650,685,707
c) Employee profit sharing	-	-	-	-	
d) Income taxes	250,482	(19,924,332)	(7,256,246)	(3,744,126)	(3,420,749)
e) Income after taxes, employee profit sharing, depreciation and reserves	(271,326,175)	97,295,002	(1,075,646,338)	(291,183,172)	150,058,885
f) Dividends	-	-	-	-	
III. Earnings per share					
a) Earnings after taxes and profit sharing but before depreciation and reserves	0.07	0.11	0.03	(0.53)	0.92
b) Earnings after taxes, depreciation and reserves	(0.38)	0.14	(1.51)	(0.41)	0.21
c) Net dividend per share	-	-	-	-	
IV. Personnel					
a) Average number of employees	27	22	18	14	13
b) Total payroll	8,229,076	8,263,169	5,515,555	5,402,078	5,823,606
c) Employee benefits (social security, etc.)	2,731,349	3,116,675	1,919,830	2,222,716	2,381,661

Note on convertible bonds: On February 21, 2018, CGG finalized the implementation of its financial restructuring plan. All bonds have been converted into shares.

6.2.7 Statutory auditors' report on the statutory financial statements of CGG SA

This section is in French only.



Multiphysics inversion model of a producing high-temperature geothermal reservoir, Indonesia.
CGG Multiphysics.

7

INFORMATION ON SHARE CAPITAL, SHAREHOLDERS AND GENERAL MEETINGS

7.1 OWNERSHIP OF SHARE CAPITAL

7.1.1 Places where CGG securities are listed

The trading market for the Company's ordinary shares is Euronext Paris (Compartment B – SRD – ISIN code: FR0013181864; symbol "CGG").

In addition:

- Senior Secured Notes due 2027 are listed on the Euro MTF market of the Luxembourg Stock Exchange; and
- the Warrants #1 and Warrants #2 were listed on Euronext Paris until February 21, 2022 and February 21, 2023 respectively.

Following delisting of the American depositary shares (ADSs) from the New York Stock Exchange in 2018, CGG maintains its American Depositary Receipt (ADR) program at "level one", enabling trading on the US over-the-counter market. The depositary of CGG's ADR program remains The Bank of New York Mellon.

7.1.2 Shareholding

Information on the share capital as at December 31, 2022

As at December 31, 2022, the share capital amounts to 7,123,573.21 euros, divided into 712,357,321 shares with a nominal value of 0.01 euro, all fully paid-up.

As at December 31, 2022, our Directors held 584,483 shares and 20,156 ADR, representing 774 389 voting rights, i.e. 0.08% of the share capital and 0.11% of the voting rights.

As at December 31, 2022, the number of shares held by the employees of the Group, through the Group employee savings plan instituted in 1997, amounted to 273 shares, each with double voting rights, i.e. 546 voting rights, corresponding to 0.00004% of the share capital and 0.00008% of the voting rights of CGG.

As at December 31, 2022, the Company held 24,996 of its own shares, acquired pursuant to the authorizations granted by the shareholders.

As at December 31, 2022	Number of shares	% of share capital	Number of theoretical voting rights	% of theoretical voting rights	Number of voting rights exercisable during General Meetings	% of voting rights exercisable during General Meetings
FIL Limited[(a)]	37,082,385	5.21%	37,082,385	5.19%	37,082,385	5.19%
FCPE CGG Actionnariat[(b)]	273	0.00%	546	0.00%	546	0.00%
Other shareholders	675,249,667	94.79%	677,157,370	94.81%	677,157,370	94.81%
Treasury stock[(c)]	24,996	0.00%	24,996	0.00%	0	0.00%
TOTAL NUMBER OF SHARES OUTSTANDING AND VOTING RIGHTS	**712,357,321**	**100%**	**714,265,297**	**100%**	**714,240,301**	**100%**

Percentages of share capital and voting rights calculated on the basis of information on the total number of voting rights and shares as at December 31, 2022.

(a) Calculated on the basis of the number of shares held by FIL Limited as indicated in a letter to the Autorité des marchés financiers dated February 21, 2022.

(b) As at December 31, 2022, the 273 shares held by FCPE CGG Actionnariat (all benefiting from double voting rights) represented 0,00004% of the capital and 0.00008% of the voting rights (theoretical and exercisable during General Meetings). For the sake of clarity of this table, they have been rounded to 0.00%.

(c) As at December 31, 2022, the 24,996 shares held by the Company represented 0.0035% of the capital and of the theoretical voting rights. These shares are deprived of voting rights for all General Meetings. The corresponding voting rights are reflected to provide theoretical voting rights only. For the sake of clarity of this table, they have been rounded to 0.00%.

Evolution of the share capital over the past three years

The table below shows the shareholders who, to the best of the Company's knowledge, have crossed the legal threshold of 5% of share capital and/or voting rights as of the closing of the last three financial years and as of February 28, 2023:

	February 28, 2023		December 31, 2022		December 31, 2021		December 31, 2020	
	% of shares	% of voting rights*	% of shares	% of voting rights*	% of shares	% of voting rights*	% of shares	% of voting rights*
Other shareholders	89.90	89.93	94.79	94.81	82.81	82.83	76.56	76.58
FIL Limited[a]	10.10	10.07	5.21	5.19				
Contrarian Capital Management LLC [b]					9.22	9.21	9.23	9.22
River & Mercantile[c]					7.97	7.96	7.19	7.18
Boussard & Gavaudan[d]							7.02	7.02
Treasury stock[e]	0.00	0,00	0.00	0,00	0.00	0.00	0.00	0.00
FCPE CGG Actionnariat[f]	0.00	0,00	0.00	0,00	0.00	0.00	0.00	0.00
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
TOTAL NUMBER OF SHARES OUTSTANDING AND VOTING RIGHTS	**712,381,115**	**714,300,426**	**712,357,321**	**714,265,297**	**711,663,925**	**712,328,461**	**711,392,383**	**711,643,049**

(a) *In a letter to the Autorité des marchés financiers dated February 21, 2022, FIL Limited declared that it crossed above on February 15, 2022, following the purchase of CGG shares, the threshold of 5% of the capital and voting rights of the Company, and held 37,082,385 CGG shares representing as many voting rights, i.e. 5.21% of the capital and voting rights of the Company. In a letter to the Autorité des marchés financiers dated February 2, 2023, FIL Limited declared that it crossed above on January 27, 2023, the thresholds of 10% of the capital and voting rights of the Company, and held 69,301,037 CGG shares and CFD giving right to a maximum of 2,653,640 CGG shares, representing 10.10% of the capital and 10.07% voting rights of the Company.*

(b) *Calculated on the basis of the number of shares held by Contrarian Capital Management LLC as indicated in the notice of threshold corssing dated August 12, 2018. In a letter to the Autorité des marchés financiers dated November 14, 2022, Contrarian Capital Management LLC declared that it crossed below on November 8, 2022, the thresholds of 5% of the capital and voting rights of the Company, and held 35,417,315 CGG shares representing 4.97% of the capital and 4.96% voting rights of the Company.*

(c) *In a letter to the Autorité des marchés financiers dated February 25, 2022, River & Mercantile declared that it crossed below on February 22, 2022, following the sale of CGG shares, the threshold of 5% of the capital and voting rights of the Company, and held 14,282,168 CGG shares representing 2.01% of the capital and 2.00% of voting rights of the Company.*

(d) *In a letter to the Autorité des marchés financiers dated July 1, 2021, Boussard & Gavaudan Partners Limited declared that it crossed, on June 25, 2021, indirectly below, through the intermediary of the companies of its group, which act on behalf of funds they manage, the threshold of 5% of the capital and voting rights of the Company and indirectly held, on behalf of said funds, 34,440,145 CGG shares representing as many voting rights, i.e. 4.84% of the Company's capital and voting rights. This crossing of threshold results from a sale of CGG shares on the market. The Company has been informed that as of November 2, 2021, Boussard & Gavaudan Partners Limited no longer holds any CGG shares.*

(e) *As at December 31, 2022, the 24,996 shares held by the Company represented 0.0035% of the capital and of the theoretical voting rights. These shares are deprived of voting rights for all General Meetings. The corresponding voting rights are reflected to provide theoretical voting rights only. For the sake of clarity of this table, they have been rounded to 0.00%.*

(f) *As at December 31, 2022, the 273 shares held by FCPE CGG Actionnariat (all benefiting from double voting rights) represented 0,00004% of the capital and 0.00008% of the voting rights (theoretical and exercisable during General Meetings). For the sake of clarity of this table, they have been rounded to 0.00%*

* *Theoretical voting rights.*

To the best of the Company's knowledge and as of the date of this Document, based on the threshold crossing declarations made to the French Financial Markets Authority *(Autorité des marchés financiers)*, no shareholder other than FIL Limited, holds a stake in the Company of more than 5% share capital or voting rights. For a detailed presentation of the legal threshold crossings in 2022, please refer to Section 7.4.5 of this Document.

To the best of the Company's knowledge and as of the date of this Document, there have been no other substantial changes in ownership of the Company's share capital over the past three years.

7.1.3 Transactions in the Company's shares carried out by persons exercising managerial responsibilities

Summary transactions disclosed in accordance with provisions of Article L. 621-18-2 of the French Monetary and Financial Code and Article 223-26 of the General Regulations of the French Financial Markets Authority (AMF).

Name	Nature of the transaction	Date	Number of shares	Unit price	Amount of the transaction
No transaction to be disclosed for 2022 financial year					

Note: Pursuant to Article 223-23 of the General Regulation of the French Financial Markets Authority, the only transactions reflected in this table are those (i) carried out by the persons referred to in Article L. 621-18-2 of the French Monetary and Financial Code, and (ii) exceeding €20,000 in the total amount of such transactions per calendar year.

7.2 DISTRIBUTION OF EARNINGS – DIVIDENDS

7.2.1 Distribution of earnings (Article 19 of the articles of association)

Out of the earnings of the fiscal year, reduced if necessary by previous losses, at least five percent shall be first appropriated to form the reserve fund required by law, until said reserve fund has reached one tenth of the share capital.

The balance, increased by retained earnings, if any, forms the distributable earnings.

Any amounts that the General Meeting would decide, either on proposal by the Board or by its own decision, to allocate to one or more general or special reserve funds or to carry forward, shall be withdrawn from said earnings.

The balance shall be distributed among the shareholders as a dividend.

The terms and conditions for the payment of dividends are determined by the General Meeting or, in the absence of a determination by the General Meeting, by the Board of Directors.

The General Meeting deciding on the financial statements is entitled to give each shareholder, for the dividend or part of the dividend to be distributed or for any advance payments on a dividend, the choice between payment of the dividend in cash or in stock.

7.2.2 Dividends

The Company did not distribute any dividends over the past five years.

The Board of Directors is not considering proposing to distribute dividends at the next General Meeting based on 2022 results. The future dividend distribution policy will depend on the results achieved by the Company and its financial situation.

7.3 GENERAL INFORMATION ON THE COMPANY'S SHARE CAPITAL

7.3.1 Recent major events affecting the share capital

DETAILS OF CHANGES IN SHARE CAPITAL DURING THE PAST THREE YEARS AND SHARE CAPITAL AS AT DECEMBER 31, 2022

Share capital as at	Nominal value	Number of shares created	Amount of the capital variation	Number of cumulated shares	Total share capital
DECEMBER 31, 2022				**712,357,321**	**€7,123,573.21**
Exercise of warrants	€0.01	122,278	€1,222.78	-	-
Allocation of performance shares	€0.01	571,118	€5,711.18	-	-
DECEMBER 31, 2021				**711,663,925**	**€7,116,639.25**
Exercise of warrants	€0.01	6,162	€61.62	-	-
Allocation of performance shares	€0.01	265,380	€2,653.80	-	-
DECEMBER 31, 2020				**711,392,383**	**€7,113,923.83**
Exercise of warrants	€0.01	12,272	€122.72	-	-
Exercise of stock options	€0.01	1,423,753	€14,237.53	-	-

7.3.2 Dilutive instruments

As of December 31, 2022 and as of the date of this Document, the only dilutive instruments issued were stock options and performance shares (see section 4.2.2.2 E of this Document) as well as warrants described below.

The number of shares that could derive from our dilutive instruments in circulation on December 31, 2022, on the basis of their terms in force as of this date, as well as the corresponding percentage of dilution are presented in the table below.

	12.31.2022	Dilution %
Stock-options	13,341,156	1.87%
Performance shares	6,970,279[(a)]	0.98%
Warrants #2[(b)]	47,905,898	6.72%

(a) including 825,500 shares subject to presence condition only (granted to employees in 2022 excluding Corporate Officers and members of the Executive Leadership team).
(b) Which expired on February 21, 2023.

Warrants

The following table sets out some of the key characteristics of the warrants issued in the framework of the implementation of our financial restructuring on February 21, 2018 and exercisable during financial year 2022:

	Warrants #1	Warrants #2
Number of warrants issued	22,133,149	71,932,731
Exercise ratio	3 Warrants #1 for 4 new shares	3 Warrants #2 for 2 new shares
Exercise price	€3.12 per new share	€4.02 per new share
Maximum number of shares to be issued upon exercise of the warrants (subject to adjustments)	29,477,536[(a)]	47,955,154
Expiry date of the warrants	February 21, 2022[(b)]	February 21, 2023[(c)]

(a) The 24,996 Warrants #1 allocated to the Company in connection with the treasury shares were cancelled.
(b) As at the date of this Document, Warrants #1 have expired.
(c) As at the date of this Document, Warrants #2 have expired.

Warrants #1 and warrants #2 have been exercised pursuant to the terms and conditions described in the prospectuses no. 17-551 dated October 13, 2017 and no. 18-018 dated January 16, 2018.

7.3.3 Share buyback program

I) Share buyback program approved by the General Meeting held on May 5, 2022

At the General Meeting held on May 5, 2022, the shareholders authorized the Board of Directors, for a duration of 18 months following the date of such meeting, to purchase or to order to purchase Company's shares, under the conditions of the share buyback program as published by the Company in section 7.3.3 B of the 2021 Universal Registration Document.

As of the date of this Document, this share buyback program was not implemented.

As of December 31, 2022, the Company held 24,996 of its own shares.

II) Share buyback program proposed to the General Meeting to be held in 2023

A share buyback program will be submitted to the General Meeting to be held in 2023 in order to acquire up to 10% of our share capital through purchases of shares and to resell shares so acquired for the 18 months following the date of such meeting, with the following objectives:

- to ensure the facilitation of the secondary market or the liquidity of CGG shares through a liquidity contract entered into with an investment service provider acting in compliance with the market practice admitted by the regulations, it being specified that in this context, the number of shares taken into account for the calculation of the aforementioned limit corresponds to the number of shares purchased, minus the number of shares resold;
- to retain purchased shares and subsequently remit them in exchange or as payment in the framework of merger, demerger, contribution of external growth transactions;
- to cover stock option plans and/or free share plans (or similar plans) to employees and/or corporate officers of the Group, including Economic Interest Groups and related companies as well as all allocations of shares under a company or group savings plan (or similar plan), under the company's profit-sharing scheme and/or all other forms of share allocation to employees and/or corporate officers of the Group, including Economic Interest Groups and related companies,
- to cover securities giving entitlement to the allocation of shares in the Company within the framework of the regulations in force;
- to cancel any shares acquired, in accordance with the authorization granted or to be granted by the Extraordinary General Meeting; and
- generally, to implement any market practice that may be admitted by the French *Autorité des Marchés Financiers* and, more generally, to carry out any other transaction in compliance with applicable regulations (in such a case, the Company will inform its shareholders by means of a press release).

These share purchases may be carried out by any means, including the acquisition of blocks of shares, and at such times as the Board of Directors may determine.

The Board may not, without the prior authorization of the General Meeting, use this authorization during the period of a public tender offer initiated by a third party for the Company's shares, until the end of the offer period.

The Company reserves the right to use optional mechanisms or derivative instruments.

The maximum purchase price per share shall be €4.02 (acquisition costs excluded).

This authorization would be granted for an 18-month period from the date of the General Meeting approving the program.

7.3.4 Financial delegations and authorizations granted to the Board of Directors in force in the course of 2022

The tables below summarize the various financial delegations[(1)] and authorizations granted by the General Meeting to the Board of Directors, which are currently in force.

Authorizations in force in 2022

	Resolution number – General Meeting	Period	Maximum authorized amount	Use in 2022
SHARE CAPITAL INCREASES				
By incorporation of reserves, profits, premiums or other*	16th – GM 05.12.2021	26 months	€711,394[(a)], i.e. 10% of the Company's share capital as of the date of convening of the General Meeting	None
With preferential subscription right*	17th – GM 05.12.2021	26 months	€3,556,968[(b)], i.e. 50% of the Company's share capital as of the date of convening of the General Meeting	None
Without preferential subscription right, within the scope of public offerings and/or as remuneration for securities in the course of a public exchange offer*	18th – GM 05.12.2021	26 months	€711,394[(a)], i.e. 10% of the Company's share capital as of the date of convening of the General Meeting	None
Without preferential subscription right by private placement*	19th – GM 05.12.2021	26 months	€711,394[(a)], i.e. 10% of the Company's share capital as of the date of convening of the General Meeting	None
Increase of the number of securities to be issued by the Company in the event of a share capital increase with or without preferential subscription right*	21st – GM 05.12.2021	26 months	15% of the initial issue	None
Increase of capital, reserving the subscription of the shares to be issued to members of a company savings plan *(plan d'épargne entreprise)**[(c)]	16th – GM 05.05.2022	26 months	2% of the Company's share capital as of the date of the General Meeting	None
In consideration of contributions in kind*	23rd – GM 05.12.2021	26 months	€711,394[(a)], i.e. 10% of the Company's share capital as of the date of convening of the General Meeting	None
CAPITAL REDUCTIONS				
Share cancellation*	24th – GM 05.12.2021	26 months	10% of the share capital	None
SHARE BUY-BACK PROGRAM				
Share repurchase*	13th – GM 05.05.2022	18 months	10% of the share capital Maximum amount €4.02 per share	None

(1) Financial delegations are suspended during a public offer period.

			Authorizations in force in 2022	
	Resolution number – General Meeting	**Period**	**Maximum authorized amount**	**Use in 2022**
STOCK-OPTIONS AND PERFORMANCE SHARES				
Allocation of performance shares to senior executive officers and employees	14th – GM 05.05.2022	26 months	1% of the share capital of the Company on the date of the meeting of the Board deciding their allocation, with a sub ceiling of 0.15% of the share capital of the Company on the date of the meeting of the Board deciding their allocation, for senior executive officers.	06.22.2022: allocation of 3,491,300(1) performance shares, i.e. 0.490% of the share capital on 05.05.2022
Allocation of stock-options to senior executive officers and employees	15th – GM 05.05.2022	26 months	1% of the share capital of the Company on the date of the meeting of the Board deciding their allocation, with a sub ceiling of 0.15% of the share capital of the Company on the date of the meeting of the Board deciding their allocation, for senior executive officers.	06.22.22: allocation of 3,530,200(2) st ock-options, i.e. 0.496% of the share capital on 05.05.2022

(a) To be deducted from the aggregate ceiling of €3,556,967,51 set forth in the 17th resolution of the General Meeting held on May 12, 2021 (see (b) below).
(b) Aggregate ceiling for share capital increases, any operations considered, with the exception of stock-options and performance shares allocations.
(c) Category of persons under Article L. 225-138 of the French Commercial Code.
** Renewal proposed at the 2023 General Meeting.*

7.3.5 Securities not giving access to the share capital

Secured bonds due 2027

On April 1, 2021, CGG SA issued 2027 secured bonds at 8.75% for a nominal amount of US$500 million and 2027 secured bonds at 7.75% for a nominal amount of €585 million (together, the "2027 Bonds"). In connection with the issuance of these notes, CGG SA, as issuer, and certain of its subsidiaries, as guarantors, and The Bank of New York Mellon, London Branch, as trustee, among others, executed an indenture dated April 1, 2021 (for more information on the 2027 Bonds, please refer to note 13 of the 2022 consolidated financial statements).

(1) This number includes, on the one hand, the allocation of 848,700 shares subject to a condition of presence only, for the benefit of employees (excluding the Chief Executive Officer and members of the Management Committee) and on the other hand 160,000 performance shares awarded at the Board of Directors meeting of July 28, 2022.

(2) This number includes 160,000 performance shares awarded at the Board of Directors meeting of July 28, 2022.

7.4 GENERAL INFORMATION ON THE COMPANY'S GENERAL MEETINGS

7.4.1 Convening (Articles 14.2 and 14.3 of the articles of association)

The General Meeting is convened and makes decisions under the conditions and deadlines set forth by law. The General Meeting meets at the head office or at any other place as may be indicated in the notice of convening.

7.4.2 Conditions to attend and vote at General Meetings (Article 14.6 of the articles of association)

Subject to the provisions of Articles L. 225-104 et seq. of the French Commercial Code, the conditions for shareholders to attend the General Meetings of the Company are described in Articles 14, 15 and 16 of the articles of association.

The General Meeting is composed of all the shareholders, whatever the number of shares they hold.

Shareholders may participate in General Meetings in accordance with the terms and conditions provided for by the regulations in force.

Each shareholder has as many votes as the shares he possesses or represents subject to the provisions related to double voting rights (see paragraph 7.4.3 below).

Shareholders may vote by mail or give their proxy by expressing their vote or by sending their proxy by any means in accordance with the legal and regulatory conditions in force. In particular, shareholders may send proxy and postal voting forms to the Company by teletransmission or by electronic means prior to the General Meeting under the conditions provided for by law.

Any shareholder may also, if the Board of Directors or its Chairman allows at the time of the convocation to a general meeting, assist this meeting via visio-conference or by electronic telecommunication or tele-transmission means subject to and in accordance with the conditions laid down by the legislation or the regulations in force.This shareholder is then considered to be present at this meeting when calculating the quorum and the majority.

7.4.3 Double voting rights (Article 14.6 of the articles of association)

As from May 22, 1997, a double voting right is allocated to all registered and fully paid-up shares registered in the name of the same holder for at least two years.

In the event of an increase in capital by incorporation of reserves, profits or paid in capital, this double voting right is granted to registered shares allocated free to a shareholder as soon as they are issued, at the rate of the former shares for which he benefits from this right.

The double voting right ceases ipso jure for any share having been subject to a conversion to bearer form or a transfer of ownership subject to exceptions provided for by law.

In accordance with Article L. 225-99, paragraph 2, of the French Commercial Code, the Extraordinary General Meeting cannot withdraw the double voting rights without a prior authorization granted by a special meeting of the holders of these double voting rights.

7.4.4 Threshold crossings to be notified to the Company (Article 7.2 of the articles of association)

Any shareholder who directly or indirectly (as per the provisions of Article L. 233-7 of the French Commercial Code) acquires ownership or control of shares representing 1% or any multiple thereof of the share capital or voting rights, or whose shareholding falls below any such limit, must inform us within five trading days of the crossing of the relevant threshold, of the number of shares then owned by such shareholder.

Failure to comply with these notification requirements may result, at the request, recorded in the minutes of the General Meeting, of one or several shareholders holding at least 1% of the capital, in the shares in excess of the relevant threshold being deprived of voting rights for all Shareholder Meetings until the end of a two-year period following the date on which the owner thereof has complied with such notification requirements.

7.4.5 Legal threshold crossings in 2022 and as of the date of this Document

The table below shows all the legal threshold crossings reported during fiscal year 2022 and as of the date of this Document.

Date of the notification	Date of the transaction	Threshold crossed	Above/Below	Number of shares after the crossing	In % of the share capital	In % of the voting rights
By FIL Limited						
02.21.2022	02.15.2022	5%	Above	37,082,385	5.21	5.21
02.02.2023	01.27.2023	10%	Above	69,301,037	10.10	10.07
By Contrarian Capital Management						
11.11/14.2022	11.08.2022	5%	Below	35,417,315	4.97	4.96
By Towers Watson Investment Management[(a)]						
05.06.2022	02.28.2022	5%	Below	32,378,535	4.55	4.54
05.06.2022	02.22.2022	5%	Above	41,346,570	5.81	5.80
By River & Mercantile						
02.25.2022	02.22.2022	5%	Below	14,282,168	2.01	2.00

(a) In a letter to the Company dated May 13, 2022, Towers Watson Investment Management declared that it crossed below thresholds based on the Company's article of association and did no longer hold any Company's shares as at March 7, 2022.

7.4.6 Identifiable holders of bearer shares (Article 7.1 of the articles of association)

The Company is entitled to request Euroclear France to disclose the name or the corporate name, nationality, address of the holders of shares or other securities conferring immediate or future voting rights at its Shareholders' Meetings.

7.4.7 Legal entity or natural person which/who may control the Company

As of the date of this Document, no natural person nor any legal entity has control over the Company. As of the date of this document, there is no specific measure in place to prevent a potential attempt to take over the Company. Aside from the legal and regulatory threshold crossing notification requirements, the only existing control over the interest owned by each of our shareholders in our share capital is the notification imposed by the Company's articles of association when crossing the threshold of 1% of the share capital or the voting rights.

7.4.8 Changes in the share capital and voting rights

There are no specific rules in the Company's articles of association relating to the change in the share capital or the rights attached to the securities constituting the share capital. As a consequence, these changes shall be carried out in accordance with legal requirements.

7.4.9 Items likely to have an influence in the event of a take-over bid

Pursuant to Article L. 22-10-11 of the French Commercial Code, you will find below the elements which are likely to have an influence in case of a take-over bid.

Capital structure of the Company

Notice of crossing of a statutory threshold

Pursuant to Article 7.2 of the Company's articles of association, any shareholder holding directly or indirectly a portion amounting to 1% of the stock capital or of the voting rights or a multiple of this percentage, within the meaning of Article L. 233-7 of the French Commercial Code, shall give notice to the Company of the number of shares or voting rights he holds, within five trading days from the date on which one of these thresholds was exceeded.

In the event of failure to comply with this notification requirement, and upon request of one or several shareholders holding at least 1 percent of the capital, such request being recorded in the minutes of the General Meeting, those shares in excess of the fraction that should have been declared shall be deprived of their voting rights from the date of said General Meeting and for any other subsequent General Meeting to be held until the expiry of a two-year period following the date on which the required notification of the passing of the threshold has been complied with.

Similarly, any shareholder whose shareholding is reduced below one of these thresholds shall give notice thereof to the Company within the same five-day period.

Double voting right

As from May 22, 1997, a double voting right has been allocated to all registered and fully paid-up shares registered in the name of the same holder for at least two years.

Statutory restrictions concerning the exercise of voting rights and share transfers or clauses of agreements which the Company is aware of, in compliance with Article L. 233-11 of the French Commercial Code

There is no statutory restriction to the exercise of voting rights and share transfers. The Company is not aware of any agreement in application of Article L. 233-11 of the French Commercial Code.

Direct or indirect shareholding in the share capital of the Company notified pursuant to sections L. 233-7 and L. 233-12 of the French Commercial Code

See sections 7.1.2 and 7.4.5 of this Document.

List of holders of any security with special control rights and related description

There is no holder of securities with special rights.

Control mechanism included in a potential system of employee share ownership, when control rights are not exercised by them

Not applicable.

Agreements between shareholders which the Company is aware of and which are likely to restrict share transfers and the exercise of voting rights

As of December 31, 2022, no agreements between shareholders were notified to the Company.

Rules applicable to the appointment and replacement of members of the Board of Directors as well as the modification of the articles of association

The rules applicable to the appointment and replacement of Board of Directors' members are described in Article 14 of the articles of association. The rules applicable to the modification of articles of association are described in Article L. 225-96 of the French Commercial Code.

None of these rules is likely to have an influence in case of a take-over bid.

Powers of the Board of Directors, in particular the issuance or re-purchase of shares

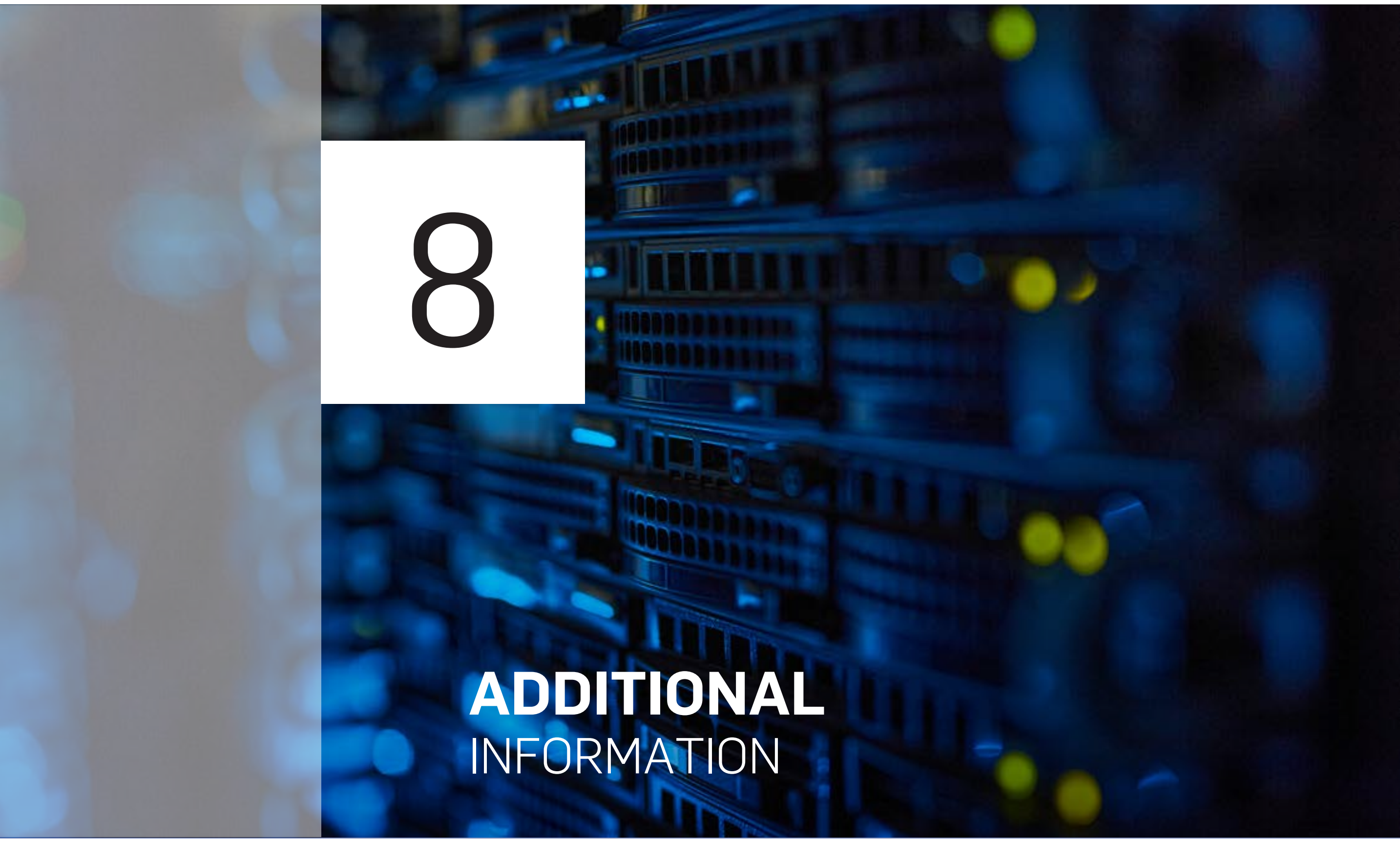
The Board of Directors does not have any specific power likely to have an influence in case of a take-over bid. The delegations of competence currently in force (presented under section 7.3.4 of this Document) cannot be used by the Board of Directors in case of a take-over bid.

Agreements entered into by the Company and modified or terminated in the event of change of control over the Company

The indentures governing the Company's outstanding senior notes and certain of its credit facilities provide for an early redemption of the loans, at the option of the lenders, in the event of a change of control, pursuant to the terms specified in each agreement.

Agreements providing for severance payments to corporate officers or employees who resign or who are dismissed without cause or whose employment is terminated in the event of a take-over bid

In addition to the agreements referred to section 4.2.1.2.b) xi. of this Document with respect to the Company's corporate officers, we inform you that certain executives of the Group benefit from a protection letter providing for a severance payment in the event of dismissal or change of control. The amount of such severance payment depends upon the positions and classifications of each of the concerned persons.



8 ADDITIONAL INFORMATION

8.1 INFORMATION ABOUT THE COMPANY

8.1.1 Registered name

Registered name: CGG

8.1.2 Place and number of registration/APE code

The Company is registered with the Évry Commercial court registry under registration number 969 202 241 RCS Évry.

APE code: 7010Z.

8.1.3 Date of registration and duration of the Company (Article 5 of the articles of association)

The Company was incorporated in on March 27, 1931 for a 99-year duration, i.e. until March 27, 2030 – unless earlier dissolution or extension approved by the General Meeting.

8.1.4 Registered address and phone number – Legal form – Applicable law – Country of origin

The registered address of the Company is located at 27 avenue Carnot, 91300 Massy, France.

Phone number is +33 (0)1 64 47 30 00.

The Company is a French *société anonyme* (Article 1 of the articles of association).

The Company is governed by the French Commercial Code and, more generally, by French laws and regulations, as its has been registered in France since its incorporation in 1931.

8.1.5 Corporate object (Article 2 of the articles of association)

The corporate object of the Company is as follows:

- development and operation in any form and under any conditions whatsoever, of all and any business relating to the identifying, assessing, understanding and/or solving the Earth's natural resource, environmental and infrastructure challenges, through different techniques, including but not limited to the data, technology, services and equipment that are required to understand and monitor these challenges, in any and all countries, on behalf of third parties or on its own behalf;
- direct or indirect participation in any business, firm or Company whose object would be likely to promote the corporate object; and
- generally, any business, industrial, mining, financial, personal or real property operations relating directly or indirectly to the above object without limitation or reserve.

8.1.6 Fiscal year (Article 18 of the articles of association)

The Company's fiscal year starts on January 1 and ends on December 31.

8.1.7 Legal entity identifier (LEI)

The Company's Legal Entity Identifier is 969500FCVQ5SLAAUJV59.

8.1.8 Website

The Company's website is www.cgg.com.(1)

(1) It is specified that the documents appearing on the Company's website do not constitue part of this Universal Registration Document, unless such information is incorporated by reference, in accordance with 4.4 of Annex I of Delegated Regulation (EU) 2019/980.

8.2 MATERIAL CONTRACTS

The following material contracts, other than contracts entered into in the ordinary course of business, were concluded within two years immediately preceding the publication of this Document.

Agreements entered into in connection with the Financial Restructuring

The following contracts were entered into in connection with the implementation of the financial restructuring plan, which was finalized on April 1, 2021:

- secured bonds due in 2027 issued by CGG SA (for more information, please refer to notes 13, 14 and 17 of the 2022 consolidated financial statements);
- a super senior revolving credit agreement due in 2025 signed by CGG SA (for more information, please refer to note 13 of the 2022 consolidated financial statements).

8.3 RELATED PARTY TRANSACTIONS

Please refer to note 27 to the 2022 consolidated financial statements in section 6.1 of this Document for more details.

8.4 STATUTORY AUDITORS

Ernst & Young et autres

Member of the *Compagnie nationale des Commissaires aux Comptes de Versailles et du Centre*

Tour First, 1, place des Saisons, TSA 14444, 92037 Paris – La Défense Cedex

Represented by Claire CESARI-WALCH

Date of the last renewal: May 15, 2019

Duration: until the end of the Ordinary General Meeting convened to approve the 2024 financial statements

Mazars

Member of the *Compagnie nationale des Commissaires aux Comptes de Versailles et du Centre*

Tour Exaltis, 61, rue Henri-Régnault, 92400 Courbevoie

Represented by Daniel ESCUDEIRO

Date of the last renewal: May 15, 2019

Duration: until the end of the Ordinary General Meeting convened to approve the 2024 financial statements

8.5 PUBLICLY AVAILABLE DOCUMENTS

The articles of association, reports, mail and other documents of the Company, as well as its historical financial data and those of its subsidiaries for the last two years prior to the publication of this Document, may be consulted directly at the Company's registered office and on the Company's website.

8.6 PERSON RESPONSIBLE FOR THIS UNIVERSAL REGISTRATION DOCUMENT

Name and function of person responsible

Sophie ZURQUIYAH, Chief Executive Officer

Statement of the person responsible

“I hereby testify that the information contained in this Universal Registration Document is, to my knowledge, consistent with the facts and does not omit anything likely to affect its significance.

I declare that, to the best of my knowledge, the financial statements have been prepared in accordance with applicable accounting standards and give a true and fair view of the assets and liabilities, financial position and results of the Company and all the companies included in the consolidation, and that the management report referred to in the cross-reference table presented in section 8.7.2 of this Universal Registration Document provides a true and fair view of the evolution of the business, results and financial condition of the Company and of its consolidated subsidiaries, and a description of the main risks and uncertainties the Company and its consolidated subsidiaries are subject to.”

Made on March 16, 2023

Sophie ZURQUIYAH

Chief Executive Officer

8.7 CROSS-REFERENCE TABLES

8.7.1 Cross-reference table for the Universal Registration Document

The table below lists the references to the information required by Annexes 1 and 2 of Commission Delegated Regulation (EU) 2019/980 of March 14, 2019, in accordance with the format of the URD.

	Section of the Universal Registration Document
1- Persons responsible, third party information, experts' reports and competent authority approval	
1-1 Identity of persons responsible	8.6
1-2 Declaration of persons responsible	8.6
1-3 Name, address, qualifications of persons acting as experts	n.a.
1-4 Confirmation relating to information sourced from a third party	n.a.
1-5 Statement relating to the competent authority	p. 1 – AMF insert
2- Statutory Auditors	
2-1 Identity of the Statutory Auditors	8.4
2-2 Any changes	n.a.
3- Risk factors	**2.2** **Chapter 3**
4- Information about the Company	
4-1 Legal and commercial name	8.1.1
4-2 Place of registration, registration number and LEI	8.1.2 8.1.7
4-3 Date of incorporation and length of life	8.1.3
4-4 Domicile and legal form, legislation governing operations, country of origin, address and telephone number of the registered office, website with a disclaimer	8.1.4 8.1.8
5- Business overview	
5-1 Principal activities	1.2
5-1-1 Nature of operations	1.2 6.1.5 Note 19
5-1-2 New products and services	1.1.4 1.2
5-2 Principal markets	1.1.1 1.2 6.1.5 Note 19
5-3 Important events	1.1.3 6.1.5 Note 2 6.2.4 Note 2 (in French only)
5-4 Strategy and objectives	1.1 3.1 to 3.6

	Section of the Universal Registration Document
5-5 Dependence on patents, licenses, contracts and manufacturing processes	2.2.2 3.5.2
5-6 Statement regarding competitive position	1.2.1 1.2.2
5-7 Investments	1.4 6.1.5 Notes 7 & 8
5-7-1 Material investments	1.4 6.1.5 Notes 7 & 8
5-7-2 Material investments in progress or pending	1.4 6.1.5 Notes 7 & 8
5-7-3 Information on joint ventures and associates	1.2.2 5.1 6.1.5 Note 27 6.2.4 Note 23 (in French only)
5-7-4 Environmental issues that may affect the use of property, plant and equipment	3.6
6- Organizational structure	
6-1 Brief description of the Group	1.1 1.6 5.1.1
6-2 List of significant subsidiaries	1.6.1 6.1.5 Note 31
7- Operating and financial position review	
7-1 Financial condition	1.5 Chapter 5 Chapter 6
7-1-1 Development of performance and financial position including financial and, where appropriate, non-financial key performance indicators	1.5 3.8 5.1 Chapter 6
7-1-2 Indication of future development and activities in the field of research and development	1.3 3.5.2 6.1.5 Note 20 6.2.4 Note 1 (in French only)
7-2 Operating results	1.5 5.1 6.1 6.2 (in French only with the exception of 6.2.5 and 6.2.6)
7-2-1 Significant factors, unusual or infrequent events or new developments	1.7 1.1.3 5.1.2
7-2-2 Reasons for material changes in net sales or revenues	n.a.

	Section of the Universal Registration Document
8- Capital resources	
8-1 Information concerning capital resources	5.1 6.1.2 6.1.4 6.2.1 (in French only)
8-2 Cash flows	5.1.4 6.1.3 6.1.5 Note 28 6.2.3 (in French only)
8-3 Borrowing requirements and funding structure	2.2.5.1 5.1.3 6.1.5 Note 13 6.2.4 Note 9 (in French only)
8-4 Restrictions on the use of capital resources	2.2.5.1
8-5 Anticipated sources of funds	n.a.
9- Regulatory environment	
Description of the regulatory environment that may affect the Company's business	2.2.6
10- Trend information	
10-1 Description of the most significant trends and any significant change in the financial performance of the Group since the end of the last fiscal year	1.1.4 1.7 6.1.5 Note 30 6.2.4 Note 24 (in French only)
10-2 Events likely to have a material effect on prospects	1.1.3 1.7 2.2.1 6.1.5 Note 30 6.2.4 Note 24 (in French only)
11- Profit forecasts or estimates	
11-1 Published profit forecasts or estimates	1.1.5
11-2 Statement setting out the principal forecast assumptions	1.1.5
11-3 Statement of comparability with the historical financial information and consistency with the accounting methods	1.1.5
12- Administrative, management and supervisory bodies and senior management	
12-1 Information about members	4.1.2.1 4.1.2.2 4.1.3
12-2 Conflicts of interest	4.1.3 4.1.4 4.2.1.1
13- Remuneration and benefits	
13-1 Remuneration paid and benefits in kind	4.2.1 4.2.2 6.1.5 Note 26 6.2.4 Note 22 (in French only)
13-2 Provisions for pension, retirement or similar benefits	4.2.1 4.2.2 6.1.5 Note 16 6.2.4 Notes 1 and 8 (in French only)

	Section of the Universal Registration Document
14- Board practices	
14-1 Date of expiration of terms of office	4.1.2.1 4.1.3.1 a and 4.1.3.1 f
14-2 Service agreements between members of administrative, management or supervisory bodies and the Company	4.1.4
14-3 Information about the Audit Committee and Remuneration Committee	4.1.3.3. b
14-4 Statement of compliance with the applicable corporate governance regime	4.1.1 4.2.1
14-5 Potential future changes in corporate governance	n.a.
15- Employees	
15-1 Number of employees	1.1 6.1.5 Note 25 6.2.4 Note 21 (in French only)
15-2 Shareholdings and stock options	4.2.2 6.1.5 Note 15 6.2.4 Note 7 (in French only)
15-3 Arrangements for involving the employees in the capital	4.2.2
16- Major shareholders	
16-1 Shareholders holding more than 5% of the capital	7.1.2
16-2 Existence of different voting rights	7.4.3 7.4.8 6.1.5 Note 15
16-3 Direct or indirect control	7.4.7
16-4 Arrangements the operation of which may result in a change in control	7.4.9
17- Related party transactions	8.3 6.1.5 Note 27
18- Financial information concerning the Company's assets and liabilities, financial position and profits and losses	
18-1 Historical financial information	Chapter 5 Chapter 6 (6.2 is in French only with the exception of 6.2.5 and 6.2.6)
18-1-1 Audited historical financial information covering the latest three financial years and audit report	Chapter 6 (6.2 is in French only with the exception of 6.2.5 and 6.2.6)
18-1-2 Change of accounting reference date	n.a.
18-1-3 Accounting standards	5.1.1 6.1.5 Notes 1 and 19 6.2.4 Note 1 (in French only)
18-1-4 Change of accounting framework	n.a.
18-1-5 Balance sheet, income statement, change in equity, cash flow statement, accounting methods and explanatory notes	5.1.4 Chapter 6 (6.2 is in French only with the exception of 6.2.5 and 6.2.6)
18-1-6 Consolidated financial statements	6.1
18-1-7 Age of financial information	Chapter 6 (6.2 is in French only with the exception of 6.2.5 and 6.2.6)
18-2 Interim and other financial information (audit or review reports, where applicable)	n.a.

	Section of the Universal Registration Document
18-3 Auditing of historical annual financial information	6.1.6 6.2.7 (in French only)
18-3-1 Independent audit of historical annual financial information	n.a.
18-3-2 Other audited information	3.10
18-3-3 Unaudited financial information	n.a.
18-4 Pro forma financial information	n.a.
18-5 Dividend policy	2.2.6.2 7.2.1
18-5-1 Description of the policy on dividend distributions and any restrictions	2.2.6.2 7.2.1
18-5-2 Amount of the dividend per share	6.2.4 Note 7 7.2.2
18-6 Legal and arbitration proceedings	2.4 6.1.5 Notes 3, 17 and 24 6.2.4 Note 15 (in French only)
18-7 Significant change in the financial position	n.a.
19- Additional information	
19-1 Share capital information	7.1.2 7.3
19-1-1 Amount of subscribed capital, number of shares issued and fully paid and par value per share, number of shares outstanding	7.1.2 7.3 6.1.5 Note 15 6.2.4 Note 7 (in French only)
19-1-2 Information about shares not representing capital	7.3.5
19-1-3 Number, carrying amount and face value of shares held by the Company	7.1.2 7.3.3
19-1-4 Convertible securities, exchangeable securities or securities with warrants	6.1.5 Note 15 6.2.4 Note 7 (in French only) 7.1.2 7.3.2
19-1-5 Terms of any acquisition rights and/or obligations oversubscribed capital not paid up, or an undertaking to increase the capital	4.2 6.1.5 Note 15 6.2.4 Note 7 (in French only) 7.3.1
19-1-6 Option or conditional or unconditional agreement of any member of the Group	4.2 6.1.5 Note 15 6.2.4 Note 7 (in French only) 7.3.2
19-1-7 History of share capital	7.1.2 7.3.1
19-2 Memorandum and articles of association	8.1.3
19-2-1 Register and corporate purpose	8.1.5
19-2-2 Rights, preferences and restrictions attaching to each share class	7.4.3 7.4.9
19-2-3 Provisions having the effect of delaying, deferring or preventing a change in control	7.4.9
20- Material contracts	1.2.1 b 6.1.5 Note 17 8.2
21- Documents available	8.5

8.7.2 Cross-reference table for the management report/report on corporate governance

The table below lists the references to sections of the Universal Registration Document corresponding to the required disclosures in the Board of Directors' management report and particularly those set out in Articles L. 225-100 *et seq.*, L. 232-1 II and R. 225-102 *et seq.* of the French Commercial Code, as well as those disclosures required in the corporate governance report (information referred to in Article L. 225-37 *et seq.* of the French Commercial Code and contained in the specific section of the management report on corporate governance).

	Section of the Universal Registration Document
ACTIVITY	
Position and activity of the Company and, as applicable, its subsidiaries and controlled companies during the previous fiscal year and of all the companies within the scope of consolidation	1.1
Analysis of changes in business, results and the financial situation of the Company and the Group	5.1
Key financial and non-financial performance indicators	1.5/3
Branches	1.1
Research and development activities	1.3
Company and Group foreseeable trends and outlook	1/1.1.4/1.1.5
Significant events occurring between the fiscal year closing date and the management report preparation date	1.7
INTERNAL CONTROL AND RISK MANAGEMENT	
Main risks and uncertainties	2.2/3
Financial risks relating to the impact of climate change	2.2.1.4/2.2.1.5/2.2.6.1
Exposure to price risk, credit risk, liquidity and cash-flow risks	2.2.5
Internal control and risk management procedures	2.1
Anti-corruption measures	2.2.6.2/2.2.6.3
CORPORATE GOVERNANCE	
Reference to a Code of Corporate Governance	4.1.1.a
Composition, preparation and organization of the works of the Board of Directors	4.1
List of all terms of office and functions held in any company by the corporate officers during the fiscal year	4.1.3.1 f
Diversity policy applicable to the Board of Directors	4.1.3.e
General Management organization	4.1.1
Potential limits on Chief Executive Officer's powers	4.1.2.1 c
Description of the assessment procedure for agreements relating to usual operations and entered into under normal conditions	4.1.4
Delegations of authority currently in force relating to capital increase and use of these delegations during the last financial year	7.3.4
Conditions for shareholders' participation at the General Meeting or related provisions of the articles of association	7.4.2
Items likely to have an influence in the event of a take-over bid:	
– Share ownership and capital	7/7.1
– Direct or indirect participating interests in the Company's share capital, of which it is aware pursuant to Articles L. 233-7 and L. 233-12 of the French Commercial Code	7.1.2 7.4.4 7.4.5
– Restrictions on the exercise on voting rights and transfers of shares provided for in Company articles or agreements brought to the notice of the Company pursuant to Article L. 233-11 of the French Commercial Code	7.4.9
– Owners of any securities conferring special rights of control and description of these securities	7.4.9
– Control procedure provided in the event of potential employee shareholdings with control rights not exercised by the latter	7.4.9

	Section of the Universal Registration Document
– Agreements between shareholders of which the Company is aware and which may give rise to restrictions on share transfers	7.4.9
– Rules governing the appointment and replacement of Board members and the amendment of the articles of association	7.4.9
– Powers of the Board of Directors and in particular – concerning the issuance or buyback of shares	7.4.9
– Agreements entered into by the Company which are amended or terminated in the event of a change of control of the Company, unless such disclosure, other than in cases where disclosure is required by law, would seriously prejudice its interests	7.4.9
– Agreements providing for compensation for members of the Board of Directors or employees, if they resign or are dismissed without real and serious cause or if their employment is terminated due to a takeover or exchange offer	7.4.9
Agreements entered into between an agent or a shareholder holding more than 10% of the voting rights and a controlled company within the meaning of Article L. 233.3 of the French Commercial Code (excluding agreements relating to usual operations and entered into under normal conditions)	4.1.4
Remuneration policy of corporate officers (including, but not limited to, the relative proportion of fixed and variable compensation, the possibility of claiming back variable compensation, commitments of any kind made in favor of corporate officers when taking up, terminating or changing their functions)	4.2.1
Report on the corporate officers' remuneration for the last financial year (including, but not limited to, the remuneration granted or paid by a company included in the scope of consolidation, the annual evolution in remuneration, the way in which the vote of the last General Meeting was taken into account, any potential deviations from the procedure for implementing the remuneration policy, any potential suspension of the payment of Directors' remuneration in the event of failure to comply with the gender diveristy policy within the Board of Directors)	4.2.2
Ratio of the compensation of each executive corporate officer to the average and median compensation of Company employees	4.2.2.1.A.f. 4.2.2.1.B.f.
Stock options and performance share grants	4.2.2.2
INFORMATION ABOUT SHARE CAPITAL	
Share ownership and capital	7/7.1
Acquisition and disposal by the Company of treasury shares	7.1.2
Share buyback programs	7.3.3
Employee share ownership in the Company on the last day of the fiscal year	7.1.2
Grant to and retention by corporate officers of performance shares and/or stock option	4.2.2.1 B.c.vii
Transactions on the Company's shares by the corporate officers or their close relatives	7.1.3
ACCOUNTING AND FINANCIAL INFORMATION	
Modifications to accounts presentation method	5.1
Table of Company results over the past five fiscal years	6.2.6
Indication of the use of financial instruments	5.2
Dividend distributions during the last three fiscal years	5.1.3 (section Statutory financial statements of CGG SA) 7.2.2
Information on suppliers and customers payment terms	6.2.5
STATEMENT OF NON FINANCIAL PERFORMANCE	3/See cross-reference table below
MISCELLANEOUS	
Terms of office of Statutory Auditors	8.4
Litigation and arbitration	2.4

8.7.3 Cross-reference table for the annual financial report

The table below lists the references to sections of the Universal Registration Document corresponding to the information which constitutes the annual financial report that must be published by listed companies in accordance with Article L. 451-1-2 of the French Monetary and Financial Code and Article 222-3 of General Regulations of the French *Autorité des marchés financiers.*

	Section of the Universal Registration Document
Annual financial statements	6.2 (in French only)
Statutory Auditors' report on the Company's annual financial statements	6.2.7 (in French only)
Consolidated financial statements	6.1
Statutory Auditors' report on the Company's consolidated financial statements	6.1.6
Management report	See cross-reference table above
Report on corporate governance	See cross-reference table above
Statement of the persons assuming responsibility for the annual financial report	8.6
Statutory Auditors' fees	6.1.5 Note 32

French Monetary and Financial Code and Article 222-3 of General Regulations of the French *Autorité des marchés financiers.*

8.7.4 Cross-reference table Non-Financial Performance Statement

The table below refers to the aspects of the Non-Financial Performance to be found notably in the chapter 3 "Statement on Non-Financial Performance" that are required by Article L. 225-102-1 and Article L. 22-10-36 of the French Commercial Code.

Items	**Section of the Universal Registration Document**
Business model	Pages 12 and 13
Description of the main non-financial risks related to the Group's business	3.1.2
Results of the implementation of the policies, including key performance indicators	3.1 to 3.9
Respect for Human Rights	3.4.1
Fight against corruption and tax evasion	3.4.1
Information relating to the consequences on climate change of the Company's activity and the use of the goods and services it produces, including direct and indirect greenhouse gas emissions related to upstream transport activities and downstream of the activity. Action plan aimed at reducing these emissions, in particular through the use of rail and river transport as well as biofuels whose energy and carbon balance is virtuous and electromobility.	Our withdrawal from Acquisition activities has significantly reduced the impact of the Company's activities on climate change. Risks related to energy transition and market transformation are covered in 2.2.1.4, our environmental performance in 3.6 and since this year the European green taxonomy in 3.7
Circular economy	Given the nature of our business, this subject was not considered as material and does not justify being developed in this report.
Food waste, fight against food insecurity, fair and sustainable responsible food	Given the nature of our business, this subject was not considered as material and does not justify being developed in this report.
Actions aimed at promoting the practice of physical and sports activities	Given the nature of our business, this subject was not considered as material and does not justify being developed in this report.
Collective Agreements	3.4.3
Fight against discrimination and promotion of diversity	3.3.2

Items	Section of the Universal Registration Document
Measures taken in favor of people with disabilities	3.3.2
Societal commitments	3.4
Respect for animal well-being	Given the nature of our business, this subject was not considered as material and does not justify being developed in this report.
Report from the independent third party on non-financial statement	3.10

Cross-reference table Global Compact, SDG, GRI, OECD

ITEMS	Sub-items	Chapter	Pages	OECD	Global Compact	Indicators GRI	SDG
BUSINESS MODEL	Group presentation		12 to 13			GRI 2	
SOCIAL ISSUES	Talent attraction and retention	3.3.1	72 to 73				5 GENDER EQUALITY 8 DECENT WORK AND ECONOMIC GROWTH 10 REDUCED INEQUALITIES
	Inclusion, Diversity and Equity	3.3.2	73 to 75	II: General principles V: Employment and Industrial Relations V-1-a&b V-5	1: Promote and respect the protection of international human rights law 2: Be careful not to be complicit in human rights violations 6: Contribute to the elimination of all discrimination in employment and occupation	GRI 405	5 GENDER EQUALITY 10 REDUCED INEQUALITIES
	Health, safety and security of staff and sub-contractors	3.3.3	75 to 77	VI : Environment VI-7 VI-8	1: Promote and respect the protection of international human rights law 2: Be careful not to be complicit in human rights violations	GRI 403	3 GOOD HEALTH AND WELL-BEING 6 CLEAN WATER AND SANITATION

ITEMS	Sub-items	Chapter	Pages	OECD	Global Compact	Indicators GRI	SDG
GOVERNANCE AND SOCIETAL ISSUES	Business ethics	3.4.1	78 to 79	II-General principles IV: Human rights IV-1 IV-4&5 IV-38 V: Employment and Industrial Relations V-1-a V-1-e V-2 V-4 VII: Fight against corruption, solicitation of bribes and other forms of extortion	1: Promote and respect the protection of international human rights law 2: Be careful not to be complicit in human rights violations 3: Respect freedom of association and recognize the right to collective bargaining 4: Contribute to the elimination of all forms of forced or compulsory labor 5: Contribute to the effective abolition of child labor 6: Contribute to the elimination of all discrimination in employment and occupation 10: Act against corruption in its forms, including extortion and bribery	GRI 205 GRI 406	8 DECENT WORK AND ECONOMIC GROWTH
	Responsible supply chain	3.4.2	80	II: General principles II-A12 II-A13 II-B2	8: Take initiatives to promote greater environmental responsibility	GRI 204 GRI 308 GRI 414	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
	Relationship with local communities	3.4.3	81 to 82	II : General principles II-A3		GRI 413	11 SUSTAINABLE CITIES AND COMMUNITIES
	Intellectual property	3.5.2	85	IX : Science and technology IX-0			9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
	Security of information	3.5.3	86 to 87			GRI 418	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
ENVIRONMENTAL ISSUES	Energy efficiency and carbon footprint	3.6.1	88 to 89	VI : Environment VI-0 VI-1 VI-6	7: Apply the precautionary approach to environmental issues 8: Take initiatives to promote greater environmental responsibility 9: Promote the development and diffusion of environmentally friendly technologies	GRI 302 GRI 305	7 AFFORDABLE AND CLEAN ENERGY 13 CLIMATE ACTION

ITEMS	Sub-items	Chapter	Pages	OECD	Global Compact	Indicators GRI	SDG
	Biodiversity	3.6.2	90	VI: Environment VI-7	8: Take initiatives to promote greater environmental responsibility 9. Encourage the development and diffusion of environmentally friendly technologies	GRI 304	13 CLIMATE ACTION 14 LIFE BELOW WATER
	Water and waste management	3.6.3	91	VI: Environment VI-0 VI-1	8: Take initiatives to promote greater environmental responsibility	GRI 306	6 CLEAN WATER AND SANITATION 11 SUSTAINABLE CITIES AND COMMUNITIES 13 CLIMATE ACTION

GLOSSARY

Adjusted segment EBITDAs	Segment EBITDAs adjusted for non-recurring charges and gains.
Asset financing	Asset financing operation with third party recognized as financial liability.
Cash and cash equivalents	Cash and cash equivalents consist of bank deposits, currency and short-term investments with maturities of less than three months.
Cost of net financial debt	The cost of net financial debt includes: (i) interest charges on long-term debt, i.e. bond issues and other borrowing; (ii) interest expense on leases and interest expense on asset financing operations; (iii) other expenses paid to financial institutions related to funding operations; (iv) interest received on cash and cash equivalents.
DDE segment revenue	DDE segment revenue corresponds to the sum of external segment revenues from Geoscience and Earth Data
Earth Data segment revenue	The Earth Data segment revenue is computed in accordance with internal management reporting with Earth Data prefunding revenues recorded based upon percentage of completion and not upon delivery of processed data when the performance obligation is fulfilled (in application of IFRS 15). The segment revenue is not a measure of performance under IFRS and must not be considered as an alternative to other measures of performance in accordance with IFRS.
External revenue (Geoscience)	Geoscience revenue from sales to external clients.
Free EBITDA	Free EBITDA is defined as segment EBITDAs less capital expenditures for the period (tangible and intangible assets) and investment in Earth Data surveys, excluding variation of fixed assets suppliers
Gross financial debt	Gross financial debt is long-term financial debt (including leases, i.e. IFRS 16 debt and debt related to asset financing), short-term financial debt (including the short-term portion of lease liabilities, i.e. IFRS 16 debt and debt related to asset financing), bank overdrafts and accrued interest.
EBIT	EBIT is defined as operating Income plus income from equity affiliates. EBIT may be used as a performance indicator by management in addition to operating income because it captures the contribution to our results of the businesses that we manage through our joint ventures. EBIT is not a measure of financial performance under IFRS and should not be considered as an alternative to cash flow from operating activities or as a measure of liquidity or an alternative to net income as indicators of our group operating performance or any other measures of performance derived in accordance with IFRS.
EBITDAs	EBITDAs is defined as earnings before interest, tax, income from equity affiliates, depreciation, amortization net of amortization costs capitalized to Earth Data surveys, and cost of share-based compensation for employees and senior executives. The cost of share-based compensation includes the cost of stock options and allotments of performance shares. EBITDAs is presented as additional information because it is one measure used by certain investors to determine our operating cash flow and ability to meet debt service and capital expenditure requirements. EBITDAs is not a measure of financial performance under IFRS and should not be considered as an alternative to cash flow from operating activities or as a measure of liquidity or an alternative to net income as indicators of our group operating performance or any other measures of performance derived in accordance with IFRS.
Internal production (Geoscience)	Geoscience revenue from internal sales to Earth Data
Net cash flow	Net cash flow is defined as net cash flow provided by operating activities plus “proceeds from disposals of tangible and intangible assets and activities” less (i) “total capital expenditures including acquisitions of activities” and “cash investments in Earth Data surveys”, as set out in the “Investing activities” section of the consolidated statement of cash flows, (ii) “interest expenses paid”, as set out in the “Financing activities” section of the consolidated statement of cash flows, (iii) “lease repayments”, as set out in the “Financing activities” section of the consolidated statement of cash flows, and (iv) “payments and/or proceeds net from asset financing transactions”, included in the “Financing activities” section of the consolidated statement of cash flows. We present net cash flow as additional information because we understand that it is one measure used by certain investors to determine our operating cash flow and our historical ability to meet debt service and capital expenditure requirements. However, other companies may present net cash flow differently than we do. Net cash flow is not a measure of financial performance under IFRS and should not be considered as an alternative to cash flow from operating activities or any other measure of performance derived in accordance with IFRS.
Net cash flow before refinancing costs	Net cash flow before any refinancing costs

Net financial debt	Net financial debt is defined as gross financial debt less cash and cash equivalents. Net financial debt is presented as additional information because certain investors believe that netting cash against debt provides a clearer picture of the financial liability exposure. However, other companies may present net debt differently than we do. Net debt is not a measure of financial performance under IFRS and should not be considered as an alternative to other measures of performance presented in accordance with IFRS.
Permanent funding	Permanent funding consists of equity and financial debt.
Segment EBIT	EBIT is defined as operating income plus income from equity affiliates. EBIT may be used as a performance indicator by management in addition to operating income because it captures the contribution to our results of the businesses that we manage through our joint ventures. The segment figures are figures prepared, for internal management reporting purposes, in accordance with the Group's previous method for recognizing Earth Data survey prefunding revenues based on percentage of completion. Other companies may present EBIT differently than we do. EBIT is not a measure of financial performance under IFRS and should not be considered as an alternative to net cash flow provided by operating activities or other measures of liquidity or an alternative to net income as indicators of the Group's operating performance or other measures of performance presented in accordance with IFRS.
Segment EBITDAs	Segment EBITDAs is defined as earnings before interest, tax, income from equity affiliates, depreciation, amortization net of amortization costs capitalized to Earth Data surveys, and cost of share-based compensation for employees and senior executives. The cost of share-based compensation includes the cost of stock options and allotments of performance shares. EBITDAs is presented as additional information because it is one measure used by certain investors to determine our operating cash flow and ability to meet debt service and capital expenditure requirements. The segment figures are figures prepared, for internal management reporting purposes, in accordance with the Group's previous method for recognizing Earth Data survey prefunding revenues based on percentage of completion. Other companies may present EBITDAs differently than we do. EBITDAs is not a measure of financial performance under IFRS and should not be considered as an alternative to net cash flow provided by operating activities or other measures of liquidity or an alternative to net income as indicators of our operating performance or other measures of performance presented in accordance with IFRS.
Segment revenue	The segment revenue is prepared in accordance with internal management reporting with Earth Data prefunding revenues recorded based upon percentage of completion. The segment revenue is not a measure of performance under IFRS and should not be considered as an alternative to other measures of performance in accordance with IFRS.
Total production (Geoscience)	Geoscience total revenue from sales to both external and internal clients.
Total production (Sensing & Monitoring)	Sensing & Monitoring total revenue from sales to both external and internal clients.
Working capital requirement (WCR)	WCR consists of trade receivables, inventories and work-in-progress, tax assets, other current financial assets, other current assets and assets held for sale, less trade payables, accrued payroll costs, income tax payable, advance billings to clients, current provisions, other current financial liabilities, other current liabilities and liabilities related to non-current assets held for sale.

A French Société Anonyme with a share capital of €7,123,573

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This Universal Registration Document, prepared in accordance with Article 212-13 of the General Regulations of the Autorité des marchés financiers (French Market Authority), constitutes the 2022 annual report of CGG.

It may be used in support of a financial transaction only if supplemented by a prospectus which received approval from the Autorité des marchés financiers.

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