2022 MANAGEMENT REPORT AND ANNUAL CONSOLIDATED FINANCIAL STATEMENTS

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01 MANAGEMENT REPORT

1 ENGIE 2022 RESULTS

ENGIE FY 2022 Financial results

Significant progress on execution of strategic plan
Strong financial and operational performance
Proposal to pay a dividend of €1.40 per share for 2022

Business Highlights

- Leading role played by ENGIE to support security of supply in Europe
- Continued contribution to public policy measures through Working Capital support, extraordinary taxes and dedicated customer actions
- Major progress on simplification with €11.0 billion disposals signed or closed
- €5.5 billion growth Capex, primarily in Renewables, Networks and Energy Solutions
- Acceleration in Renewables with +3.9 GW of capacity added in 2022, taking total installed capacity to c. 38 GW
- Further progress on coal exit, coal represents 2.6% of centralised generation capacity

Financial Performance

- 2022 guidance achieved with continuing NRIgs of €5.2 billion
- EBIT of €9.0 billion, up 43% organically, with growth across most activities. Key contribution from GEMS and Thermal in unprecedented market conditions as well as from new capacity additions for Renewables
- Impact of windfall profit taxes of €0.9 billion in 2022, mainly in Belgium and Italy, in addition to existing Government profit sharing mechanisms in Belgium and France (nuclear and hydro) of €1.1 billion
- Strong balance sheet and high liquidity with improvement in credit ratios
- Improved Cash Flow From Operations [1], despite Working Capital headwinds due to energy prices
- Net financial debt at €24.1 billion, down €1.3 billion.
- 2022 proposed dividend of €1.40 per share

1.1 Key financial figures at December 31, 2022

In billions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis) [1]
Revenues	93.9	57.9	+62.2%	+60.4%
EBITDA	13.7	10.6	+29.8%	+27.0%
EBIT	9.0	6.1	+47.2%	+42.7%
Net recurring income of continuing activities, Group share	5.2	2.9	+78.4%	+76.2%
Net income, Group share	0.2	3.7	-94.1%	-
CAPEX [1]	7.9	6.7	+17.4%	-
Cash Flow From Operations (CFFO) [2]	8.0	6.5	+24.0%	-
Net financial debt	24.1	-€1,3 billion versus Dec.31, 2021		
Economic net debt	38.8	+€0.5 billion versus Dec.31, 2021		
Net financial debt	2.8x	-0.8X versus Dec.31, 2021		

(1) Net of DBSO (Develop, Build, Share & Operate) and tax equity proceeds.
(2) Cash Flow From Operations: Free Cash Flow before maintenance Capex and nuclear phase-out expenses.

(1) Cash Flow From Operations: Free Cash Flow before maintenance Capex and nuclear phase-out expenses.

1.2 2023-2025 outlook and guidance

The forecasts set forth below are based on data, assumptions and estimates considered to be reasonable by the Group at the date of issuance of this document.

These data and assumptions may evolve or be amended due to uncertainties related to the economic, financial, accounting, competitive, regulatory and tax environment or other factors that the Group may not be aware of at the date of registration of the management report. In addition, the fulfilment of forecasts requires the success of the Group's strategy. The Group therefore makes no commitment or warranty regarding the fulfilment of the forecasts set out in this section.

The forecasts presented below and the underlying assumptions, also been prepared in accordance with the provisions of Delegated Regulation (EU) No 2019/980 supplementing Regulation (EU) No 2017/1129 and the ESMA recommendations on forecasts.

The forecast presented below result from the budget and medium-term plan process as described in Note 14 to the consolidated financial statements for the year ended December 31, 2021; they have been prepared on a comparable basis with historical financial information and in accordance with the accounting methods applied to the Group's consolidated financial statements.

1.2.1. Assumptions

- Strategy: reinforcing the ENGIE Group's ambition to be a leader in the energy and climate transition. With its refocusing and simplification now complete, ENGIE is now embarking on the second stage of its strategic plan and accelerating its growth in the energy transition. The completion of the divestment plan will allow for a significant increase in growth investments in renewable energies, both electricity and gas, and decarbonization solutions: €22 to 25 billion over the period 2023-2025, i.e. a 50% increase compared to 2021-2023;
- No change in accounting policies;
- No major regulatory or macro-economic changes;
- Average temperature in France;
- Average hydro, wind ans solar productions;
- Average forex
  - €/USD: 1.08 for 2023, 1.09 for 2024 and 1.10 for 2025,
  - €/BRL: 5,56 over 2023-25;
- Belgian nuclear availability: c. 90% in 2023, 92% in 2024 and 94% in 2025 – based on availabilities as published on REMIT as of 01/01/2023;
- Contingencies on Belgian operations of €0.5 billion in 2023, €0.5 billion in 2024 and €0.2 billion in 2025;
- Market commodity prices at December 30, 2022;
- Hedged positions and captured prices at December31, 2022, Belgium and France:
  - 100% to 90 €/MWh for 2022,
  - 74% to 93 €/MWh for 2023,
  - 52% to 120 €/MWh for 2024,
  - 15% to 165 €/MWh for 2025,
  - Captured prices are shown
    - before specific Belgian nuclear and French CNR hydro tax contributions
    - before inframarginal rent cap in Belgium and France
    - excluding the mark-to-market impact of the proxy hedging used for part of Belgian nuclear volumes over 2023-2025, which is volatile and historically unwinds to close to zero at delivery,
- Recurring net financial costs of €(2.2)-(2.6) billion per year over 2023-25;
- Recurring effective tax rate: 23-26% over 2023-25;
- Discount rate for post-employment benefit provisions: based on market conditions at December 31, 2022, as described in Note 18 to the consolidated financial statements;
- Regulatory review on French networks in 2024-25;

- Inframarginal rent caps based on current legal texts and additional contingencies;
- Full pass through of supply costs in French BtoC retail tariffs.

The progress on the execution of the strategic plan solidifies the foundation for ENGIE towards delivering long-term growth while achieving its purpose of carbon neutrality.

The Group anticipates delivering growth in the medium-term primarily fueled by investment in Renewables and improved results from Energy Solutions, alongside a stable contribution from Networks. GEMS is projected to further enhance the integrated business model securing energy supply, optimising and managing risks for ENGIE and third parties. Nuclear contribution, due to the ongoing phase-out capacity plan in Belgium, has been excluded from the EBIT indication.

European commodity price assumption in the guidance for residual merchant exposure: the price assumption used in the guidance for 2023-2025 provided today is based on the European forward prices as at 31 December 2022.

ENGIE outlook for 2023 to 2025:

In €billion	2023 Results	2024 Results	2025 Results
EBIT excluding Nuclear	6.6 - 7.6	7.2 - 8.2	7.5 - 8.5
RNRpg guidance	3.4 - 4.0	3.8 - 4.4	4.1 - 4.7

ENGIE remains committed to a “strong investment grade” rating and continues to target a leverage ratio of below or equal to 4.0x economic net debt to EBITDA.

1.2.2. Overview of key financial targets

The group has set itself the goal of accelerating its growth by focusing on the second stage of its strategic plan:

Accelerating growth in Renewables

Ramp-up in Renewables underpinned by a growing and well-balanced pipeline. The Group commissioned 7 GW of renewable capacity over the last two years, leading to 38 GW total installed capacity. Despite the supply chain challenges, ENGIE continues to accelerate its average annual renewable capacity additions to 4 GW until 2025, stepping-up to 6 GW from 2026 to 2030. This will bring total the installed capacity to 50 GW by 2025 and 80 GW by 2030.

This ambition is fuelled by a growing pipeline of 80 GW at end-2022 (vs. 56 GW at end-2020), which enjoys a good balance across onshore wind, offshore wind and solar. More than half of this pipeline includes projects already under construction, secured or at an advanced stage of development.

The geographic priorities remain Europe, North America, and Latin America, with offshore wind across a wider geographic footprint.

In total, ENGIE will invest between €13 billion and €14 billion over 2023-2025 in Renewables in a balanced portfolio with limited exposure to merchant risk.

The alliance between the molecule and the electron at the heart of ENGIE model to ensure flexibility and security of supply

As gas infrastructure owner, operator, and supplier, ENGIE has a critical role to play in Europe. Gas infrastructure (networks, storage capacities, LNG terminals) played a major role in the energy crisis and will continue to do so in the energy transition, ensuring security of supply and overall system resilience. Gas networks are also facilitators of the development of renewable gases and thus contribute to decarbonisation.

ENGIE's gas networks business is largely regulated bringing stability and visibility. ENGIE's networks have consistently demonstrated strong operational performance and respect the highest safety standards. They generate strong cash-flow, enabling the Group to maintain safety and reliability, and finance growth Capex such renewable gases expansion.

Overall our regulated asset base (RAB), in France and international, is expected to reach €39bn in 2025, compared to €36bn in 2022.

A balanced portfolio is key to ensuring the energy system's flexibility and efficiency. In a context of strong growth in Renewables, ENGIE benefits from its large portfolio of flexible generation assets and energy storage, including CCGTs (51 GW) and pumped storage plants (c. 4 GW), which are absolutely key to absorbing the intermittency associated with these Renewables.

ENGIE will continue to adapt its fleet to bring more flexibility and optionality to the grid and to its own generation portfolio, make it leaner, nimbler, more efficient and less CO2 intensive. The business model of CCGTs will increasingly be shifting to capacity remuneration mechanism and ancillary services.

The Group intends to strongly accelerate in battery storage to complement its gas-fired generation and pumped storage fleet and has an ambitious target of c.10 GW of battery capacity by 2030, mainly in Europe and the US.

Ramping up in renewable gases

The development of renewable gases will capitalize on existing infrastructure, contributing to security of supply. The Group will leverage on its existing networks to develop renewable gases and will invest €3.5 billion in decarbonized gases by 2030.

The renewable and low-carbon gas market is set to grow rapidly in the coming decade, driven by the decarbonization commitments of governments and corporate offtakers.

ENGIE has a target of c.10 TWh of biomethane production per year by 2030.

ENGIE will focus on ramping up in low carbon hydrogen, which is key for hard-to-abate sectors for which electricity is an unrealistic option for decarbonization.

ENGIE is in a strong position to benefit from the buoyant growth in green hydrogen by leveraging on its world-leading capabilities in renewable power generation and its expertise in managing complex industrial processes. ENGIE has also global energy management capabilities to trade hydrogen and e-molecules.

ENGIE has set an ambitious target by 2030 to:

- develop green hydrogen production capacity of 4 GW,
- have 700 km dedicated hydrogen networks and 1 TWh of storage capacity,
- operate more than 100 refuelling stations

Total Capex for hydrogen is earmarked at c.€4 billion over 2023-2030.

Playing a major role in the decarbonization of ENGIE's customers through distributed infrastructure

Energy Solutions is ideally positioned to capture the growth of the market driven by strong demand from clients for decarbonized solutions and energy independence as well as increasingly support from public authorities.

Energy Solutions has streamlined its organization through three activities: local energy networks, on-site energy production, and energy performance services.

In the first two platforms, which benefit from long-term infrastructure-like contracts with stable and recurring revenues as well as long-term contracted cash flows, ENGIE invests in infrastructure and operates them as part as an asset-based business model. Capturing the long-term growth opportunities, using greater selectivity in targeting contracts, and with a more efficient base, EBIT annual growth from distributed energy infrastructure should be high-single digit on average over 2022-2025.

In energy management services, the EBIT margin is expected to increase more than 200bps over 2022-2025 to reach 5%.

ENGIE remains committed to adding 8 GW of distributed energy infrastructure by 2025 (vs 2020), translating into around €3 billion Capex growth over 2023-2025.

Leveraging ENGIE extensive market knowledge through GEMS

GEMS is at the heart of ENGIE's integrated business model. On the upstream side, GEMS' mandate is to add value from technical differences, complementarity, flexibility and optionality within ENGIE's and partners' portfolio of assets. On the downstream side, GEMS provides ENGIE clients with risk management services and tailor-made energy supply contracts.

GEMS EBIT is likely to be lower over 2023-2025 compared to the exceptional level of 2022, but it should remain above the historical level of 2020-2021 due mainly to commercial growth and continuing challenging energy markets, bringing optionality and volatility as well as increased customers demand for risk management.

Capital allocation and medium-term financial outlook

ENGIE targets growth Capex of €22-25 billion between 2023 and 25, an increase of 50% versus the previous 2021-23 plan, with 40% being already committed. These will be split 55-65% for Renewables, 10-15% for Networks, and 10-15% for Energy Solutions. Around 10% will be dedicated to ramping up in renewable gas and batteries. Capital allocation is based on a strict discipline of financial and ESG-related criteria. The contribution to 2023-25 EBIT of new capacities commissioned should amount to €1.5bn.

Return On Average Capital Employed excluding nuclear should benefit from this rigorous process to drive value creation: Group ROACE excluding nuclear is expected to increase to between 7% and 9% in a sustainable way from 6% in 2021.

Maintenance Capex should amount to €7 to 8 billion between 2023 and 2025, of which around 50% in French regulated infrastructure activities.

Around €9bn will go towards the funding of Belgian nuclear provisions over 2023-2025.

ENGIE will continue to drive efficiency by strong control of general and administrative costs, increasing support functions efficiency, and turning around underperforming businesses. The Group is aiming for a positive net impact on EBIT of €0.6 billion in 2023-25.

Main drivers for 2022-2025 EBIT evolution by activity

2022	Activity	Expectations for main EBIT evolution drivers vs 2022		2025
EBIT excluding Nuclear €8.0 billion	Renewables	Investments contribution, higher prices	+ +	EBIT excluding Nuclear indication €7.5 billion to €8.5 billion
	Networks	Inflation, temperature normalization, investments and portfolio management, regulatory reviews in France	= -	
	Energy Solutions	Investments contribution, EVBox contribution improvement and continued improvement of performance	= +	
	FLEXGEN (ex Thermal)	Dilution, normalization of spreads, higher fleet availability	=	
	Retail (ex Supply)	Temperature normalization, margin increase, growth in B2C services and power customer portfolio	= +	
	GEMS	Decrease of prices and volatility but still high	- - -	
	Nuclear	Higher prices, lower volumes	= +	

Convention: each "+" sign amounts to c. €+500m, each "-" sign amounts to c. €-500m, "=+" sign amounts to a variation between 0 and +250, "=-" sign amounts to a variation between -250 to 0.

1.3 Dividend policy reaffirmed and €1.40 per share proposal for 2022

ENGIE is focused on delivering a progressively growing and sustainable dividend for shareholders.

The Board has reaffirmed the Group's dividend policy with a payout ratio of 65-75% of net recurring income Group share, and a floor of €0.65 per share for the 2023 to 2025 period.

For 2022, the Board has proposed a payout ratio of 65%. This translates to a dividend of €1.40 per share, which will be proposed for shareholder approval at the Annual General Meeting on 26 April 2023.

1.4 ENGIE playing a leading role in security of supply and contributing to support energy affordability

As gas infrastructure owner, operator, and gas supplier, ENGIE has played a crucial role in Europe.

In France, ENGIE's networks activities have operated at record high utilisation rates, with LNG terminals working at nearly full capacity, two-fold increase in transit at GRTgaz including reversed flows from France to Germany, and gas storage levels filled at 82% as at December 31, 2022 compared to c. 53% at December 31, 2021.

ENGIE has contributed €1.1 billion in 2022 to existing Government profit-sharing mechanisms for Belgian Nuclear (specific tax framework) and French hydro (CNR).

ENGIE has pledged to support its French customers with €90 million in measures for vulnerable customers and a €60 million fund for industrial/tertiary customers affected by rising energy prices. ENGIE has also launched platforms for retail and SME customers to monitor and save energy.

ENGIE is contributing to public policy measures to address high energy prices. In France, ENGIE has increased working capital support for the tariff shield mechanism, now including small and medium-sized enterprises as well as customers under market prices (by linking their contracts to the regulated tariff). Most of ENGIE's B2C gas and power contracts in France benefit from protection against price increases through this tariff shield mechanism or fixed prices over the lifetime of the contract.

The Group is supporting the implementation of social tariffs in Belgium and a price cap mechanism in Romania and Chile. In addition, the Group has engaged with various local authorities to provide support through payment facilities. The overall impact of delayed payment plans worldwide is close to €1.0 billion. The Group is more focused than ever to work collaboratively with clients on energy efficiency to reduce their energy bill and achieve their decarbonisation goals.

ENGIE has also recognised the engagement of its employees around the world with an exceptional bonus of €1,500 awarded to each employee in an unprecedented energy situation to support in a high inflation environment.

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1.6 Update on European proposals for windfall taxes

In December 2022, the Governments of Belgium and France, ENGIE's two most significant power generation countries in the EU, have passed new measures into Law to address inframarginal rent in relation to power prices.

In Belgium, an inframarginal rent cap was implemented retroactively, from 1 August 2022 to 30 June 2023, at a level depending on the power production's technology. A possible extension of this period will be evaluated next April. ENGIE's nuclear assets, owned and operated via its subsidiary Electrabel, fall into the scope of this measure: normative revenues exceeding €130/MWh are subject to the new levy but with a mechanism limiting potential double taxation with existing nuclear taxes.

In France, the Finance Bill for 2023 provides for a rent cap applicable over a period of eighteen months, (from 1 July 2022 until 31 December 2023). The cap ranges from €40/MWh to €175/MWh depending on the power production technology. The excess revenue is subject to a tax rate of 90%. ENGIE is mainly impacted through its drawing rights on two EDF nuclear power plants (Chooz B and Tricastin, 1.2 GW, 9 TWh of annual output at an availability rate of 85%) subject to a €90/MWh cap and its gas power plants (1.4 GW capacity) subject to a €40/MWh cap on the clean spark spread.

In Italy, the Government has already enacted an "extraordinary solidarity contribution" on energy companies calculated on a variation of VAT-taxable basis between October 2021 and April 2022 versus the same duration a year earlier, at a rate of 25%. ENGIE has been significantly and adversely impacted due to an ill-designed methodology, not representative of the excess revenues over the period.

The overall impact of extraordinary taxes in Europe is close to €0.9 billion in 2022, 85% in EBIT and 15% in corporate income tax.

1.7 Significant progress on the execution of strategic plan

Acceleration in Renewables, infrastructures and renewable gases

ENGIE added 3.9 GW of renewable capacity in 2022, including 1.8 GW of onshore wind, 1.2 GW of solar and

1.0 GW of offshore wind, taking total renewable installed capacity at 100% to c. 38 GW at the end of 2022. Geographically, the 3.9 GW additions include 2.6 GW in Europe (mainly in UK, Spain and France), 0.8 GW in US and 0.4 GW in Latin America. The Group is therefore on track with its target to add 4 GW on average per year of renewable capacity until 2025. This ambition is fuelled by a growing pipeline that totalled 80 GW at end of December 2022, up 14 GW compared to December 2021.

Ocean Winds, ENGIE's joint venture with EDPR dedicated to offshore wind continues to grow strongly. In December, Ocean Winds was awarded a lease area for a floating offshore wind site of 2 GW capacity in California.

In 2022, the Group continued supporting its customers in their decarbonisation efforts by signing a total amount of 2.0 GW of green Power Purchase Agreements (PPAs).

Energy Solutions has achieved major wins in District Heating and Cooling (DHC) and sustainable mobility in the 2022, including 12,000 electric vehicle charging points mainly in Belgium and Singapore. In 2022, c. 1 GW net installed capacity has been added in distributed energy infrastructures.

In Brazil, the internalization of TAG O&M activities has been successfully completed and the two power transmission lines, Gralha Azul and Novo Estado, are now close to full completion.

ENGIE continues to unlock the potential of renewable gases: 492 biomethane production units, with a yearly production capacity of up to 8.3 TWh are connected to ENGIE's networks in France. On hydrogen, the European Commission has approved up to €5 billion in public support. ENGIE has submitted five projects across Belgium, France, the Netherlands and Spain, and all of them have been selected.

Simplifying and refocusing

The disposal plan financial target of at least €11 billion by the end of 2023 has been achieved with €11.0 billion already closed or signed, with EQUANS being the main contributor.

On geographic rationalization, the Group will be operating in 31 countries, down from 70 in 2018, once closing of the signed deals is effective. ENGIE exited seven countries as part of the EQUANS disposal and targets to be in less than 30 countries by the end of 2023.

Disciplined capital allocation

In 2022, total Capex amounted to €7.9 billion. Growth Capex reached €5.5 billion, of which 58% dedicated to Renewables, 20% to Networks and 13% to Energy Solutions, thus fully aligned with ENGIE's strategic roadmap.

Performance plan delivering

In a context of rising inflation, ENGIE maintained its momentum on cost efficiency and is on track to achieve its 3-year target, with a net EBIT contribution in 2022 of €0.4 billion.

1.8 Update on Belgian nuclear assets

In line with the planned nuclear phase-out in Belgium, the Doel 3 reactor was shut down in September 2022 and the Tihange 2 reactor in February 2023.

In January 2023, ENGIE and the Belgian federal government set a framework for the extension of the nuclear reactors Doel 4 and Tihange 3, signing the Heads of Terms and Commencement of LTO Studies Agreement which builds on the Letter of Intent signed on 21 July 2022, with the objective to extend the operational lifetime of both reactors for ten years, for a total production capacity of 2 GW.

This agreement in principle comprises three conditions, including the establishment of a legal structure dedicated to the two extended nuclear units equally owned by the Belgian State and ENGIE, the framework for a cap on future nuclear waste management costs, and a set of guarantees to ensure the proper execution of the nuclear operator's commitments. With this agreement, both parties confirm their objective to make reasonable endeavours to restart the Doel 4 and Tihange 3 nuclear units in November 2026.

In December 2022, ENGIE was informed on the new parameters considered by the Commission for Nuclear Provisions (CPN) for the calculation of the nuclear provision for the dismantling and spent fuel management of Belgian nuclear power plants following the triennial revision. Based on these parameters, nuclear provisions have increased by €3.3 billion, of which €2.9 billion borne by Synatom, compared to ENGIE's initial proposal of an increase of €0.9 billion. ENGIE considers the increase by €2.9 billion unjustified and has submitted an adapted proposal to the CPN.

1.9 ESG

Key ESG targets

In 2022, greenhouse gas emissions from energy production were reduced to 60 million tons, a decrease of 44% compared to 2017, and in line with the target of 43 million tons by 2030. 2022 results were positively impacted by the weather and a lower utilization rate of our CCGTs.

ENGIE increased the share of renewables in its portfolio to 38% at the end of 2022 from 34% at the end of 2021 with the addition of 3.9 GW of renewables.

ENGIE continues to progress on coal exit with the signing in September of the disposal of Pampa Sul in Brazil and the closure of Tocopilla in Chile which comprises a total of 0.6 GW installed capacity. ENGIE is committed to exiting all coal assets in continental Europe by 2025 and globally by 2027, including coal generation for district heating and cooling networks. At the end of 2022, coal represented 2.6% of ENGIE's centralized power generation portfolio.

On gender diversity, ENGIE had 30% women in management at the end of 2022 and is implementing action plans towards its ambition of managerial parity of 40% to 60% between men and women.

1.10 Health & Safety

In 2022, ENGIE and its subcontractors experienced severe work-related accidents including 4 fatalities, notably at construction sites. A major company-wide response and comprehensive action plan are being deployed by the ENGIE leadership, to re-assess all safety standards and procedures in every activity and geography to ensure the application of the highest safety standards across the Group and its subcontractors.

1.11 FY 2022 financial review

1.11.3. Revenues

Revenue at €93.9 billion was up 62.2% on a gross basis and 60.4% on an organic basis.

Contributive revenues, after elimination of intercompany transactions

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis)
Renewables	6,216	3,653	+70.1%	+58.3%
Networks	6,961	6,700	3.9%	+2.9%
Energy Solutions	11,552	9,926	16.4%	+21.1%
Thermal	7,129	4,089	74.3%	+62.6%
Supply	16,810	10,396	61.7%	+61.3%
Nuclear	35	56	-37.7%	-37.7%
Others	45,163	23,046	96.0%	+92.6%
of which GEMS	*45,137*	*22,870*	97.4%	+92.7%
TOTAL	**93,865**	**57,866**	**+62.2%**	**+60.4%**

Revenue for **Renewables** amounted to €6,216 million, up 70.1% on a gross basis and up 58.3% organically. The gross increase was due to favourable foreign exchange effects mainly from the appreciation of the Brazilian real against the euro. On an organic basis, revenue growth was mainly driven by capacity additions and higher hydro prices in France.

Revenue for **Networks** amounted to €6,961 million, up 3.9% on a gross basis and up 2.9% organically. The gross increase was due to favourable foreign exchange effects mainly in Latin America and the scope out effect related to the Turkey and Argentina disposals. French infrastructures revenue rose driven by significantly higher volumes transported, notably with exceptional West-East reverse flows, terminals as well as storage activities reflecting own account operations (in the UK) which offset lower volumes in distribution and expected tariff evolution. Outside France, revenues increased organically notably in Latin America with higher volumes in distribution. Lower revenues in Brazil reflect the decrease in construction revenues following progressive commissioning of transmission lines.

Revenue for **Energy Solutions** amounted to €11,552 million, up 16.4% on a gross basis and 21.1% organically. The gross increase was driven by favourable foreign exchange effects mainly related to US dollar and scope out effects. Organically, revenue in France increased significantly on all activities: energy performance management, local energy networks and on-site energy production. International activities increased significantly driven by commodity prices in all geographies.

Revenue for **Thermal** amounted to €7,129 million, up 74.3% on a gross basis and up 62.6% organically. The gross increase benefited from positive foreign exchange effects mainly in Chile, Peru and Pakistan. The organic performance is mainly driven with exceptional level of spreads and increased ancillaries in Europe. Americas shows a positive growth thanks to the indexation of PPA contracts in a context of rising commodity prices and inflation.

Revenue for **Supply** amounted to €16,810 million, up 61.7% on a gross basis and 61.3% organically. The gross variation was due to favourable foreign exchange effects. Organically, the increase was mainly driven by increasing commodity prices, offset by negative volume effect mainly due to warmer temperature.

Nuclear reported almost no external revenue post-elimination of intercompany operations, as its production was sold internally to other ENGIE businesses.

Revenue for **Others** amounted to €45,163 million. The increase compared to last year is mainly driven by GEMS (€+45,137 million) essentially impacted by increase in commodity prices combined with higher volumes.

1.11.4. EBITDA

EBITDA at €13.7 billion, was up 29.8% on a gross basis and up 27.0% on an organic basis.

Activity/geography matrix

In millions of euros	France	Rest of Europe	Latin America	USA & Canada	Middle East, Asia & Africa	Others	December 31, 2022
Renewables	535	370	1,003	313	17	(35)	**2,202**
Networks	3,396	96	731	(3)	-	(8)	**4,212**
Energy Solutions	605	240	(2)	34	70	(69)	**879**
Thermal	-	1,475	295	47	436	(17)	**2,235**
Supply	(8)	199	6	-	70	(9)	**258**
Nuclear	-	1,510	-	-	-	-	**1,510**
Others	-	(16)	1	(1)	-	2,433	**2,417**
Of which GEMS						*2,837*	***2,837***
TOTAL EBITDA	**4,528**	**3,875**	**2,033**	**390**	**592**	**2,295**	**13,713**

In millions of euros	France	Rest of Europe	Latin America	USA & Canada	Middle East, Asia & Africa	Others	December 31, 2021
Renewables	462	172	1,016	86	12	(47)	**1,702**
Networks	3,518	121	470	-	18	(7)	**4,121**
Energy Solutions	592	215	(3)	60	41	(119)	**786**
Thermal	-	743	424	43	448	(30)	**1,628**
Supply	356	114	-	-	48	(20)	**498**
Nuclear	-	1,403	-	-	-	-	**1,403**
Others	-	2	1	10	-	412	**426**
Of which GEMS						*679*	***679***
TOTAL EBITDA	**4,928**	**2,770**	**1,908**	**199**	**568**	**190**	**10,563**

1.11.5. EBIT

EBIT at €9.0 billion was up 47.2% on a gross basis and up 42.7% on an organic basis.

- Foreign exchange: a total positive effect of €325 million at EBIT mainly driven by the appreciation of the Brazilian real and the US dollar.
- Scope: a net negative scope effect of €115 million at EBIT mainly due to 2021 events including partial sale of GTT's shares that led to a change in consolidation method, asset sales to achieve the Group's geographical refocus and coal exit targets. These effects were only partly offset by the acquisition of Eolia in Spain in May 2022.
- French temperature: compared to average, the temperature effect stood at negative €190 million, generating a negative year-on-year variation of €308 million compared to 2021 across Networks, Supply and Others in France.

EBIT growth mainly driven by GEMS, Thermal and Renewables.

Activity/geography matrix

In millions of euros	France	Rest of Europe	Latin America	USA & Canada	Middle East, Asia & Africa	Others	December 31, 2022
Renewables	375	313	796	172	9	(39)	**1,627**
Networks	1,675	49	658	(3)	-	(8)	**2,371**
Energy Solutions	311	148	(5)	23	58	(123)	**412**
Thermal	-	1,278	51	44	417	(22)	**1,768**
Supply	(164)	115	6	-	49	(13)	**(7)**
Nuclear	-	1,026	-	-	-	-	**1,026**
Others	-	(16)	-	(11)	-	1,875	**1,848**
Of which GEMS	-	-	-	-	-	*2,618*	***2,618***
TOTAL EBIT	**2,197**	**2,913**	**1,506**	**226**	**532**	**1,671**	**9,045**

In millions of euros	France	Rest of Europe	Latin America	USA & Canada	Middle East, Asia & Africa	Others	December 31, 2021
Renewables	273	117	846	(6)	8	(47)	**1,191**
Networks	1,823	77	403	-	18	(7)	**2,314**
Energy Solutions	307	132	(5)	48	27	(159)	**350**
Thermal	-	564	189	41	421	(32)	**1,183**
Supply	202	28	-	-	25	(23)	**232**
Nuclear	-	959	-	-	-	-	**959**
Others	-	2	-	(1)	-	(86)	**(85)**
Of which GEMS	-	-	-	-	-	*507*	***507***
TOTAL EBIT	**2,605**	**1,880**	**1,433**	**82**	**498**	**(355)**	**6,145**

EBIT contribution by activity

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis)	o/w temp. effect (France) vs. 2021
Renewables	1,627	1,191	+36.6%	+19.1%	-
Networks	2,371	2,314	2.5%	+0.5%	(197)
Energy Solutions	412	350	17.7%	+16.6%	-
Thermal	1,768	1,183	49.4%	46.6%	-
Supply	(7)	232			(87)
Nuclear	1,026	959	+6.9%	+6.9%	-
Others	1,848	(85)			(24)
of which GEMS	*2,618*	*507*			*(24)*
TOTAL	**9,045**	**6,145**	**+47.2%**	**+42.7%**	**(308)**
TOTAL excluding Nuclear	**8,019**	**5,185**	**+54.7%**	**+49.1%**	**(308)**

1.11.5.1. Renewables: contribution of newly commissioned assets and productivity improvements

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis)
EBIT	1,627	1,191	+36.6%	+19.1%
Total CAPEX	3,333	1,881	+77.2%	-
CNR achieved prices (€/MWh)	60	56	+7.0%	-
DBSO [(1)] Margins (EBIT level)	102	31		-
Operational KPIs				
Commissioning (GW at 100%)	3.9	3.0	+30.0%	-
Hydro volumes France (TWh at 100%)	12.8	15.2	-2.4	-

(1) Develop, Build, Share and Operate.

Renewables reported a 19.1% organic EBIT growth, benefiting from the contribution of new capacity across Group's key geographies and technologies (+€268 million), performance plan (+€87 million), positive volume effects (+€69 million, resulting mainly from the reversal of the -€90 million Texas extreme weather event in Q1 2021) and positive price effects (+€55 million, mainly due to higher prices for French hydro, partly offset by hydro buybacks in France and Portugal in the context of low hydrology in Europe). Overall growth more than offset the 2021 one-off linked to GFOM ruling effect in Brazil (-€300 million).

Profit sharing mechanism on CNR hydro production in France has evolved after the adoption in February 2022 of the "*Aménagement du Rhône*" law under which the tax rate varies according to captured power prices, varying from 10% for volumes below €26.5/MWh up to 80% for volumes above €80/MWh. The Group EBIT impact in 2022 amounted to -€176 million.

1.11.5.2. Networks: strong performance in Latin America, partly offset by warmer temperatures in Europe

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis)
EBITDA	4,212	4,121	+2.2%	+1.0%
EBIT	2,371	2,314	+2.5%	+0.5%
Total CAPEX	2,321	2,524	-8.0%	
Operational KPIs				
Temperature effect – France (EBIT in €m)	(122)	75.0	(197)	-
Smart meters (m)	10.9	9.2	1.7	-

EBIT amounted to €2,371 million, up 0.5% on an organic basis.

French infrastructures EBIT was down €148 million due to lower distributed volumes following warmer temperatures versus last year and lower tariffs revenues reflecting regulatory reviews (smoothed out over the 4-year regulatory period). These effects were partly offset by significant growth in short term revenues in transport, including reversed flows from France to Germany, as well as in terminals and storage.

The Group performed strongly outside France with EBIT organically up €160 million mainly due to higher contribution from Latin America, driven by intrinsic growth and inflation indexations.

1.11.5.3. Energy Solutions: higher energy prices and strong commercial performance despite warmer temperature.

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis)
Revenues	11,552	9,926	+16.4%	+21.1%
EBIT	*412*	*350*	+17.7%	+16.6%
Total CAPEX	*886*	*903*	-1.8%	-
Operational KPIs				
Distrib. Infra installed cap. (GW)	*24.9*	*24,1* [(1)]	+3.8%	-
EBIT margin (excluding Evbox)	*4.6%*	*5.0%*	-47 bps	-
Backlog - French concessions (bn€)	18.4	16.8	+1.6	-

(1) Restated data to exclude countries ENGIE exited or stopped developments following geographical rationalization presented in May 2021.

EBIT amounted to €412 million, up 16.6% on an organic basis.

Organic growth was driven by the positive impact of energy prices, positive effect of performance plan in energy efficiency services, commercial market dynamics notably in cogeneration and DHC as well as production ramp up and process enhancements ongoing on EVBox, despite slowdown of EV market growth pace. These elements were partly offset by warmer temperature and positive 2021 one-offs on on-site energy production.

1.11.5.4. Thermal: higher spreads and ancillaries captured by flexible assets in Europe.

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis)
EBITDA	2,235	1,628	+37.3%	+33.7%
EBIT	1,768	1,183	+49.4%	+46.6%
Operational KPIs				
Average captured CSS Europe (€/MWh)	28.0	19.0	+50%	
Installed capacity (GW at 100%)	59.5	59.9	(0.4)	-

Thermal EBIT amounted to €1,768 million, up 47% on an organic basis.

Organic growth was mainly driven by price effects (+€922 million, mainly from higher spread from European assets partly offset by negative impact from higher sourcing spot prices in Chile and adverse gas merchant position in Australia) as well as ancillaries and capacity remuneration mechanisms (+€175 million). These effects were partly offset by lower volumes (-€440 million) mainly in Europe, due to outages and strikes, and Italy windfall profit tax which ENGIE is contesting.

1.11.5.5. Supply: timing effects, warmer temperatures in Europe, price caps and support measures.

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis)
EBITDA	258	498	-48.2%	-47.3%
EBIT	(7)	232	-	-
French temperature effect (EBIT in m€)	(53)	34	(87)	-

EBIT amounted to -€7 million. Organically, the decrease (-€230 million) was driven by lower energy volumes mainly in France and Belgium, negative price effects in France and support measures to customers, partially offset by improved performance and higher results in most of the other European countries. EBIT decreased by €626 million over the last quarter of the year mainly due to expected reversal of timing effects mostly linked to the existing ARENH mechanism as well as negative climate effects.

1.11.5.6. Nuclear: higher prices triggered higher profit sharing through specific Belgian nuclear tax and inframarginal rent cap.

En millions d'+euros	Dec 31, 2022	Dec 31, 2021	% change (reported basis)	% change (organic basis)
EBITDA	1,510	1,403	*+7.6%*	*+7.6%*
EBIT	1,026	959	*+6.9%*	*+6.9%*
Total Capex	229	201	*+14.2%*	
Operational KPIs				
Output (BE + FR, @ share, TWh)	*42.1*	*47.4*	*-5,4 TWh*	-
Availability (Belgium at 100%)	*83.6%*	*91.8%*	*- 820 bps*	-

EBIT for Nuclear amounted to €1,026 million, up 6.9% on organic basis.

Organic increase was driven by higher achieved prices (+€1,694 million, at €97/MWh in 2022 vs €60/MWh in 2021) resulting in higher nuclear tax contribution on second generation units (-€759 million) and inframarginal rent cap. Also, a negative volume effect (-€494 million) due to higher outages in Belgium (availability rate at 83.6%, -820 bps vs 2021) and France.

1.11.5.7. Others: unprecedented contribution from GEMS in a context of extreme market conditions

GEMS EBIT amounted to €2,618 million, representing an organic increase of €2,087 million compared to 2021.

ENGIE, as an integrated player, operates in the energy markets through GEMS. It sources energy, sells its own production and hedges upstream and downstream positions to meet customers' needs for risk management and decarbonisation, as well as secure supply in Europe. GEMS saw a record level of activity in all activities in an exceptionally volatile price environment and optimized long-term contracts by leveraging the optionality in ENGIE's commercial contract-base.

1.11.6. Comparable basis organic growth analysis

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported/organic basis)
Revenues	**93,865**	**57,866**	**+62.2%**
Scope effect	(21)	(807)	-
Exchange rate effect	-	1,462	-
Comparable data	**93,844**	**58,523**	**+60.4%**

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported/organic basis)
EBITDA	**13,713**	**10,563**	**+29.8%**
Scope effect	(48)	(219)	-
Exchange rate effect	-	418	-
Comparable data	**13,665**	**10,762**	**+27.0%**

In millions of euros	Dec 31, 2022	Dec 31, 2021	% change (reported/organic basis)
EBIT	**9,045**	**6,145**	**+47.2%**
Scope effect	(47)	(163)	-
Exchange rate effect	-	325	-
Comparable data	**8,998**	**6,307**	**+42.7%**

The calculation of organic growth aims to present comparable data both in terms of the exchange rates used to convert the financial statements of foreign companies and in terms of contributing entities (consolidation method and contribution in terms of comparable number of months). Organic growth in percentage terms represents the ratio between the data for the current year (N) and the previous year (N-1) restated as follows:

- The N-1 data is corrected by removing the contributions of entities transferred during the N-1 period or prorata temporis for the number of months after the transfer in N;
- The N-1 data is converted at the exchange rate for the period N;
- The N data is corrected with the N acquisition data or prorata temporis for the number of months prior to the N-1 acquisition.

2 OTHER INCOME STATEMENT ITEMS

The reconciliation between EBIT and Net income/(loss) is presented below:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021	% change (reported basis)
EBIT	**9,045**	**6,145**	**+47.2%**
(+) Mark-to-Market on commodity contracts other than trading instruments	(3,661)	721	
(+) Non-recurring share in net income of equity method entities	(17)	50	
Current operating income including operating MtM and share in net income of equity method entities	**5,367**	**6,916**	**-22.4%**
Impairment losses	(2,774)	(1,028)	
Restructuring costs	(230)	(204)	
Changes in scope of consolidation	91	1,107	
Other non-recurring items	(1,328)	(69)	
Income/(loss) from operating activities	**1,127**	**6,722**	**-83.2%**
Net financial income/(loss)	(3,003)	(1,350)	
Income tax benefit/(expense)	83	(1,695)	
NET INCOME/(LOSS)	**390**	**3,758**	**-89.6%**
Net recurring income/(loss) relating to continued operations, Group share	**5,223**	**2,927**	
Net recurring income/(loss) Group share per share	**2.24**	**1.26**	
Net income/(loss) Group share	**216**	**3,661**	
Non-controlling interests	**173**	**97**	

The reconciliation between Net recurring income/(loss) Group share and Net income/(loss) Group share is presented below:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Net recurring income/(loss) relating to continued operations, Group share	**5,223**	**2,927**
Impairment & Others	(1,494)	(970)
Restructuring costs	(230)	(204)
Changes in scope of consolidation	91	1,107
Mark-to-Market on commodity contracts other than trading instruments	(3,661)	721
Net recurring income/(loss) relating to discontinued operations, Group share	287	231
Net income/(loss) Group share	**216**	**3,582**

Income from operating activities amounted to €1,127 million, representing a decrease compared with December 31, 2021, mainly due to unrealized losses on commodity hedges driven by price increases, in particular on certain economic hedges on gas and electricity not designated as cash flow hedges, higher impairment losses, lower gains on asset disposals, the recognition of additional costs related to the triennial review of nuclear provisions in Belgium, partly offset by EBIT growth.

Income from operating activities was affected by:

- net impairment losses of €2,774 million (compared with €1,028 million in 2021) (*see Note 9.1*);
- restructuring costs of €230 million (compared with €204 million in 2021) (*see Note 9.2*);
- positive scope effects of €91 million (compared with a positive €1,107 million in 2021). This amount included in particular the gain on the disposal of the Group’s interest in Gaztransport et Technigaz (GTT) representing approximately 24.6% of its share capital (a positive €280 million), renewable geothermal assets in Indonesia (a positive €111 million), Energy Solutions activities in Africa and in France (a negative €127 million), and the purchase of shares in renewable assets in India with refinancing obligations scheduled for 2023 (a negative €110 million) (*see Note 9.3*);
- other non-recurring items for a negative €1,328 million (compared with a negative €69 million in 2021), mainly including the €979 million net expense related to additions to provisions for the back-end of the nuclear fuel cycle as part of the triennial review of nuclear provisions in Belgium (*see Note 9.4*).

The **net financial loss** amounted to €3,003 million in 2022, compared with €1,350 million in 2021 (*see Note 10*). This change is mainly due to the impairment loss recognized on the Nord Stream 2 loan (€987 million) and the negative impact of the changes in the fair value of money market funds held by Synatom (€280 million). Adjusted for non-recurring items, the financial loss amounted to €1,819 million in 2022, compared with €1,494 million in 2021. This deterioration is due to the increase in other financial expenses, as well as to the increase in the cost of net debt, in particular due to the increase in lease liabilities related to the extension of the Compagnie Nationale du Rhône concession. The increase in the average cost of gross debt, mainly as a result of higher interest rates, was offset by the increase in interest on cash and cash equivalents and liquid debt instruments.

The **income tax** for 2022 amounted to a benefit of €83 million (compared with a tax expense of €1,695 million in 2021). It includes a €1,474 million tax benefit relating to non-recurring taxable items (compared with a tax expense of €552 million in 2021), mainly MtM losses recognized by ENGIE SA.

Adjusted for these non-recurring items, the recurring effective tax rate was 22.6% at December 31, 2022 compared with 29.3% at December 31, 2021, mainly due to:

- the favorable change in the tax situation in certain countries that only partially recognize their deferred tax assets, notably in Europe, the United States and Australia - approximately -7.6 points ;
- the effect on deferred tax liabilities of the increase in the future income tax rate voted in the United Kingdom in 2021 - approximately -2.1 points;
- the unfavorable impact of the non-deductibility of the one-off tax contribution voted in 2022 in Italy and recognized as an operating expense by the Group - approximately +1.2 points;
- the one-off solidarity contribution voted in 2022 in Italy, which increases the income tax charge - by about +2.1 points.

Net recurring income, Group share relating to continuing operations amounted to €5,223 million compared with €2,927 million in 2021. This increase was mainly driven by the strong growth in EBIT, the recurring effective tax rate decrease from 29.3% to 22.6%, partly offset by the increase in the recurring financial expense.

Net income, Group share amounted to €216 million, €3,445 million lower compared with 2021, mainly due to impairment losses, the recognition of additional costs related to the triennial revision of nuclear provisions in Belgium, the negative effect of mark-to-market on commodity contracts other than trading instruments, and the recognition of the credit loss on Nord Stream 2, partially offset by the capital gain realized on the sale of EQUANS.

Net income attributable to non-controlling interests amounted to €173 million, compared with €97 million in 2021, due to the relatively good performance of companies with minority shareholders, notably in Renewables in the United States and Networks in France.

Return on Capital Employed (ROCE) improved during 2022 from approximately 9.1% in 2021 to 12.6% in 2022, mainly due to improved EBIT and a lower effective tax rate.

3 CHANGES IN NET FINANCIAL DEBT

Net financial debt stood at €24.1 billion down by €1.3 billion compared to December 31, 2021. This decrease was mainly driven by:

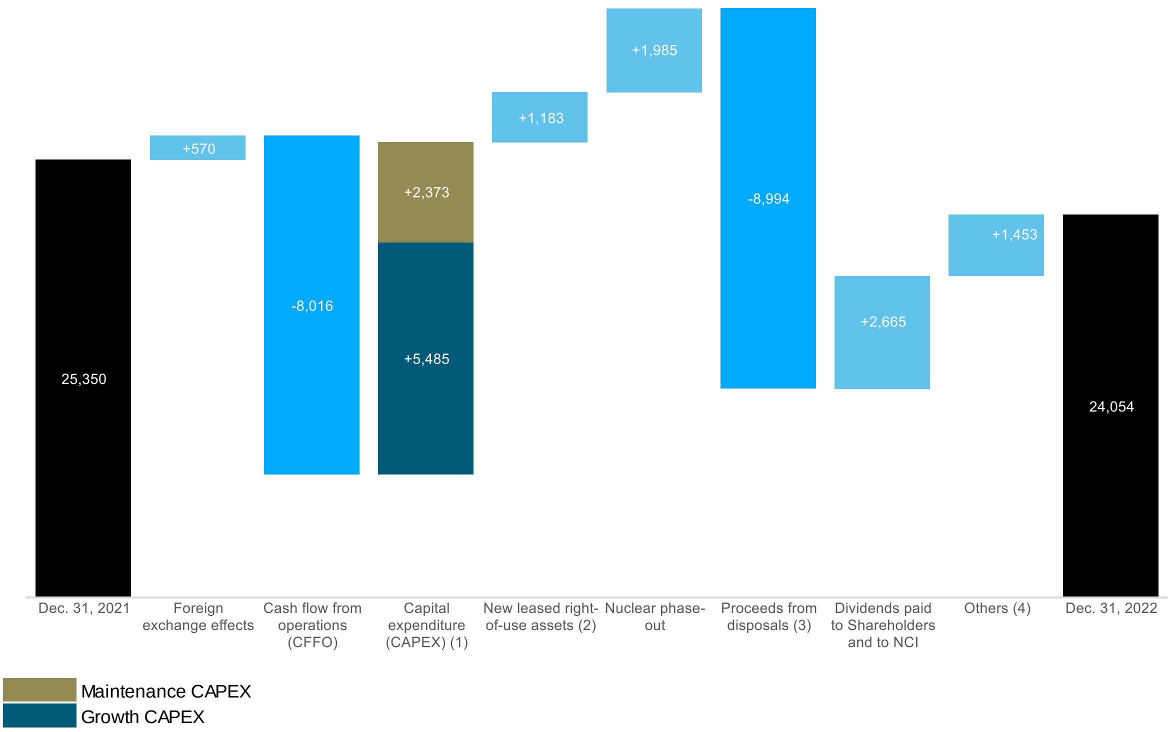
- Cash Flow From Operations of €8.0 billion;
- disposals of €9.0 billion, mainly related to the disposal of EQUANS.

These positive elements were partly offset by:

- capital expenditure over the period of €7.9 billion;
- dividends paid to ENGIE SA shareholders and to non-controlling interests of €2.7 billion;
- Belgian nuclear phase-out funding and expenses [(1)] of €2.0 billion;
- new rights of use of €1.2 billion, mainly following the extension of the CNR hydro concession;
- other elements of €1.9 billion, mainly related to foreign exchange rates.

Changes in net financial debt break down as follows:

In millions of euros



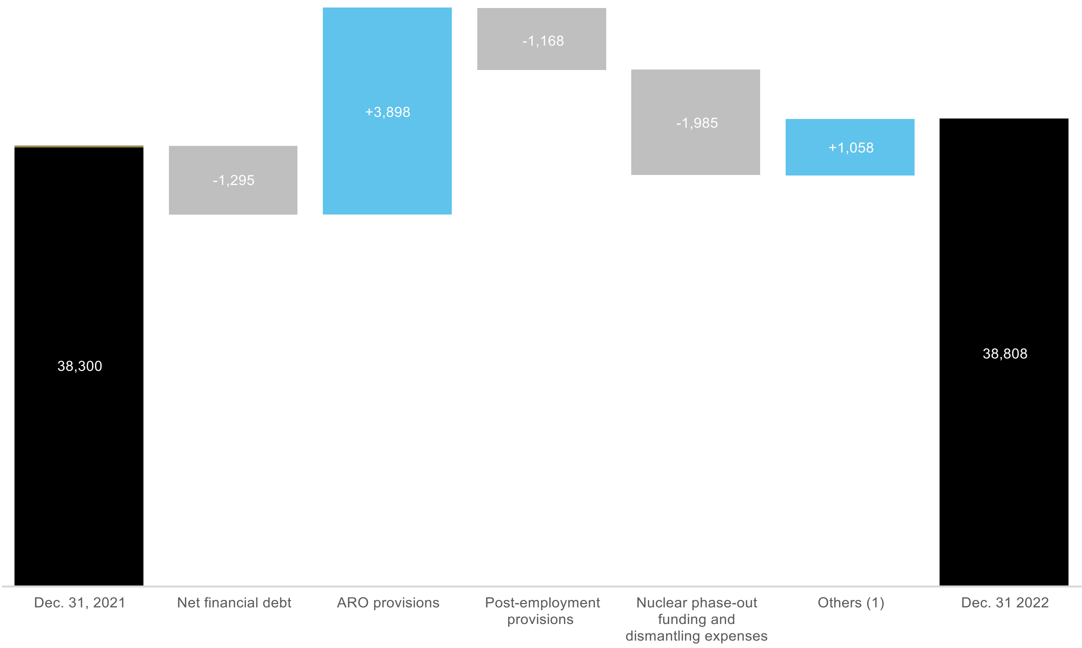
(1) Capital expenditure net of DBSO proceeds, and changes in the scope of net financial debt of acquired companies.
(2) Mainly related to the renewal of the CNR concession.
(3) Excluding DBSO proceeds.
(4) Mainly derivatives, and MtM.

(1) Financing flows relating to Synatom were previously recorded in gross Capex and waste management/dismantling expenses in CFFO.

Economic net debt stood at €38.8 billion, up €0.5 billion compared to December 31, 2021, mainly due to the increase in asset retirement obligation provisions (€+3.9 billion, mainly including the increase in nuclear provisions of €+3.3 billion following the triennial review) and other variation (€+1.1 billion, including fair value variation of dedicated assets relating to nuclear provisions and related derivative financial instruments), partly offset by funding from Synatom and waste/dismantling expenses (€-2.0 billion), lower financial net debt (€-1.3 billion) and employment benefits provisions (€-1.2 billion).

Changes in economic net debt break down as follows:

In millions of euros



(1) Change in fair value of dedicated assets relating to nuclear provisions and related derivative financial instruments.

The **net financial debt to EBITDA ratio** stood at 1.7x, down 0.6x compared to December 31,2021. The average cost of gross debt was 2.73%, up 8 bps compared with December 31, 2021.

In millions of euros	Dec 31, 2022	Dec. 31, 2021
Net financial debt	24,054	25,350
EBITDA	13,713	10,563
NET DEBT/EBITDA RATIO	**1.75**	**2.40**

The **economic net debt to EBITDA ratio** stood at 2.8x, down 0.8x compared to December 31, 2021, and in line with the target ratio of below or equal to 4.0x.

In millions of euros	Dec 31, 2022	Dec. 31, 2021
Economic net debt	38,808	38,300
EBITDA	13,713	10,563
ECONOMIC NET DEBT/EBITDA RATIO	**2.83**	**3.63**

3.1 Cash flow from operations (CFFO)

Cash Flow From Operations amounted to €8.0 billion, up €1.6 billion compared to 2021. This increase was mainly due to higher operating cash-flows (+€2.6 billion) driven by higher EBITDA (+€3.1 billion).

Working Capital Requirements were negative €2.4 billion, identical to previous year, with flat variation due to net negative price effects (-€4.8 billion), mainly due to higher valuation of gas stocks (-€1.8 billion), net receivables (-€2.3 billion) and unbilled volumes (-€0.5 billion linked to energy in the meter) and European supply tariff shields (-€1.0 billion), due to French gas and electricity tariff freeze (-€1.7 billion), Romania tariff shield and Belgium social tariff (-€0.6 billion), partly offset by the French gas tariff freeze monetization (+€1.4 billion). These effects were offset by positive effects of margin calls (+€4.0 billion) and nuclear activities (+€1.5 billion, mainly G2 tax, inframarginal rent cap and ONDRAF tariff revision).

3.2 Liquidity

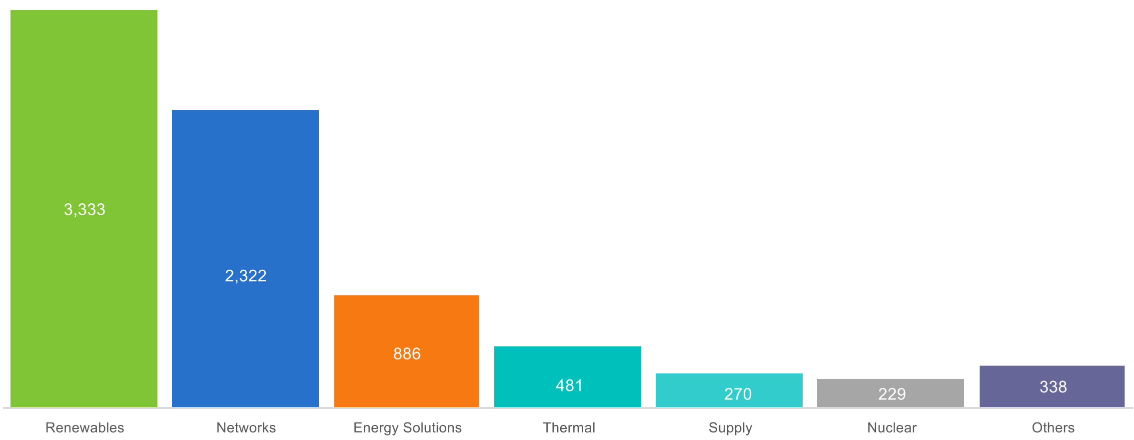
Liquidity stood at €20.9 billion, including €15.7 billion of cash [1]. The Group maintained a strong level of liquidity, by implementing dedicated management actions to address pressure on liquidity, mainly caused by unprecedented levels of commodity prices.

3.3 Net investments

Total Capex amounted to €7.9 billion, including growth CAPEX of €5.5 billion.

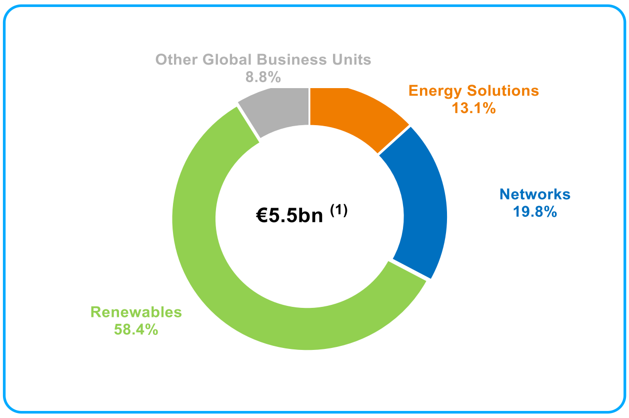
Capital expenditure (CAPEX) by activity

In millions of euros



(1) Cash and cash equivalents plus liquid debt instruments held for cash investment purposes minus bank overdrafts.

Growth capital expenditure amounted to €5.5 billion, breaking down as follows by activity:



Main projects (€bn)	
Renewables	3.2
Spain EOLIA Renovables Acquisition	0.5
US Saturn projects	0.5
Ocean Winds cash injections	0.5
US Pluto projects	0.4
South America W&S (Brazil, Chile, Peru & Mexico)	0.4
ENGIE Green W&S	0.2
US Photosol & Libra BESS acquisitions	0.1
US Mercury projects	-0.6
Networks	1.1
GRDF - Smart meters + network development	0.4
Brazil - Power transmission lines	0.1
GRTGaz	0.1
Energy Solutions	0.7
Various projects in France (mainly distributed energy infrastructures)	0.2
Various international projects (mainly US distributed solar, DHC in Europe and AMEA energy performance)	0.2

(1) *Net of disposals under DBSO operations, excluding Corporate.*

The **geography/activity matrix** for growth capital expenditure is presented below:

In millions of euros	France	Rest of Europe	Latin America	USA & Canada	Middle East, Asia & Africa	Others	Dec. 31, 2022
Renewables	361	1,094	876	648	214	10	**3,202**
Networks	779	63	245	-	-	-	**1,087**
Client Solutions	354	122	19	66	75	80	**716**
Thermal	-	181	9	34	(9)	6	**220**
Supply	62	42	-	-	7	63	**174**
Nuclear	-	-	-	-	-	-	**-**
Others	-	4	-	-	-	80	**85**
of which GEMS	-	-	-	-	-	*63*	***63***
TOTAL CAPEX	**1,556**	**1,506**	**1,148**	**748**	**287**	**240**	**5,485**

In millions of euros	France	Rest of Europe	Latin America	USA & Canada	Middle East, Asia & Africa	Others	Dec. 31, 2021 (1) (2)
Renewables	244	224	462	767	183	2	**1,881**
Networks	812	68	440	-	-	-	**1,320**
Client Solutions	209	118	15	305	29	40	**715**
Thermal	-	8	26	-	(52)	1	**(17)**
Supply	74	46	-	-	11	24	**154**
Nuclear	-	-	-	-	-	-	**-**
Others	-	4	-	(1)	-	218	**221**
of which GEMS	-	-	-	-	-	*(31)*	***(31)***
TOTAL CAPEX	**1,338**	**468**	**942**	**1,071**	**171**	**285**	**4,275**

(1) *Growth capital expenditure (CAPEX) now include changes in the scope of net financial debt of acquired companies. Data at December 31, 2021 have been restated accordingly.*

(2) *Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.*

Net investments for the period amounted to €0,2 billion and include:

- growth capital expenditure for €5.5 billion (see above);
- gross maintenance capital expenditure amounting to €2.4 billion;

- new right-of-use assets recognized over the period for €1.2 billion;
- the effects of the reduction in net financial debt recognized in accordance with IFRS 5 as Non-current assets held for sale and discontinued operations for a negative €0.9 billion;
- proceeds from disposals representing an inflow of €-7.9 billion.

3.4 Dividends and movements in treasury stock

Dividends and movements in treasury stock during the period amounted to €3.1 billion and include ENGIE's dividend payment in May 2022 for the 2021 fiscal year for €2.1 billion, and dividends paid by various subsidiaries to their non-controlling interests in an amount of €0.5 billion, the hybrid debt repurchase and payment of interest for €0.5 billion, and capital movements relating to the global employee share ownership plan Link 2022 for €0.1 billion.

3.5 Net financial debt at December 31, 2022

Excluding amortized cost but including the impact of foreign currency derivatives, at December 31, 2022 a total of 83% of net financial debt was denominated in euros, 11% in US dollars and 10% in Brazilian real.

Including the impact of financial instruments, 90% of net debt is at fixed rates.

The average maturity of the Group's net debt is 12.5 years.

At December 31, 2022, the Group had total undrawn confirmed credit lines of €12.5 billion.

3.6 Rating

On August 17, 2022, S&P reaffirmed its BBB+ long-term issuer rating and short-term issuer rating at A-2, with a stable outlook.

On September 1, 2022, Moody’s reaffirmed its Baa1/P-2 senior unsecured rating, with a stable outlook.

On October 19, 2022 Fitch confirmed its long-term issuer rating at A-, and its short-term rating at F1, with a stable outlook.

4 OTHER ITEMS IN THE STATEMENT OF FINANCIAL POSITION

In millions of euros	Dec. 31, 2022	Dec. 31, 2021	Net change
Non-current assets	**131,521**	**117,418**	**14,102**
Of which goodwill	*12,854*	*12,799*	*55*
Of which property, plant and equipment and intangible assets, net	*62,853*	*57,863*	*4,990*
Of which derivative instruments	*33,134*	*25,616*	*7,517*
Of which investments in equity method entities	*9,279*	*8,498*	*780*
Current assets	**103,969**	**107,915**	**(3,946)**
Of which trade and other payables	*31,310*	*32,556*	*(1,245)*
Of which derivative instruments	*15,252*	*19,373*	*(4,120)*
Of which assets classified as held for sale	*428*	*11,881*	*(11,452)*
Total equity	**39,285**	**41,980**	**(2,695)**
Provisions	27,027	25,459	1,568
Borrowings	40,591	41,048	(457)
Financial instruments derivatives	51,276	46,931	4,346
Other liabilities	77,311	69,916	7,395
Of which liabilities directly associated with assets classified as held for sale	*371*	*7,415*	*(7,045)*

The carrying amount of **property, plant and equipment and intangible assets** was €62.9 billion, up €5.0 billion compared with December 31, 2021. This increase was primarily the result of investments carried out over the period (positive €8.7 billion impact) and translation adjustments (positive €1.0 billion impact, mainly due to the appreciation of the US dollar and the Brazilian real), partially offset by depreciation and amortization (negative €4.6 billion impact) and impairment losses (negative €2.3 billion impact).

Goodwill amounted to €12.9 billion, stable compared with December 31, 2021.

Investments in equity method entities increased by €0.8 billion, primarily due to the acquisition of Eolia Renovables (*see Note 4.3*).

Total equity amounted to €39.3 billion, a decrease of €2.7 billion compared with December 31, 2021, essentially reflecting the payment of dividends (negative €2.6 billion impact), operations on deeply-subordinated perpetual notes (negative €0.5 billion impact), and other comprehensive income (€0.2 billion negative impact, including a negative €4.7 billion of cash flow hedges on commodities, a positive €2.7 billion of actuarial gains and losses, a positive €0.9 billion of share in equity method entities, and a positive €0.8 billion of translation adjustments) offset by net income for the period (positive €0.4 billion impact).

Provisions increased by €1.6 billion to €27.0 billion compared with December 31, 2021. This increase stemmed mainly from the increase in provisions for the decommissioning of nuclear production facilities and for the management of the back-end of the nuclear fuel cycle by Synatom (*see Note 17*), partially offset by actuarial gains on provisions for post-employment benefits and other long-term benefits (which deducted €2.8 billion from the provision amount) owing to the sharp rise in discount rates over the period (*see Note 18*).

The increase in **derivative instruments** is mainly due to the extreme volatility in commodity prices over the year.

"Assets classified as held for sale" and "**Liabilities directly associated with assets classified as held for sale**" correspond solely to a thermal power plant in Brazil, following the disposal of EQUANS in October 2022.

5 PARENT COMPANY FINANCIAL STATEMENTS

The figures provided below relate to the financial statements of ENGIE SA, prepared in accordance with French GAAP and applicable regulations.

Revenues for ENGIE SA in 2022 totaled €68,500 million, an increase compared to 2021 (€36,224 million), both on the gas and electricity markets.

Net operating income amounted to €1,051 million in 2022, an improvement of €1,897 million compared with a loss of €846 million in 2021. The energy margin deteriorated by €152 million.

Net financial income amounted to €1,786 million, an increase of €1,405 million compared to 2021 due to higher dividends received.

Non-recurring items represented a loss of €1,461 million, mainly comprising changes in the value of equity interests (including Electrabel) and capital gains on the disposal of shares (including GazTransport et Technigaz).

The income tax benefit amounted to €321 million, versus an income tax benefit of €474 million in 2021, including a tax consolidation benefit of €253 million.

Net income for the year came in at €1,697 million.

Shareholders' equity amounted to €31,117 million at end-2022 compared with €31,211 million at end-2021. The €94 million decrease was mainly due to the 2022 net income of €1,697 million, and to the 2021 dividend payment for an amount of €2,093 million.

At December 31, 2022, borrowings and debt stood at €40,885 million, and cash and cash equivalents totaled €16,809 million (of which €10,105 million relating to subsidiaries' current accounts).

Information relating to payment terms

Pursuant to Articles L.441-14 and D.441-6 of the French Commercial Code, companies whose annual financial statements are subject to a statutory audit must publish information regarding supplier and customer payment terms. The purpose is to demonstrate that there is no significant failure to comply with such terms.

Information relating to supplier and customer payment terms mentioned in Articles L.441-10 to L.441-16 of the French Commercial Code

	Articles L441-10 to L441-16 : Invoices received, unpaid and overdue at the reporting date						Articles L441-10 to L441-16 : Invoices issued, unpaid and overdue at the reporting date					
In millions of euros	0 day (indicative)	1 to 30 days	31 to 60 days	61 to 90 days	91 days or more	Total (1 day or more)	0 day (indicative)	1 to 30 days	31 to 60 days	61 to 90 days	91 days or more	Total (1 day or more)
(A) By aging category												
Number of invoices	-					46,998	-					4,221,959
Aggregate invoice amount (incl. VAT)	-	53.7	130.1	8.0	799.8	991.5	-	287.8	147.1	208.3	918.5	1,561.8
Percentage of total amount of	-	0.06%	0.16%	0.01%	0.96%	1.19%						
Percentage of total revenues (incl.							-	0.36%	0.18%	0.26%	1.14%	1.93%
(B) Invoices excluded from (A) relating to disputed or unrecognized receivables and payables												
Number of excluded invoices	540						542					
Aggregate amount of excluded	(6.9)						0.8					
(C) Standard payment terms used (contractual or legal terms - Article L. 441-6 or Article L. 443-1 of the French Commercial Code)												
Payment terms used to calculate late payments	Legal payment terms: 30 days						Contractual payment terms: 14 days Legal payment terms: 30 days					

02 CONSOLIDATED FINANCIAL STATEMENTS

INCOME STATEMENT

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
REVENUES	**6.2 & 7**	**93,865**	**57,866**
Purchases and operating derivatives	8.1	(74,535)	(38,861)
Personnel costs	8.2	(8,078)	(7,692)
Depreciation, amortization and provisions	8.3	(5,187)	(4,840)
Taxes	8.4	(3,380)	(1,479)
Other operating income		1,624	1,122
Current operating income including operating MtM		**4,309**	**6,116**
Share in net income of equity method entities	6.2	1,059	800
Current operating income including operating MtM and share in net income of equity method entities	**0**	**5,367**	**6,916**
Impairment losses	9.1	(2,774)	(1,028)
Restructuring costs	9.2	(230)	(204)
Changes in scope of consolidation	9.3	91	1,107
Other non-recurring items	9.4	(1,328)	(69)
NET INCOME/(LOSS) FROM OPERATING ACTIVITIES	**9**	**1,127**	**6,722**
Financial expenses		(3,700)	(2,061)
Financial income		697	711
NET FINANCIAL INCOME/(LOSS)	**10**	**(3,003)**	**(1,350)**
Income tax benefit/(expense)	11	83	(1,695)
NET INCOME/(LOSS) RELATING TO CONTINUING OPERATIONS		**(1,793)**	**3,678**
NET INCOME/(LOSS) RELATING TO DISCONTINUED OPERATIONS		**2,183**	**80**
NET INCOME/(LOSS)		**390**	**3,758**
Net income/(loss) Group share		**216**	**3,661**
Of which Net income/(loss) relating to continuing operations, Group share		*(1,965)*	*3,582*
Of which Net income/(loss) relating to discontinued operations, Group share		*2,182*	*79*
Non-controlling interests		**173**	**97**
Of which Non-controlling interests relating to continuing operations		*172*	*96*
Of which Non-controlling interests relating to discontinued operations		*1*	*1*
BASIC EARNINGS/(LOSS) PER SHARE (EUROS)	**12**	**0.08**	**1.46**
Of which Basic earnings/(loss) relating to continuing operations per share		*(0.84)*	*1.43*
Of which Basic earnings/(loss) relating to discontinued operations per share		*0.93*	*0.03*
DILUTED EARNINGS/(LOSS) PER SHARE (EUROS)	**12**	**0.08**	**1.46**
Of which Diluted earnings/(loss) relating to continuing operations per share		*(0.84)*	*1.42*
Of which Diluted earnings/(loss) relating to discontinued operations per share		*0.93*	*0.03*

NB: *The amounts shown in the tables are expressed in millions of euros. In certain cases, rounding may cause non-material discrepancies in the totals.*

STATEMENT OF COMPREHENSIVE INCOME

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
NET INCOME/(LOSS)		**390**	**3,758**
Debt instruments	14.1	(378)	(21)
Net investment hedges	15	(15)	(215)
Cash flow hedges (excl. commodity instruments)	15	938	511
Commodity cash flow hedges	15	(4,719)	3,980
Deferred tax on recyclable or recycled items		951	(1,333)
Share of equity method entities in recyclable items, net of tax		871	270
Translation adjustments		848	909
Recyclable items relating to discontinued operations, net of tax		(118)	114
TOTAL RECYCLABLE ITEMS		**(1,622)**	**4,215**
Equity instruments	14.1	(685)	159
Actuarial gains and losses		2,718	1,742
Deferred tax on non recyclable items		(613)	(451)
Share of equity method entities in actuarial gains and losses, net of tax		5	-
Non-recyclable items relating to discontinued operations, net of tax		48	48
TOTAL NON-RECYCLABLE ITEMS		**1,472**	**1,499**
TOTAL RECYCLABLE ITEMS AND NON-RECYCLABLE ITEMS		**(150)**	**5,713**
TOTAL COMPREHENSIVE INCOME/(LOSS)		**240**	**9,471**
Of which owners of the parent		*(257)*	*9,415*
Of which non-controlling interests		*497*	*56*

NB: The amounts shown in the tables are expressed in millions of euros. In certain cases, rounding may cause non-material discrepancies in the totals.

STATEMENT OF FINANCIAL POSITION

ASSETS

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
Non-current assets			
Goodwill	13.1	12,854	12,799
Intangible assets, net	13.2	7,364	6,784
Property, plant and equipment, net	13.3	55,488	51,079
Other financial assets	14	10,599	10,949
Derivative instruments	14	33,134	25,616
Assets from contracts with customers	7	9	34
Investments in equity method entities	3	9,279	8,498
Other non-current assets	22	766	478
Deferred tax assets	11	2,029	1,181
TOTAL NON-CURRENT ASSETS		**131,521**	**117,418**
Current assets			
Other financial assets	14	2,394	2,495
Derivative instruments	14	15,252	19,373
Trade and other receivables, net	7	31,310	32,555
Assets from contracts with customers	7	12,575	8,344
Inventories	22	8,145	6,175
Other current assets	22	18,294	13,202
Cash and cash equivalents	14	15,570	13,890
Assets classified as held for sale	4.2	428	11,881
TOTAL CURRENT ASSETS		**103,969**	**107,915**
TOTAL ASSETS		**235,490**	**225,333**

NB: The amounts shown in the tables are expressed in millions of euros. In certain cases, rounding may cause non-material discrepancies in the totals.

LIABILITIES

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
Shareholders' equity		34,253	36,994
Non-controlling interests	2	5,032	4,986
TOTAL EQUITY	**16**	**39,285**	**41,980**
Non-current liabilities			
Provisions	17	24,663	23,394
Long-term borrowings	14	28,083	30,458
Derivative instruments	14	39,417	24,228
Other financial liabilities	14	90	108
Liabilities from contracts with customers	7	121	68
Other non-current liabilities	22	3,646	2,342
Deferred tax liabilities	11	6,408	7,738
TOTAL NON-CURRENT LIABILITIES		**102,427**	**88,336**
Current liabilities			
Provisions	17	2,365	2,066
Short-term borrowings	14	12,508	10,590
Derivative instruments	14	11,859	22,702
Trade and other payables	14	39,801	32,822
Liabilities from contracts with customers	7	3,292	2,671
Other current liabilities	22	23,583	16,752
Liabilities directly associated with assets classified as held for sale	4.2	371	7,415
TOTAL CURRENT LIABILITIES		**93,778**	**95,019**
TOTAL EQUITY AND LIABILITIES		**235,490**	**225,333**

NB: The amounts shown in the tables are expressed in millions of euros. In certain cases, rounding may cause non-material discrepancies in the totals.

STATEMENT OF CHANGES IN EQUITY

In millions of euros	Share capital	Additional paid-in capital	Consolidated reserves	Deeply-subordinated perpetual notes	Changes in fair value and other	Translation adjustments	Treasury stock	Shareholders' equity	Non-controlling interests	Total
EQUITY AT DECEMBER 31, 2020	**2,435**	**31,291**	**(3,874)**	**3,913**	**(1,719)**	**(2,850)**	**(251)**	**28,945**	**4,911**	**33,856**
Net income/(loss)			3,661					3,661	97	3,758
Other comprehensive income/(loss)			1,490		3,431	833		5,753	(40)	5,713
TOTAL COMPREHENSIVE INCOME/(LOSS)			**5,151**		**3,431**	**833**		**9,415**	**56**	**9,471**
Share-based payment	-	-	48					48	1	49
Dividends paid in cash [(1)]		(1,296)	-					(1,296)	(410)	(1,706)
Purchase/disposal of treasury stock			(52)				52	-	-	-
Operations on deeply-subordinated perpetual notes [(1)]			(129)	(146)				(275)		(275)
Transactions between owners [(1) (2)]			324					324	740	1,064
Transactions with impact on non-controlling interests [(1) (3)]			-					-	(312)	(312)
Share capital increases and decreases								-	(1)	(1)
Normative changes			43					43	1	44
Other changes [(1) (4)]		(3,937)	3,726		-			(211)	1	(209)
EQUITY AT DECEMBER 31, 2021	**2,435**	**26,058**	**5,238**	**3,767**	**1,711**	**(2,017)**	**(199)**	**36,994**	**4,986**	**41,980**

(1) Transactions of the period are listed in Note 19 "Equity" to the consolidated financial statements for the year ended December 31, 2021.

(2) Mainly relates to the disposal of 11.5% of GRTgaz.

(3) Mainly relates to the partial disposal of Gaztransport & Technigaz SA (GTT).

(4) Mainly concerns the dispute with the French tax authorities on the assignment without recourse of the withholding tax claim made in 2005 by SUEZ. This dispute is presented in Note 26.7.1 "Legal and anti-trust proceedings" in the consolidated financial statements for the year ended December 31, 2021.

NB: The amounts shown in the tables are expressed in millions of euros. In certain cases, rounding may cause non-material discrepancies in the totals.

In millions of euros	Share capital	Additional paid-in capital	Consolidated reserves	Deeply-subordinated perpetual notes	Changes in fair value and other	Translation adjustments	Treasury stock	Shareholders' equity	Non-controlling interests	Total
EQUITY AT DECEMBER 31, 2021	**2,435**	**26,058**	**5,238**	**3,767**	**1,711**	**(2,017)**	**(199)**	**36,994**	**4,986**	**41,980**
Net income/(loss)			216					216	173	390
Other comprehensive income/(loss)			1,311		(2,379)	595		(474)	324	(150)
TOTAL COMPREHENSIVE INCOME/(LOSS)			**1,527**	**-**	**(2,379)**	**595**	**-**	**(257)**	**497**	**240**
Share-based payment	-	3	45					48	-	48
Dividends paid in cash [(1)]		(394)	(1,689)					(2,082)	(482)	(2,565)
Purchase/disposal of treasury stock			(43)				10	(33)	-	(33)
Operations on deeply-subordinated perpetual notes [(1)]			(77)	(374)				(451)	-	(451)
Transactions between owners [(1)] [(2)]			154					154	56	210
Transactions with impact on non-controlling interests			-					-	(41)	(41)
Share capital increases and decreases								-	19	19
Normative change [(3)]			(116)					(116)	(6)	(121)
Other changes		-	(5)	-	-			(5)	3	(1)
EQUITY AT DECEMBER 31, 2022	**2,435**	**25,667**	**5,036**	**3,393**	**(668)**	**(1,422)**	**(189)**	**34,253**	**5,032**	**39,285**

(1) *Transactions of the period are listed in Note 16 "Equity".*

(2) *Mainly relates to the sale of part of the renewable assets portfolio in the United States (see Note 16.2.4 "Other transactions").*

(3) *SaaS arrangement (see Note 1.1.2 "Other text").*

NB: The amounts shown in the tables are expressed in millions of euros. In certain cases, rounding may cause non-material discrepancies in the totals.

STATEMENT OF CASH FLOWS

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
NET INCOME/(LOSS)		**390**	**3,758**
- Net income/(loss) relating to discontinued operations		**2,183**	**80**
NET INCOME/(LOSS) RELATING TO CONTINUING OPERATIONS		**(1,793)**	**3,678**
- Share in net income of equity method entities		(1,059)	(800)
+ Dividends received from equity method entities		713	662
- Net depreciation, amortization, impairment and provisions		8,057	5,484
- Impact of changes in scope of consolidation and other non-recurring items		74	(1,039)
- Mark-to-market on commodity contracts other than trading instruments		3,661	(721)
- Other items with no cash impact		(157)	(501)
- Income tax expense	11	(83)	1,695
- Net financial income/(loss)	10	3,003	1,350
Cash generated from operations before income tax and working capital requirements		**12,415**	**9,807**
+ Tax paid		(1,504)	(603)
Change in working capital requirements	**22.1**	**(2,424)**	**(2,377)**
CASH FLOW FROM OPERATING ACTIVITIES RELATING TO CONTINUING OPERATIONS		**8,488**	**6,827**
CASH FLOW FROM OPERATING ACTIVITIES RELATING TO DISCONTINUED OPERATIONS		**98**	**486**
CASH FLOW FROM OPERATING ACTIVITIES		**8,586**	**7,313**
Acquisitions of property, plant and equipment and intangible assets	13.2 & 13.3	(6,379)	(5,990)
Acquisitions of controlling interests in entities, net of cash and cash equivalents acquired	4 & 14	(289)	(392)
Acquisitions of investments in equity method entities and joint operations	4 & 14	(407)	(369)
Acquisitions of equity and debt instruments	14	175	(1,548)
Disposals of property, plant and equipment, and intangible assets	13.2 & 13.3	173	88
Loss of controlling interests in entities, net of cash and cash equivalents sold	4 & 14	6,728	(173)
Disposals of investments in equity method entities and joint operations	4 & 14	1,461	62
Disposals of equity and debt instruments	14	268	73
Interest received on financial assets		(37)	32
Dividends received on equity instruments		18	57
Change in loans and receivables originated by the Group and other	5.6	(2,877)	121
CASH FLOW FROM (USED IN) INVESTING ACTIVITIES RELATING TO CONTINUING OPERATIONS		**(1,167)**	**(8,039)**
CASH FLOW FROM (USED IN) INVESTING ACTIVITIES RELATING TO DISCONTINUED OPERATIONS		**(3,123)**	**(3,003)**
CASH FLOW FROM (USED IN) INVESTING ACTIVITIES		**(4,290)**	**(11,042)**
Dividends paid [(1)]		(2,665)	(1,859)
Repayment of borrowings and debt		(10,972)	(5,054)
Change in financial assets held for investment and financing purposes		188	464
Interest paid		(822)	(719)
Interest received on cash and cash equivalents		194	52
Cash flow on derivatives qualifying as net investment hedges and compensation payments on derivatives and on early buyback of borrowings		(216)	(219)
Increase in borrowings		8,669	8,353
Increase/decrease in capital		(259)	226
Purchase and/or sale of treasury stock		(115)	-
Changes in ownership interests in controlled entities	5.6	-	1,085
CASH FLOW FROM (USED IN) FINANCING ACTIVITIES RELATING TO CONTINUING OPERATIONS		**(5,997)**	**2,329**
CASH FLOW FROM (USED IN) FINANCING ACTIVITIES RELATING TO DISCONTINUED		**3,019**	**2,519**
CASH FLOW FROM (USED IN) FINANCING ACTIVITIES		**(2,979)**	**4,848**
Effects of changes in exchange rates and other relating to continuing operations		356	223
Effects of changes in exchange rates and other relating to discontinued operations		7	10
Effects of changes in exchange rates and other		363	233
TOTAL CASH FLOW FOR THE PERIOD		**1,680**	**1,352**
Reclassification of cash and cash equivalents relating to discontinued operations		-	(440)
CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD		**13,890**	**12,980**
CASH AND CASH EQUIVALENTS AT END OF PERIOD		**15,570**	**13,890**

(1) The line “Dividends paid” includes the coupons paid to owners of deeply-subordinated perpetual notes (see Note 16 “Equity”).

NB: The amounts shown in the tables are expressed in millions of euros. In certain cases, rounding may cause non-material discrepancies in the totals.

03 NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

ENGIE SA, the parent company of the Group, is a French société anonyme with a Board of Directors that is subject to the provisions of Book II of the French Commercial Code (Code du commerce), as well as to all other provisions of French law applicable to French commercial companies. It was incorporated on November 20, 2004 for a period of 99 years.

It is governed by current and future laws and by regulations applicable to sociétés anonymes and its bylaws.

The Group is headquartered at 1 place Samuel de Champlain, 92400 Courbevoie (France).

ENGIE shares are listed on the Paris, Brussels and Luxembourg stock exchanges.

On February 20, 2023, the Group's Board of Directors approved and authorized for issue the consolidated financial statements of the Group for the year ended December 31, 2022.

NOTE 1 ACCOUNTING FRAMEWORK AND BASIS FOR PREPARING THE CONSOLIDATED FINANCIAL STATEMENTS

1.1 Accounting standards

Pursuant to European Regulation (EU) 2019/980 dated March 14, 2019, financial information concerning the assets, liabilities, financial position, and profit and loss of ENGIE has been provided for the last two reporting periods (ended December 31, 2021 and 2022). This information was prepared in accordance with European Regulation (EC) 1606/2002 “on the application of international accounting standards” dated July 19, 2002. The Group's consolidated financial statements for the year ended December 31, 2022 have been prepared in accordance with IFRS Standards as published by the International Accounting Standards Board and endorsed by the European Union [(1)].

The accounting standards applied in the consolidated financial statements for the year ended December 31, 2022 are consistent with the policies used to prepare the consolidated financial statements for the year ended December 31, 2021, except for those described below.

1.1.1 IFRS Standards, amendments or IFRIC Interpretations applicable in 2022

- Amendments to IAS 37 – *Provisions, Contingent Liabilities and Contingent Assets: Onerous Contracts* - Cost of Fulfilling a Contract.
- Annual improvements to IFRSs – 2018-2020 cycle.

These amendments and improvements have no material impact on the Group’s consolidated financial statements.

- Amendments to IAS 16 – *Property, Plant and Equipment:* Proceeds before Intended Use.

The Group elected to early adopt these amendments, as indicated in Note 1.1.3 to the consolidated financial statements for the year ended December 31, 2021. These amendments have no material impact on the Group's consolidated financial statements.

(1) Available on the European Commission’s website:
http://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:02002R1606-20080410

1.1.2 Other text

- In its March 2021 agenda decision, the IFRS Interpretations Committee (IFRIC) clarified the accounting treatment of configuration and customization costs for software in a SaaS (Software as a Service) arrangement. According to the IFRIC, some of these costs should be recognized as an expense (and not as an intangible asset). This decision does not have a material impact on the Group's consolidated financial statements.

1.1.3 IFRS Standards, amendments or IFRIC Interpretations effective as from 2023 and that the Group has elected not to early adopt

- Amendments to IAS 1 - *Presentation of Financial Statements*: Classification of Liabilities as Current or Non-Current (1).
- IFRS 17 - *Insurance Contracts* (including amendments).
- Amendments to IAS 1 – *Presentation of Financial Statements* and the Materiality Practice Statement: 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.
- Amendments to IFRS 16 - *Leases*: Lease Liability in a Sale and Leaseback (1).

The impact of these standards and amendments is currently being assessed.

1.2 Measurement and presentation basis

1.2.1 Historical cost convention

The Group's consolidated financial statements are presented in euros and have been prepared using the historical cost convention, except for financial instruments, which are accounted for under the financial instrument categories defined by IFRS 9.

1.2.2 Chosen options

1.2.2.1 Reminder of IFRS 1 transition options

The Group used some of the options available under IFRS 1 for its transition to IFRS in 2005. The options that continue to have an impact on the consolidated financial statements are:

- translation adjustments: the Group elected to reclassify cumulative translation adjustments within consolidated equity at January 1, 2004;
- business combinations: the Group elected not to restate business combinations that took place prior to January 1, 2004 in accordance with IFRS 3.

1.2.2.2 Business combinations

Business combinations carried out prior to January 1, 2010 were accounted for in accordance with IFRS 3 prior to the revision. In accordance with IFRS 3 revised, these business combinations have not been restated.

(1) These standards and amendments have not yet been adopted by the European Union.

Since January 1, 2010, the Group applies the purchase method as defined in IFRS 3 revised, which consists in recognizing the identifiable assets acquired and liabilities assumed at their fair values at the acquisition date, as well as any non-controlling interests in the acquiree. Non-controlling interests are measured either at fair value or at the entity's proportionate interest in the net identifiable assets of the acquiree. The Group determines on a case-by-case basis which measurement option to be used to recognize non-controlling interests.

1.2.2.3 Consolidated statement of cash flows

The consolidated statement of cash flows is prepared using the indirect method starting from net income.

"Interest received on non-current financial assets" is classified within investing activities because it represents a return on investments. "Interest received on cash and cash equivalents" is shown as a component of financing activities because the interest can be used to reduce borrowing costs. This classification is consistent with the Group's internal organization, where debt and cash are managed centrally by the Group treasury department.

As impairment losses on current assets are considered to be definitive losses, changes in current assets are presented net of impairment.

Cash flows relating to the payment of income tax are presented on a separate line.

1.2.3 Foreign currency transactions

1.2.3.1 Translation of foreign currency transactions

Foreign currency transactions are recorded in the functional currency at the exchange rate prevailing on the date of the transaction.

Functional currency is the currency of the primary economic environment in which an entity operates, which in most cases corresponds to local currency. However, certain entities may have a functional currency different from the local currency when that other currency is used for an entity's main transactions and better reflects its economic environment.

At each reporting date:

- monetary assets and liabilities denominated in foreign currencies are translated at year-end exchange rates. The resulting translation gains and losses are recorded in the consolidated income statement for the year to which they relate;
- non-monetary assets and liabilities denominated in foreign currencies are recognized at the historical cost applicable at the date of the transaction.

1.2.3.2 Translation of the financial statements of subsidiaries with a functional currency other than the euro (the presentation currency)

The statements of financial position of these subsidiaries are translated into euros at the official year-end exchange rates. Income statement and cash flow statement items are translated using the average exchange rate for the year. Any differences arising from the translation of the financial statements of these subsidiaries are recorded under "Translation adjustments" as other comprehensive income.

Goodwill and fair value adjustments arising on the acquisition of foreign entities are classified as assets and liabilities of those foreign entities and are therefore denominated in the functional currencies of the entities and translated at the year-end exchange rate.

1.3 Use of estimates and judgment

1.3.1 Estimates

The preparation of consolidated financial statements requires the use of estimates and assumptions to determine the value of assets and liabilities and contingent assets and liabilities at the reporting date, as well as income and expenses reported during the period.

Developments in the economic and financial environment, particularly relating to highly volatile commodities markets and the war in Ukraine, have prompted the Group to step up its risk oversight procedures, mainly in measuring financial instruments, assessing contingencies related to interruptions in the natural gas supply, as well as counterparty and liquidity risks. The estimates used by the Group, among other things, to test for impairment and to measure provisions, also take into account this environment and the sharp market volatility.

Accounting estimates are made in a context that remains sensitive to energy market developments, therefore making it difficult to apprehend medium- and short-term economic prospects. Particular attention has been paid to the consequences of sharp fluctuations in the price of gas and electricity.

Due to uncertainties inherent in the estimation process, the Group regularly revises its estimates in light of currently available information. Final outcomes could differ from those estimates.

The key estimates used in preparing the Group's consolidated financial statements relate mainly to:

- measurement of the recoverable amount of goodwill (*see Note 13.1*), other intangible assets (*see Note 13.2*) and property, plant and equipment (*see Note 13.3*);
- measurement of the fair value of financial assets and liabilities, and, in the current context, factoring in the uncertainty surrounding the key assumptions used, in particular the contingencies related to interruptions in the natural gas supply as well as the effects on the minority interest held by the Group in Nord Stream AG and on the loan related to the financing of the Nord Stream 2 pipeline project (*see Note 14*). The Group has also updated the main valuation inputs of its commodity derivatives, in particular the “bid ask” reserve, to reflect the increased volatility of commodity prices and the reduced liquidity observed in the European gas and electricity markets in the second half of 2022 (*see notes 14 and 15*);
- assessment of expected credit losses, particularly in order to update probabilities of default and other inputs, mainly for calculating the CVA (Credit Valuation Adjustment) in an uncertain context with high market price volatility (*see Note 15*);
- measurement of provisions, particularly for the back-end of the nuclear fuel cycle, dismantling obligations, disputes, and pensions and other employee benefits (*see Notes 17 and 18*);
- measurement of the fair value of assets acquired and liabilities assumed in a business combination (*see Note 4*);
- measurement of un-metered revenues (energy in the meter), for which the valuation techniques have been impacted by changes in certain customers' consumption habits in a context of sharp fluctuations in commodity prices (*see Note 7*);
- measurement of recognized tax loss carry-forwards, taking into account, where applicable, taxable income revisions and projections (*see Note 11*).

1.3.2 Judgment

As well as relying on estimates, Group management also makes judgments to define the appropriate accounting policies to apply to certain activities and transactions, particularly when the IFRS Standards and IFRIC Interpretations in force do not specifically deal with the related accounting issues.

In particular, the Group exercised its judgment in:

- assessing the type of control (*see Notes 2 and 3*);
- identifying the performance obligations of sales contracts (*see Note 7*);

- determining how revenues are recognized for distribution or transmission services invoiced to customers (*see* Note 7);
- recognizing support measures granted by certain governments, particularly in France and Romania ("tariff shield"), aimed at protecting both consumers and suppliers of gas and electricity against sharp fluctuations in commodity prices (*see Note 7*);
- identifying "own use contracts" as defined by IFRS 9 within non-financial purchase and sale contracts (electricity, gas, etc.) (*see Note 14*);
- identifying offsetting arrangements that meet the criteria set out in IAS 32 *Financial Instruments: Presentation* (*see Note 14*);
- determining whether arrangements are or contain a lease (*see Note 13.3*);
- recognizing new contributions in the energy sector in Europe (*see Note 8*).

Entities for which judgment on the nature of control has been exercised are listed in Note 2 "Main subsidiaries at December 31, 2022" and Note 3 "Investments in equity method entities".

1.3.3 Consideration of climate issues in the preparation of the Group's financial statements

In addition to the operational and financial issues and risks taken into account in determining future cash flows, the discount rate net of inflation and projected growth, the Group has also exercised its judgment to use assumptions reflecting climate change issues, in order to determine the potential impact on the consolidated financial statements, particularly if there were indications that non-financial assets might be impaired:

- The commitments made by France, Europe and various countries at international level, in particular with regard to long-term carbon neutrality, are taken into account (i) in assessing the value of the Group's assets, in particular through the long-term price scenarios used in impairment tests (*see Note 13.4*), and (ii) in assessing dismantling provisions, in particular by assessing the useful life of the gas infrastructures in France based on the expected change in the energy mix (*see Note 17*).
- The commitments specifically made by ENGIE are also reflected in the assessment of the value of the Group's assets (*see Note 13.1*), in particular (i) the complete withdrawal from coal by 2027, which primarily concerns South America, depending on each asset's specific prospects (closure, conversion or disposal), and (ii) the gradual decarbonization of the Group's power generation activities to net zero by 2045 and, more broadly, the Group's investment strategy in favor of the energy transition by expanding its renewable energy fleet, substituting natural gas with renewable gas, thereby confirming a mixed gas/electricity scenario in the Group's long-term projections under the present regulation/remuneration methods for regulated assets (in France in particular), and developing low-carbon services offerings.

As a reminder, the management of climate and environmental risks and their challenges for the Group are presented in Chapter 2 "Risk factors" and Chapter 3 "Non-Financial Statement and CSR Information" of the Universal Registration Document.

NOTE 2 MAIN SUBSIDIARIES AT DECEMBER 31, 2022

Accounting standards

Controlled entities (subsidiaries) are fully consolidated in accordance with IFRS 10 – *Consolidated Financial Statements*. An investor (the Group) controls an entity and therefore must consolidate it if all of the following three criteria are met:

- it has the ability to direct the relevant activities of the entity;
- it has the rights and is exposed to variable returns from its involvement with the entity;
- it has the ability to use its power over the entity to affect the investor's return.

2.1 List of main subsidiaries at December 31, 2022

The following lists are made available by the Group to third parties, pursuant to Regulation No. 2016-09 of the French accounting standards authority (ANC) issued on December 2, 2016:

- list of companies included in consolidation;
- list of companies excluded from consolidation because their individual and cumulative incidence on the Group's consolidated financial statements is not material. They correspond to entities deemed not significant as regards the Group's main key figures (revenues, total equity, etc) or entities that have ceased all activities and are undergoing liquidation/closure proceedings;
- list of main non-consolidated interests.

This information is available on the Group's website (www.engie.com, Investors/Regulated information section). Non-consolidated companies are classified under non-current financial assets (*see Note 14.1.1.1)* under "Equity instruments at fair value".

The list of the main subsidiaries consolidated under the full consolidation method presented below was determined, as regards operating entities, based on their contribution to Group revenues, EBITDA, net income and net debt. The main equity-accounted investments (associates and joint ventures) are presented in Note 3 "Investments in equity method entities".

Some entities such as ENGIE SA, ENGIE Énergie Services SA or Electrabel SA comprise both operating activities and headquarters functions which report to management teams of different reportable segments. In the following tables, these operating activities and headquarters functions are shown within their respective reportable segments under their initial company name followed by a (*) sign.

Renewables

Company name	Activity	Country	% interest Dec. 31, 2022	% interest Dec. 31, 2021
Compagnie Nationale du Rhône	Electricity distribution and generation	France	50.0	50.0
ENGIE Energía Perú *	Electricity distribution and generation	Peru	61.8	61.8
ENGIE Green	Electricity distribution and generation	France	100.0	100.0
ENGIE Infinity Renewables	Electricity distribution and generation	United States	100.0	100.0
ENGIE Resources Inc.	Energy sales	United States	100.0	100.0
ENGIE Romania *	Natural gas distribution, Energy sales	Romania	51.0	51.0
ENGIE Solar	Solar EPC	France	100.0	100.0
ENGIE Brazil Energia Group *	Electricity distribution and generation	Brazil	68.7	68.7
ENGIE Renewables	Electricity distribution and generation	France	100.0	100.0
ENGIE Energía Chile Group *	Electricity distribution and generation	Chile	60.0	60.0
Jupiter Equity Holding LLC	Electricity distribution and generation	United States	51.0	51.0

Networks

Company name	Activity	Country	% interest Dec. 31, 2022	% interest Dec. 31, 2021
Elengy	Natural gas, LNG	France	60.8	60.9
ENGIE Romania *	Natural gas distribution, Energy sales	Romania	51.0	51.0
Fosmax LNG	Natural gas, LNG	France	60.8	60.9
GRDF	Natural gas distribution	France	100.0	100.0
ENGIE Brazil Energia Group *	Electricity distribution and generation	Brazil	68.7	68.7
ENGIE Energía Chile Group *	Electricity distribution and generation	Chile	60.0	60.0
GRTgaz Group (excluding Elengy)	Natural gas transportation	France, Germany	60.8	60.9
Storengy Deutschland GmbH	Underground natural gas storage	Germany	100.0	100.0
Storengy SAS	Underground natural gas storage	France	100.0	100.0

Energy Solutions

Company name	Activity	Country	% interest Dec. 31, 2022	% interest Dec. 31, 2021
Cofely Besix	Systems, facilities and maintenance	UAE	100.0	100.0
CPCU	Urban heating networks	France	66.5	66.5
ENGIE Deutschland GmbH	Energy services	Germany	100.0	100.0
ENGIE Energie Services SA *	Energy services, Networks	France	100.0	100.0
ENGIE Servizi S.p.A	Energy services	Italy	100.0	100.0
Endel Group	Systems, facilities and maintenance	France	-	100.0
Tractebel Engineering	Engineering	Belgium	100.0	100.0

Thermal

Company name	Activity	Country	% interest Dec. 31, 2022	% interest Dec. 31, 2021
Electrabel SA *	Electricity generation, Energy sales	Belgium	100.0	100.0
ENGIE Cartagena	Electricity generation	Spain	100.0	100.0
ENGIE Deutschland AG *	Electricity generation	Germany	100.0	100.0
ENGIE Energía Perú *	Electricity distribution and generation	Peru	61.8	61.8
ENGIE Energie Nederland N.V. *	Electricity generation, Energy sales	Netherlands	100.0	100.0
ENGIE Italia S.p.A *	Energy sales	Italy	100.0	100.0
ENGIE SA *	Energy sales	France	100.0	100.0
ENGIE Thermique France	Electricity generation	France	100.0	100.0
First Hydro Holdings Company	Electricity generation	United Kingdom	75.0	75.0
ENGIE Brazil Energia Group *	Electricity distribution and generation	Brazil	68.7	68.7
ENGIE Energía Chile Group *	Electricity distribution and generation	Chile	60.0	60.0
Pelican Point Power Limited	Electricity generation	Australia	72.0	72.0
UCH Power Limited	Electricity generation	Pakistan	100.0	100.0

Supply

Company name	Activity	Country	% interest Dec. 31, 2022	% interest Dec. 31, 2021
Electrabel SA *	Electricity generation, Energy sales	Belgium	100.0	100.0
ENGIE Italia S.p.A *	Energy sales	Italy	100.0	100.0
ENGIE Romania *	Natural gas distribution, Energy sales	Romania	51.0	51.0
ENGIE SA *	Energy sales	France	100.0	100.0
ENGIE Supply Holding UK Limited	Energy sales	United Kingdom	100.0	100.0
Simply Energy	Energy sales	Australia	72.0	72.0

Nuclear

Company name	Activity	Country	% interest Dec. 31, 2022	% interest Dec. 31, 2021
Electrabel SA *	Electricity generation, Energy sales	Belgium	100.0	100.0
Synatom	Managing provisions relating to power plants and nuclear fuel	Belgium	100.0	100.0

Others

Company name	Activity	Country	% interest Dec. 31, 2022	% interest Dec. 31, 2021
Electrabel SA *	Electricity generation, Energy sales	Belgium	100.0	100.0
ENGIE CC	Financial subsidiaries, Central	Belgium	100.0	100.0
ENGIE Deutschland AG *	Holding, Energy management trading	Germany	100.0	100.0
ENGIE Energie Nederland Holding B.V. *	Holding, Energy management trading	Netherlands	100.0	100.0
ENGIE Energie Nederland N.V.	Electricity generation, Energy sales	Netherlands	100.0	100.0
ENGIE Energie Services SA *	Energy services, Networks	France	100.0	100.0
ENGIE Energy Management *	Energy management trading	France, Belgium, Italy, United Kingdom	100.0	100.0
ENGIE Energy Management Holding Switzerland AG	Holding	Switzerland	100.0	100.0
ENGIE FINANCE SA	Financial subsidiaries	France	100.0	100.0
ENGIE Global Markets	Energy management trading	France, Belgium,	100.0	100.0
ENGIE Holding Inc.	Holding - parent company	United States	100.0	100.0
ENGIE Italia S.p.A *	Holding, Energy management trading	Italy	100.0	100.0
ENGIE North America	Electricity distribution and generation, Natural gaz, LNG, Energy services	United States	100.0	100.0
ENGIE Romania *	Natural gas distribution, Energy sales	Romania	51.0	51.0
ENGIE Energía Chile Group *	Electricity distribution and generation	Chile	60.0	60.0
ENGIE SA *	Holding - parent company, Energy management trading, energy sales	France	100.0	100.0
Cogac	Holding	France	100.0	100.0
GDFI	Holding	France	100.0	100.0
Engie Energie Services International SA	Holding	Belgium	100.0	100.0
Genfina	Holding	Belgium	100.0	100.0
International Power Limited	Holding	United Kingdom	100.0	100.0

EQUANS [(1)]

Company name	Activity	Country	% interest Dec. 31, 2022	% interest Dec. 31, 2021
Axima Concept	Systems, facilities and maintenance services	France	-	100.0
Cofely Fabricom SA	Systems, facilities and maintenance services	Belgium	-	100.0
Conti Service LLC	Energy services	United States	-	100.0
ENGIE Regeneration	Energy services	United Kingdom	-	100.0
ENGIE Services Nederland N.V.	Energy services	Netherlands	-	100.0
ENGIE Services Holding UK Ltd	Energy services	United Kingdom	-	100.0
ENGIE Services Limited	Energy services	United Kingdom	-	100.0
INEO Group	Systems, facilities and maintenance services	France	-	100.0

(1) Activities held for sale and classified as "Discontinued operations" at December 31, 2021 (see Note 4 "Main changes in Group structure").

2.2 Significant judgments exercised when assessing control

The Group primarily considers the following information and criteria when determining whether it has control over an entity:

- governance arrangements: voting rights and whether the Group is represented in the governing bodies, majority rules and veto rights;
- the nature of substantive or protective rights granted to shareholders, relating to the entity's relevant activities;
- deadlock resolution mechanisms;
- whether the Group is exposed, or has rights, to variable returns from its involvement with the entity.

The Group exercised its judgment regarding the entities and sub-groups described below.

Entities in which the Group has the majority of the voting rights

GRTgaz (France Infrastructures): 60.8%

The analysis of the shareholders' agreement concluded with Société d'Infrastructures Gazières, a subsidiary of *Caisse des Dépôts et Consignations* (CDC), which holds 38.6% of the share capital of GRTgaz, was completed by an assessment of the rights granted to the French Energy Regulatory Commission (*Commission de Régulation de l'Énergie* – CRE). As a regulated activity, GRTgaz has a dominant position on the gas transportation market in France. Accordingly, since the transposition of the Third European Directive of July 13, 2009 into French law (*Code de l'énergie* – Energy Code) on May 9, 2011, GRTgaz has been subject to independence rules as regards its directors and senior management team. The French Energy Code confers certain powers on the CRE in the context of its duties to control the proper functioning of the gas markets in France, including verifying the independence of the members of the Board of Directors and senior management and assessing the choice of investments. The Group considers that it exercises control over GRTgaz and its subsidiaries (including Elengy) based on the Group's ability to appoint the majority of the members of the Board of Directors and take decisions about the relevant activities, especially in terms of the level of investment and planned financing.

Entities in which the Group does not have the majority of the voting rights

In the entities in which the Group does not have the majority of the voting rights, judgment is exercised with regard to the following items, in order to assess whether there is a situation of *de facto* control:

- dispersion of the shareholding structure: number of voting rights held by the Group relative to the number of rights held respectively by the other vote holders and their dispersion;
- voting patterns at shareholders' meetings: the percentages of voting rights exercised by the Group at shareholders' meetings in recent years;
- governance arrangements: representation in the governing body with strategic and operational decision-making power over the relevant activities;
- rules for appointing key management personnel;

- contractual relationships and material transactions.

The main fully consolidated entity in which the Group does not have the majority of the voting rights at December 31, 2022 is Compagnie Nationale du Rhône (49.98%).

Compagnie Nationale du Rhône ("CNR" – Renewables France): 49.98%

The Group holds 49.98% of the share capital of CNR, with CDC holding 33.2%, and the balance of 16.82% being dispersed among around 200 local authorities. In view of the current provisions of the French "Murcef" law, under which a majority of CNR's share capital must remain under public ownership, the Group is unable to hold more than 50% of the share capital. However, the Group considers that it exercises *de facto* control as it holds the majority of the voting rights exercised at shareholders' meetings due to the widely dispersed shareholding structure and the absence of evidence of the minority shareholders acting in concert.

2.3 Main subsidiaries with non-controlling interests

The following table shows the subsidiaries with non-controlling interests that are deemed to be material, the respective contributions to equity and to net income at December 31, 2022 and December 31, 2021, as well as the dividends paid to non-controlling interests:

Company name	Activity	Percentage interest of non-controlling interests		Net income/(loss) of non-controlling interests		Equity of non-controlling interests		Dividends paid to non-controlling interests	
In millions of euros		Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021
GRTgaz Group (France Infrastructures, France)	Regulated gas transportation activities and management of LNG terminals	39.2	39.1	190	106	1,614	1,554	168	105
ENGIE Energía Chile Group (Latin America, Chile) (1)	Electricity distribution and generation - thermal power plants	40.0	40.0	(158)	17	680	781	-	31
ENGIE Romania Group (Rest of Europe, Romania)	Distribution of natural gas, Energy sales	49.0	49.0	31	34	607	592	-	15
ENGIE Brasil Energia Group (Latin America, Brazil) (1)	Electricity distribution and generation	31.3	31.3	116	45	296	294	112	38
ENGIE Energía Perú (Latin America, Peru) (1)	Electricity distribution and generation - thermal and hydroelectric power plants	38.2	38.2	21	22	433	393	12	20
Other subsidiaries with non-controlling interests (2)				(27)	(127)	1,401	1,372	190	201
TOTAL				**173**	**97**	**5,032**	**4,986**	**482**	**410**

(1) ENGIE Energia Chile, ENGIE Brasil Energia and ENGIE Energia Perú are listed in their respective countries.

(2) The net income/(loss) of other non-controlling interests is mainly impacted by the net loss of the operating MtMs for an amount of -€58 million in 2022 and -€361 million in 2021.

2.3.1 Condensed financial information on main subsidiaries with non-controlling interests

The condensed financial information concerning these subsidiaries presented in the table below is based on a 100% interest and is shown before intragroup eliminations.

	GRTgaz Group		ENGIE Energía Chile Group		ENGIE Romania Group	
In millions of euros	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021
Income statement						
Revenues	2,535	2,209	1,648	1,187	2,819	1,473
Net income/(loss)	485	388	(395)	42	63	69
Net income/(loss) Group share	295	282	(237)	25	32	35
Other comprehensive income/(loss) – Owners of the parent	54	130	85	107	(15)	9
TOTAL COMPREHENSIVE INCOME/(LOSS) – OWNERS OF THE PARENT	**349**	**412**	**(152)**	**132**	**17**	**45**
Statement of financial position						
Current assets	1,319	1,089	1,108	635	1,091	729
Non-current assets	9,961	10,098	3,210	3,150	975	903
Current liabilities	(1,360)	(1,272)	(540)	(345)	(753)	(357)
Non-current liabilities	(5,803)	(5,946)	(2,091)	(1,498)	(86)	(79)
TOTAL EQUITY	**4,116**	**3,969**	**1,688**	**1,941**	**1,227**	**1,196**
TOTAL NON-CONTROLLING INTERESTS	**1,614**	**1,554**	**680**	**781**	**607**	**592**
Statement of cash flows						
Cash flow from operating activities	1,117	1,149	(320)	186	(365)	102
Cash flow from (used in) investing activities	(450)	(464)	(384)	(234)	(121)	(131)
Cash flow from (used in) financing activities	(663)	(650)	635	29	317	39
TOTAL CASH FLOW FOR THE PERIOD [(1)]	**4**	**35**	**(68)**	**(19)**	**(169)**	**9**

(1) Excluding effects of changes in exchange rates and other.

	ENGIE Brasil Energia Group		ENGIE Energía Perú	
In millions of euros	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021
Income statement				
Revenues	2,164	2,118	525	445
Net income/(loss)	370	144	56	57
Net income/(loss) Group share	254	99	34	35
Other comprehensive income/(loss) – Owners of the parent	72	10	51	37
TOTAL COMPREHENSIVE INCOME/(LOSS) – OWNERS OF THE PARENT	**326**	**109**	**85**	**72**
Statement of financial position				
Current assets	1,322	1,390	384	360
Non-current assets	4,731	4,236	1,923	1,687
Current liabilities	(1,019)	(900)	(257)	(302)
Non-current liabilities	(4,213)	(3,912)	(915)	(716)
TOTAL EQUITY	**822**	**813**	**1,135**	**1,029**
TOTAL NON-CONTROLLING INTERESTS	**296**	**294**	**433**	**393**
Statement of cash flows				
Cash flow from operating activities	1,027	941	62	185
Cash flow from (used in) investing activities	(685)	(629)	(186)	(92)
Cash flow from (used in) financing activities	(1,010)	(126)	17	(14)
TOTAL CASH FLOW FOR THE PERIOD [(1)]	**(668)**	**185**	**(107)**	**80**

(1) Excluding effects of changes in exchange rates and other.

NOTE 3 INVESTMENTS IN EQUITY METHOD ENTITIES

Accounting standards

The Group accounts for its investments in associates (entities over which the Group has significant influence) and joint ventures using the equity method. Under IFRS 11 – *Joint Arrangements*, 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 respective contributions of associates and joint ventures in the statement of financial position, the income statement and the statement of comprehensive income at December 31, 2022 and December 31, 2021 are as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Statement of financial position		
Investments in associates	4,187	4,007
Investments in joint ventures	5,092	4,492
INVESTMENTS IN EQUITY METHOD ENTITIES	**9,279**	**8,498**
Income statement		
Share in net income/(loss) of associates	400	306
Share in net income/(loss) of joint ventures	659	495
SHARE IN NET INCOME/(LOSS) OF EQUITY METHOD ENTITIES	**1,059**	**800**
Statement of comprehensive income		
Share of associates in "Other comprehensive income/(loss)"	510	208
Share of joint ventures in "Other comprehensive income/(loss)"	366	62
SHARE OF EQUITY METHOD ENTITIES IN "OTHER COMPREHENSIVE INCOME/(LOSS)"	**876**	**270**

Significant judgments

The Group primarily considers the following information and criteria in determining whether it has joint control or significant influence over an entity:

- governance arrangements: whether the Group is represented in the governing bodies, majority rules and veto rights;
- the nature of substantive or protective rights granted to shareholders, relating to the entity's relevant activities. This can be difficult to determine in the case of "project management" or "one-asset" entities, as certain decisions concerning the relevant activities are made upon the creation of the joint arrangement and remain valid throughout the project. Accordingly, the analysis of rights relates to the relevant residual activities of the entity (those that significantly affect the variable returns of the entity);
- deadlock resolution mechanisms;
- whether the Group is exposed, or has rights, to variable returns from its involvement with the entity. This can also involve analyzing the Group's contractual relations with the entity, in particular the conditions in which these contracts are entered into, their duration as well as the management of conflicts of interest that may arise when the entity's governing body casts votes.

The Group exercised its judgment regarding the following entities and sub-groups:

Project management entities in the Middle East and in Africa

The significant judgments made in determining the consolidation method to be applied to these project management entities related to the risks and rewards relating to contracts between ENGIE and the entity concerned, as well as an analysis of the residual relevant activities over which the entity retains control after its creation. The Group considers that it exercises significant influence or joint control over these entities, since the decisions taken throughout the term of the project about the relevant activities such as refinancing, or the renewal or amendment of significant contracts (sales, purchases, operating and maintenance services) require, depending on the case, the unanimous consent of two or more parties sharing control.

Joint ventures in which the Group holds an interest of more than 50%

Tihama (60%)

ENGIE holds a 60% stake in the Tihama cogeneration plant in Saudi Arabia and its partner Saudi Oger holds 40%. The Group considers that it has joint control over Tihama since the decisions about its relevant activities, including for example the preparation of the budget and amendments to major contracts, etc., require the unanimous consent of the parties sharing control.

Transportadora Associada de Gás S.A. ("TAG" - Latin America): 65.0% holding interest (directly and indirectly) representing a net interest in TAG of 54.8%

The Group exercises joint control over TAG since the decisions about its relevant activities, including, for example, the preparation of the budget and medium-term plan, investments, operations and maintenance, etc., are taken according to a majority vote requiring the agreement of ENGIE and *Caisse de dépôt et placement du Québec* (CDPQ). The Group holds potential voting rights but they are not yet exercisable. Consequently, this investment is accounted for using the equity method.

Joint control – difference between joint ventures and joint operations

Classifying a joint arrangement requires the Group to use its judgment to determine whether the entity in question is a joint venture or a joint operation. IFRS 11 requires an analysis of "other facts and circumstances" when determining the classification of jointly controlled entities.

The IFRS Interpretations Committee (IFRS IC) (November 2014) decided that for an entity to be classified as a joint operation, other facts and circumstances must give rise to direct enforceable rights to the assets, and obligations for the liabilities, of the joint arrangement.

In view of this position and its application to our analyses, the Group has no material joint operations at December 31, 2022.

3.1 Investments in associates

3.1.1 Contribution of material associates and of associates that do not have material impact on the Group's financial statements taken individually

The table hereafter shows the contribution of each material associate along with the aggregate contribution of associates deemed not material taken individually, in the consolidated statement of financial position, income statement, statement of comprehensive income, and the "Dividends received from equity method entities" line of the statement of cash flows.

The Group used qualitative and quantitative criteria to determine material associates. These criteria include the contribution to the consolidated line items "Share in net income/(loss) of associates" and "Investments in associates", the total assets of associates in Group share, and associates carrying major projects in the study or construction phase for which the related investment commitments are material.

Company name	Activity	Capacity	Consolidation percentage of investments in associates		Carrying amount of investments in associates		Share in net income/(loss) of associates		Other comprehensive income/(loss) of associates		Dividends received from associates	
In millions of euros			Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021
Project management entities in the Middle East (Middle-East, Asia & Africa, Saudi Arabia, Bahrain, Qatar, United Arab Emirates, Oman, Kuwait) (1)	Gas-fired power plants and seawater desalination facilities		-		1,378	940	181	139	411	102	145	107
Gaztransport & Technigaz (GTT)	Engineering company in containment systems for shipping and storage of LNG		5,76 (2)	30.43	139	757	8	1	-	-	20	35
Movhera	Hydro power plant	1 688 MW	40.00	40.00	521	493	(13)	1	41	(23)	-	-
Energia Sustentável do Brasil (Brazil)	Hydro power plant	3 750 MW	40.00	40.00	567	501	(3)	21	-	-	-	-
GASAG (Germany)	Gas and heat networks		31.57	31.57	279	333	26	29	(62)	75	17	11
Eolia Renovables	Wind power plant		40.00		359		33	-	2	-	-	
Other investments in associates that are not material taken individually					943	982	168	114	118	54	89	81
INVESTMENTS IN ASSOCIATES					**4,187**	**4,007**	**400**	**306**	**510**	**208**	**271**	**234**

(1) Investments in associates operating gas-fired power plants and seawater desalination facilities in the Arabian Peninsula have been grouped together under "Project management entities in the Middle East". This mainly includes around 40 associates operating thermal power plants with a total installed capacity of 26,974 MW (at 100%).
These associates have fairly similar business models and joint arrangements: the project management entities selected as a result of a competitive bidding process develop, build and operate power generation plants and seawater desalination facilities. The entire output of these facilities is sold to government-owned companies under power and water purchase agreements, over periods generally spanning 20 to 30 years.
In accordance with their contractual arrangements, the corresponding plants are recognized in accordance with IFRIC 12, IFRS 16 or IAS 16 as property, plant and equipment or as financial receivables. The shareholding structure of these entities systematically includes a government-owned company based in the same country as the project management entity. The Group's percentage interest and percentage voting rights in each of these entities varies between 20% and 50%.

(2) See Note 4.1.4 "Disposal of a portion of ENGIE's interest in French company Gaztransport & Technigaz SA ("GTT")".

The share in net income/(loss) of associates includes a net non-recurring loss of €18 million in 2022 (compared to net non-recurring income of €6 million in 2021), mainly including changes in the fair value of derivative instruments, impairment losses and disposal gains and losses, net of tax *(see Note 5.3 "Net recurring income Group share (NriGs)")*.

3.1.2 Financial information regarding material associates

The tables below provide condensed financial information for the Group's main associates. The amounts shown have been determined in accordance with IFRS, before the elimination of intragroup transactions and after (i) adjustments made in line with Group accounting policies and (ii) fair value measurements of the assets and liabilities of the associate performed at the acquisition date at the level of ENGIE, as required by IAS 28. All amounts are presented based on a 100% interest with the exception of "Total equity attributable to ENGIE".

In millions of euros	Revenues	Net income/ (loss)	Other comprehensive income/ (loss)	Total comprehensive income/ (loss)	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Total equity	Consolidation % of Group	Total equity attributable to ENGIE
AT DECEMBER 31, 2022											
Project management entities in the Middle East	5,067	764	1,695	2,459	2,824	19,711	3,343	13,781	5,411	-	1,378
Gaztransport & Technigaz (GTT)	307	139	2	141	412	2,225	224	2	2,411	5.76	139
Energia Sustentável do Brasil	581	(7)	-	(7)	239	3,275	2,098	-	1,416	40.00	567
Movhera	384	(33)	103	70	147	2,124	699	269	1,303	40.00	521
GASAG	1,606	82	(196)	(114)	1,491	2,140	2,462	284	885	31.57	279
Eolia Renovables	216	82	4	86	297	2,097	340	1,155	900	40.00	359
AT DECEMBER 31, 2021											
Project management entities in the Middle East	4,442	576	425	1,001	3,067	19,513	4,310	14,693	3,578	-	940
Gaztransport & Technigaz (GTT)	169	3	-	2	330	2,299	144	(2)	2,488	30.43	757
Energia Sustentável do Brasil	496	54	-	54	110	2,941	1,800	(3)	1,253	40.00	501
Movhera	276	2	(58)	(57)	198	2,189	226	929	1,232	40.00	493
GASAG	1,368	93	237	331	1,199	2,078	1,927	297	1,054	31.57	333

3.1.3 Transactions between the Group and its associates

The data below set out the impact of transactions with associates on the Group's 2022 consolidated financial statements.

In millions of euros	Purchases of goods and services	Sales of goods and services	Net financial income (excluding dividends)	Trade and other receivables	Loans and receivables at amortized cost	Trade and other payables	Borrowings and debt
Project management entities in the Middle East	-	177	16	59	175	-	-
Contassur [(1)]	-	-	-	208	2	-	-
Energia Sustentável do Brasil	136	-	-	-	-	13	-
Movhera	-	25	6	7	120	5	22
Other	11	34	18	34	218	-	18
AT DECEMBER 31, 2022	**146**	**235**	**41**	**307**	**516**	**18**	**40**

(1) Contassur is a life insurance company accounted for using the equity method. Contassur offers insurance contracts, chiefly with pension funds that cover post-employment benefit obligations for Group employees and also employees of other companies mainly engaged in regulated activities in the electricity and gas sector in Belgium. Insurance contracts entered into by Contassur represent reimbursement rights recorded within "Other assets" in the statement of financial position. These reimbursement rights totaled €208 million at December 31, 2022 (€229 million at December 31, 2021).

3.2 Investments in joint ventures

3.2.1 Contribution of joint ventures to the Group

The table below shows the contribution of each material joint venture along with the aggregate contribution of joint ventures deemed not material taken individually to the consolidated statement of financial position, income statement, statement of comprehensive income, and the “Dividends received from equity method entities” line of the statement of cash flows.

The Group used qualitative and quantitative criteria to determine material joint ventures. These criteria include the contribution to the line items “Share in net income/(loss) of joint ventures” and “Investments in joint ventures”, the Group’s share in the total assets of joint ventures, and joint ventures conducting major projects in the study or construction phase for which the related investment commitments are material.

Company name	Activity	Capacity	Consolidation percentage of investments in joint ventures		Carrying amount of investments in joint ventures		Share in net income/(loss) of joint ventures		Other comprehensive income/(loss) of joint ventures		Dividends received from joint ventures	
In millions of euros			Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021
Transportadora Associada de Gás S.A. (TAG) (Brazil) [1]	Gas transmission network		65.00	65.00	1,129	792	267	189	153	7	184	222
National Central Cooling Company "Tabreed" (Middle-East, Asia & Africa, Abu Dhabi)	District cooling networks		40.00	40.00	874	787	53	45	-	-	18	14
EcoÉlectrica (Puerto Rico)	Combined-cycle gas-fired power plant and LNG terminal	534 MW	50.00	50.00	314	310	42	46	-	-	60	63
Movhera	Electricity generation	2,392 MW	50.00	50.00	240	253	33	3	15	8	61	35
WSW Energie und Wasser AG (Germany)	Electricity distribution and generation		33.10	33.10	249	240	19	41	1	-	11	7
Iowa University partnership (United States)	Energy services		39.10	39.10	229	208	6	3	2	1	1	2
Ocean Winds	Electricity generation		50.00	50.00	431	169	80	13	124	5	-	-
Georgetown University partnership (United States)	Energy services		50.00	50.00	203	184	6	2	3	-	-	-
Tihama Power Generation Co (Saudi Arabia)	Electricity generation	1,544 MW	60.00	60.00	94	91	21	13	5	4	29	27
Ohio State Energy Partners (United States)	Energy services		50.00	50.00	82	78	4	3	8	6	16	9
Megal GmbH (Germany)	Gas transmission network		49.00	49.00	61	67	2	5	-	-	9	9
Transmisora Eléctrica del Norte (Chile) [2]	Electricity transmission line		50.00	50.00	116	96	5	(1)	19	25	-	-
Other investments in joint ventures that are not material taken individually					1,071	1,216	120	132	37	7	53	40
INVESTMENTS IN JOINT VENTURES					**5,092**	**4,492**	**659**	**495**	**366**	**62**	**442**	**428**

(1) The Group’s interest in Transportadora Associada de Gás S.A. (TAG) is 54.83%.
(2) The Group’s interest inTransmisora Eléctrica del Norte is 30%.

The share in net income/(loss) of joint ventures includes non-recurring gain of €1 million in 2022 (non-recurring gain of €44 million in 2021), resulting chiefly from changes in the fair value of derivatives, impairment losses and disposal gains and losses, net of tax *(see Note 5.3 "Net recurring income Group share (NriGs)")*.

3.2.2 Financial information regarding material joint ventures

The amounts shown have been determined in accordance with IFRS before the elimination of intragroup items and after (i) adjustments made in line with Group accounting policies and (ii) fair value measurements of the assets and liabilities of the joint venture performed at the date of acquisition at the level of ENGIE, as required by IAS 28. All amounts are presented based on a 100% interest with the exception of "Total equity attributable to ENGIE" in the statement of financial position.

3.2.2.1 Information on the income statement and statement of comprehensive income

In millions of euros	Revenues	Depreciation and amortization of intangible assets and property, plant and equipment	Net financial income/(loss)	Income tax benefit/(expense)	Net income/(loss)	Other comprehensive income/(loss)	Total comprehensive income/(loss)
AT DECEMBER 31, 2022							
Transportadora Associada de Gás S.A. (TAG)	1,549	(292)	(386)	(215)	411	235	647
National Central Cooling Company "Tabreed"	167	-	(35)	-	133	-	133
EcoÉlectrica	166	(32)	1	(4)	85	-	85
Portfolio of power generation assets in Portugal	512	(50)	(14)	(27)	74	48	122
WSW Energie und Wasser AG	1,213	(14)	-	(28)	50	3	53
Iowa University partnership	87	-	(21)	-	16	6	22
Ocean Winds	40	(9)	(23)	(1)	160	247	407
Georgetown University partnership	60	(1)	(22)	-	12	5	17
Tihama Power Generation Co	119	(6)	(9)	(6)	35	9	45
Ohio State Energy Partners	180	(1)	(65)	(2)	7	15	22
Megal GmbH	122	(67)	(4)	1	5	-	5
Transmisora Eléctrica del Norte	70	-	(27)	(7)	13	19	32
AT DECEMBER 31, 2021							
Transportadora Associada de Gás S.A. (TAG)	1,109	(248)	(254)	(150)	290	11	301
National Central Cooling Company "Tabreed"	170	(40)	(35)	-	113	-	113
EcoÉlectrica	174	(38)	-	(5)	104	-	104
Portfolio of power generation assets in Portugal	369	(54)	(27)	(19)	3	26	29
WSW Energie und Wasser AG	781	(14)	(1)	(62)	126	-	126
Iowa University partnership	65	-	(19)	-	9	3	12
Ocean Winds	-	(12)	(13)	(1)	25	10	35
Georgetown University partnership	19	-	(9)	-	5	-	5
Tihama Power Generation Co	107	(5)	(11)	(6)	22	6	28
Ohio State Energy Partners	193	(1)	(48)	-	6	12	18
Megal GmbH	122	(64)	(3)	1	10	-	10
Transmisora Eléctrica del Norte	41	-	(22)	-	(1)	49	48

3.2.2.2 Information on the statement of financial position

In millions of euros	Cash and cash equivalents	Other current assets	Non-current assets	Short-term borrowings	Other current liabilities	Long-term borrowings	Other non-current liabilities	Total equity	Consolidation % of Group	Total equity attributable to ENGIE
AT DECEMBER 31,										
Transportadora Associada de Gás S.A. (TAG)	124	367	6,216	668	71	2,771	1,460	1,737	65.00	1,129
National Central Cooling Company "Tabreed"	402	150	2,631	-	194	805	-	2,184	40.00	874
EcoÉlectrica	6	79	580	3	15	-	18	629	50.00	314
Portfolio of power generation assets in Portugal	247	514	733	99	278	500	60	557	50.00	240
WSW Energie und Wasser AG	82	518	950	263	260	147	150	731	33.10	249
Iowa University partnership	2	17	1,162	7	7	581	-	586	39.10	229
Ocean Winds	337	-	2,425	1,149	189	137	424	863	50.00	431
Georgetown University partnership	5	3	954	-	-	555	3	404	50.00	203
Tihama Power Generation Co	49	145	221	78	51	119	11	156	60.00	94
Ohio State Energy	14	65	1,441	-	10	1,331	17	162	50.00	82
Megal GmbH	18	14	696	-	44	511	49	125	49.00	61
Transmisora Eléctrica del Norte	41	34	770	35	3	574	-	233	50.00	116
AT DECEMBER 31,										
Transportadora Associada de Gás S.A. (TAG)	70	251	5,721	540	75	3,174	1,036	1,218	65.00	792
National Central Cooling Company "Tabreed"	294	141	2,469	-	182	755	-	1,967	40.00	787
EcoÉlectrica	14	77	572	3	22	-	18	620	50.00	310
Portfolio of power generation assets in Portugal	294	495	793	159	208	558	72	583	50.00	253
WSW Energie und Wasser AG	17	268	852	156	36	93	142	711	33.10	240
Iowa University partnership	-	7	1,070	9	4	527	3	534	39.10	209
Ocean Winds	79	-	1,079	83	175	362	200	338	50.00	169
Georgetown University partnership	9	-	868	-	-	509	1	367	50.00	184
Tihama Power Generation Co	53	135	286	73	49	191	10	151	60.00	91
Ohio State Energy	31	70	1,274	-	63	1,126	30	156	50.00	78
Megal GmbH	9	13	729	-	50	511	52	138	49.00	67
Transmisora Eléctrica del Norte	45	9	730	30	3	559	-	193	50.00	96

3.2.3 Transactions between the Group and its joint ventures

The data below set out the impact of transactions with joint ventures on the Group's 2022 consolidated financial statements.

In millions of euros	Purchases of goods and services	Sales of goods and services	Net financial income (excluding dividends)	Trade and other receivables	Loans and receivables at amortized cost	Trade and other payables	Borrowings and debt
EcoÉlectrica	-	-	-	-	-	-	62
WSW Energie und Wasser AG	2	47	-	6	-	4	-
Megal GmbH	65	-	-	-	-	6	-
Futures Energies Investissements Holding	14	21	4	8	210	2	-
Ocean Winds	-	-	41	2	569	-	-
Other	115	123	7	49	164	10	44
AT DECEMBER 31, 2022	**196**	**191**	**53**	**64**	**942**	**22**	**105**

3.3 Other information on investments accounted for using the equity method

3.3.1 Unrecognized share of losses of associates and joint ventures

Cumulative unrecognized losses of associates (corresponding to the cumulative amount of losses exceeding the carrying amount of investments in the associates concerned) including other comprehensive income/(loss), amounted to €6 million in 2022 (versus €49 million in 2021).

These unrecognized losses correspond to the negative fair value of derivative instruments designated as interest rate and commodity hedges ("Other comprehensive income/(loss)") contracted by associates in the Middle-East, Africa and Asia in connection with the financing of construction projects for power generation plants.

3.3.2 Commitments and guarantees given by the Group in respect of equity method entities

At December 31, 2022, the main commitments and guarantees given by the Group in respect of equity method entities concern:

- Energia Sustentável do Brasil ("Jirau"), for an aggregate amount of BRL 4,204 million (€755 million).
  At December 31, 2022, the amount of loans granted by Banco Nacional de Desenvolvimento Econômico e Social, the Brazilian Development Bank, to Energia Sustentável do Brasil amounted to BRL 10,511 million (€1,889 million). Each partner stands as guarantor for this debt to the extent of its ownership interest in the consortium;
- TAG for bank guarantees for an amount of €140 million;
- The project management entities in the Middle East and Africa, for an aggregate amount of €694 million.
  Commitments and guarantees given by the Group in respect of these project management entities chiefly correspond to:
  - letters of credit to guarantee debt service reserve accounts for an aggregate amount of €179 million.
    The project financing set up in certain entities can require those entities to maintain a certain level of cash within the company (usually enough to service its debt for six months). This is particularly the case when the financing is without recourse. However, this level of cash may be replaced by letters of credit,
  - collateral given to lenders in the form of pledged shares in the project management entities, for an aggregate amount of €280 million,
  - performance bonds and other guarantees for an amount of €235 million.

NOTE 4 MAIN CHANGES IN GROUP STRUCTURE

Accounting standards

In accordance with IFRS 5 – *Non-Current Assets Held for Sale and Discontinued Operations*, assets or groups of assets held for sale are presented separately on the face of the statement of financial position and are measured and accounted for at the lower of their carrying amount and fair value less costs to sell.

An asset is classified as "held for sale" when its sale is highly probable within twelve months from the date of classification, when it is available for immediate sale under its present condition and when management is committed to a plan to sell the asset and an active program to locate a buyer and complete the plan has been initiated. To assess whether a sale is highly probable, the Group takes into consideration among other things indications of interest and offers received from potential buyers as well as specific execution risks attached to certain transactions.

If an asset classified as "held for sale" no longer meets the above conditions it will be reclassified in accordance with the standard.

Furthermore, assets or groups of assets are presented as discontinued operations in the Group's consolidated financial statements when they are classified as "held for sale" and represent a separate major line of business under IFRS 5.

4.1 Disposals carried out in 2022

4.1.1 Impact of the main disposals and sale agreements during the period

As part of the presentation of its new strategy, on May 18, 2021, the Group confirmed a significant €11 billion increase in its asset portfolio rotation program, the majority of which was carried out end of 2022.

The table below shows the impact of the main disposals and sale agreements of 2022 on the Group's net financial debt, excluding partial disposals with respect to DBSO [(1)] activities:

In millions of euros	Disposal price	Reduction in net debt
Disposal of EQUANS [(1)]	6,146	6,975
Earn out related to the disposal of a share of ENGIE's interest in SUEZ - France	347	347
Disposal of ENGIE's residual interest in SUEZ - France	227	227
Disposal of a share of ENGIE's interest in GTT - France	835	835
Disposals of ENGIE's interests in geothermal assets - Indonesia	263	342
Other disposals that are not material taken individually	177	(29)
Effects of classification as "assets held for sale"	-	297
TOTAL	**7,995**	**8,994**

(1) Does not include the reduction in external net financial debt recognized as held for sale in accordance with IFRS 5 at December 31, 2021.

The €8,994 million reduction in net financial debt at December 31, 2022 is in addition to the €2,025 million decrease previously recognized at December 31, 2021 as part of the asset disposal program, representing a total of €11,018 million to date. Disposals in the process of completion at December 31, 2022 are described in Note 4.2 "Assets held for sale".

4.1.2 Disposal of EQUANS

On October 4, 2022, the Group completed the sale of its interest in EQUANS to Bouygues.

(1) Develop, Build, Share and Operate, a model used in renewable energies based on continuous rotation of capital employed.

The combined effects of the transaction and of the cash generated by these activities since January 1, 2022 have reduced the Group's net debt by €6,975 million (€7,134 million with the reduction of external net financial debt recognized under IFRS 5 – Non-current assets held for sale and discontinued operations, as of December 31, 2021).

The disposal gain recognized in "Net income/(loss) relating to discontinued operations" (*see Note 4.2.1*), amounted to €2,086 million in 2022.

4.1.3 Earn-out from the disposal of a portion of ENGIE's interest in French company SUEZ SA in 2021 and the disposal of its remaining stake in 2022

On October 6, 2020, the Group sold 29.9% of its stake in SUEZ SA to the VEOLIA Group. This sale was subject to an earn-out mechanism if the VEOLIA Group carried out other capital transactions on SUEZ at a price higher than that of the 29.9% block sold by ENGIE.

In 2021, the VEOLIA Group launched a takeover bid for SUEZ at a price of €20.50 per share (cum dividend) which closed successfully on January 7, 2022. At the end of 2021, the ENGIE Group considered that all the conditions had been met to recognize the €347 million in profit or loss related to the earn-out mechanism negotiated with the VEOLIA Group.

ENGIE cashed in this earn-out on January 19, 2022, once the takeover bid had been closed

On January 18, 2022, the Group also contributed its remaining 1.8% stake in SUEZ as part of the public offer initiated by the VEOLIA Group. This transaction had no impact on the Group's 2022 results, as the interest was measured at fair value at December 31, 2021. The effects of the transaction have reduced the Group's net financial debt by €227 million.

4.1.4 Disposal of a portion of ENGIE's interest in French company Gaztransport & Technigaz SA ("GTT")

On March 24, 2022, ENGIE announced the sale of a stake in GTT representing approximately 9% of the share capital at a price of €90 per share.

On September 16, 2022, ENGIE sold an additional stake in GTT representing approximately 6% of the share capital at a price of €115.50 per share.

At December 31, 2022, 96% of the bond redeemable for GTT shares had been converted. The balance was either converted or redeemed at par in January 2023.

At December 31, 2022, these transactions did not change ENGIE's representation on GTT's Board of Directors. Consequently, following these disposals and conversions, ENGIE has maintained its significant influence and therefore continues to account for its residual 5.76% interest in GTT using the equity method.

These transactions, which are part of the targeted plan to withdraw from non-strategic businesses and non-controlling interests, have reduced the Group's net financial debt by €835 million. The disposal gain before tax, including the effects of the embedded derivative on the bond redeemable for GTT shares, amounted to €280 million in 2022.

4.1.5 Disposal of ENGIE's interests in geothermal assets in Indonesia

On September 16, 2022, ENGIE finalized the sale of its entire stake in PT Supreme Energy Muara Laboh to Sumitomo Corporation and INPEX Geothermal Ltd.

On October 14 and October 24, 2022, ENGIE finalized the sale of its entire stake in PT Supreme Energy Rantau Dedap to Merit Power Holding bv and INPEX Geothermal Ltd.

These transactions have reduced the Group's net financial debt by €342 million. The disposal gain before tax amounted to €111 million in 2022.

4.2 Assets held for sale

Total “Assets classified as held for sale” and total “Liabilities directly associated with assets classified as held for sale” amounted to €428 million and €371 million, respectively, at December 31, 2022.

En millions d'euros	31 déc. 2022	31 déc. 2021
Immobilisations corporelles et incorporelles nettes	336	4,235
Autres actifs	92	7,645
TOTAL ACTIFS CLASSÉS COMME DÉTENUS EN VUE DE LA VENTE	**428**	**11,881**
dont Actifs des activités non poursuivies		*11,186*
Dettes financières	290	368
Autres passifs	80	7,047
TOTAL PASSIFS DIRECTEMENT LIÉS À DES ACTIFS CLASSÉS COMME DÉTENUS EN VUE DE LA VENTE	**371**	**7,415**
dont Passifs directement liés à des actifs des activités non poursuivies		*6,952*

The assets related to the EQUANS entities, as well as Endel and its main subsidiaries recorded as “Assets held for sale” at December 31, 2021 were sold in 2022. Due to unfavorable developments in the planned sale of certain renewable assets in Mexico, they were no longer classified as “Assets held for sale” at December 31, 2022.

At December 31, 2022, “Assets held for sale” relate solely to a thermal power plant in Brazil. Given the expected sale price, a non-material value adjustment was recognized for the year. This transaction is expected to be completed in first half 2023.

4.2.1 Financial information on discontinued operations

Net income/(loss) from discontinued operations

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
REVENUES	**9,937**	**12,860**
Purchases and operating derivatives	(6,164)	(7,942)
Personnel costs	(3,497)	(4,420)
Depreciation, amortization and provisions	38	(239)
Taxes	(48)	(59)
Other operating income	150	166
Current operating income including operating MtM	**416**	**366**
Share in net income of equity method entities	4	-
Current operating income including operating MtM and share in net income of equity method entities	**420**	**367**
Impairment losses	(3)	2
Restructuring costs	(28)	(100)
Changes in scope of consolidation	2,030	(53)
Other non-recurring items	-	(30)
RESULT FROM OPERATING ACTIVITIES	**2,420**	**185**
Financial expenses	(47)	(73)
Financial income	17	24
NET FINANCIAL INCOME/(LOSS)	**(30)**	**(49)**
Income tax benefit/(expense)	(206)	(55)
NET INCOME/(LOSS) RELATING TO DISCONTINUED OPERATIONS	**2,183**	**80**
Of which Net income/(loss) relating to discontinued operations, Group share	**2,181**	**79**
Of which Non-controlling interests relating to discontinued operations	**1**	**1**
FINANCIAL INDICATORS USED IN FINANCIAL COMMUNICATION		
EBITDA	424	622
EBIT (1)	420	368
Net recurring income/(loss) Group Share (1)	287	231

(1) Includes the impact at December 31, 2022 of no longer depreciating the assets as of their date of classification as “Assets held for sale”, of a positive €229 million on EBIT (compared with €51 million in 2021) and a positive €170 million on “Recurring net income, Group share” (compared to €37 million in 2021).

Income from discontinued operations relates to ENGIE's activities relating to the EQUANS entities, including their disposal gain (*see Note 4.1.2*).

Cash flows from discontinued operations

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
NET INCOME/(LOSS)	2,183	80
Cash generated from operations before income tax and working capital requirements	**356**	**462**
+ Tax paid	(17)	(71)
Change in working capital requirements	**(241)**	**96**
CASH FLOW FROM OPERATING ACTIVITIES	**98**	**486**
Acquisitions of property, plant and equipment and intangible assets	(135)	(208)
Acquisitions of controlling interests in entities, net of cash and cash equivalents acquired	(2)	(14)
Loss of controlling interests in entities, net of cash and cash equivalents sold	595	-
Disposals of property, plant and equipment and intangible assets	3	6
Interest received on financial assets	(6)	(12)
Change in loans and receivables originated by the Group and other (1)	(3,580)	(2,782)
Other	1	7
CASH FLOW FROM (USED IN) INVESTING ACTIVITIES	**(3,123)**	**(3,003)**
Repayment of borrowings and debt	(124)	(155)
Interest paid	(20)	(33)
Interest received on cash and cash equivalents	-	(1)
Increase in borrowings	26	8
Others	(2)	-
Cash flow from (used in) financing activities excluding intercompany transactions	**(120)**	**(181)**
Transactions with ENGIE (2)	3,138	2,700
CASH FLOW FROM (USED IN) FINANCING ACTIVITIES	**3,018**	**2,519**
Effects of changes in exchange rates and other (3)	(422)	(1)
TOTAL CASH FLOW FOR THE PERIOD	(429)	1
CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD	429	428
CASH AND CASH EQUIVALENTS AT END OF PERIOD	-	429

(1) The line "Change in loans and receivables originated by the Group and other" includes the acquisition by EQUANS of shares in the "Asset-Light Client Solutions business" held by ENGIE for a negative €3,555 million and disposals, by EQUANS, of shares not constituting the "Asset-Light Client Solutions business" to ENGIE for a positive €7 million.

(2) The line "Transactions with ENGIE" includes the capital increases of EQUANS, for an amount of €2,774 million subscribed by ENGIE.

(3) The line "Effects of changes in exchange rates and other" corresponds to EQUANS' cash and cash equivalents at December 31, 2021 for €429 million.

4.3 Acquisitions carried out in 2022

In total, acquisitions carried out in 2022 had an impact of €1,951 million on net financial debt.

On May 4, 2022, ENGIE and Crédit Agricole Assurances completed the acquisition of a 97.33% stake in Eolia Renovables, a renewable energy producer in Spain, from Canadian institutional investment manager Alberta Investment Management Corporation. The transaction covers the ownership and operation of 899 MW of operating assets (821 MW of onshore wind and 78 MW photovoltaic) and a 1.2 GW pipeline of renewable energy projects.

The operating assets are 40% owned by ENGIE and 60% by Crédit Agricole Assurances while ENGIE is developing and building the pipeline of projects. The Group will provide a complete range of services (O&M, Asset Management, Energy Management and Development services) for the full asset scope.

The acquired assets benefit from a regulated scheme ensuring predictability of returns for the next ten years. This transaction has an impact of €0.5 billion on the Group's net financial debt. The interest in the company holding the operating assets is accounted for using the equity method. The company responsible for developing and building the pipeline of projects is fully consolidated by ENGIE. The Group will finalize the purchase price allocation during the first half of 2023.

Other acquisitions during the year relate mainly to the financing of the development of the Group's offshore wind energy activities (Ocean Winds joint venture) for €0.4 billion, concession contracts in Brazil for €0.2 billion, the effect of acquiring a controlling interest in renewable activities in France and India for €0.2 billion each and the acquisition of renewable energy assets in Chile for €0.1 billion.

NOTE 5 FINANCIAL INDICATORS USED IN FINANCIAL COMMUNICATION

The purpose of this note is to present the main non-GAAP financial indicators used by the Group as well as their reconciliation with the indicators of the IFRS consolidated financial statements.

5.1 EBITDA

The reconciliation between EBITDA and current operating income including operating MtM and share in net income of equity method entities is as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Current operating income including operating MtM and share in net income of equity method entities	**5,367**	**6,916**
Mark-to-market on commodity contracts other than trading instruments	3,661	(721)
Net depreciation and amortization/Other	4,576	4,370
Share-based payments (IFRS 2)	92	48
Non-recurring share in net income of equity method entities	17	(50)
EBITDA	**13,713**	**10,563**

5.2 EBIT

The reconciliation between EBIT and current operating income including operating MtM and share in net income of equity method entities is as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Current operating income including operating MtM and share in net income of equity method entities	**5,367**	**6,916**
Mark-to-market on commodity contracts other than trading instruments	3,661	(721)
Non-recurring share in net income of equity method entities	17	(50)
EBIT	**9,045**	**6,145**

5.3 Net recurring income Group share (NriGs)

Net recurring income Group share is a financial indicator used by the Group in its financial reporting to present net income Group share adjusted for unusual, inhabitual or non-recurring items.

The reconciliation of net income/(loss) with net recurring income Group share is as follows:

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
NET INCOME/(LOSS) GROUP SHARE		**216**	**3,661**
NET INCOME/(LOSS) RELATING TO DISCONTINUED OPERATIONS, GROUP SHARE		**2,182**	**79**
NET INCOME/(LOSS) RELATING TO CONTINUING OPERATIONS, GROUP SHARE		**(1,965)**	**3,582**
Net income attributable to non-controlling interests relating to continuing operations		172	96
NET INCOME/(LOSS) RELATING TO CONTINUING OPERATIONS		**(1,793)**	**3,678**
Reconciliation items between “Current operating income including operating MtM and share in net income of equity method entities” and "Net income/(loss) from operating activities"		**4,241**	**194**
Impairment losses	*9.1*	*2,774*	*1,028*
Restructuring costs	*9.2*	*230*	*204*
Changes in scope of consolidation	*9.3*	*(91)*	*(1,107)*
Other non-recurring items		*1,328*	*69*
Other adjusted items		**3,389**	**(363)**
Mark-to-market on commodity contracts other than trading instruments	*8*	*3,661*	*(721)*
Ineffective portion of derivatives qualified as fair value hedges	*10*	*(7)*	*2*
Gains/(losses) on debt restructuring and early unwinding of derivative financial instruments	*10*	*(46)*	*-*
Change in fair value of derivatives not qualified as hedges and ineffective portion of derivatives qualified as cash flow hedges	*10*	*(16)*	*153*
Non-recurring income/(loss) from debt instruments and equity instruments	*10*	*1,254*	*(298)*
Other adjusted tax impacts		*(1,474)*	*552*
Non-recurring income/(loss) included in share in net income of equity method entities		*17*	*(50)*
NET RECURRING INCOME/(LOSS) RELATING TO CONTINUING OPERATIONS		**5,836**	**3,509**
Net recurring income/(loss) attributable to non-controlling interests		614	581
NET RECURRING INCOME/(LOSS) RELATING TO CONTINUING OPERATIONS, GROUP		**5,223**	**2,927**
Net recurring income/(loss) relating to discontinued operations, Group share		287	231
NET RECURRING INCOME/(LOSS) GROUP SHARE		**5,510**	**3,158**

5.4 Industrial capital employed

The reconciliation of industrial capital employed with items in the statement of financial position is as follows:

In millions of euros			Dec. 31, 2022	Dec. 31, 2021
(+)		Property, plant and equipment and intangible assets, net	62,853	57,863
(+)		Goodwill	12,854	12,799
	(-)	*Goodwill Gaz de France – SUEZ and International Power [(1)]*	*(7,241)*	*(7,213)*
(+)		IFRIC 4, IFRS 16 and IFRIC 12 receivables	2,521	2,456
(+)		Investments in equity method entities	9,279	8,498
	(-)	*Goodwill arising on the International Power combination [(1)]*	*(40)*	*(38)*
(+)		Trade and other receivables, net	31,310	32,556
	(-)	*Margin calls [(1) (2)]*	*(5,405)*	*(13,856)*
(+)		Inventories	8,145	6,175
(+)		Assets from contracts with customers	12,584	8,377
(+)		Other current and non-current assets	19,060	13,681
(+)		Deferred tax	(4,379)	(6,557)
	(+)	*Cancellation of deferred tax on other recyclable items [(1) (2)]*	*(14)*	*841*
(-)		Provisions	(27,027)	(25,459)
	(+)	*Actuarial gains and losses in shareholders' equity (net of deferred tax) [(1)]*	*1,058*	*3,162*
(-)		Trade and other payables	(39,801)	(32,822)
	(+)	*Margin calls [(1) (2)]*	*6,351*	*7,835*
(-)		Liabilities from contracts with customers	(3,412)	(2,739)
(-)		Other current and non-current liabilities	(27,279)	(19,175)
INDUSTRIAL CAPITAL EMPLOYED			**51,416**	**46,382**

(1) For the purpose of calculating industrial capital employed, the amounts recorded in respect of these items have been adjusted from those appearing in the statement of financial position.

(2) Margin calls included in "Trade and other receivables, net" and "Trade and other payables" correspond to advances received or paid as part of collateralization agreements set up by the Group to manage counterparty risk on commodity transactions.

From January 1, 2023, the Group will expand its definition of industrial capital employed to include financial assets covering nuclear provisions, as well as the initial margins required by certain market activities. The following table shows the impact of these changes on industrial capital employed:

In millions of euros		Dec. 31, 2022	Dec. 31, 2021
INDUSTRIAL CAPITAL EMPLOYED		**51,416**	**46,382**
(+)	Financial assets covering nuclear provisions	6,626	5,505
(+)	Initials Margins	1,740	4,722
INDUSTRIAL CAPITAL EMPLOYED (new definition for 2023)		**59,782**	**56,609**

5.5 Cash flow from operations (CFFO)

The reconciliation of cash flow from operations (CFFO) with items in the statement of cash flows is as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021 [(1)]
Cash generated from operations before income tax and working capital requirements	12,415	9,806
Tax paid	(1,504)	(603)
Change in working capital requirements	(2,424)	(2,377)
Interest received on financial assets	(37)	32
Dividends received on equity investments	18	57
Interest paid	(822)	(719)
Interest received on cash and cash equivalents	194	52
Nuclear – expenditure on power plant dismantling and reprocessing, fuel storage	163	202
Change in financial assets held for investment or financing purposes	188	464
(+)Change in financial assets held for investment or financing purposes recorded in the statement of financial position and other and other	*(176)*	*(448)*
CASH FLOW FROM OPERATIONS (CFFO)	**8,016**	**6,466**

(1) In view of the start of work related to the nuclear exit in Belgium, the definition of cash flow from operations (CFFO) has been adjusted to exclude expenditure on the dismantling of nuclear power plants and the management of radioactive materials and waste. These expenses are now presented together with investments to cover nuclear provisions, under a dedicated heading. The data at December 31, 2021 have been restated accordingly.

5.6 Capital expenditure (CAPEX) and growth CAPEX

The reconciliation of capital expenditure (CAPEX) with items in the statement of cash flows is as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021 [(1) (2)]
Acquisitions of property, plant and equipment and intangible assets	6,379	5,990
Acquisitions of controlling interests in entities, net of cash and cash equivalents acquired	289	392
(+) Cash and cash equivalents acquired	*14*	*6*
Acquisitions of investments in equity method entities and joint operations	407	369
Acquisitions of equity and debt instruments	(175)	1,548
Change in loans and receivables originated by the Group and other	2,877	(121)
(+) Other	*(10)*	*3*
Change in ownership interests in controlled entities	-	35
(-) Disposal impacts relating to DBSO [(3)] activities	(472)	(270)
(-) Synatom Financial investments / Disposal of Synatom financial assets [(1)]	(1,822)	(1,261)
(+) Change in scope - Acquisitions [(2)]	371	-
TOTAL CAPITAL EXPENDITURE (CAPEX)	**7,858**	**6,693**
(-) Maintenance CAPEX	(2,373)	(2,418)
TOTAL GROWTH CAPEX	**5,485**	**4,275**

(1) In view of the start of work related to the nuclear exit in Belgium, the definition of capital expenditure (CAPEX) has been adjusted to exclude hedging of nuclear provisions carried out by Synatom. These expenses are now presented together with investments to cover expenditure for the dismantling of nuclear power plants and the management of radioactive materials nd waste, under a dedicated heading. The data at December 31, 2021 have been restated accordingly.

(2) Capital expenditure (CAPEX) now includes changes in the scope of net financial debt of acquired entities. The impact at December 31, 2021 is not material.

(3) Develop, Build, Share & Operate; including Tax equity financing received (See Note 22 "Working capital requirements, inventories, other assets and other liabilities").

5.7 Net financial debt

The reconciliation of net financial debt with items in the statement of financial position is as follows:

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
(+) Long-term borrowings	14.2 & 14.3	28,083	30,458
(+) Short-term borrowings	14.2 & 14.3	12,508	10,590
(+) Financial instruments – carried in liabilities	14.4	51,276	46,931
(-) Derivative instruments hedging commodities and other items		*(50,542)*	*(46,617)*
(-) Other financial assets	14.1	(12,992)	(13,444)
(+) Loans and receivables at amortized cost not included in net financial debt		*6,720*	*5,143*
(+) Equity instruments at fair value		*1,495*	*2,827*
(+) Debt instruments at fair value not included in net financial debt		*3,394*	*3,853*
(-) Cash and cash equivalents	14.1	(15,570)	(13,890)
(-) Financial instruments – carried in assets	14.4	(48,386)	(44,989)
(+) Derivative instruments hedging commodities and other items		*48,067*	*44,489*
NET FINANCIAL DEBT		**24,054**	**25,350**

5.8 Economic net debt

Economic net debt is as follows:

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
NET FINANCIAL DEBT	14.3	**24,054**	**25,350**
Provisions for back-end of the nuclear fuel cycle	17	9,088	8,030
Provisions for dismantling of plant and equipment	17	11,015	8,015
Provisions for site rehabilitation	17	244	246
Post-employment benefits – Pensions	18	452	1,779
(-) Infrastructures regulated companies		*272*	*(16)*
Post-employment benefits – Reimbursement rights	18	(208)	(228)
Post-employment benefits – Other benefits	18	3,704	5,149
(-) Infrastructures regulated companies		*(2,392)*	*(3,289)*
Deferred tax assets for pensions and related obligations	11	(812)	(1,501)
(-) Infrastructures regulated companies		*490*	*780*
Plan assets relating to nuclear provisions, inventories of uranium, related derivative financial instruments and a receivable of Electrabel towards EDF Belgium	17 & 22	(7,098)	(6,014)
ECONOMIC NET DEBT		**38,808**	**38,300**

NOTE 6 SEGMENT INFORMATION

6.1 Operating segment and reportable segment

ENGIE is organized around:

- four Global Business Units (GBUs) representing the Group's four strategic activities: Renewables GBU, Energy Solutions GBU, Networks GBU and Thermal & Supply GBU;
- two operating entities: Nuclear and Global Energy Management & Sales ("GEMS");
- an Other group mainly comprising the Corporate functions and certain Holdings.

From 2022 onwards and given the significant volatility of the commodity markets, the Group Executive Committee, which represents the chief operating decision maker as defined by IFRS 8 – *Operating Segments*, monitors the activities of GEMS, which has become an operating segment.

The reportable segments are identical to the operating segments and correspond to the activities underlying the organization of the GBUs.

- **Renewables**: comprises all centralized renewable energy generation activities, including financing, construction, operation and maintenance of renewable energy facilities, using various energy sources such as hydroelectric, onshore wind, photovoltaic solar, biomass, offshore wind, and geothermal. The energy produced is fed into the grid and sold either on the open or regulated market or to third parties through electricity sale agreements.
- **Networks**: comprises the Group's electricity and gas infrastructure activities and projects. These activities include the management and development of (i) gas and electricity transportation networks and natural gas distribution networks in and outside of Europe, (ii) natural gas underground storage in Europe, and (iii) regasification infrastructure in France and Chile. Apart from the historical infrastructure management activities, its asset portfolio also contributes to the challenges of energy decarbonization and network greening (gradual integration of green gas, hydrogen-based projects, etc.).
- **Energy Solutions**: encompasses the construction and management of decentralized energy networks to produce low-carbon energy (heating and cooling networks, distributed power generation plants, distributed solar power parks, low-carbon mobility, low-carbon cities and public lighting, etc.) and related services (energy efficiency, technical maintenance, sustainable development consulting).
- **Thermal**: encompasses all the Group's centralized power generation activities using thermal assets, whether contracted or not. It includes the operation of power plants fueled mainly by gas or coal, as well as pump-operated storage plants. The energy produced is fed into the grid and sold either on the open or regulated market or to third parties through electricity sale agreements. It also includes the financing, construction and operation of desalination plants, whether or not connected to power plants as well as the development of hydrogen production capacities.
- **Supply**: encompasses all the Group's activities relating to the sale of gas and electricity to end customers, whether professional or individual. It also includes all the Group's activities in services for residential clients.
- **Nuclear**: encompasses all of the Group's nuclear power generation activities, with seven reactors in Belgium (four in Doel and three in Tihange) and drawing rights in France.
- **Others**: encompasses the activities of GEMS and GTT, as well as Corporate and holdings. The GEMS operating entity is responsible, at the global level, for the supply of energy and the management of risk and optimization of assets on the markets. It sells energy to companies and offers energy management services and solutions to support the decarbonization of the Group and its customers.

6.2 Key indicators by reportable segment

REVENUES

In millions of euros	Dec. 31, 2022 External revenues	Dec. 31, 2022 Intra-Group revenues	Dec. 31, 2022 Total	Dec. 31, 2021 [(2)] External revenues	Dec. 31, 2021 [(2)] Intra-Group revenues	Dec. 31, 2021 [(2)] Total
Renewables	6,216	136	6,352	3,653	61	3,714
Networks	6,961	961	7,922	6,700	878	7,578
Energy Solutions	11,552	262	11,814	9,926	230	10,155
Thermal	7,129	1,144	8,274	4,089	827	4,916
Supply	16,810	534	17,344	10,396	117	10,513
Nuclear	35	2,653	2,688	56	1,705	1,762
Others	45,163	2,007	47,169	23,046	16,102	39,148
Of which GEMS [(1)]	*45,137*	*1,979*	*47,115*	*22,870*	*16,077*	*38,947*
Elimination of internal transactions	-	(7,697)	(7,697)	-	(19,920)	(19,920)
TOTAL REVENUES	**93,865**	**-**	**93,865**	**57,866**	**-**	**57,866**

(1) *Of which a c. €20 billion price effect compared to 2021.*

(2) *Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.*

EBITDA

In millions of euros	Dec. 31, 2022	Dec. 31, 2021 [(1)]
Renewables	2,202	1,702
Networks	4,212	4,121
Energy Solutions	879	786
Thermal	2,235	1,628
Supply	258	498
Nuclear	1,510	1,403
Others	2,417	426
Of which GEMS	*2,837*	*679*
TOTAL EBITDA	**13,713**	**10,563**

(1) *Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.*

EBIT

In millions of euros	Dec. 31, 2022 [(1)]	Dec. 31, 2021 [(2)]
Renewables	1,627	1,191
Networks	2,371	2,314
Energy Solutions	412	350
Thermal	1,768	1,183
Supply	(7)	232
Nuclear	1,026	959
Others	1,848	(85)
Of which GEMS	*2,618*	*507*
TOTAL EBIT	**9,045**	**6,145**

(1) *Including €739 million in taxes on "excess profits" and €917 million relating to the tax on nuclear energy production.*

(2) *Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.*

SHARE IN NET INCOME/(LOSS) OF EQUITY METHOD ENTITIES

In millions of euros	Dec. 31, 2022	Dec. 31, 2021 [1]
Renewables	217	95
Networks	323	233
Energy Solutions	118	148
Thermal	397	301
Supply	-	-
Nuclear	-	(11)
Others	4	34
Of which GEMS	*(1)*	*2*
TOTAL SHARE IN NET INCOME/(LOSS) OF EQUITY METHOD ENTITIES	**1,059**	**800**

(1) Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.

Associates and joint ventures accounted for €400 million and €659 million respectively of share in net income of equity method entities at December 31, 2022 (compared to €306 million and €494 million at December 31, 2021).

INDUSTRIAL CAPITAL EMPLOYED

In millions of euros	Dec. 31, 2022	Dec. 31, 2021 [1]
Renewables	16,588	12,508
Networks	25,221	24,167
Energy Solutions	7,575	6,687
Thermal	8,091	7,846
Supply	1,023	1,322
Nuclear [2]	(16,481)	(12,666)
Others	9,399	6,517
Of which GEMS [3]	*7,320*	*2,915*
TOTAL INDUSTRIAL CAPITAL EMPLOYED	**51,416**	**46,382**

(1) Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.

(2) Including €19,017 million of nuclear provisions at December 31, 2022 (€15,119 million as of December 31, 2021). Capital employed does not include assets dedicated to covering provisions for €6,626 million as of December 31, 2022 (€5,505 million at December 31, 2021).

(3) Industrial Capital employed does not include the initial margin required by certain market activities for €1,740 million at December 31, 2022 (€4,722 million at December 31, 2021).

As indicated in Note 5.4, from January 1, 2023, the Group will expand its definition of industrial capital employed to include financial assets covering nuclear provisions (with an impact on the Nuclear operating segment) as well as the initial margins required by certain market activities (with an impact on the GEMS operating segment). The following table shows the impact of these changes to industrial capital employed of the reportable segments:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Renewables	16,588	12,508
Networks	25,221	24,167
Energy Solutions	7,575	6,687
Thermal	8,091	7,846
Supply	1,023	1,322
Nuclear	(9,855)	(7,161)
Others	11,139	11,239
Of which GEMS	*9,060*	*7,637*
TOTAL INDUSTRIAL CAPITAL EMPLOYED (new definition for 2023)	**59,782**	**56,609**

CAPITAL EXPENDITURE

In millions of euros	Dec. 31, 2022 (1)	Dec. 31, 2021 (1)(2)(3)
Renewables	3,333	2,000
Networks	2,322	2,524
Energy Solutions	886	903
Thermal	481	268
Supply	270	300
Nuclear	229	201
Others	338	496
Of which GEMS	*149*	*76*
TOTAL CAPITAL EXPENDITURE (CAPEX)	**7,858**	**6,693**

(1) Capital expenditure (CAPEX) now include changes in the scope of net financial debt of acquired entities. The impact at December 31, 2021 is not material.

(2) In the context of the start of work related to the end of life of the nuclear power plant in Belgium, the definition of capital expenditures (CAPEX) has been modified to exclude investments made by Synatom to cover nuclear provisions. These expenses are now presented together with investments to cover expenditure for the dismantling of nuclear power plants and the management of radioactive materials and waste, under a dedicated heading. Data at December 31, 2021 have been restated accordingly.

(3) Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.

GROWTH CAPEX

In millions of euros	Dec. 31, 2022 (1)	Dec. 31, 2021 (1)(2)
Renewables	3,202	1,881
Networks	1,087	1,320
Energy Solutions	716	715
Thermal	220	(17)
Supply	174	154
Nuclear	1	-
Others	85	221
Of which GEMS	*63*	*(31)*
TOTAL GROWTH CAPEX	**5,485**	**4,275**

(1) Growth Capex now includes changes in the scope of net financial debt of acquired companies. The impact at December 31, 2021 is not material.

(2) Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.

6.3 Key indicators by geographic area

The amounts set out below are analyzed by:

- destination of products and services sold for revenues;
- geographic location of consolidated companies for industrial capital employed.

	Revenues		Industrial capital employed	
In millions of euros	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021
France	34,248	24,341	32,495	30,241
Belgium	12,705	4,372	(14,201)	(10,775)
Other EU countries	22,687	12,501	9,261	6,938
Other European countries	4,202	3,110	1,610	1,447
North America	6,133	4,752	7,101	5,342
Asia, Middle East & Oceania	8,875	4,441	3,507	2,709
South America	4,778	4,053	11,095	9,521
Africa	237	297	548	960
TOTAL	**93,865**	**57,866**	**51,417**	**46,382**

Due to the variety of its businesses and their geographical location, the Group serves a very diverse range of situations and customer types (industry, local authorities and individual customers). Accordingly, no external customer represents individually 10% or more of the Group's consolidated revenues.

NOTE 7 REVENUES

7.1 Revenues

Accounting standards

Revenues from contracts with customers concern revenues from contracts that fall within the scope of IFRS 15. Revenues are recognized when the customer obtains control of goods or services promised in the contract, for the amount of consideration to which an entity expects to be entitled in exchange for said promised goods or services.

A contractual analysis of the Group's sale contracts has led to the application of the following revenue recognition principles:

- **Gas, electricity and other energies**
  Revenues from sales of gas, electricity and other energies are recognized upon delivery of the power to the retail, business or industrial customer.
  Power deliveries are monitored in real time or on a deferred basis for those customers whose energy consumption is metered during the accounting period, in which case the portion of not yet metered revenues "in the meter" is estimated on the closing date.

- **Gas, electrical and other energy infrastructures**
  Revenues derived by gas and electricity infrastructure operators upon providing transportation or distribution or storage capacities, are recognized on a straight-line basis over the contract term.
  In the countries where the Group acts as an energy provider (supplier) without being in charge of its distribution or transportation, mainly in France and Belgium, an analysis of the energy sales contracts and of the related regulatory framework is carried out to determine whether the distribution or transportation services invoiced to the customers have to be excluded from the revenues recognized under IFRS 15.
  Judgment may be exercised by the Group for this analysis in order to determine whether the energy provider acts as an agent or a principal for the gas or electricity distribution or transportation services re-invoiced to the customers. The main criteria used by the Group to exercise its judgment and conclude, in certain countries, that the energy provider acts as an agent of the infrastructure operator are as follows: who is primarily responsible for fulfillment of the distribution or transportation services? Does the energy provider have the ability to commit to capacity reservation contracts towards the infrastructure operator? To what extent does the energy provider have discretion in establishing the price for the distribution or transportation services?

- **Constructions, installations, Operations and Maintenance (O&M)**
  Construction and installation contracts mainly concern assets built on the premises of customers such as cogeneration units, heaters or other energy-efficiency assets. The related revenues are usually recognized according to the percentage of completion on the basis of the costs incurred where the contracts fall within the scope of IFRS 15.
  O&M contracts generally require the Group to perform services ensuring the availability of power generating facilities. These services are performed over time and the related revenues are recognized according to the percentage of completion on the basis of the costs incurred.

If it is not possible to conclude from the contractual analysis that the contract falls within the scope of IFRS 15, the revenues are accounted for as non-IFRS 15 revenues.

Revenues from other contracts, corresponding to revenues from operations that do not fall within the scope of IFRS 15, presented in the "Others" column include trading, lease and concession income, as well as any financial component of operating services, and the effects of the tariff shield mechanisms

The table below shows a breakdown of revenues by type:

In millions of euros	Sales of gas	Sales of electricity and other energies	Sales of services linked to infrastructures	Constructions, installations, and O&M	Others	Dec. 31, 2022
Renewables	-	5,797	88	242	89	**6,216**
Networks	232	1	6,021	478	230	**6,961**
Energy Solutions	246	4,713	96	6,424	73	**11,552**
Thermal	22	4,522	1,601	396	588	**7,129**
Supply	7,793	5,372	153	958	2,534	**16,810**
Nuclear	-	5	8	24	(3)	**35**
Others	21,405	19,595	170	70	3,923	**45,163**
Of which GEMS	*21,405*	*19,595*	*170*	*45*	*3,923*	***45,137***
TOTAL REVENUES	**29,697**	**40,004**	**8,135**	**8,593**	**7,435**	**93,865**

The significant change in natural gas and electricity prices has led some governments to introduce a “tariff shield” for natural gas and electricity, particularly in France and Romania.

The measure with the most significant impact on the Group's consolidated financial statements is the one introduced by the French government for natural gas. Under the Finance Law for 2022 (No. 2021-1900 of December 30, 2021), as amended by the first Amending Finance Law for 2022 (No. 2022-1157 of August 16, 2022), the regulated natural gas sales tariffs applied by ENGIE were capped at the level of October 31, 2021, including all taxes, until December 31, 2022. The loss of revenue borne by ENGIE constitutes an expense attributable to public service obligations and is subject to guaranteed compensation by the State. The subsidy recognized in 2022 amounts to approximately €1,591 million (€248 million in 2021) and is recorded under “Supply” business in the “Others” column (“Non-IFRS 15 revenues”). During 2022, the Group signed three non-recourse assignment agreements with Natixis, under the so-called “Dailly” law, in order to sell part of the receivable relating to the subsidy, amounting to approximately €1,395 million.

In millions of euros	Sales of gas	Sales of electricity and other energies	Sales of services linked to infrastructures	Constructions, installations, and O&M	Others	Dec. 31, 2021 (1)
Renewables	-	3,335	85	142	91	**3,653**
Networks	205	1	5,715	606	173	**6,700**
Energy Solutions	157	3,368	102	6,247	51	**9,926**
Thermal	66	3,165	345	451	62	**4,089**
Supply	5,532	3,539	74	985	265	**10,396**
Nuclear	-	4	11	22	19	**56**
Others	10,019	11,448	231	353	994	**23,046**
Of which GEMS	*10,019*	*11,448*	231	*177*	*994*	**22,870**
TOTAL REVENUES	**15,978**	**24,861**	**6,565**	**8,806**	**1,656**	**57,866**

(1) Certain internal reclassifications, which have no impact on the total, have been made between the business lines at December 31, 2021. The main internal reclassifications concern the transfer of international Energy Supply activities to Others, of the North American Renewable Energies activities to Energy Solutions, and the reallocation of Corporate costs between business lines.

7.2 Trade and other receivables, assets and liabilities from contracts with customers

Accounting standards

On initial recognition, trade and other receivables are recorded at their transaction price as defined in IFRS 15.

A contract asset is an entity's right to consideration in exchange for goods or services that have been transferred to a customer but for which payment is not yet due or is contingent on the satisfaction of a specific condition stipulated in the contract. When an amount becomes due, it is transferred to receivables.

A receivable is recorded when the entity has an unconditional right to consideration. A right to consideration is unconditional if only the passage of time is required before payment of that consideration.

A contract liability is an entity's obligation to transfer goods or services to a customer for which the entity has already received consideration from the customer. The liability is derecognized upon recognition of the corresponding revenue.

Trade and other receivables and assets from contracts with customers are tested for impairment in accordance with the provisions of IFRS 9 on expected credit losses.

The impairment model for financial assets is based on the expected credit loss model. To calculate expected losses, the Group uses a matrix approach for trade receivables and assets from contracts with customers, for which the change in credit risk is monitored on a portfolio basis. An individual approach is used for large customers and other large counterparties, for which the change in credit risk is monitored on an individual basis.

See Note 15 "Risks arising from financial instruments" for the Group's assessment of counterparty risk.

7.2.1 Trade and other receivables and assets from contracts with customers

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Trade and other receivables, net	31,310	32,555
Of which IFRS 15	*7,587*	*6,453*
Of which non-IFRS15	*23,723*	*26,103*
Assets from contracts with customers	12,584	8,377
Accrued income and unbilled revenues	*9,513*	*6,817*
Energy in the meter (1)	*3,071*	*1,560*

(1) Net of advance payments.

In 2022, the most significant assets from contracts mainly concerned GEMS (€5,023 million), Energy Solutions (€2,758 million) and Supply (€3,097 million).

	Dec. 31, 2022			Dec. 31, 2021		
In millions of euros	Gross	Allowances and expected credit losses	Net	Gross	Allowances and expected credit losses	Net
Trade and other receivables, net	33,282	(1,973)	31,310	33,920	(1,365)	32,555
Assets from contracts with customers	12,632	(48)	12,584	8,393	(16)	8,377
TOTAL	**45,914**	**(2,020)**	**43,894**	**42,313**	**(1,381)**	**40,932**

Gas and electricity in the meter

For customers whose energy consumption is metered during the accounting period, the gas supplied but not yet metered at the reporting date is estimated based on historical data, consumption statistics and estimated selling prices.

For sales on networks used by a large number of grid operators, the Group is allocated a certain volume of energy transiting through the networks by the grid managers. As the final allocations are sometimes only known several months down the line, revenue figures cannot be determined with absolute certainty. However, the Group has developed measuring and modeling tools allowing it to estimate revenues with a reasonable degree of accuracy and subsequently ensure that risks of error associated with estimating quantities sold and the related revenues can be considered as immaterial.

In France and Belgium, un-metered revenues ("gas in the meter") are calculated using a direct method taking into account customers' estimated consumption based on the last invoice or metering not yet billed. These estimates are in line with the volume of energy allocated by the grid managers over the same period. The average price is used to measure "gas in the meter" and takes account of the category of customer and the age of the delivered unbilled "gas in the meter". The portion of unbilled revenues at the reporting date varies according to the assumptions about volume and average price.

"Electricity in the meter" is also determined using a direct allocation method similar to that used for gas, but taking into account specific factors related to electricity consumption. It is also measured on a customer-by-customer basis or by customer type.

Realized but not yet metered revenues ("un-metered revenues") mainly related to France and Belgium for an amount of €5,883 million at December 31, 2022 (€4,638 million at December 31, 2021).

7.2.2 Liabilities from contracts with customers

	Dec. 31, 2022			Dec. 31, 2021		
In millions of euros	Non-current	Current	Total	Non-current	Current	Total
Liabilities from contracts with customers	121	3,292	3,412	68	2,671	2,739
Advances and downpayments received	*53*	*2,201*	*2,253*	-	*1,955*	*1,955*
Deferred revenues	*68*	*1,091*	*1,159*	*68*	*716*	*784*

In 2022, the Global Business Units reporting the greatest amounts of liabilities from contracts with customers were Supply (€1,717 million) and Energy Solutions (€1,467 million).

7.3 Revenues relating to performance obligations not yet satisfied

Revenues relating to performance obligations only partially satisfied at December 31, 2022 amounted to €1,131 million. They mainly concern Energy Solutions (€1,013 million) and Renewables (€117 million) which handle a large number of construction, installation, and maintenance contracts under which revenues are recognized over time.

NOTE 8 OPERATING EXPENSES

Accounting standards

Operating expenses include:

- purchases and operating derivatives including:
  - the purchase of commodities and associated costs (infrastructure, transport, storage, etc.),
  - the realized impact, as well as the change in fair value (MtM), of commodity transactions, with or without physical delivery, that fall within the scope of IFRS 9 – *Financial Instruments* and that do not qualify as trading or hedging. These contracts are set up as part of economic hedges of operating transactions in the energy sector;
- purchases of services and other items such as subcontracting and interim expenses, lease expenses (short-term lease contracts, leases with a low underlying asset value or leases with variable expenses), concession expenses, etc.;
- personnel costs;
- depreciation, amortization, and provisions; and
- taxes.

8.1 Purchases and operating derivatives

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Purchases and other income and expenses on operating derivatives other than trading (1)	(67,676)	(32,135)
Service and other purchases (2)	(6,860)	(6,726)
PURCHASES AND OPERATING DERIVATIVES	**(74,535)**	**(38,861)**

(1) *Of which net expense of €3,661 million in 2022 relating to MtM on commodity contracts other than trading (compared to a net income of €721 million in 2021), notably on certain economic gas and electricity hedging positions not documented as cash flow hedges.*

(2) *Of which €56 million in lease expenses not included in the IFRS 16 lease liability (compared to €51 million in lease expenses in 2021).*

The increase in purchases and operating derivatives is mainly due to changes in commodity prices over the period.

8.2 Personnel costs

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
Short-term benefits		(7,712)	(7,373)
Share-based payments	19	(104)	(48)
Costs related to defined benefit plans	18.3.4	(172)	(178)
Costs related to defined contribution plans	18.4	(91)	(93)
PERSONNEL COSTS		**(8,078)**	**(7,692)**

8.3 Depreciation, amortization and provisions

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
Depreciation and amortization	13.2 & 13.3	(4,576)	(4,370)
Net change in write-downs of inventories, trade receivables and other assets		(768)	(310)
Net change in provisions	17	157	(159)
DEPRECIATION, AMORTIZATION AND PROVISIONS		**(5,187)**	**(4,840)**

At December 31, 2022, depreciation and amortization mainly break down as €1,041 million for intangible assets and €3,534 million for property, plant and equipment.

8.4 Taxes

In millions of euros	Dec. 31, 2022	Dec. 31, 2022
TAXES	**(3,380)**	**(1,479)**

Taxes at December 31, 2022 include taxes on "excess profits", mainly the tax on infra-marginal income in Belgium and the temporary solidarity contribution in Italy, amounting to €739 million, as well as the tax on nuclear power generation for €917 million. The Italian temporary solidarity contribution of €132 million is recognized in income tax.

NOTE 9 OTHER ITEMS OF NET INCOME/(LOSS) FROM OPERATING ACTIVITIES

Accounting standards

Other items of Net income/(loss) from operating activities include:

- "Impairment losses": this line include impairment losses on goodwill, other intangible assets, property, plant and equipment and investments in entities consolidated using the equity method;
- "Restructuring costs": this line concern costs corresponding to a restructuring program planned and controlled by management that materially changes either the scope of a business undertaken by the entity, or the manner in which that business is conducted, based on the criteria set out in IAS 37;
- "Changes in the scope of consolidation". This line includes:
  - direct costs related to acquisitions of controlling interests,
  - in a business combination achieved in stages, remeasurement at fair value at the acquisition date of the previously held interest,
  - subsequent changes in the fair value of contingent consideration,
  - gains or losses from disposals of investments which result in a change of consolidation method, as well as any impact from the remeasurement of retained interests with the exception of gains and losses arising from transactions realized in the framework of "Develop, Build, Share & Operate" (DBSO) or "Develop, Share, Build & Operate" (DSBO) business models. These transactions on renewable activities are recognized in current operating income as they are part of the recurring rotation of the Group's capital employed;
- "Other non-recurring items": this line includes other elements of an unusual, abnormal or infrequent nature.

9.1 Impairment losses

In millions of euros	Notes	Dec. 31, 2022	Dec. 31, 2021
Impairment losses:			
Goodwill	13.1	-	(107)
Property, plant and equipment and other intangible assets	13.2 & 13.3	(2,306)	(969)
Investments in equity method entities and related provisions		(536)	(17)
TOTAL IMPAIRMENT LOSSES		**(2,841)**	**(1,093)**
Reversal of impairment losses:			
Property, plant and equipment and other intangible assets		67	64
TOTAL REVERSALS OF IMPAIRMENT LOSSES		**67**	**64**
TOTAL		**(2,774)**	**(1,028)**

9.1.1 Impairment losses recognized in 2022

Net impairment losses recognized at December 31, 2022 amounted to €2,774 million. They mainly fall into three categories (*see Note 13.4*):

- the effects of the three-yearly revision of nuclear provisions on assets to be recognized against nuclear power plant dismantling provisions;
- the effects of the ongoing program to exit coal activities;
- the consequences of negotiations initiated or finalized during the year in connection with the renegotiation of PPA contracts or the disposal of non-strategic assets.

These impairment losses mainly concern property, plant and equipment and intangible assets. Considering the effects of deferred taxes and the portion of impairment losses attributable to non-controlling interests, the impact of the impairment losses on net income Group share amounted to €2,275 million.

With the exception of the induced effects of decisions to dispose of non-strategic assets, no impairment losses were recognized on non-financial assets as a result of measures to prevent or mitigate climate risks or to achieve the 2045 net zero-carbon objective.

Impairment tests are carried out in accordance with the procedures described in Note 13.4.

9.1.2 Impairment losses recognized in 2021

Net impairment losses recognized at December 31, 2021 amounted to €1,028 million and related mainly to:

- assets affected by the Group's announced exit from coal, in 2021, for thermal power generation assets, particularly in Brazil (€228 million);
- assets affected by the strategic review of Client Solutions, announced by the Group in 2020, in France (€90 million), Africa (€73 million) and Asia (€33 million);
- assets that have been subject to revisions to their medium- and long-term prospects, or that have encountered operational difficulties, in particular renewable energy production assets in Latin America (€221 million) and thermal power generation assets in Asia (€90 million);
- other production or support assets for less significant amounts taken individually.

9.2 Restructuring costs

In 2022, restructuring costs totaled € 230 million (versus €204 million in 2021). Restructuring costs in both years mainly included costs related to staff reduction plans and measures to adapt to economic situations in 2022 and 2021, as well as the shutdown or sale of operations, the closure or restructuring of certain facilities as well as other miscellaneous restructuring costs.

9.3 Changes in scope of consolidation

At December 31, 2022, the impact of changes in the scope of consolidation was a positive €91 million and mainly comprised:

- a positive impact of €280 million relating to the disposals of shares held in Gaztransport et Technigaz (GTT) for a total representing approximatively 24.6% of its share capital. This result includes the effects of the almost full conversion of the exchangeable bond issued by the Group in June 2021;
- a positive impact of €111 million relating to the disposal of geothermal assets in Indonesia;
- a negative impact of €127 million relating to the disposal of the Energy Solutions activities in Africa and France;
- a negative impact of €110 million relating to the purchase of shares in renewable assets in India with refinancing obligations due in 2023;
- a negative impact of €63 million relating to miscellaneous disposals that are not individually significant.

At December 31, 2021, the impact of changes in the scope of consolidation was a positive €1,107 million and mainly comprised:

- a positive €628 million impact related to the disposal of 10% of the shares held in GTT for €151 million and the revaluation of the remaining 30% for €478 million;
- the positive impact of the earn-out to be received on the disposal of the 29.9% stake in SUEZ for €347 million;

- a positive €113 million change in the fair value of the earn-out from the disposal of LNG activities to TOTAL in 2018;
- a positive €56 million impact relating to various disposals including EPS for €83 million, the Group's interests in Georgetown Energy Partners Holding LLC in the United States for €44 million, and in a thermal power generation asset in Greece for a negative €28 million, and
- a negative €48 million impact related to the change in the fair value of the embedded derivative of the GTT shares exchangeable bond.

9.4 Other non-recurring items

Other non-recurring items at December 31, 2022 totaled a negative €1,328 million and mainly comprised:

- a negative impact of €979 million related to the three-yearly review of provisions for the management of the back-end nuclear cycle;
- a negative impact of €205 million related to provisions set up to cover clean-up obligations in France;
- a negative impact of €161 million related to the write-off of intangible assets and property, plant and equipment, mainly in France.

Other non-recurring items at December 31, 2021 totaled a negative €69 million and comprised asset scrapping, and disposals of property, plant and equipment.

NOTE 10 NET FINANCIAL INCOME/(LOSS)

In millions of euros	Expense	Income	Dec. 31, 2022	Expense	Income	Dec. 31, 2021
Interest expense on gross debt and hedges	*(1,104)*	-	*(1,104)*	*(943)*	-	*(943)*
Cost of lease liabilities	*(73)*	-	*(73)*	*(35)*	-	*(35)*
Foreign exchange gains/losses on borrowings and hedges	*(28)*	-	*(28)*	*(6)*	-	*(6)*
Ineffective portion of derivatives qualified as fair value hedges	-	*7*	*7*	*(2)*	-	*(2)*
Gains and losses on cash and cash equivalents and liquid debt instruments held for cash investment purposes	-	*197*	*197*	-	*63*	*63*
Capitalized borrowing costs	*109*	-	*109*	*70*	-	*70*
Cost of net debt	**(1,097)**	**205**	**(893)**	**(916)**	**63**	**(852)**
Cash payments made on the unwinding of swaps	*(9)*	-	*(9)*	*(73)*	-	*(73)*
Reversal of the negative fair value of these early unwound derivative financial instruments	-	-	-	-	*73*	*73*
Gains/(losses) on debt restructuring transactions	-	*55*	*55*	-	-	-
Gains/(losses) on debt restructuring and early unwinding of derivative financial instruments	**(9)**	**55**	**46**	**(73)**	**73**	**-**
Net interest expense on post-employment benefits and other long-term benefits	*(92)*	-	*(92)*	*(63)*	-	*(63)*
Unwinding of discounting adjustments to other long-term provisions	*(617)*	-	*(617)*	*(630)*	-	*(630)*
Change in fair value of derivatives not qualified as hedges and ineffective portion of derivatives qualified as cash flow hedges	*(5)*	-	*(5)*	*(152)*	-	*(152)*
Income/(loss) from debt instruments and equity instruments	*(1,295)*	*36*	*(1,258)*	*(16)*	*329*	*313*
Interest income on loans and receivables at amortized cost	-	*69*	*69*	-	*125*	*125*
Other	*(585)*	*332*	*(253)*	*(213)*	*121*	*(92)*
Other financial income and expenses	**(2,594)**	**438**	**(2,156)**	**(1,073)**	**575**	**(498)**
NET FINANCIAL INCOME/(LOSS)	**(3,700)**	**697**	**(3,003)**	**(2,061)**	**711**	**(1,350)**

The cost of net debt is higher compared to December 31, 2021 notably due to the increase in lease liabilities relating to the extension of the Compagnie Nationale du Rhône concession. The higher average cost of gross debt, mainly due to the rise in interest rates, is partly offset by the increase in interest received on cash and cash equivalents and liquid debt instruments.

Losses from debt and equity instruments amounted to €1.258 million. This amount mainly includes the impairment of the loan granted to Nord Stream 2 for €987 million and the negative change in fair value of money market funds held by Synatom for €280 million *(see Note 17.2.4 "Financial assets set aside to cover the future costs of dismantling nuclear facilities and managing radioactive fissile material").*

At December 31, 2022, the average cost of debt after hedging came out at 2.73% compared with 2.65% at December 31, 2021.

NOTE 11 INCOME TAX EXPENSE

Accounting standards

The Group calculates taxes in accordance with prevailing tax legislation in the countries where income is taxable.

In accordance with IAS 12, deferred taxes are recognized according to the liability method on temporary differences between the carrying amounts of assets and liabilities in the consolidated financial statements and their tax bases, using tax rates that have been enacted or substantively enacted by the reporting date. However, under the provisions of IAS 12, no deferred tax is recognized for temporary differences arising from goodwill for which impairment losses are not deductible for tax purposes, or from the initial recognition of an asset or liability in a transaction which (i) is not a business combination and (ii) at the time of the transaction, affects neither accounting income nor taxable income. In addition, deferred tax assets are only recognized to the extent that it is probable that taxable income will be available against which the deductible temporary differences can be utilized.

A deferred tax liability is recognized for all taxable temporary differences associated with investments in subsidiaries, associates, joint ventures and branches, except if the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

Net balances of deferred taxes are calculated based on the tax position of each company or on the total income of companies included within the relevant consolidated tax group, and are presented in assets or liabilities for their net amount per tax entity.

Deferred taxes are reviewed at each reporting date to take into account factors including the impact of changes in tax laws and the prospects of recovering deferred tax assets arising from deductible temporary differences.

Deferred tax assets and liabilities are not discounted.

Tax effects relating to coupon payments on deeply-subordinated perpetual notes are recognized in profit or loss.

11.1 Actual income tax expense recognized in the income statement

11.1.1 Breakdown of actual income tax expense recognized in the income statement

The tax income recognized in the income statement for 2022 amounted to €83 million (€1,695 million income tax expense in 2021). It breaks down as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Current income taxes	(1,762)	(740)
Deferred taxes	1,845	(955)
TOTAL INCOME TAX BENEFIT/(EXPENSE) RECOGNIZED IN INCOME	**83**	**(1,695)**

11.1.2 Reconciliation of theoretical income tax expense with actual income tax expense

A reconciliation of theoretical income tax expense with the Group's actual income tax expense is presented below:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Net income/(loss)	**390**	**3,758**
Share in net income of equity method entities	523	784
Net income/(loss) from discontinued operations	2,183	80
Income tax expense	83	(1,695)
Income/(loss) before income tax of consolidated companies (A)	**(2,400)**	**4,588**
Of which French companies	*(2,130)*	*5,604*
Of which companies outside France	*(270)*	*(1,016)*
Statutory income tax rate of the parent company (B)	25.8%	28.4%
THEORETICAL INCOME TAX EXPENSE (C) = (A) X (B)	**620**	**(1,303)**
Reconciling items between theoretical and actual income tax expense		
Difference between statutory tax rate applicable to the parent and statutory tax rate in force in jurisdictions in France and abroad	(8)	38
Permanent differences (1)	(313)	(30)
Income taxed at a reduced rate or tax-exempt (2)	427	300
Additional tax expense (3)	(327)	(230)
Effect of unrecognized deferred tax assets on tax loss carry-forwards and other tax-deductible temporary differences (4)	(940)	(958)
Recognition or utilization of tax income on previously unrecognized tax loss carry-forwards and other tax-deductible temporary differences (5)	643	510
Impact of changes in tax rates (6)	(37)	(17)
Tax credits and other tax reductions (7)	20	185
Other (8)	(1)	(189)
INCOME TAX BENEFIT/(EXPENSE) RECOGNIZED IN INCOME	**83**	**(1,695)**

(1) Mainly includes disallowable impairment losses on goodwill, disallowed operating expenses and the deduction of interest expenses arising from hybrid debt.

(2) Mainly includes capital gains on disposals of securities exempt from tax or taxed at a reduced rate in some tax jurisdictions, the impact of the specific tax regimes used by some entities, disallowable impairment losses and capital losses on securities, and the impact of untaxed income from remeasuring previously-held (or retained) equity interests in connection with acquisitions and changes in consolidation methods.

(3) Mainly includes tax on dividends resulting from the parent company tax regime, withholding tax on dividends and interest levied in several tax jurisdictions, allocations to provisions for income tax, and regional and flat-rate corporate taxes. In 2022, this line also includes the temporary Italian solidarity contribution, which amounts to €132 million.

(4) Includes (i) the cancellation of the net deferred tax asset position for some tax entities in the absence of sufficient profit being forecast and (ii) the impact of disallowable impairment losses on fixed assets.

(5) Includes the impact of the recognition of net deferred tax asset positions for some tax entities.

(6) Mainly includes the impact of tax rate changes on deferred tax balances in the United Kingdom for 2022 and in the United Kingdom, France and Argentina for 2021.

(7) Mainly includes reversals of provisions for tax litigation, tax credits in France and other tax reductions.

(8) Mainly includes the correction of previous tax charges.

11.1.3 Analysis of the deferred tax income/(expense) recognized in the income statement, by type of temporary difference

In millions of euros	Impact in the income statement Dec. 31, 2022	Dec. 31, 2021
Deferred tax assets:		
Tax loss carry-forwards and tax credits	1,051	(178)
Pension and related obligations	(1)	(218)
Non-deductible provisions	55	(56)
Difference between the carrying amount of PP&E and intangible assets and their tax bases	454	174
Measurement of financial instruments at fair value (IAS 32/IFRS 9)	(1,260)	6,542
Other	(135)	222
TOTAL	**164**	**6,485**
Deferred tax liabilities:		
Difference between the carrying amount of PP&E and intangible assets and their tax bases	(545)	(498)
Measurement of assets and liabilities at fair value (IAS 32/IFRS 9)	1,781	(7,148)
Other	398	183
TOTAL	**1,634**	**(7,463)**
DEFERRED TAX INCOME/(EXPENSE)	**1,798**	**(977)**
Of which continuing activities	*1,844*	*(955)*

11.2 Deferred tax income/(expense) recognized in "Other comprehensive income"

Net deferred tax income/(expense) recognized in "Other comprehensive income" is broken down by component as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Equity and debt instruments	33	(4)
Actuarial gains and losses	(646)	(447)
Net investment hedges	11	55
Cash flow hedges on other items	943	(1,370)
Cash flow hedges on net debt	(3)	(19)
TOTAL EXCLUDING SHARE OF EQUITY METHOD ENTITIES & DISCONTINUED OPERATIONS	**338**	**(1,784)**
Share of equity method entities	(132)	(50)
Discontinued operations	(21)	(13)
TOTAL	**185**	**(1,848)**

11.3 Deferred taxes presented in the statement of financial position

11.3.1 Change in deferred taxes

Changes in deferred taxes recognized in the statement of financial position, after netting deferred tax assets and liabilities by tax entity, break down as follows:

In millions of euros	Assets	Liabilities	Net position
AT DECEMBER 31, 2021	**1,181**	**(7,738)**	**(6,557)**
Impact on net income for the year	164	1,635	1,799
Impact on other comprehensive income items	(479)	792	313
Impact of changes in scope of consolidation	38	(19)	19
Impact of translation adjustments	101	(146)	(45)
Transfers to assets and liabilities classified as held for sale	(54)	51	(3)
Other	440	(344)	95
Impact of netting by tax entity	638	(638)	-
AT DECEMBER 31, 2022	**2,029**	**(6,408)**	**(4,379)**

11.3.2 Analysis of the net deferred tax position recognized in the statement of financial position (before netting deferred tax assets and liabilities by tax entity), by type of temporary difference

Accounting standards

Measurement of recognized tax loss carry-forwards

Deferred tax assets are recognized on tax loss carry-forwards when it is probable that taxable profit will be available against which the tax loss carry-forwards can be utilized. The probability that taxable profit will be available against which the unused tax losses can be utilized, is based on taxable temporary differences relating to the same taxation authority and the same taxable entity and estimates of future taxable profits. These estimates and utilizations of tax loss carry-forwards were prepared on the basis of profit and loss forecasts over a six-year tax projection period as included in the medium-term business plan validated by Management, subject to exceptions justified by a particular context and, if necessary, on the basis of additional forecasts.

	Statement of financial position at	
In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Deferred tax assets:		
Tax loss carry-forwards and tax credits	2,202	1,299
Pension obligations	812	1,501
Non-deductible provisions	518	388
Difference between the carrying amount of PP&E and intangible assets and their tax bases	1,830	1,440
Measurement of financial instruments at fair value (IAS 32 / IFRS 9)	8,346	8,968
Other	620	523
TOTAL	**14,328**	**14,119**
Deferred tax liabilities:		
Difference between the carrying amount of PP&E and intangible assets and their tax bases	(9,873)	(9,345)
Measurement of financial instruments at fair value (IAS 32 / IFRS 9)	(8,141)	(10,643)
Other	(693)	(687)
TOTAL	**(18,707)**	**(20,675)**
NET DEFERRED TAX ASSETS/(LIABILITIES)	**(4,378)**	**(6,557)**

11.4 Unrecognized deferred taxes

At December 31, 2022, the tax effect of tax losses and tax credits eligible for carry-forward but not utilized and not recognized in the statement of financial position amounted to €4,165 million (€4,642 million at December 31, 2021). Most of these unrecognized tax losses relate to companies based in countries which allow losses to be carried forward indefinitely (mainly Belgium, Australia, Luxembourg and the Netherlands). These tax loss carry-forwards did not give rise to the full or partial recognition of a deferred tax asset due to the absence of sufficient profit forecasts in the medium term.

The tax effect of other tax-deductible temporary differences not recorded in the statement of financial position was €1,590 million at end-December 2022 versus €1,097 million at end-December 2021.

NOTE 12 EARNINGS PER SHARE

Accounting standards

Basic earnings per share is calculated by dividing net income Group share for the year by the weighted average number of ordinary shares outstanding during the year. The average number of ordinary shares outstanding during the year is the number of ordinary shares outstanding at the beginning of the year, adjusted by the number of ordinary shares bought back or issued during the year.

For the diluted earnings per share calculation, the weighted average number of shares and basic earnings per share are adjusted to take into account the impact of the conversion or exercise of any dilutive potential ordinary shares (options, warrants and convertible bonds, etc.).

In compliance with IAS 33 – *Earnings per Share,* earnings per share and diluted earnings per share are based on net income/(loss) Group share after deduction of payments to bearers of deeply-subordinated perpetual notes *(see Note 16.2.1 "Issuance of deeply-subordinated perpetual notes").*

The Group's dilutive instruments included in the calculation of diluted earnings per share include bonus shares and performance shares granted in the form of ENGIE securities.

	Dec. 31, 2022	Dec. 31, 2021
Numerator (in millions of euros)		
Net income/(loss) Group share	**216**	**3,661**
Of which Net income/(loss) relating to continuing operations, Group share	*(1,965)*	*3,582*
Interest from deeply-subordinated perpetual notes	(77)	(121)
Net income/(loss)used to calculate earnings per share	**140**	**3,540**
Of which Net income/(loss) relating to continuing operations, Group share, used to calculate earnings per share	*(2,042)*	*3,461*
Diluted net income/(loss) Group share	**140**	**3,540**
Net recurring income/(loss) Group share	**5,510**	**3,158**
Of which Net recurring income/(loss) relating to continuing operations, Group share	*5,223*	*2,927*
Interest from deeply-subordinated perpetual notes	(77)	(121)
Net recurring income/(loss)used to calculate earnings per share	**5,433**	**3,037**
Of which Net recurring income/(loss) relating to continuing operations, Group share, used to calculate earnings per share	*5,146*	*2,806*
Diluted net recurring income/(loss) Group share	**5,433**	**3,037**
Denominator (in millions of shares)		
Average number of outstanding shares	**2,420**	**2,419**
Impact of dilutive instruments:		
Bonus share plans reserved for employees	-	12
Diluted average number of outstanding shares	**2,420**	**2,431**
Earnings per share (in euros)		
Basic earnings/(loss) per share	**0.06**	**1.46**
Of which Basic earnings/(loss) Group share relating to continuing operations per share	*(0.84)*	*1.43*
Diluted earnings/(loss) per share	**0.06**	**1.46**
Of which Diluted earnings/(loss) Group share relating to continuing operations per share	*(0.84)*	*1.42*
Basic recurring earnings/(loss) per share	**2.24**	**1.26**
Of which Basic recurring earnings/(loss) Group share relating to continuing operations per share	*2.13*	*1.16*
Diluted recurring earnings/(loss) per share (1)	**2.23**	**1.25**
Of which Diluted recurring earnings/(loss) Group share relating to continuing operations per share (1)	*2.12*	*1.15*

(1) In 2022, the calculation of the denominator includes 12 million potential ENGIE shares which would have a dilutive effect on the NRIgs and NRIgs relating to continuing operations per share but have not been taken into account in the calculation of the NIgs and the NIgs relating to continuing operations per share due to the antidilutive effect on the latter.

NOTE 13 FIXED ASSETS

13.1 Goodwill

Accounting standards

Upon a business combination, goodwill is measured as the difference between:

- on the one hand the sum of:
  - the consideration transferred;
  - the amount of non-controlling interests in the acquiree, and
  - in a business combination achieved in stages, the acquisition-date fair value of the previously held equity interest in the acquiree;
- on the other hand the net fair value of the identifiable assets acquired and liabilities assumed. The key assumptions and estimates used to determine the fair value of assets acquired and liabilities assumed include the market outlook for the measurement of future cash flows as well as applicable discount rates. These assumptions reflect management's best estimates at the acquisition date.

The amount of goodwill recognized at the acquisition date cannot be adjusted after the end of the 12-month measurement period.

Goodwill relating to interests in associates is recorded under "Investments in equity method entities".

13.1.1 Movements in the carrying amount of goodwill

In millions of euros	Net amount
AT DECEMBER 31, 2021	**12,799**
Changes in scope of consolidation and Other	(27)
Translation adjustments	82
AT DECEMBER 31, 2022	**12,854**

13.1.2 Information on goodwill

For the purposes of impairment testing, goodwill is allocated to operating segments, which represent the lowest level at which it is monitored for internal management purposes.

The table below shows the amount of goodwill at December 31, 2022:

In millions of euros	Dec. 31, 2022
Networks	5,302
Renewables	2,110
Supply	1,830
Energy Solutions	1,316
Thermal	1,152
Nuclear	797
Other	350
TOTAL	**12,855**

13.2 Intangible assets

Accounting standards

Initial measurement

Intangible assets are carried at cost less any accumulated amortization and any accumulated impairment losses.

Amortization

Intangible assets are amortized on the basis of the expected pattern of consumption of the estimated future economic benefits embodied in the asset. Amortization is calculated mainly on a straight-line basis over the following useful lives:

	Useful life	
Main depreciation periods (years)	**Minimum**	**Maximum**
Concession rights	10	30
Customer portfolio	3	20
Other intangible assets	1	50

Intangible assets with an indefinite useful life are not amortized but are tested for impairment annually.

Intangible rights arising on concession contracts

IFRIC 12 – *Service Concession Arrangements* deals with the treatment to be applied by the concession operator in respect of certain concession arrangements.

For a concession arrangement to fall within the scope of IFRIC 12, usage of the infrastructure must be controlled by the concession grantor. This requirement is satisfied when the following two conditions are met:

- the grantor controls or regulates what services the operator must provide with the infrastructure, to whom it must provide them, and at what price; and
- the grantor controls any residual interest in the infrastructure at the end of the term of the arrangement, for example it retains the right to take back the infrastructure at the end of the concession.

The intangible asset model according to paragraph 17 of IFRIC 12 applies if the operator receives a right (a license) to charge the users, or the grantor, depending on the use made of the public service. There is no unconditional right to receive cash, as the amounts depend on the extent to which the public uses the service.

Concession infrastructures that do not meet the requirements of IFRIC 12 are presented as property, plant and equipment. This is the case of gas distribution infrastructures in France. The related assets are recognized in accordance with IAS 16, given that GRDF operates its network under long-term concession arrangements, most of which are mandatorily renewed upon expiration pursuant to French law No. 46-628 of April 8, 1946.

Research and development costs

Research costs are expensed as incurred.

Development costs are capitalized when the asset recognition criteria set out in IAS 38 are met. Capitalized development costs are amortized over the useful life of the intangible asset.

13.2.1 Movements in intangible assets

In millions of euros	Intangible rights arising on concession contracts	Capacity entitlements	Others	Total
GROSS AMOUNT				
AT DECEMBER 31, 2021	**3,917**	**2,845**	**12,936**	**19,697**
Acquisitions	68	-	1,364	1,432
Disposals	(485)	(15)	(622)	(1,122)
Translation adjustments	11	-	150	162
Changes in scope of consolidation	(37)	-	15	(22)
Transfer to "Assets classified as held for sale and discontinued operations"	-	-	6	6
Other	156	453	(351)	257
AT DECEMBER 31, 2022	**3,630**	**3,282**	**13,498**	**20,410**
ACCUMULATED AMORTIZATION AND IMPAIRMENT				
AT DECEMBER 31, 2021	**(1,921)**	**(2,133)**	**(8,860)**	**(12,913)**
Amortization	(139)	(90)	(812)	(1,041)
Impairment	(13)	-	(41)	(54)
Disposals	477	15	519	1,011
Translation adjustments	1	-	(45)	(44)
Changes in scope of consolidation	9	-	37	46
Other	(121)	-	71	(50)
AT DECEMBER 31, 2022	**(1,706)**	**(2,208)**	**(9,131)**	**(13,046)**
CARRYING AMOUNT				
AT DECEMBER 31, 2021	**1,996**	**712**	**4,076**	**6,784**
AT DECEMBER 31, 2022	**1,924**	**1,074**	**4,366**	**7,364**

In 2022, the net increase in “Intangible assets” was mainly attributable to:

- the investments during the period (positive €1,432 million) relating mainly to information technology projects in progress (positive €898 million) in the business of Energy Solutions in France, Networks in France and in the Renewables businesses in Brazil and in the United States;
- a positive foreign exchange impact of €118 million primarily due to the appreciation against the euro of the Brazilian real (positive €86 million) and of the US dollar (positive €37 million);
- changes in scope of consolidation (positive €24 million) relating mainly to the acquisition of Eolia Renovables in Spain (positive €22 million) and to the acquisition of Renewables activities in the United States (positive €14 million);

partially offset by:

- amortizations (negative €1,041 million);
- the impact of the first-time application of the decision of the IFRS IC of March 2021, related to the accounting treatment of configuration and customization costs for software in a SaaS arrangement (Software as a Service) for a negative €140 million *(Note 1.1 “Accounting standards”)*;
- impairment losses (negative €54 million).

13.2.2 Capacity entitlements

The Group has acquired capacity entitlements from power stations operated by third parties. These power station capacity rights were acquired in connection with transactions or within the scope of the Group’s involvement in financing the construction of certain power stations. In consideration, the Group received the right to purchase a share of the production over the useful life of the underlying assets. These rights are amortized over the useful life of the underlying assets, not exceeding 50 years. The Group currently holds entitlements in the Chooz B and Tricastin power plants in France and in the virtual power plant (VPP) in Italy.

13.2.3 Other

At December 31, 2022, this caption mainly relates to software and licenses for €1,393 million, as well as intangible assets in progress €767 million and intangible assets (client portfolio) acquired as a result of business combinations and capitalized acquisition costs for customer contracts for €1,925 million.

13.2.4 Information regarding research and development costs

Research and development activities primarily relate to various studies regarding technological innovation, improvements in plant efficiency, safety, environmental protection, service quality, and the use of energy resources. Research and development priorities are focused on climate change adaptation and mitigation, including renewable energy systems (solar photovoltaic, onshore and offshore wind), the production and use of green gases (hydrogen, biomethane) or the development of decentralized energy infrastructure (district heating and cooling, decentralized solar energy, low carbon cities and mobility.

The capitalized development costs, related to projects in the development phase that meet the criteria for recognition as an intangible asset as defined in IAS 38, totaled €44 million in 2022 and are mainly related to EV Box (€22 million) which is active in the Energy Solutions business and to the Renewables businesses of Engie Energia Chile (€20 million).

13.3 Property, plant and equipment

Accounting standards

Initial recognition and subsequent measurement

Items of property, plant and equipment are recognized at historical cost less any accumulated depreciation and any accumulated impairment losses.

The carrying amount of these items is not revalued as the Group has elected not to apply the allowed alternative method, which consists of regularly revaluing one or more categories of property, plant and equipment.

Investment subsidies are deducted from the gross value of the assets concerned.

In accordance with IAS 16, the initial cost of the item of property, plant and equipment includes an initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located, when the entity has a present, legal or constructive obligation to dismantle the item or restore the site. A corresponding provision for this obligation is recorded for the amount of the asset component.

Borrowing costs that are directly attributable to the construction of the qualifying asset are capitalized as part of the cost of that asset.

Leases

In accordance with IFRS 16, the Group recognizes a right-of-use asset and a corresponding lease liability with respect to contracts considered as a lease in which the Group acts as lessee, except for leases with a term of 12 months or less ("short-term leases"), and leases for which the underlying asset is of a low value ("low-value asset"). Payments associated with these leases are recognized on a straight-line basis as expenses in profit and loss. The lease contracts in the Group mainly concern real estate, vehicles and other equipment.

The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The lease liability is initially measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate. This rate is calculated based on the Group's incremental borrowing rate adjusted in accordance with IFRS 16, taking into account (i) the economic environment of the subsidiaries, and in particular their credit risk, (ii) the currency in which the contract is concluded and (iii) the duration of the contract at inception (or the remaining duration for contracts existing upon the initial application of IFRS 16). The methodology applied to determine the incremental borrowing rate reflects the profile of the lease payments (duration method).

The lease term is assessed, including whether a renewal option is reasonably certain to be exercised or a termination option is reasonably certain not to be exercised, on a case-by-case basis. The lease term is reassessed if a significant event or a significant change in circumstances that is within the control of the lessee occurs and may affect the assessment made. In determining the enforceable period of a lease, the Group applies a broad interpretation of the term penalty and takes into consideration not only contractual penalties arising from termination, but also ancillary costs that could arise in case of an early termination of the lease.

Cushion gas

"Cushion" gas injected into underground storage facilities is essential for ensuring that reservoirs can be operated effectively, and is therefore inseparable from these reservoirs. Unlike "working" gas which is included in inventories (*see Note 22.2 "Inventories"*), cushion gas is reported in other property, plant and equipment.

Depreciation

In accordance with the components approach, each significant component of an item of property, plant and equipment with a different useful life from that of the main asset to which it relates is depreciated separately over its own useful life.

Property, plant and equipment is depreciated mainly using the straight-line method over the following useful lives:

	Useful life	
Main depreciation periods (years)	**Minimum**	**Maximum**
Plant and equipment		
• Storage - Production - Transport - Distribution	5	60(*)
• Installation – Maintenance	3	10
• Hydraulic plant and equipment	20	65
Solar and wind farms	25	30
Other property, plant and equipment	2	33

(*) Excluding cushion gas.

The range of useful lives is due to the diversity of the assets in each category. The minimum periods relate to smaller equipment and furniture, while the maximum periods concern network infrastructures and storage facilities. In accordance with the law of January 31, 2003 adopted by the Belgian Chamber of Representatives with respect to the gradual phase-out of nuclear energy for the industrial production of electricity, the useful lives of nuclear power stations were reviewed and adjusted prospectively to 40 years as from 2003, except for Tihange 1, Doel 1 and Doel 2 for which the operating lives have been extended by 10 years.

Fixtures and fittings relating to hydro plants operated by the Group are depreciated over the shorter of the contract term and the useful life of the assets, taking into account the renewal of the concession period if such renewal is considered to be reasonably certain.

The right-of-use asset related to leases is depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term. In that case the right-of-use asset is depreciated over the useful life of the underlying asset, which is determined on the same basis as that used for property, plant and equipment mentioned above.

13.3.1 Movements in property, plant and equipment

In millions of euros	Land	Buildings	Plant and equipment	Vehicles	Dismantling costs	Assets in progress	Right of use	Other	Total
GROSS AMOUNT									
AT DECEMBER 31, 2021	**650**	**3,312**	**90,530**	**304**	**3,669**	**4,715**	**3,867**	**1,308**	**108,355**
Acquisitions/Increases	4	21	348	33	-	5,473	1,335	69	7,283
Disposals	(33)	(94)	(475)	(29)	(3)	(28)	(167)	(55)	(884)
Translation adjustments	8	15	934	3	13	153	110	23	1,260
Changes in scope of consolidation	5	(2)	178	(12)	22	(75)	(88)	(22)	6
Transfer to "Assets classified as held for sale and discontinued operations"	-	-	(372)	-	-	(6)	10	-	(369)
Other	16	(491)	4,873	5	2,337	(4,585)	27	(3)	2,179
AT DECEMBER 31, 2022	**649**	**2,762**	**96,016**	**304**	**6,038**	**5,649**	**5,094**	**1,319**	**117,831**
ACCUMULATED DEPRECIATION AND IMPAIRMENT									
AT DECEMBER 31, 2021	**(146)**	**(1,849)**	**(49,426)**	**(219)**	**(3,115)**	**(387)**	**(1,284)**	**(850)**	**(57,277)**
Depreciation	(3)	(70)	(2,797)	(29)	(102)	-	(442)	(92)	(3,534)
Impairment	(2)	(8)	(846)	-	(911)	(472)	(19)	(2)	(2,259)
Disposals	3	78	395	27	1	47	157	49	757
Translation adjustments	(1)	(8)	(331)	(2)	(4)	(12)	(24)	(8)	(390)
Changes in scope of consolidation	1	(8)	(78)	(3)	(25)	97	(76)	(4)	(97)
Transfer to "Assets classified as held for sale and discontinued operations"	-	-	260	-	-	3	(1)	-	262
Other	(4)	93	112	-	-	2	(21)	12	193
AT DECEMBER 31, 2022	**(153)**	**(1,772)**	**(52,709)**	**(226)**	**(4,155)**	**(724)**	**(1,710)**	**(895)**	**(62,343)**
CARRYING AMOUNT									
AT DECEMBER 31, 2021	**503**	**1,463**	**41,105**	**85**	**554**	**4,328**	**2,583**	**458**	**51,079**
AT DECEMBER 31, 2022	**497**	**991**	**43,307**	**78**	**1,883**	**4,925**	**3,384**	**424**	**55,488**

In 2022, the net increase in “Property, plant and equipment” essentially takes into account :

- the recognition of decommissioning assets in respect of the revision of decommissioning provisions for which the main part related to nuclear installations (€2,238 million);
- maintenance and development investments for a total amount of €5,948 million mainly related to the construction and the development of wind and solar farms primarily in France, the United States and in Latin America (€2,870 million), as well as to the extension of the transportation and distribution networks in France and Romania (€1,806 million), to Energy Solutions activities (€461 million) and to Thermal operating segments assets (€516 million);
- the recognition of the right of use related to the extension of the concession of the *Compagnie Nationale du Rhône* (CNR) for a positive €848 million; and
- positive foreign exchange effects of €870 million, mainly resulting from the appreciation against the euro of the US dollar (positive impact of €601 million) and fluctuations in the Brazilian real (positive impact of €324 million);

largely offset by :

- depreciation for a total amount of €3,534 million;
- the classification under “Assets held for sale” for a negative €107 million, relating mainly to the classification of a thermal power plant in Brazil (negative €353 million) partially offset by the reversal of the classification as held for sale of certain renewables assets in Mexico due to the unfavorable evolution of the disposal project (positive €229 million);
- impairment losses on property, plant and equipment amounting to €2,259 million mainly relating to the nuclear assets in Belgium (negative €1,219 million).

13.3.2 Pledged and mortgaged assets

Items of property, plant and equipment pledged by the Group to guarantee borrowings and debt amounted to €1,120 million at December 31, 2022 compared to €1,373 million at December 31, 2021.

The net decrease mainly relates to the Thermal assets in Brazil for a negative €484 million due to the recognition of a thermal plant as an asset held for sale.

13.3.3 Contractual commitments to purchase property, plant and equipment

In the ordinary course of their operations, some Group companies have entered into commitments to purchase, and the related third parties to deliver plant and equipment. These commitments relate mainly to orders for equipment and material related to the construction of energy production units and to service agreements.

Investment commitments made by the Group to purchase property, plant and equipment totaled €3,548 million at December 31, 2022 compared to €1,926 million at December 31, 2021 [(1)].

The net increase primarily relates to the construction of renewable assets in Brazil for €680 million and in the United States for €392 million and to contractual commitments related to the Zuidwending and JemGum gas storages sites in the Netherlands for €286 million.

13.3.4 Other information

Borrowing costs for 2021 included in the cost of property, plant and equipment amounted to €109 million at December 31, 2022 compared to €70 million at December 31, 2021.

13.4 Impairment testing of goodwill, intangible assets and property, plant and equipment

Accounting standards

Risk of impairment

Goodwill

Goodwill is not amortized but is tested for impairment each year in accordance with IAS 36, or more frequently where an indication of impairment is identified. All goodwill are tested for impairment based on data at the end of June, supplemented by a review of events in the second half.

Impairment tests are carried out at the level of cash-generating units (CGUs) or groups of CGUs, which constitute groups of assets which generate cash flows that are largely independent from cash flows generated by other CGUs.

Goodwill is impaired if the net carrying amount of the CGU (or group of CGUs) to which the goodwill is allocated is greater than the recoverable amount of that CGU.

Impairment losses in relation to goodwill cannot be reversed and are shown as “Impairment losses” in the income statement.

Intangible assets and property, plant and equipment

In accordance with IAS 36, impairment tests are carried out on items of property, plant and equipment and intangible assets where there is an indication that the assets may be impaired. Such indications may be based on events or

(1) Investment commitments made by the Group to purchase property, plant and equipment as of December 31, 2021, have been adjusted for double counting.

changes in the market environment, or on internal sources of information. Intangible assets that are not amortized are tested for impairment annually.

Property, plant and equipment and intangible assets with finite useful lives are only tested for impairment when there is an indication that they may be impaired. This is generally the result of significant changes in the environment in which the assets are operated or when economic performance is lower than expected.

Items of property, plant and equipment and intangible assets are tested for impairment at the level of the cash-generating unit (CGU), as appropriate and determined in accordance with IAS 36. If the recoverable amount of an asset is lower than its carrying amount, the carrying amount is written down to the recoverable amount by recording an impairment loss. Upon recognition of an impairment loss, the depreciable amount and possibly the useful life of the asset concerned is revised.

Impairment losses recorded in relation to property, plant and equipment or intangible assets may be subsequently reversed if the recoverable amount of the asset increases to exceed the carrying amount. The increased carrying amount of an item of property, plant or equipment following the reversal of an impairment loss may not exceed the carrying amount that would have been determined (net of depreciation/amortization) had no impairment loss been recognized in prior periods.

Indicators of impairment

The main indicators of impairment used by the Group are:

- using external sources of information
  - a decline in an asset’s value over the period that is significantly more than would be expected from the passage of time or normal use;
  - significant adverse changes that have taken place over the period, or will take place in the near future, in the technological market, economic or legal environment in which the entity operates or in the market to which an asset is dedicated;
  - an increase over the period in market interest rates or other market rates of return on investments if such increase is likely to affect the discount rate used in calculating an asset’s value in use and decrease its recoverable amount materially;
  - the carrying amount of the net assets of the entity exceeds its market capitalization;
- using internal sources of information
  - evidence of obsolescence or physical damage to an asset;
  - significant changes in the extent to which, or manner in which, an asset is used or is expected to be used, that have taken place in the period or soon thereafter and that will adversely affect it. These changes include the asset becoming idle, plans to dispose of an asset sooner than expected, reassessing its useful life as finite rather than indefinite or plans to restructure the operations to which the asset belongs;
  - internal reports that indicate that the economic performance of an asset is, or will be, worse than expected.

Measurement of recoverable amount

For operating entities which the Group intends to hold on a long-term and going concern basis, the recoverable amount of a CGU corresponds to the higher of its fair value less costs to sell and its value in use. Value in use is primarily determined based on the present value of future operating cash flows including a terminal value. Standard valuation techniques are used based on the following main economic assumptions:

- market perspectives and developments in the regulatory framework;
- discount rates based on the specific characteristics of the operating entities concerned;
- terminal values in line with available market data specific to the operating segments concerned and growth rates associated with these terminal values, not exceeding the inflation rate.

Discount rates are determined on a post-tax basis and applied to post-tax cash flows. The recoverable amounts calculated on the basis of these discount rates are the same as the amounts obtained by applying the pre-tax discount rates to cash flows estimated on a pre-tax basis, as required by IAS 36.

For operating entities which the Group has decided to sell, the related recoverable amount of the assets concerned is based on market value less disposal costs. Where negotiations are ongoing, this value is determined based on the best estimate of their outcome as of the reporting date.

13.4.1 General assumptions

The impairment tests were performed in the context of a highly volatile economic environment, as described in Note 1.3 “Use of estimates and judgments”.

In most cases, the recoverable amounts are determined by reference to a value in use that is calculated using cash flow projections drawn up on the basis of the 2023 budget and the 2024-2025 medium term business plan, as approved by the Executive Committee and the Board of Directors, and on the basis of extrapolated cash flows beyond that time frame.

Cash flow projections are determined on the basis of macroeconomic assumptions (inflation, exchange rates and growth rates), and price forecasts resulting from the Group’s reference scenario for 2026-2050 as revised and validated by the Executive Committee in October 2022. The forecasts and projections included in the reference scenario were determined on the basis of the following inputs:

- forward market prices over the liquidity period for fuel (coal, oil and gas), CO_2 and electricity on each market against a backdrop of highly volatile energy prices;
- beyond this period, medium- and long-term energy prices were determined by the Group based on macroeconomic assumptions and fundamental supply and demand equilibrium models, the results of which are regularly compared against forecasts prepared by external energy sector specialists. Long-term projections for CO_2 prices are in line with the 2030 emissions reduction target of 55% and the 2050 climate neutrality objectives set by the European Commission as part of the "European Green Deal" presented in December 2019 and July 2021. Among the external scenarios, the Group's scenario is similar to that of the International Energy Agency, with its APS (Announced Pledges Scenario) model, and that of ADEME ("green technology");
- more specifically, medium- and long-term electricity prices were determined by the Group using electricity demand forecasting models, medium- and long-term forecasts of fuel and CO_2 prices, and expected trends in installed capacity and in the technology mix of the production assets within each power generation system. ENGIE has opted for a balanced mix, integrating renewable gas and carbon dioxide capture and storage in order to guarantee an energy system with the best levels of efficiency and resilience. This trajectory has been included in the Group’s report as part of the "Task Force on Climate Related Financial Disclosures" (TCFD) initiative. The risk factors arising from climate and environmental issues are also detailed in the Group's Universal Registration Document.

13.4.2 Renewables

At December 31, 2022, goodwill amounted to €2,110 million, intangible assets to €1,305 million and property, plant and equipment to €14,679 million. Renewables comprises all centralized renewable energy generation activities, including financing, construction, operation and maintenance of renewable energy facilities, using various energy sources such as hydroelectric, onshore wind, photovoltaic solar, biomass, offshore wind, and geothermal. The energy produced is fed into the grid and sold either on the open or regulated market or to third parties through electricity sale agreements.

The main assumptions and key estimates relate primarily to discount rates, assumptions as to the renewal of the hydropower concession agreements and changes in electricity prices beyond the liquidity period.

Value in use of the Compagnie Nationale du Rhône and SHEM was calculated based on assumptions including the extension or renewal of a tender process for the concession agreements, as well as on the conditions of a potential extension.

The cash flows for the periods covered by the renewal of the concession agreements are based on a number of assumptions relating to the economic and regulatory conditions for operating these assets (royalty rates, required level of investment, etc.) during this period.

In 2022, the discount rates applied to these activities ranged between 4.5% and 10.2%. In 2021, these rates ranged between 4.5% and 10%.

Results of the impairment tests

At December 31, 2022, no impairment losses were recognized on goodwill in consideration of the recoverable amount of the cash generating unit to which it belongs.

However, impairment losses totaling €232 million were recognized during the year on property, plant and equipment, notably in Latin America for €135 million and in North America for €82 million.

Sensitivity analyses

A decrease of €10/MWh in electricity prices for hydropower generation would have a negative €0.4 billion impact on the recoverable amount. However, the recoverable amount of goodwill would remain above the carrying amount. Conversely, an increase of €10/MWh in electricity prices would have a positive €0.3 billion impact on the recoverable amount.

An increase of 50 basis points in the discount rates used for hydropower generation activities in France would have a negative €0.3 billion impact on the recoverable amount. However, the recoverable amount of goodwill would remain above the carrying amount. A reduction of 50 basis points in the discount rates used would have a positive €0.3 billion impact on the recoverable amount.

13.4.3 Networks

Networks comprises the Group's electricity and gas infrastructure activities and projects. These activities include the management and development of (i) gas and electricity transportation networks and natural gas distribution networks in and outside of Europe, (ii) underground natural gas storage in Europe, and (iii) regasification infrastructure in France and Chile.

Apart from the historical infrastructure management activities, its asset portfolio also contributes to the challenges of the energy transition and network greening (biomethane, hydrogen, etc.).

At December 31, 2022, goodwill amounted to €5,302 million, intangible assets to €1,093 million and property, plant and equipment to €29,942 million. Regulated infrastructure assets in France amounted to €940 million for intangible assets and €26,369 million for property, plant and equipment.

The valuation of activities in France is mainly based on cash flow projections determined on the basis of tariffs negotiated with the French energy regulator (CRE) and terminal values corresponding to the expected value of the Regulated Asset Base (RAB). The RAB is the value assigned by the CRE to the assets operated by distributors. It is the sum of the future pre-tax cash flows, discounted at the pre-tax rate of return guaranteed by the regulator.

In respect of the valuation of activities in France, the energy mix scenario for 2050, adopted by the Group and detailed in Note 17.3.1 "Dismantling obligations arising on non-nuclear plant and equipment", will not lead to any significant change in RAB. Given the vital role of gas, a reliable energy source able to supplement renewable energy sources that are intermittent by nature, non-controllable and difficult to store, the Group is planning to maintain or convert its gas network infrastructures to allow for the transport of green gases (biomethane, hydrogen, etc.), wich will progressively replace natural gas.

To achieve this, the Group plans to maintain its current level of investment. This approach is largely supported by a rapidly developing legal framework supporting the rise in the use of hydrogen (and to a certain extent, biomethane) in the European Union, which will result in concrete European targets, for hydrogen at least. This legal framework should be in place within the next two years.

France's political and social strategy concerning the energy transition aims to achieve carbon neutrality by 2050. The priorities of the French climate and energy policy are being updated with France's future roadmap *Stratégie Française sur l'Énergie et le Climat* (SFEC) (*see Note 17.3.1 "Dismantling obligations arising on non-nuclear plant and equipment"*). This future policy could have an impact on the role and scope of gas infrastructures in France.

In 2022, the discount rates applied to all these activities ranged between 4.7% and 8.5%. In 2021, they ranged between 4.5% and 8.5%.

Results of the impairment tests

At December 31, 2022, no impairment losses were recognized on goodwill in consideration of the recoverable amount of the cash generating unit to which it belongs.

However, impairment losses totaling €65 million were recognized during the year on property, plant and equipment, notably in Germany.

Sensitivity analysis

Given the regulated nature of the Networks business in France, as well as the progressive transition from natural gas to green gas, a reasonable change in any of the valuation inputs (discount rate, inflation rate and rate of return on assets) would not result in any impairment losses. A very substantial change in the regulatory framework could have a significant impact on the valuation of gas infrastructure assets in France. In this respect, the 2022 RAB of Networks assets in France, as well as the related depreciation and amortization charges, are as follows:

In millions of euros	2022 RAB	Depreciation and amortization
GRDF	16,137	(990)
GRTgaz	9,047	(540)
Storengy	3,958	(147)
Elengy	900	(56)

13.4.4 Energy Solutions

At December 31, 2022, goodwill amounted to €1,316 million, intangible assets to €2,302 million and property, plant and equipment to €2,496 million.

Energy Solutions encompasses the construction and management of decentralized energy networks to produce low-carbon energy (heating and cooling networks, distributed power generation plants, distributed solar power parks, low-carbon mobility, low-carbon cities and public lighting, etc.) and related services (energy efficiency, technical maintenance, sustainable development consulting).

The terminal value used to calculate the value in use of the services and energy sales businesses in France was determined by extrapolating the cash flows beyond the medium-term business plan period using a long-term growth rate of 2% per year.

The main assumptions and key estimates relate primarily to discount rates and changes in price beyond the liquidity period.

In 2022, the discount rates applied to these activities ranged between 4.9% and 8.9%. In 2021, they ranged between 4.5% and 8.6%

Results of the impairment tests

At December 31, 2022, no impairment losses were recognized on goodwill in consideration of the recoverable amount of the cash generating unit to which it belongs.

However, impairment losses totaling €132 million were recognized during the year on property, plant and equipment, mainly in connection with renegotiations of contracts due to expire shortly in France.

Sensitivity analyses

Given the essentially contractual nature of Energy Solutions activities, a reasonable change in any of the valuation inputs would not result in impairment losses on goodwill.

13.4.5 Thermal

At December 31, 2022, goodwill amounted to €1,152 million, intangible assets to €237 million and property, plant and equipment to €5,525 million.

Thermal encompasses all the Group's centralized power generation activities using thermal assets, whether contracted or not. It includes the operation of power plants fueled mainly by gas or coal, as well as pump-operated storage plants. The energy produced is fed into the grid and sold either on the open or regulated market or to third parties through electricity sale agreements. It also includes the financing, construction and operation of desalination plants, whether or not connected to power plants.

The value in use of these activities was calculated using the cash flow projections drawn up on the basis of the 2023 budget and the 2024-2025 medium-term business plan. Beyond this three-year period, cash flows were projected over the useful lives of the assets based on the reference scenario adopted by the Group.

The main assumptions and key estimates relate primarily to discount rates, estimated demand for electricity and changes in the price of CO_2, fuel and electricity beyond the liquidity period. These assumptions also concern the duration of tax measures involving inframarginal rent caps in France and Italy.

In 2022, the discount rates applied to these activities ranged between 6% and 10.3%. In 2021, they ranged between 6% and 10%.

Results of the impairment tests

At December 31, 2022, no impairment losses were recognized on goodwill in consideration of the recoverable amount of the cash generating unit to which it belongs.

However, impairment losses totaling €744 million were recognized during the year on property, plant and equipment, mainly in connection with the ongoing coal exit program which is scheduled to be completed by 2027 at the latest.

Sensitivity analyses

An increase of 50 basis points in the discount rates used would have a negative 1% impact on the excess of the recoverable amount of thermal power plants in France, Belgium, the Netherlands and Spain over their carrying amount. However, the recoverable amount of goodwill would remain above the carrying amount. A reduction of 50 basis points in the discount rates used would have a positive 1% impact on the calculation.

A 10% decrease in the margin captured by thermal power plants in France, Belgium, the Netherlands and Spain would have a negative impact of 5% on the excess of the recoverable amount of goodwill over the carrying amount. An increase of 10% in the margin captured would have a positive 5% impact on this calculation.

13.4.6 Supply

At December 31, 2022, goodwill amounted to €1,830 million, intangible assets to €682 million and property, plant and equipment to €119 million.

Supply encompasses all the Group's activities relating to the sale of gas and electricity to end customers. It also includes all the Group's activities in services for residential clients.

The terminal value used to calculate the value in use of the main services and energy sales businesses in Europe was determined by extrapolating cash flows beyond the medium-term business plan period using a long-term growth rate of approximately 2% per year.

In 2022, the discount rates applied to these activities ranged between 7.8% and 10%. In 2021, they ranged between 7% and 9%

Results of the impairment tests

At December 31, 2022, no impairment losses were recognized on goodwill in consideration of the recoverable amount of the cash generating unit to which it belongs.

However, impairment losses totaling €53 million were recognized during the year on property, plant and equipment in connection with the geographic refocusing decided by the Group.

Sensitivity analyses

Given the capital-light nature of Supply activities, a reasonable change in any of the valuation inputs would not result in impairment losses on goodwill.

13.4.7 Nuclear

At December 31, 2022, goodwill amounted to €797 million, intangible assets to €1,075 million and property, plant and equipment to €1,719 million.

Nuclear encompasses the power generation activities from the Group's nuclear power plants in Belgium and drawing rights on the Chooz B and Tricastin power plants in France.

Key assumptions used for the impairment test

The cash flow projections for these activities are based on a large number of key assumptions, such as prices of fuel and CO_2, expected trends in electricity demand and prices, availability of power plants, the market outlook, and changes in the regulatory environment (especially concerning nuclear capacities in Belgium, the extension of drawing rights agreements for French nuclear plants and the tax measures involving inframarginal rent caps). Lastly, the key assumptions also include the discount rate used to calculate the value in use of these activities, which amounted to 7% for 2022, unchanged from 2021.

Cash flow projections for the period beyond the medium-term business plan were determined as described below:

Activities	Assumptions applied beyond the term of the business plan
Drawing rights on Chooz B and Tricastin power plants	Cash flow projection over the remaining term of existing contract plus the assumption that drawing rights will be extended for a further 10 years.

As regards second-generation reactors, the principle of a gradual phase-out of nuclear power and the schedule for this phase-out, with the shutdown of Doel 3 in 2022, Tihange 2 in 2023 and Tihange 3 and Doel 4 in 2025, after 40 years of operation, were first set out in the law of January 31, 2003 on the gradual phase-out of nuclear power for industrial electrical generation, and were reaffirmed in the Belgian government's general policy memorandum of November 4, 2020. However, this principle remained subject to analysis mechanisms enabling this decision to be reassessed based on its impacts on the security of supply, the climate, energy prices and the security of power plants subject to a monitoring process.

In March 2022, the Belgian government announced that it was considering extending the operation of certain nuclear plants beyond 2025. On July 21, 2022, the Group signed a non-binding letter of intent to assess the feasibility and conditions regarding an extension of the operating lives of the Doel 4 and Tihange 3 reactors.

Under the terms of the non-binding agreement signed on January 9, 2023, the Belgian government and ENGIE have committed to making best efforts to extend the operating life of the second-generation nuclear reactors Doel 4 and Tihange 3, and to restart these units in November 2026 with a total production capacity of 2 GW.

Given the stage of negotiations and the lack of precise information on the economic conditions of this extension to date, the period of extension beyond 2025 was not considered in the impairment tests performed at December 31, 2022.

In France, the Nuclear Safety Authority authorized the start-up of Tricastin 1 on December 20, 2019 after its shutdown for its fourth 10-yearly inspection and, on December 3, 2020, published a draft decision setting out the conditions for the 900 MW reactors to continue operating beyond 40 years. Confirmation of a 10-year extension of the operating life of the 900 MW series reactors is therefore expected to be formalized in the next few years, once the conditions for continued operation have been determined by the Nuclear Safety Authority and a public inquiry has been held. The Group has therefore considered the 10-year extension of the nuclear units, and the corresponding drawing rights, beyond their fourth 10-yearly outage. The last ten-yearly outage at Tricastin (VD4) has taken place in 2021, and in 2019 for Chooz B (VD3). The assumption of an extension was already considered in previous years.

Results of the impairment test

Taking into account the effects of the triennial review of nuclear provisions on assets to be recognized against decommissioning provisions of nuclear power plants, the Group recognized an impairment loss of €1,219 million relating to decommissioning assets for the year.

The recoverable amount of the Nuclear assets remains above the value of goodwill, particularly due to the excess value attached to the plants in France.

Sensitivity analyses

A decrease of €10/MWh in electricity prices for nuclear power generation beyond the forward period would lead to a decrease of €0.4 billion in the recoverable amount, but without any impairment of goodwill.

An increase of 50 basis points in the discount rates would lead to a decrease of €0.1 billion in the recoverable amount with non-material impairment losses on the Belgian plants.

A 5% decrease in availability of all Belgian nuclear power plants would lead to an impairment loss of around €0.3 billion on the Belgian plants. A similar decrease for the French plants would lead to a decrease of €0.2 billion in the recoverable amount, but without any impairment.

13.4.8 Other

The goodwill allocated to the Other segment amounted to €350 million at December 31, 2022. The Other segment encompasses energy management and optimization activities, the BtoB supply activities in France of *Entreprises & Collectivités* (E&C), and the Corporate and holding activities.

For the Other segment, a significant headroom exists between the recoverable amount and the carrying amount for operating activities to which goodwill is allocated at December 31, 2022.

NOTE 14 FINANCIAL INSTRUMENTS

14.1 Financial assets

Accounting standards

In accordance with the principles of IFRS 9 – *Financial Instruments*, financial assets are recognized and measured either at amortized cost, at fair value through equity or at fair value through profit or loss based on the following two criteria:

- a first criterion relating to the contractual cash flow characteristics of the financial asset. The analysis of contractual cash flow characteristics makes it possible to determine whether these cash flows are "only payments of principal and interest on the outstanding amounts" (known as the "SPPI" test or Solely Payments of Principal and Interest);
- a second criterion relating to the business model used by the Group to manage its financial assets. IFRS 9 defines three different business models: a first business model whose objective is to hold assets in order to collect contractual cash flows (hold to collect), a second model whose objective is achieved by both collecting contractual cash flows and selling financial assets (hold to collect and sell), and other business models.

The identification of the business model and the analysis of the contractual cash flow characteristics require judgment to ensure that the financial assets are classified in the appropriate category.

Where the financial asset is an investment in an equity instrument and is not held for trading, the Group may irrevocably elect to present the gains and losses on that investment in other comprehensive income.

Except for trade receivables, which are measured at their transaction price in accordance with IFRS 15, financial assets are measured, on initial recognition, at fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to their acquisition.

At the end of each reporting period, financial assets measured using the amortized cost method or at fair value through other comprehensive income (with a recycling mechanism) are subject to an impairment test based on the expected credit losses method.

Financial assets also include derivatives that are measured at fair value in accordance with IFRS 9.

In accordance with IAS 1, the Group presents current and non-current assets and current and non-current liabilities separately in the statement of financial position. In view of the majority of the Group's activities, it was considered that the criterion to be used to classify assets is the expected time to realize the asset or settle the liability: the asset is classified as current if this period is less than 12 months and as non-current if it is more than 12 months after the reporting period.

The following table presents the Group's different categories of financial assets, broken down into current and non-current items:

		Dec. 31, 2022			Dec. 31, 2021		
In millions of euros	Notes	Non-current	Current	Total	Non-current	Current	Total
Other financial assets	14.1	10,599	2,394	12,992	10,949	2,495	13,444
Equity instruments at fair value through other comprehensive income		*1,217*	*-*	*1,217*	*2,344*	*-*	*2,344*
Equity instruments at fair value through income		*278*	*-*	*278*	*483*	*-*	*483*
Debt instruments at fair value through other comprehensive income		*2,128*	*290*	*2,418*	*2,157*	*104*	*2,261*
Debt instruments at fair value through income		*1,178*	*568*	*1,745*	*1,794*	*395*	*2,189*
Loans and receivables at amortized cost		*5,798*	*1,537*	*7,334*	*4,171*	*1,996*	*6,167*
Trade and other receivables	7.2	-	31,310	31,310	-	32,555	32,555
Assets from contracts with customers	7.2	9	12,575	12,584	34	8,344	8,377
Cash and cash equivalents		-	15,570	15,570	-	13,890	13,890
Derivative instruments	14.4	33,134	15,252	48,386	25,616	19,373	44,989
TOTAL		**43,741**	**77,102**	**120,843**	**36,599**	**76,657**	**113,256**

14.1.1 Other financial assets

14.1.1.1 Equity instruments at fair value

Accounting standards

Equity instruments at fair value through other comprehensive income (OCI)

Under IFRS 9 an irrevocable election can be made to present subsequent changes in the fair value of an investment in an equity instrument that is not held for trading in other comprehensive income. This choice is made on an instrument by instrument basis. Amounts presented in other comprehensive income should not be transferred to profit or loss including proceeds of disposals. However, IFRS 9 authorizes the transfer of the accumulated profits and losses to another component of equity. Dividends from such investments are recognized in profit or loss unless the dividend clearly represents the recovery of a portion of the cost of the investment.

The equity instruments recognized under this line item mainly concern investments in companies that are not controlled by the Group and for which OCI measurement has been selected given their strategic and long-term nature.

Upon initial recognition, these equity instruments are recognized at fair value, which is generally their acquisition cost, plus transaction costs.

At each reporting date, for listed securities, fair value is determined based on the quoted market price at the reporting date. For unlisted securities, fair value is measured using valuation models based primarily on the latest market transactions, the discounting of dividends or cash flows and the net asset value.

Equity instruments at fair value through profit or loss

Equity instruments that are held for trading or for which the Group has not elected for measurement at fair value through other comprehensive income are measured at fair value through profit or loss.

This category mainly includes investments in companies not controlled by the Group.

Upon initial recognition, these equity instruments are recognized at fair value, which is generally their acquisition cost.

At each reporting date, for listed and unlisted securities, the same measurement method as described above should be applied.

In millions of euros	Equity instruments at fair value through other comprehensive income	Equity instruments at fair value through income	Total
AT DECEMBER 31, 2021	**2,344**	**483**	**2,827**
Increase	213	93	306
Decrease	(647)	(263)	(910)
Changes in fair value	(686)	(15)	(701)
Changes in scope of consolidation, translation adjustments and other	(7)	(20)	(27)
AT DECEMBER 31, 2022	**1,217**	**278**	**1,495**
Dividends	12	3	**15**

Equity instruments break down as €875 million of listed equity instruments (€1,750 million at December 31, 2021) and €620 million of unlisted equity instruments (€1,077 million at December 31, 2021). This amount includes in particular the minority interest held by the Group in Nord Stream AG, now valued at €90 million, down €474 million compared to December 31, 2021. This decrease is a result of damage to the pipeline and due to the heightened risk profile of Nord Stream's single customer, Gazprom. This change in fair value does not affect the income statement, as it is recorded as a reduction in other items of the statement of comprehensive income. The decrease notably includes the disposal of the remaining 1.8% interest in SUEZ for a negative €227 million.

14.1.1.2 Debt instruments at fair value

Accounting standards

Debt instruments at fair value through other comprehensive income

Financial assets that are held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets and for which the contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the outstanding amount (SPPI), are measured at fair value through OCI (with a recycling mechanism). This involves a measurement through profit or loss for interest (at amortized cost using the effective interest method), impairment and foreign exchange gains and losses, and through OCI (with a recycling mechanism) for other gains or losses.

This category mainly includes bonds.

Fair value gains and losses on these instruments are recognized in other comprehensive income, except for the following items which are recognized in profit or loss:

- expected credit losses and reversals;
- foreign exchange gains and losses.

When the financial asset is derecognized, the cumulative gain or loss that was previously recognized in other comprehensive income is reclassified from equity to profit or loss.

Debt instruments at fair value through profit or loss

Financial assets whose contractual cash flows do not consist solely of payments of principal and interest on the amount outstanding (SPPI) or that are held in view of an "other" business model are measured at fair value through profit or loss.

The Group's investments in UCITS are accounted for in this caption. They are considered as debt instruments, according to IAS 32 – *Financial Instruments*: *Presentation*, given the existence of an obligation for the issuer to redeem units, at the request of the holder. They are measured at fair value through profit or loss because the contractual cash flow characteristics do not meet the SPPI test.

In millions of euros	Debt instruments at fair value through other comprehensive income	Liquid debt instruments held for cash investment purposes at fair value through other comprehensive income	Debt instruments at fair value through income	Liquid debt instruments held for cash investment purposes at fair value through income	Total
AT DECEMBER 31, 2021	**2,260**	**1**	**1,593**	**595**	**4,449**
Increase	1,751	22	1,704	200	3,677
Decrease	(1,207)	(1)	(2,040)	(20)	(3,269)
Changes in fair value	(386)	-	(280)	(7)	(673)
Changes in scope of consolidation, translation adjustments and other	-	(22)	-	-	(22)
AT DECEMBER 31, 2022	**2,418**	**-**	**977**	**769**	**4,163**

Debt instruments at fair value at December 31, 2022 primarily included bonds and money market funds held by Synatom for €3,350 million (*see Note 17.2.4 "Financial assets set aside to cover the future costs of dismantling nuclear facilities and managing radioactive fissile material"*) and liquid instruments deducted from net financial debt for €769 million (respectively €3,806 million and €596 million at December 31, 2021).

14.1.1.3 Loans and receivables at amortized cost

Accounting standards

Loans and receivables held by the Group under a business model consisting in holding the instrument in order to collect the contractual cash flows, and whose contractual cash flows consist solely of payments of principal and interest on the principal amount outstanding (SPPI test) are measured at amortized cost. Interest is calculated using the effective interest method.

The following items are recognized in profit or loss:

- interest income using the effective interest method;
- expected credit losses and reversals;
- foreign exchange gains and losses.

The Group has entered into concession agreements with certain public authorities under which the construction, extension or improvement of infrastructure is carried out in return for an unconditional right to receive payment from the concession holder in cash or other financial assets. In this case, the Group recognizes a financial receivable from the concession holders.

The Group has entered into services or take-or-pay contracts that are, or contain, a lease and under which the Group acts as lessor and its customers as lessees. Leases are analyzed in accordance with IFRS 16 in order to determine whether they constitute an operating lease or a finance lease. Whenever the terms of the lease transfer substantially all the risk and rewards of ownership of the related asset, the contract is classified as a finance lease and a finance receivable is recognized to reflect the financing deemed to be granted by the Group to the customer.

Leasing security deposits are presented in this caption and recognized at their nominal value.

Please refer to Note 15 "Risks arising from financial instruments" regarding the assessment of counterparty risk.

In millions of euros	Dec. 31, 2022 Non-current	Dec. 31, 2022 Current	Dec. 31, 2022 Total	Dec. 31, 2021 Non-current	Dec. 31, 2021 Current	Dec. 31, 2021 Total
Loans granted to affiliated companies and other debt instruments at amortized cost	3,583	427	4,010	2,267	195	2,462
Other receivables at amortized cost	261	734	995	240	1,537	1,777
Amounts receivable under concession contracts	1,564	187	1,751	1,200	123	1,324
Amounts receivable under finance leases	390	189	579	463	141	604
TOTAL	**5,798**	**1,537**	**7,334**	**4,171**	**1,996**	**6,167**

Loans granted to affiliated companies and other debt instruments at amortized cost include the cash of the debt instruments held by Synatom to be invested for €2,270 million (€167 million at December 31, 2021) (*see Note 17.2.4. "Financial assets set aside to cover the future costs of dismantling nuclear facilities and managing radioactive fissile material"*).

Amounts receivable under concession contracts amounted to €1,751 million at December 31, 2022. They are related to the Novo Estado and Gralha Azul electric power transmission networks in Brazil.

Impairment and expected credit losses against loans and receivables at amortized cost stood at €1,294 million at December 31, 2022 (versus €228 million at December 31, 2021), and include the impairment of the loan relating to the financing of the Nord Stream 2 pipeline project for €987 million (*see Note 15.2.2.1 "Loans and receivables at amortized cost" and Note 10 "Net financial incole/(loss)"*)

Other net gains and losses recognized in the income statement relating to loans and receivables at amortized cost break down as follows:

In millions of euros	Interest income	Post-acquisition measurement: Foreign currency translation	Post-acquisition measurement: Expected credit loss
At December 31, 2022	211	(64)	(6)
At December 31, 2021	223	(15)	(7)

Amounts receivable under finance leases

These contracts refer to lease contracts in which ENGIE acts as lessor, classified as finance leases in accordance with IFRS 16. They relate to energy purchase and sale contracts where the contract conveys an exclusive right to use a production asset, and certain contracts with industrial customers relating to assets held by the Group.

The Group has recognized finance lease receivables, notably for cogeneration plants for Wapda and NTDC (Uch - Pakistan).

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Undiscounted future minimum lease payments	758	713
Unguaranteed residual value accruing to the lessor	12	11
TOTAL GROSS INVESTMENT IN THE LEASE	**770**	**724**
Unearned financial income	**47**	**56**
NET INVESTMENT IN THE LEASE (STATEMENT OF FINANCIAL POSITION)	**723**	**668**
Of which present value of future minimum lease payments	*718*	*660*
Of which present value of unguaranteed residual value	*5*	*9*

Undiscounted minimum lease payments receivable under finance leases can be analyzed as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Year 1	137	122
Years 2 to 5 inclusive	376	351
Beyond year 5	245	240
TOTAL	**758**	**713**

14.1.2 Trade and other receivables, assets from contracts with customers

Information on trade and other receivables and assets from contracts with customers are provided in Note 7.2."Trade and other receivables, assets and liabilities from contracts with customers".

14.1.3 Cash and cash equivalents

Accounting standards

This item includes cash equivalents as well as short-term investments that are considered to be readily convertible into a known amount of cash and where the risk of a change in their value is deemed to be negligible based on the criteria set out in IAS 7.

Bank overdrafts are not included in the calculation of cash and cash equivalents and are recorded under "Short-term borrowings".

Cash and cash equivalent items are subject to impairment tests in accordance with the expected credit losses model of IFRS 9.

"Cash and cash equivalents" totaled €15,570 million at December 31, 2022 (€13,890 million at December 31, 2021). This item comprises standard money market funds with daily liquidity (50%), term deposits with a maturity of less than one month (36%), and deposits with a maturity of less than three months and other products (14%).

This amount included funds related to the green bond issues, which remain unallocated to the funding of eligible projects (*see section 5 of the Universal Registration Document*).

At December 31, 2022, this amount also included €12 million in cash and cash equivalents subject to restrictions (€172 million at December 31, 2021).

Gains recognized in respect of "Cash and cash equivalents" amounted to €196 million in 2022 compared to €54 million in 2021.

14.1.4 Transfer of financial assets

The Group carried out disposals without recourse to financial assets as part of transactions leading to full derecognition, for an outstanding amount of €3,733 million at December 31, 2022.

14.1.5 Financial assets and equity instruments pledged as collateral for borrowings and debt

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Financial assets and equity instruments pledged as collateral	**3,532**	3,915

This item mainly includes the carrying amount of equity instruments pledged as collateral for borrowings and debt.

14.2 Financial liabilities

Accounting standards

Borrowings and other financial liabilities are measured at amortized cost using the effective interest rate method.

On initial recognition, any issue or redemption premiums and discounts and issuing costs are added to/deducted from the nominal value of the borrowings concerned. These items are taken into account when calculating the effective interest rate and are therefore recorded in the consolidated income statement over the life of the borrowings using the amortized cost method.

As regards structured debt instruments that do not have an equity component, the Group may be required to separate an “embedded” derivative instrument from its host contract. When an embedded derivative is separated from its host contract, the initial carrying amount of the structured instrument is broken down into an embedded derivative component, corresponding to the fair value of the embedded derivative, and a financial liability component, corresponding to the difference between the amount of the issue and the fair value of the embedded derivative. The separation of components upon initial recognition does not give rise to any gains or losses.

The debt is subsequently recorded at amortized cost using the effective interest method while the derivative is measured at fair value, with changes in fair value recognized in profit or loss.

Financial liabilities are recognized either:

- as “Amortized cost liabilities” for borrowings, trade payables and other creditors, and other financial liabilities;
- as “Liabilities measured at fair value through profit or loss” for derivative financial instruments and for financial liabilities designated as such.

The following table presents the Group’s different financial liabilities at December 31, 2022, broken down into current and non-current items:

		Dec. 31, 2022			Dec. 31, 2021		
In millions of euros	**Notes**	Non-current	Current	Total	**Non-current**	**Current**	**Total**
Borrowings and debt	14.3	28,083	12,508	40,591	30,458	10,590	41,048
Trade and other payables	14.2	-	39,801	39,801	-	32,822	32,822
Liabilities from contracts with	7.2	121	3,292	3,412	68	2,671	2,739
Derivative instruments	14.4	39,417	11,859	51,276	24,228	22,702	46,931
Other financial liabilities		90	-	90	108	-	108
TOTAL		**67,711**	**67,460**	**135,171**	**54,863**	**68,785**	**123,648**

14.2.1 Trade and other payables

In millions of euros	Dec. 31, 2022	**Dec. 31, 2021**
Trade payables	39,165	32,197
Payable on fixed assets	636	625
TOTAL	**39,801**	**32,822**

The carrying amount of these financial liabilities represents a reasonable estimate of their fair value.

The increase in trade payables is mainly due to the rise in commodity prices.

14.2.2 Liabilities from contracts with customers

Information on liabilities from contracts with customers are provided in Note 7.2. “Trade and other receivables, assets and liabilities from contracts with customers”.

14.3 Net financial debt

14.3.1 Net financial debt by type

		Dec. 31, 2022			Dec. 31, 2021		
In millions of euros		Non-current	Current	Total	Non-current	Current	Total
Borrowings and debt	Bond issues	21,007	2,550	23,557	24,035	2,205	26,240
	Bank borrowings	4,679	797	5,476	3,829	1,977	5,806
	Negotiable commercial paper	-	7,386	7,386	-	4,962	4,962
	Lease liabilities	2,482	393	2,875	1,709	334	2,043
	Other borrowings (1)	(85)	768	682	885	613	1,498
	Bank overdrafts and current account	-	615	615	-	499	499
	BORROWINGS AND DEBT	**28,083**	**12,508**	**40,591**	**30,458**	**10,590**	**41,048**
Other financial assets	Other financial assets deducted from net financial debt (2)	**(249)**	**(1,133)**	**(1,383)**	**(251)**	**(1,369)**	**(1,621)**
Cash and cash equivalents	Cash and cash equivalents	**-**	**(15,570)**	**(15,570)**	**-**	**(13,890)**	**(13,890)**
Derivative instruments	Derivatives hedging borrowings (3)	**394**	**22**	**416**	**(147)**	**(41)**	**(187)**
NET FINANCIAL DEBT		**28,228**	**(4,174)**	**24,054**	**30,060**	**(4,710)**	**25,350**

(1) This item corresponds to the revaluation of the interest rate component of debt in a qualified fair value hedging relationship for a negative €200 million, margin calls on debt hedging derivatives carried in liabilities for €364 million and the impact of amortized cost for €144 million (compared to, respectively, €227 million, €269 million and €99 million at December 31, 2021).

(2) This item notably corresponds to assets related to financing for €67 million, liquid debt instruments held for cash investment purposes for €769 million and margin calls on derivatives hedging borrowings carried in assets for €547 million (compared to, respectively, €47 million, €596 million and €977 million at December 31, 2021).

(3) This item represents the interest rate component of the fair value of derivatives hedging borrowings in a designated fair value hedging relationship. It also represents the exchange rate and outstanding accrued interest rate components of the fair value of all debt-related derivatives irrespective of whether or not they qualify as hedges.

The fair value of gross borrowings and debt (excluding lease liabilities) amounted to €35,179 million at December 31, 2022, compared with a carrying amount of €37,690 million.

Financial income and expenses related to borrowings and debt are presented in Note 10 “Net financial income/(loss)”.

14.3.2 Reconciliation between net financial debt and cash flow from (used in) financing activities

In millions of euros		Dec. 31, 2021	Cash flow from financing activities	Cash flow from operating and investing activities and change in cash and cash equivalents	Change in fair value	Translation adjustments	Change in scope of consolidation and others	Dec. 31, 2022
Borrowings and debt	Bond issues	26,240	(2,805)	-	-	218	(96)	23,557
	Bank borrowings	5,806	(639)	-	-	277	32	5,476
	Negotiable commercial paper	4,962	2,352	-	-	71	-	7,386
	Lease liabilities(1)	2,043	(501)	-	-	38	1,295	2,875
	Other borrowings	1,498	(359)	-	(105)	30	(381)	682
	Bank overdrafts and current account	499	3	-	-	115	(3)	615
	BORROWINGS AND DEBT	**41,048**	**(1,949)**	**-**	**(105)**	**749**	**848**	**40,591**
Other financial	Other financial assets deducted from	**(1,621)**	**187**	**-**	**29**	**(1)**	**22**	**(1,383)**
Cash and cash	Cash and cash equivalents	**(13,890)**	**-**	**(945)**	**-**	**(363)**	**(371)**	**(15,570)**
Derivative	Derivatives hedging borrowings	**(187)**	**(97)**	**-**	**525**	**170**	**5**	**416**
NET FINANCIAL		**25,350**	**(1,859)**	**(945)**	**449**	**556**	**503**	**24,054**

(1) *Lease liabilities: the negative amount of a negative €501 million included in the "Cash flow from financing activities" column corresponds to lease payments, excluding interest (total cash outflow for leases amounted to €552 million, of which €51 million relating to interest).*

14.3.3 Main events of the period

14.3.3.1 Impact of changes in the scope of consolidation and in exchange rates on net financial debt

In 2022, changes in exchange rates resulted in a €556 million increase in net financial debt, including a €271 million increase in relation to the US dollar and a €307 million increase in relation to the Brazilian real.

The extension of the Compagnie Nationale du Rhône's concession until 2041 resulted in an increase in lease liabilities of €850 million at December 31, 2022.

Changes in the scope of consolidation (including the cash impact of acquisitions and disposals) led to a €7,043 million decrease in net financial debt. This change mainly reflects:

- asset disposals during the period, resulting in a €8,697 million decrease in net financial debt (*see Note 4.1 "Disposals carried out in 2022"*). They mainly include:
  - the disposal to Bouygues of the Group's interest in EQUANS;
  - the additional price related to the sale of part of the stake in SUEZ and the disposal of the 1.8% remaining interest in SUEZ to VEOLIA;
  - the two successive disposals of nearly 9% and then 6% of the Group's interest in Gaztransport & Technigaz SA (GTT) and the conversion of 96% of the bond redeemable for GTT shares (representing nearly 10% of the company's capital);
  - the disposal of the Group's interest in geothermic assets PT SUPREME ENERGY MUARA LABOH and RANTAU DEDAP in Indonesia;
- the change in the classification of entities under "Assets held for sale", resulting in a €297 million decrease in net financial debt. They include the ongoing disposal of a thermal power plant in Brazil and the unfavorable evolution of the planned disposal of some renewable assets in Mexico (*see Note 4.2 "Assets held for sale"*);

- acquisitions carried out in 2022 which increased net financial debt by €1,951 million (*see Note 4.3 "Acquisitions carried out in 2022"*).

14.3.3.2 Financing and refinancing transactions

The Group carried out the following main transactions in 2022:

ENGIE SA

- on March 9, 10 and 11, 2022 ENGIE SA drew on bilateral lines for a total amount of €1,485 million, for a one month period. The redemption took place on April 11, 2022;
- on July 6, 2022 ENGIE SA redeemed at maturity JPY 10 billion (€71 million) worth of bonds (private placement) with a 1.26% coupon;
- on July 20, 2022 ENGIE SA redeemed at maturity €410 million worth of bonds, with a 2.625% coupon;
- on September 27, 2022 ENGIE SA issued €650 million worth of green bonds, maturing in September, 2029, bearing a 3.5% coupon;
- on October 10, 2022 ENGIE SA redeemed at maturity USD 750 million (€773 million) worth of bonds, with a 2.875% coupon;
- on October 18, 2022 ENGIE SA redeemed at maturity €693 million worth of bonds, with a 3.5% coupon;
- on October 24, 2022 ENGIE SA redeemed partially in advance several bonds for an aggregate nominal amount of €1,125 million, including:
  - a €220 million tranche of green bonds, maturing in March 2024, with a 0.875% coupon,
  - a €396 million tranche, maturing in March 2025, with a 1.375% coupon,
  - a €157 million tranche, maturing in September 2025, with a 0.875% coupon,
  - a €54 million tranche, maturing in May 2026, with a 2.375% coupon,
  - a €123 million tranche, maturing in March 2027, with a 0% coupon,
  - a €175 million tranche, maturing in June 2027, with a 0.375% coupon;
- in November and December 2022, 96% of the bond redeemable for GTT shares was converted for €278 million.

Other Group entities

- in June 2022, Compagnie Nationale du Rhône redeemed at maturity a bank loan of €300 million, with a 0.55% coupon;
- in May 2022, ENGIE Brasil Energia redeemed at maturity three bank loans for a total amount of €238 million;
- throughout 2022, ENGIE Energia Chile took out several bank loans for a total amount of USD 797 millions (€748 million);
- in July 2022, ENGIE Energia Perù SA redeemed at maturity two bank loans for a total amount of €142 million, with 1.01% and 1.06% coupons;
- in August 2022, ENGIE Energia Perù SA took out a USD 264 million (€251 million) bank loan, maturing in August 2033;

- in October 2022, Compagnie Nationale du Rhône redeemed at maturity a bank loan of €300 million, with an EURIBOR 6 months plus a 0.9% spread coupon;
- throughout 2022, Compagnie Nationale du Rhône redeemed several bilateral lines for a total amount of €525 million;

  in November 2022, ENGIE Brasil Energia redeemed at maturity a bank loan of USD 200 million (€205 million), with a 3.37% coupon.

14.4 Derivative instruments

Accounting standards

Derivative financial instruments are measured at fair value. This fair value is determined on the basis of market data, available from external contributors. In the absence of an external benchmark, a valuation based on internal models recognized by market participants and favoring data directly derived from observable data such as OTC quotations is used.

The change in fair value of derivative financial instruments is recorded in the income statement except when they are designated as hedging instruments in a cash flow hedge or net investment hedge. In this case, changes in the value of the hedging instruments are recognized directly in equity, excluding the ineffective portion of the hedges.

The Group uses derivative financial instruments to manage and reduce its exposure to market risks arising from fluctuations in interest rates, foreign currency exchange rates and commodity prices, mainly for gas and electricity. The use of derivative instruments is governed by a Group policy for managing interest rate, currency and commodity risks (*see Note 15 – Risks arising from financial instruments*).

Derivative financial instruments are contracts (i) whose value changes in response to the change in one or more observable variables, (ii) that do not require any material initial net investment, and (iii) that are settled at a future date.

Derivative instruments include swaps, options, futures and swaptions, as well as forward commitments to purchase or sell listed and unlisted securities, and firm commitments or options to purchase or sell non-financial assets that involve physical delivery of the underlying.

For purchases and sales of electricity and natural gas, the Group systematically analyzes whether the contract was entered into in the “normal” course of operations and therefore falls outside the scope of IFRS 9. This analysis consists firstly in demonstrating that the contract is entered into and continues to be held for the purpose of physical delivery or receipt of the commodity in accordance with the Group’s expected purchase, sale or usage requirements for volumes intended to be used or sold by the Group within a reasonable time frame, as part of its operations.

The second step is to demonstrate that the Group has no practice of settling similar contracts on a net basis and that these contracts are not equivalent to written options. In particular, in the case of electricity and gas sales allowing the buyer a certain degree of flexibility concerning the volumes delivered, the Group distinguishes between contracts that are equivalent to capacity sales considered as transactions falling within the scope of ordinary operations and those that are equivalent to written financial options, which are accounted for as derivative financial instruments.

Only contracts that meet all of the above conditions are considered as falling outside the scope of IFRS 9. Adequate specific documentation is compiled to support this analysis.

Embedded derivatives

The main Group contracts that may contain embedded derivatives are contracts with clauses or options potentially affecting the contract price, volume or maturity. This is the case primarily with contracts for the purchase or sale of non-financial assets, whose price is revised based on an index, the exchange rate of a foreign currency or the price of an asset other than the contract’s underlying.

An embedded derivative is a component of a hybrid (combined) instrument that also includes a non-derivative host contract – with the effect that some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative.

If a hybrid contract contains a host that is an asset within the scope of IFRS 9, the Group applies the presentation and measurements requirements described in Note 18.1 to the entire hybrid contract.

Conversely, when a hybrid contract contains a host that is not an asset within the scope of IFRS 9, an embedded derivative shall be separated from the host and accounted for as a derivative if, and only if:

- the economic characteristics and risks of the embedded derivative are not closely related to the economic characteristics and risks of the host;
- a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and
- the hybrid contract is not measured at fair value with changes in fair value recognized in profit or loss (i.e., a derivative that is embedded in a financial liability at fair value through profit or loss is not separated).

Where an embedded derivative is separate from the host contract, it is measured at fair value and fair value changes are recognized in profit or loss (except if the embedded derivative is documented in a hedge relationship).

Hedging instruments: recognition and presentation

Derivative instruments qualifying as hedging instruments are recognized in the consolidated statement of financial position and measured at fair value. However, their accounting treatment varies according to whether they are classified as (i) a fair value hedge of an asset or liability; (ii) a cash flow hedge, or (iii) a hedge of a net investment in a foreign operation.

Fair value hedges

A fair value hedge is defined as a hedge of the exposure to changes in fair value of a recognized asset or liability such as a fixed-rate loan or borrowing, or of assets, liabilities or an unrecognized firm commitment denominated in a foreign currency.

The gain or loss from remeasuring the hedging instrument at fair value is recognized in profit or loss. The gain or loss on the hedged item attributable to the hedged risk adjusts the carrying amount of the hedged item and is also recognized in profit or loss even if the hedged item is in a category in respect of which changes in fair value are recognized through other comprehensive income. These two adjustments are presented net in the consolidated income statement, with the net effect corresponding to the ineffective portion of the hedge.

Cash flow hedges

A cash flow hedge is a hedge of the exposure to variability in cash flows that could affect the Group's income. The hedged cash flows may be attributable to a particular risk associated with a recognized financial or non-financial asset or a highly probable forecast transaction.

The portion of the gain or loss on the hedging instrument that is determined to be an effective hedge is recognized directly in other comprehensive income, net of tax, while the ineffective portion is recognized in profit or loss. The gains or losses accumulated in equity are reclassified to the consolidated income statement under the same caption as the loss or gain on the hedged item – i.e., current operating income for operating cash flows and financial income or expenses for other cash flows – in the same periods in which the hedged cash flows affect income.

If the hedging relationship is discontinued, in particular because the hedge is no longer considered effective, the cumulative gain or loss on the hedging instrument remains recognized in equity until the forecast transaction occurs. However, if a forecast transaction is no longer expected to occur, the cumulative gain or loss on the hedging instrument is immediately recognized in profit or loss.

Hedge of a net investment in a foreign operation

In the same way as for a cash flow hedge, the portion of the gain or loss on the hedging instrument that is determined to be an effective hedge of the currency risk is recognized directly in other comprehensive income, net of tax, while the ineffective portion is recognized in profit or loss. The gains or losses accumulated in other comprehensive income are transferred to the consolidated income statement when the investment is liquidated or sold.

Hedging instruments: identification and documentation of hedging relationships

The hedging instruments and hedged items are designated at the inception of the hedging relationship. The hedging relationship is formally documented in each case, specifying the hedging strategy, the hedged risk and the method used to assess hedge effectiveness. Only derivative contracts entered into with external counterparties are considered as being eligible for hedge accounting

Hedge effectiveness is assessed and documented at the inception of the hedging relationship and on an ongoing basis throughout the periods for which the hedge was designated.

Hedge effectiveness is demonstrated both prospectively and retrospectively using various methods, based mainly on a comparison between changes in fair value or cash flows between the hedging instrument and the hedged item. Methods based on an analysis of statistical correlations between historical price data are also used.

Derivative instruments not qualifying for hedge accounting: recognition and presentation

These items mainly concern derivative financial instruments used in economic hedges that have not been – or are no longer – documented as hedging relationships for accounting purposes.

When a derivative financial instrument does not qualify or no longer qualifies for hedge accounting, changes in fair value are recognized directly in profit or loss under (i) current operating income for derivative instruments with non-financial assets as the underlying, and (ii) financial income or expenses for currency, interest rate and equity derivatives.

Derivative instruments not qualifying for hedge accounting used by the Group in connection with proprietary commodity trading activities and other derivatives expiring in less than 12 months are recognized in the consolidated statement of financial position in current assets and liabilities, while derivatives expiring after this period are classified as non-current items.

Fair value measurement

The fair value of instruments listed on an active market is determined by reference to the market price. In this case, these instruments are presented in level 1 of the fair value hierarchy.

The fair value of unlisted financial instruments for which there is no active market and for which observable market data exist is determined based on valuation techniques such as option pricing models or the discounted cash flow method.

The models used to evaluate these instruments take into account assumptions based on market inputs:

- the fair value of interest rate swaps is calculated based on the present value of future cash flows;
- the fair value of forward foreign exchange contracts and currency swaps is calculated by reference to current prices for contracts with similar maturities by discounting the future cash flow spread (difference between the forward exchange rate under the contract and the forward exchange rate recalculated in line with the new market conditions applicable to the nominal amount);
- the fair value of currency and interest rate options is calculated using option pricing models;
- commodity derivatives are valued by reference to listed market prices based on the present value of future cash flows (commodity swaps or commodity forwards) and option pricing models (options), for which market price volatility may be a factor. Contracts with maturities exceeding the depth of transactions for which prices are observable, or which are particularly complex, may be valued based on internal assumptions;
- exceptionally, for complex contracts negotiated with independent financial institutions, the Group uses the values established by its counterparties.

These instruments are presented in level 2 of the fair value hierarchy except when the evaluation is based mainly on data that are not observable, in which case they are presented in level 3 of the fair value hierarchy. Most often, this is the case for derivatives with a maturity that falls outside the observability period for market data relating to the underlying or when certain inputs such as the volatility of the underlying are not observable.

Except in case of enforceable master netting arrangements or similar agreements, counterparty risk is included in the fair value of financial derivative instrument assets and liabilities. It is calculated according to the "expected loss" method and takes into account the exposure at default, the probability of default and the loss given default. The probability of default is determined on the basis of credit ratings assigned to each counterparty ("historical probability of default" approach).

Offsetting of financial assets and liabilities in the statement of financial position

Financial assets and liabilities are presented net in the statement of financial position when the offsetting criteria of IAS 32 are met. Offsetting relates to instruments entered into with counterparties for which the contractual terms provide for a net settlement of transactions and a collateralization agreement (margin calls). In particular, commodity derivative assets and liabilities are offset for transactions with the same counterparty, in the same currency, by type of commodity and delivery point and with identical maturities.

Derivative instruments recognized in assets and liabilities are measured at fair value and broken down as follows:

	Dec. 31, 2022						Dec. 31, 2021					
	Assets			Liabilities			Assets			Liabilities		
In millions of euros	Non-current	Current	Total	Non-current	Current	Total	Non-current	Current	Total	Non-current	Current	Total
Derivatives hedging borrowings	226	92	319	620	114	735	370	130	501	224	89	313
Derivatives hedging commodities	30,932	15,076	46,008	37,210	11,698	48,907	24,474	19,190	43,664	22,335	22,507	44,842
Derivatives hedging other items (1)	1,975	84	2,059	1,587	47	1,634	772	52	824	1,670	106	1,775
TOTAL	**33,134**	**15,252**	**48,386**	**39,417**	**11,859**	**51,276**	**25,616**	**19,373**	**44,989**	**24,228**	**22,702**	**46,931**

(1) Derivatives hedging other items mainly include the interest rate component of interest rate derivatives (not qualifying as hedges or qualifying as cash flow hedges) that are excluded from net financial debt, as well as net investment hedge derivatives.

The increase in the balance of derivatives hedging commodities is due to the extreme volatility of commodity prices in 2022. Most of these derivatives mature in 2023 and 2024. This fair value also incorporates market parameters at December 31,2022, in particular the "bid ask" reserve, which have been updated to reflect the higher volatility of commodity prices and the reduced liquidity in the European natural gas and electricity markets in the second half of 2022. In the main markets where the Group operates (Europe, United States, Singapore) a 10% increase or decrease in these market parameters (including the "bid ask" spread) would impact the fair value of the derivates concerned by a negative €143 million (increase) and a positive €143 million (decrease).

14.4.1 Offsetting of derivative instrument assets and liabilities

The net amount of derivative instruments after taking into account enforceable master netting arrangements or similar agreements, whether or not they are offset in accordance with paragraph 42 of IAS 32, are presented in the table below:

		Dec. 31, 2022				Dec. 31, 2021			
In millions of euros		Gross amount	**Net amount recognized in the statement of financial position (1)**	Other offsetting agreements (2)	**Total net amount**	Gross amount	**Net amount recognized in the statement of financial position (1)**	Other offsetting agreements (2)	**Total net amount**
Assets	Derivatives hedging commodities	72,322	**46,008**	(8,866)	**37,142**	75,043	**43,664**	(9,281)	**34,383**
	Derivatives hedging borrowings and other items	2,378	**2,378**	(364)	**2,014**	1,325	**1,325**	(269)	**1,056**
Liabilities	Derivatives hedging commodities	(75,221)	**(48,907)**	5,094	**(43,813)**	(76,220)	**(44,842)**	4,987	**(39,855)**
	Derivatives hedging borrowings and other items	(2,369)	**(2,369)**	547	**(1,822)**	(2,089)	**(2,089)**	977	**(1,111)**

(1) Net amount recognized in the statement of financial position after taking into account offsetting agreements that meet the criteria set out in paragraph 42 of IAS 32. Due to the extreme volatility of commodity prices, this offsetting had a significant impact on the statement of financial position at December 31, 2022 and mainly concerns OTC derivatives concluded with counterparties for which the contractual terms provide for a net settlement of the transactions as well as a collateralization agreement (margin calls).

(2) Other offsetting agreements include collateral and other guarantee instruments, as well as offsetting agreements that do not meet the criteria set out in paragraph 42 of IAS 32.

14.5 Fair value of financial instruments by level in the fair value hierarchy

14.5.1 Financial assets

The table below shows the allocation of financial instruments carried in assets to the different levels in the fair value hierarchy:

	Dec. 31, 2022				Dec. 31, 2021			
In millions of euros	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Other financial assets (excluding loans and receivables at	5,658	4,225	-	1,433	7,276	5,556	-	1,720
Equity instruments at fair value through other comprehensive	*1,217*	*875*	*-*	*342*	*2,344*	*1,524*	*-*	*820*
Equity instruments at fair value through income	*278*	*-*	*-*	*278*	*483*	*227*	*-*	*256*
Debt instruments at fair value through other comprehensive	*2,418*	*2,418*	*-*	*-*	*2,261*	*2,254*	*-*	*7*
Debt instruments at fair value through income	*1,745*	*933*	*-*	*813*	*2,189*	*1,552*	*-*	*637*
Derivative instruments	48,386	138	44,730	3,518	44,989	177	41,606	3,206
Derivatives hedging borrowings	*319*	*-*	*319*	*-*	*501*	*-*	*501*	*-*
Derivatives hedging commodities - relating to portfolio management activities (1)	*40,992*	*-*	*40,825*	*168*	*35,381*	*-*	*35,306*	*75*
Derivatives hedging commodities - relating to trading	*5,016*	*138*	*1,528*	*3,350*	*8,284*	*177*	*4,975*	*3,131*
Derivatives hedging other items	*2,059*	*-*	*2,059*	*-*	*824*	*-*	*824*	*-*
TOTAL	**54,044**	**4,363**	**44,730**	**4,951**	**52,266**	**5,734**	**41,606**	**4,926**

(1) Derivative financial instruments relating to commodities classified in level 3 mainly include long-term gas supply contracts and electricity contracts measured at fair value through profit or loss. Due to geopolitical uncertainties, the fair value of contracts with Russian suppliers takes into account contingencies related to natural gas supply cuts.

A definition of these three levels is presented in Note 14.4 "Derivative instruments".

Other financial assets (excluding loans and receivables at amortized cost)

Changes in level 3 equity and debt instruments at fair value can be analyzed as follows:

In millions of euros	Equity instruments at fair value through other comprehensive income	Debt instruments at fair value through other comprehensive income	Equity instruments at fair value through income	Debt instruments at fair value through income	Other financial assets (excluding loans and receivables
AT DECEMBER 31, 2021	**821**	**7**	**256**	**637**	**1,721**
Acquisitions	30	16	93	205	344
Disposals	(2)	(1)	(36)	(21)	(60)
Changes in fair value (1)	(499)	-	(15)	(8)	(521)
Changes in scope of consolidation, foreign currency translation	(8)	(23)	(20)	-	(51)
AT DECEMBER 31, 2022	**342**	**-**	**278**	**813**	**1,433**
Gains/(losses) recorded in income relating to instruments held at the end of the period					(4)

(1) Changes in fair value comprises the €474 million decrease in the value of the Group's minority interest in Nord Stream AG (see note 14.1.1.1 "Equity instruments at fair value").

Derivative instruments

Changes in level 3 commodity derivatives can be analyzed as follows:

In millions of euros	Net Asset/(Liability)
AT DECEMBER 31, 2021	**(210)**
Changes in fair value recorded in income	3,271
Settlements	(1,336)
Transfer from level 3 to levels 1 and 2	34
Net fair value recorded in income	**1,759**
Deferred Day-One gains/(losses)	78
AT DECEMBER 31, 2022	**1,837**

14.5.2 Financial liabilities

The table below shows the allocation of financial instruments carried in liabilities to the different levels in the fair value hierarchy:

In millions of euros	Dec. 31, 2022 Total	Level 1	Level 2	Level 3	Dec. 31, 2021 Total	Level 1	Level 2	Level 3
Borrowings used in designated fair value hedges	3,679	-	3,679	-	4,255	-	4,255	-
Borrowings not used in designated fair value hedges	31,500	17,093	14,407	-	36,875	24,262	12,613	-
Derivative instruments	51,276	-	49,595	1,681	46,931	-	43,515	3,415
Derivatives hedging borrowings	*735*	-	*735*	-	*313*	-	*313*	-
Derivatives hedging commodities - relating to portfolio management activities(1)	*48,907*	-	*47,227*	*1,681*	*35,458*	-	*34,374*	*1,084*
Derivatives hedging commodities - relating to trading activities(1)	-	-	-	-	*9,384*	-	*7,053*	*2,331*
Derivatives hedging other items	*1,634*	-	*1,634*	-	*1,775*	-	*1,775*	-
TOTAL	**86,455**	**17,093**	**67,682**	**1,681**	**88,061**	**24,262**	**60,383**	**3,415**

(1) Derivative financial instruments relating to commodities classified in level 3 mainly include long-term gas supply contracts and electricity contracts measured at fair value through profit and loss. Due to geopolitical uncertainties, the fair value of contracts with Russian suppliers takes into account a risk of supply cuts.

A definition of these three levels is presented in Note 14.4 “Derivative instruments”.

Borrowings used in designated fair value hedges

This caption includes bonds in a designated fair value hedging relationship, which are presented in level 2 in the above table. Only the interest rate component of the bonds is remeasured, with fair value determined by reference to observable inputs.

Borrowings not used in designated fair value hedges

Listed bond issues are included in level 1.

Other borrowings not used in a designated hedging relationship, are presented in level 2 in the above table. The fair value of these borrowings is determined on the basis of future discounted cash flows and relies on directly or indirectly observable data.

NOTE 15 RISKS ARISING FROM FINANCIAL INSTRUMENTS

The Group mainly uses derivative instruments to manage its exposure to market risks. Financial risk management procedures are set out in Chapter 2 “Risk factors” of the Universal Registration Document.

15.1 Market risks

15.1.1 Commodity risk

Commodity risk arises primarily from the following activities:

- portfolio management; and
- trading.

The Group has primarily identified two types of commodity risks: price risk resulting from fluctuations in market prices, and volume risk inherent to the business.

In the ordinary course of its operations, the Group is exposed to commodity risks on natural gas, electricity, coal, oil and oil products, other fuels, CO_2 and other “green” products. The Group is active on these energy markets either for supply purposes, or to optimize and secure its energy production chain and its energy sales. The Group also uses derivatives to offer hedging instruments to its clients and to hedge its own positions.

15.1.1.1 Portfolio management activities

Portfolio management seeks to optimize the market value of assets (power plants, gas and coal supply contracts, energy sales and gas storage and transportation) over various timeframes (short-, medium- and long-term). Market value is optimized by:

- guaranteeing supply and ensuring the balance between physical needs and resources;
- managing market risks (price, volume) to unlock optimum value from portfolios within a specific risk framework.

The risk framework aims to safeguard the Group’s financial resources over the budget period and smooth out medium-term earnings (over three or five years, depending on the maturity of each market). It encourages portfolio managers to take out economic hedges on their portfolio.

Sensitivities of the commodity-related derivatives portfolio used as part of the portfolio management activities at December 31, 2022 are detailed in the table below. Due to the significant increase and volatility of commodity prices on the markets, particularly over the past several months in the European zone, the price assumptions for natural gas and electricity in Europe have been revised upwards for 2022. These sensitivities have been established in the current uncertain context.

These new assumptions do not constitute an estimate of future market prices and are not representative of future changes in consolidated earnings and equity, insofar as they do not include the sensitivities relating to the purchase and sale contracts for the underlying commodities, which are not recognized at fair value.

Sensitivity analysis (1)

		Dec. 31, 2022		Dec. 31, 2021	
In millions of euros	Changes in price	Pre-tax impact on income	Pre-tax impact on equity	Pre-tax impact on income	Pre-tax impact on equity
Oil-based products	+USD 10/bbl	-	81	19	159
Natural gas - Europe (2)	-€10/MWh	(700)	(1,237)	N/A	N/A
Natural gas - Europe (2)	+€10/MWh	700	1,237	246	588
Natural gas - Rest of the world (2)	+€3/MWh	29	206	52	35
Electricity - Europe (2)	-€20/MWh	(51)	245	N/A	N/A
Electricity - Europe (2)	+€20/MWh	51	(245)	(73)	(49)
Electricity - Rest of the world (2)	+€5/MWh	(122)	-	(37)	-
Greenhouse gas emission rights	+€2/ton	24	1	(134)	-
EUR/USD	+10%	36	(186)	16	83
EUR/GBP	+10%	(17)	(34)	(49)	(6)

(1) The sensitivities shown above apply solely to financial commodity derivatives used for hedging purposes as part of the portfolio management activities.

(2) In 2021, the impact corresponded to a sensitivity of +€3/MWh for gas and +€5/MWh for electricity. For December 2022 and in relation to the sensitivities shown, more drastic upward and downward price changes, although difficult to quantify, could occur depending how the economic or political situation evolves. For example, an increase (decrease) of €50/MWh for natural gas and €100/MWh for electricity would impact sensitivities by a positive €9.7 billion (a negative €9.7 billion) and a negative €1 billion (a positive €0.9 billion), respectively for natural gas and electricity.

The significant increase in commodity prices in 2022 contributed to substantial changes in the fair value of financial instruments, impacting the income statement (*see Note 8 "Operating expenses"*) as well as the other comprehensive income for the Group (*see "Statement of comprehensive income"*).

15.1.1.2 Trading activities

Revenues from trading activities totaled €4,499 million in 2022 (€1,011 million in 2021).

The Group's trading activities are primarily conducted within:

- ENGIE Global Markets and ENGIE Energy Management. The purpose of these wholly-owned companies is to (i) assist Group entities in optimizing their asset portfolios; and (ii) create and implement energy price risk management solutions for internal and external customers;
- ENGIE SA for the optimization of part of its long-term gas supply contracts, of a power exchange contract and of part of its gas sales contracts with retail entities in France and Benelux and with power generation facilities in France and Belgium.

These entities operate on organized or OTC markets in derivative instruments such as futures, forwards, swaps, or options. Exposure to trading activities is strictly controlled by daily monitoring of compliance with Value at Risk (VaR) limits.

The use of VaR to quantify market risk arising from trading activities provides a transversal measure of risk, taking all markets and products into account. VaR represents the maximum potential loss on a portfolio over a specified holding period based on a given confidence interval. It is not an indication of expected results but is back-tested on a regular basis.

The Group uses a one-day holding period and a 99% confidence interval to calculate VaR, as well as stress tests, in accordance with banking regulatory requirements.

The VaR shown below corresponds to the global VaR of the Group's entities with trading activities. The increase in VaR reflects the exceptional increase and significant volatility in commodity market prices in 2022.

Value at Risk

In millions of euros	Dec. 31, 2022	2022 average(1)	2022 maximum(2)	2022 minimum(2)	2021 average(1)
Trading activities	28	33	143	6	10

(1) Average daily VaR.

(2) Maximum and minimum daily VaR observed in 2022.

VaR limits are set within the framework of Group governance, which was strengthened during the year to take account of the extremely volatile market environment. These limits have been revised upwards and any excesses have been reported in accordance with the market risk control process, which may have led to the closure or reduction of certain positions, the limitation of new positions or the revision of the portfolio allocation.

The continuous monitoring of market risks and the strict application of these measures have enabled the Group to perform its trading activities in a supervised environment during the year. At December 31, 2022, VaR had fallen below its limit. The increasing average VaR in 2022 reflects extreme market conditions applied to lower positions than in 2021.

15.1.2 Hedges of commodity risks

Hedging instruments and sources of hedge ineffectiveness

The Group enters into cash flow hedges, using derivative instruments (firm or option contracts) contracted over the counter or on organized markets, to reduce its commodity risks, which relate mainly to future cash flows from contracted or expected sales and purchases of commodities. These instruments may be settled net or involve physical delivery of the underlying.

Sources of hedge ineffectiveness are mainly related to uncertainty regarding the timing and potential mismatches in settlement dates, in a context of highly volatile commodity market prices; and indices between the derivative instruments and the associated underlying exposures.

The fair values of commodity derivatives are indicated in the table below:

	Dec. 31, 2022				Dec. 31, 2021			
	Assets		Liabilities		Assets		Liabilities	
In millions of euros	Non-current	Current	Non-current	Current	Non-current	Current	Non-current	Current
Derivative instruments relating to portfolio management activities	30,932	10,060	(37,210)	(11,698)	24,474	10,906	(22,335)	(13,123)
Cash flow hedges	*3,538*	*4,400*	*(2,483)*	*(4,140)*	*2,643*	*5,141*	*(1,533)*	*(3,796)*
Other derivative instruments	*27,394*	*5,660*	*(34,726)*	*(7,558)*	*21,831*	*5,765*	*(20,802)*	*(9,327)*
Derivative instruments relating to trading activities	-	5,016	-	-	-	8,284	-	(9,384)
TOTAL	**30,932**	**15,076**	**(37,210)**	**(11,698)**	**24,474**	**19,190**	**(22,335)**	**(22,507)**

The fair values shown in the table above reflect the amounts for which assets could be exchanged, or liabilities settled, at the end of the reporting period. They are not representative of expected future cash flows insofar as positions (i) are sensitive to changes in prices; (ii) can be modified by subsequent transactions; and (iii) can be offset by future cash flows arising on the underlying transactions.

15.1.2.1 Cash flow hedges

The fair values of cash flow hedges by type of commodity are as follows:

	Dec. 31, 2022				Dec. 31, 2021			
	Assets		Liabilities		Assets		Liabilities	
In millions of euros	Non-current	Current	Non-current	Current	Non-current	Current	Non-current	Current
Natural gas	3,204	3,825	(1,825)	(3,149)	2,194	4,792	(1,044)	(2,971)
Electricity	114	324	(208)	(521)	195	171	(215)	(439)
Oil	219	248	(449)	(470)	246	176	(274)	(386)
Other (1)	1	3	(1)	1	9	2	-	-
TOTAL	**3,538**	**4,400**	**(2,483)**	**(4,140)**	**2,643**	**5,141**	**(1,533)**	**(3,796)**

(1) Mainly includes foreign currency hedges on commodities.

Notional amounts (net) [1]

Notional amounts and maturities of cash flow hedges are as follows:

	Unit	2023	2024	2025	2026	2027	Beyond 5 years	Total at Dec. 31, 2022
Natural gas	*GWh*	158,983	68,913	19,053	(412)	6,002	-	252,539
Electricity	*GWh*	(7,447)	(3,226)	(835)	(465)	(457)	(649)	(13,079)
Oil-based products	*Thousands of barrels*	(11,913)	(11,768)	-	-	-	-	(23,681)
Forex	*Millions of euros*	2	-	-	-	-	-	2
Greenhouse gas emission rights	*Thousands of tons*	105	80	86	20	-	-	291

(1) Long/(short) position.

Effects of hedge accounting on the Group's financial position and performance

	Dec. 31, 2022				Dec. 31, 2021	
	Fair Value			Nominal	Fair value	Nominal
In millions of euros	Assets	Liabilities	Total	Total	Total	Total
Cash flow hedges	7,939	(6,623)	1,315	39,983	2,455	15,590
TOTAL	**7,939**	**(6,623)**	**1,315**	**39,983**	**2,455**	**15,590**

The fair values represented above are positive for assets and negative for liabilities.

In millions of euros		Nominal amount	Fair Value	Change in fair value used for calculating hedge effectiveness	Change in the value of the hedging instrument recognized in equity [1]	Ineffective portion recognized in profit or loss [1]	Amount reclassified from the hedge reserve to profit or loss [1]	Line item of profit or loss
Cash flow hedges	Hedging instruments	39,983	1,315		(1,747)	189	(3,003)	Current operating income
	Hedged items			(4,067)				

(1) Gains/(losses).

Hedge inefficiency, the amount of wich in 2022 is affected by the extreme volatility of commodity prices during the year and the partial decorrelation of the various markets particularly in Europe, is calculated based on the change in the fair value of the hedging instrument compared to the change in the fair value of the hedged items since inception of the hedge. The fair value of the hedging instruments at December 31, 2022 reflects the cumulative change in the fair value of the hedging instruments since inception of the hedges.

Maturity of commodity derivatives designated as cash flow hedges

In millions of euros	2023	2024	2025	2026	2027	Beyond 5 years	Dec. 31, 2022	Dec. 31, 2021
Fair Value of derivatives by maturity	503	645	224	(37)	(11)	(9)	1,315	2,455

Amounts presented in the statement of changes in equity and the statement of comprehensive income

The following table provides a reconciliation of each component of equity and an analysis of other comprehensive income:

	Cash flow hedge
In millions of euros	Derivatives hedging commodities
AT DECEMBER 31, 2021	**4,094**
Effective portion recognized in equity	(1,770)
Amount reclassified from hedge reserve to profit or loss	(3,023)
Translation differences	-
Changes in scope of consolidation and other	-
AT DECEMBER 31, 2022	**(699)**

15.1.2.2 Other commodity derivatives

Other commodity derivatives include:

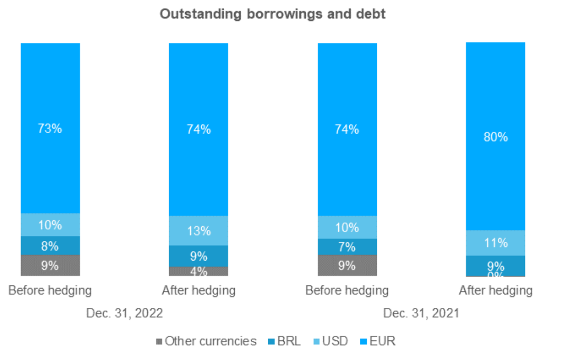
- commodity purchase and sale contracts that were not entered into or are no longer held for the purpose of the receipt or delivery of commodities in accordance with the Group's expected purchase, sale or usage requirements;
- embedded derivatives; and
- derivative financial instruments that are not eligible for hedge accounting in accordance with IFRS 9 or for which the Group has elected not to apply hedge accounting.

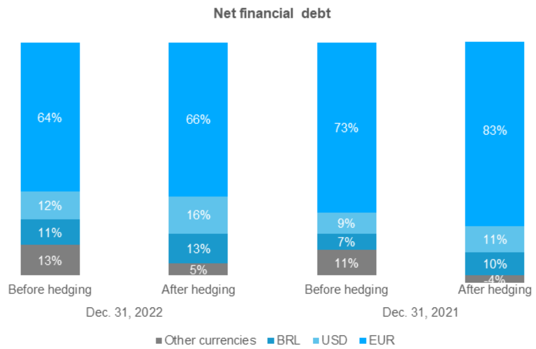
15.1.3 Currency risk

The Group is exposed to currency risk, defined as the impact on its statement of financial position and income statement of fluctuations in exchange rates affecting its operating and financing activities. Currency risk comprises (i) transaction risk arising in the ordinary course of business, (ii) specific transaction risk related to investments, mergers and acquisitions or disposal projects, and (iii) translation risk arising from the conversion into euros of income statement and statement of financial position items from subsidiaries with a functional currency other than the euro. The main translation risk exposures correspond, to assets in US dollars, Brazilian real and pounds sterling.

15.1.3.1 Financial instruments by currency

The following tables present a breakdown by currency of outstanding borrowings and debt and net financial debt, before and after hedging:





15.1.3.2 Currency risk sensitivity analysis

A sensitivity analysis to currency risk on financial income/(loss) – excluding the income statement translation impact of foreign subsidiaries – was performed based on all financial instruments managed by the treasury department and representing a currency risk (including derivative financial instruments).

A sensitivity analysis to currency risk on equity was performed based on all financial instruments qualified as net investment hedges at the reporting date.

For currency risk, sensitivity corresponds to a 10% rise or fall in exchange rates of foreign currencies against the euro compared to closing rates.

	Dec. 31, 2022			
	Impact on income		Impact on equity	
In millions of euros	+10%(1)	-10%(1)	+10%(1)	-10%(1)
Exposures denominated in a currency other than the functional currency of companies carrying the liabilities on their statements of financial position(2)	(19)	19	NA	NA
Financial instruments (debt and derivatives) qualified as net investment hedges(3)	NA	NA	426	(426)

(1) +(-)10%: depreciation (appreciation) of 10% of all foreign currencies against the euro.
(2) Excluding derivatives qualified as net investment hedges.
(3) This impact is countered by the offsetting change in the net investment hedged.

15.1.4 Interest rate risk

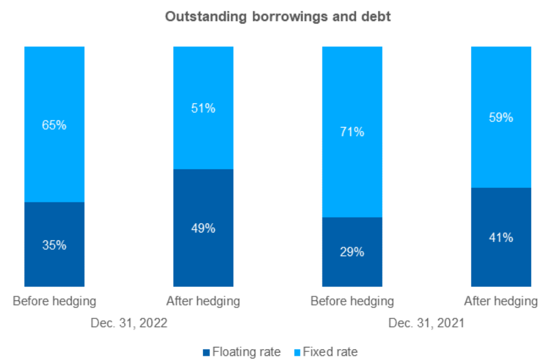
The Group seeks to manage its borrowing costs by limiting the impact of interest rate fluctuations on its income statement. The Group's policy is therefore to arbitrate between fixed rates, floating rates and capped floating rates for its net debt. The interest rate mix may shift within a range defined by Group Management in line with market trends.

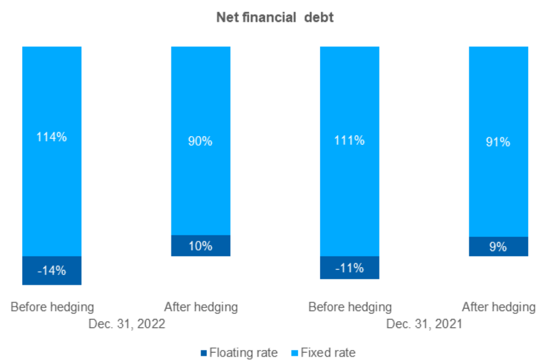
In order to manage the interest rate structure for its net debt, the Group uses hedging instruments, particularly interest rate swaps and options.

The Group has a forward interest rate pre-hedges portfolio on 2027 and 2028, with a 20-year maturity on each of the volumes initiated, to protect the refinancing interest rate on a portion of its debt.

15.1.4.1 Analysis of financial instruments by type of interest rate

The following tables present a breakdown by type of interest rate of outstanding borrowings and debt and net financial debt before and after hedging:





15.1.4.2 Interest rate risk sensitivity analysis

Sensitivity was analyzed based on the Group's net debt position (including the impact of interest rate and foreign currency derivatives relating to net debt) at the reporting date.

For interest rate risk, sensitivity corresponds to a 100-basis-point rise or fall in the yield curve compared to year-end interest rates.

	Dec. 31, 2022			
	Impact on income		Impact on equity	
In millions of euros	+100 basis points	-100 basis points	+100 basis points	-100 basis points
Net interest expense on floating-rate net debt (nominal amount) and on floating-rate leg of derivatives	(16)	16	NA	NA
Change in fair value of derivatives not qualifying as	(123)	135	NA	NA
Change in fair value of derivatives qualifying as cash flow hedges	NA	NA	198	(323)

15.1.5 Currency and interest rate hedges

15.1.5.1 Currency risk management

Foreign currency exchange risk (or "FX" risk) is reported and managed based on a Group-wide approach, reflected in a policy approved by Group Management. The policy distinguishes between the three following main sources of currency risk:

- **Regular transaction risk**

  Regular transaction risk corresponds to the potential negative financial impact of currency fluctuations on business and financial operations denominated in a currency other than the functional currency.

  The management of regular transaction risk is fully delegated to the subsidiaries for their scope of activities, while the risks related to central activities are managed at corporate level.

  FX risks related to operational activities are systematically hedged when the related cash flows are certain, with a hedging horizon that corresponds at least to the medium-term plan horizon. For cash flows that are not certain, in their entirety, the hedge is initially based on a "no regret" volume. Exposures are monitored and managed based on the sum of nominal cash flows in FX, including highly probable amounts and related hedges.

  For FX risks related to financial activities, all significant exposures related to cash, financial debt, etc. are systematically hedged. Exposures are monitored based on the net sum of balance sheet items in FX.

- **Project transaction risk**

  Specific project transaction risk corresponds to the potential negative financial impact of FX fluctuations on specific major operations such as investment projects, acquisitions, disposals and restructuring projects, involving multiple currencies.

  The management of these FX risks includes the definition and implementation of hedging transactions, taking into account the likelihood of the risk (including probability of project completion) and its evolution, the availability of hedging instruments and their associated cost. Management's aim is to ensure the viability and the profitability of the transactions.

- **Translation risk**

  Translation risk corresponds to the potential negative financial impact of FX fluctuations concerning consolidated entities with a functional currency other than the euro. It relates to the translation of their income and expenses and their net assets.

  Translation risk is managed centrally, with a focus on securing the net asset value.

  The pertinence of hedging this translation risk is assessed regularly for each currency (as a minimum) or set of assets in the same currency, taking into account notably the value of the assets and the hedging costs.

Hedging instruments and sources of hedge ineffectiveness

The Group principally uses the following risk management levers for mitigating currency risk:

- derivative instruments: these mostly correspond to over-the-counter contracts and include FX forward transactions, FX swaps, currency swaps, cross currency swaps, plain vanilla FX options or combinations (calls, puts or collars);
- monetary items such as debt, cash and loans.

Sources of hedge ineffectiveness are mainly related to uncertainty regarding the timing and in some cases the amount of the future cash flows in foreign currency that are being hedged.

15.1.5.2 Interest rate risk management

The Group is exposed to interest rate risk through its financing and investing activities. Interest rate risk is defined as a financial risk resulting from fluctuations in base interest rates that may increase the cost of debt and affect the viability of investments. Base interest rates are market interest rates, such as EURIBOR, US LIBOR, etc., that do not include the borrower's credit spread.

Reform of interbank benchmark rates

As part of the interest rate benchmark reform, the Group benchmarked all USD denominated new financing contracts to the SOFR index. ENGIE also plans to align its derivative contracts with the same index. However, the transition of existing financing and derivative contracts indexed on US Libor towards SOFR will be completed by June 2023, when the publication of US Libor is expected to end.

The Group does not expect the transition to have any impact.

The two main sources of interest rate risk are as follows:

- **Interest rate risk relating to Group net debt**

  Interest rate risk relating to Group net debt designates the financial impact of base rate movements on the debt and cash portfolio from recurring financing activities. This risk is mainly managed centrally.

  Risk management objectives are, by order of importance:

  - to protect the long-term viability of assets;
  - to optimize financing costs and ensure competitiveness; and
  - to minimize uncertainty on the cost of debt.

  Interest rate risk is actively managed by monitoring changes in market rates and their impact on the Group's gross and net debt.

- **Project interest rate risk**

  Specific project interest rate risk corresponds to the potential negative financial impact of base rate movements on specific major operations such as investment projects, acquisitions, disposals and restructuring projects. Interest rate risk after the closing of an operation is considered as regular (see "Interest rate risk" above).

  Interest rate risk is managed for specific project transactions in order to protect the economic viability of projects, acquisitions, disposals and restructuring initiatives against adverse changes in interest rates. It may include the implementation of hedging transactions, depending on a number of factors including the likelihood of completion, the availability of hedging instruments and their associated cost.

Hedging instruments and sources of hedge ineffectiveness

The Group principally uses the following risk management levers for mitigating interest rate risk:

- derivative instruments: these mostly correspond to over-the-counter contracts that are used to manage base interest rates. Such instruments include:

  - swaps, to change the nature of interest payments on debts, typically from fixed to floating rates or vice versa,
  - plain vanilla interest rate options;

- caps, floors and collars that allow the impact of interest rate fluctuations to be limited by setting minimum and/or maximum limits on floating interest rates.

Sources of hedge ineffectiveness are mainly related to changes in the credit quality of the counterparties and related charges, as well as potential gaps in settlement dates and in indices between the derivative instruments and the related underlying exposures.

15.1.5.3 Currency and interest rate hedges

The Group has elected to apply hedge accounting whenever possible and suitable for currency risk and interest rate risk management purposes and also manages a portfolio of undesignated derivative instruments, corresponding to economic hedges relating to net debt and foreign currency exposures.

The Group uses the three hedge accounting methods: cash flow hedging, fair value hedging and net investment hedging.

In general, the Group does not frequently reset hedging relationships, designate specific risk components as a hedged item or designate credit exposures as measured at fair value through income.

The Group qualifies interest rate or cross currency swaps transforming fixed-rate debt into floating-rate debt as fair value hedges.

Cash flow hedges are mainly used to hedge future cash flows in foreign currency, floating-rate debt as well as future refinancing requirements.

Net investment hedging instruments are mainly FX swaps and forwards.

The fair values of derivatives (excluding commodity instruments) are indicated in the table below:

	Dec. 31, 2022				Dec. 31, 2021			
	Assets		Liabilities		Assets		Liabilities	
In millions of euros	Non-current	Current	Non-current	Current	Non-current	Current	Non-current	Current
Derivatives hedging borrowings	226	92	(620)	(114)	370	130	(224)	(89)
Fair value hedges	*167*	*4*	*(394)*	*(38)*	*261*	*97*	*(24)*	*(35)*
Cash flow hedges	*30*	*5*	*(195)*	*(11)*	*36*	*1*	*(121)*	*(4)*
Derivative instruments not qualifying for hedge accounting	*30*	*84*	*(32)*	*(65)*	*73*	*33*	*(79)*	*(51)*
Derivatives hedging other items	1,975	84	(1,587)	(47)	772	52	(1,670)	(50)
Cash flow hedges	*509*	*41*	*(222)*	*(7)*	*110*	*9*	*(264)*	*-*
Net investment hedges	*156*	*-*	*(1)*	*-*	*6*	*-*	*(20)*	*-*
Derivative instruments not qualifying for hedge accounting	*1,310*	*43*	*(1,364)*	*(40)*	*656*	*44*	*(1,385)*	*(51)*
TOTAL	**2,201**	**176**	**(2,208)**	**(161)**	**1,142**	**183**	**(1,894)**	**(140)**

The fair values shown in the table above reflect the amounts relating to the price that would be received for the sale of an asset or paid for the transfer of a liability between market participants in the normal course of business. They are not representative of expected future cash flows insofar as the positions (i) are sensitive to changes in prices or to changes in credit ratings, (ii) can be modified by subsequent transactions, and (iii) can be offset by future cash flows arising on the underlying transactions.

Amount, timing and uncertainty of future cash flows

The following tables provide a profile of the timing at December 31, 2022 of the nominal amount of hedging instruments:

In millions of euros Buy/Sell	Interest rate type	Derivative instrument type	Currency	Total	2023	2024	2025	2026	2027	Beyond 5 years
Buy	Fixed	CCS	USD	(443)	(94)	(117)	(89)	(96)	-	(47)
			GBP	(1,804)	-	-	-	-	-	(1,804)
			HKD	(277)	-	-	-	-	(108)	(168)
			PEN	(239)	(40)	(19)	-	(61)	(62)	(57)
			Other	(602)	(107)	(367)	(73)	-	-	(54)
Sell	Fixed	CCS	EUR	2,568	-	216	75	-	98	2,179
			USD	279	47	23	-	72	72	66
	Floating	CCS	EUR	273	129	144	-	-	-	-
		CCS	BRL	392	93	114	90	95	-	-

In millions of euros Buy/Sell	Interest rate type	Derivative instrument type	Currency	Total	2023	2024	2025	2026	2027	Beyond 5 years
Sell	Fixed	CAP	EUR	10	6	5	-	-	-	-
		IRS	EUR	8,089	(1,205)	(480)	249	1,253	389	7,883
			USD	1,963	725	12	12	725	283	205
			Other	72	3	3	3	4	4	54
	Floating	SWAPTION	EUR	1,000	-	-	-	-	-	1,000
	Floating	IRS	EUR	15,376	1,398	2,000	1,415	1,950	800	7,813
			BRL	141	141	-	-	-	-	-

The tables presented above exclude currency derivatives (except for cross currency swaps - CCS). Their maturity dates are aligned with those of the hedged items.

Pursuant to the FX and interest rate risk management policy, FX sensitivity is presented in Note 15.1.3.2 "Currency risk sensitivity analysis" and the average cost of debt is 2.73% as presented in Note 10 "Net financial income/(loss)".

Effects of hedge accounting on the Group's financial position and performance

Currency derivatives

	Dec. 31, 2022				Dec. 31, 2021	
	Fair value			Nominal amount	Fair value	Nominal amount
In millions of euros	Assets	Liabilities	Total	Total	Total	Total
Cash flow hedges	28	(366)	(338)	3,139	(253)	3,201
Net investment hedges	156	(1)	155	5,939	(14)	2,794
Derivative instruments not qualifying for hedge accounting	217	(94)	123	12,007	(39)	10,166
TOTAL	**401**	**(461)**	**(60)**	**21,085**	**(306)**	**16,161**

Interest rate derivatives

	Dec. 31, 2022				Dec. 31, 2021	
	Fair value			Nominal amount	Fair value	Nominal amount
In millions of euros	Assets	Liabilities	Total	Total	Total	Total
Fair value hedges	171	(432)	(261)	5,148	299	4,203
Cash flow hedges	552	(67)	485	5,260	17	2,110
Derivative instruments not qualifying for hedge accounting	1,247	(1,433)	(186)	25,885	(710)	18,933
TOTAL	**1,970**	**(1,932)**	**38**	**36,293**	**(394)**	**25,246**

The fair values presented in the above table are positive for an assets and negative for a liabilities.

In millions of euros		Nominal and outstanding amount	Fair value (1)	Change in fair value used for calculating hedge ineffectiveness	Change in the value of the hedging instrument recognized in equity (2)	Ineffective portion recognized in profit or loss (2)	Amount reclassified from the hedge reserve to profit or loss (2)	Line item of the income statement
Fair value hedges	Hedging instruments	5,148	(261)	(261)	(21)	7	NA	Cost of net debt
	Hedged items (3) (4)	3,821	(200)	(576)	NA		NA	
Cash flow hedges	Hedging instruments	8,399	147	259	(446)	9	(507)	Other financial income and expenses / Current operating income including operating MtM
	Hedged items			(253)				
Net investment hedges	Hedging instruments	5,939	155	194	82	NA	(25)	Other financial income and expenses / Current operating income including operating MtM
	Hedged items			(194)				

(1) The adjustment of the fair value of hedged items is presented as long term and short-term borrowings and debt for a negative amount of €200 million.

(2) Gains/(losses).

(3) The difference between the fair value used to determine the ineffective portion relating to hedging instruments and that relating to the hedged items corresponds to the amortized cost of borrowings and debt that are part of a fair value hedge relationship.

(4) Of which €57 million relating to hedging items that are no longer adjusted as a result of disqualification as a fair value hedge.

Hedge inefficiency is calculated based on the change in the fair value of the hedging instrument compared to the change in the fair value of the hedged items since inception of the hedge. The fair value of the hedging instruments at December 31, 2022 reflects the cumulative change in the fair value of the hedging instruments since inception of the hedges. For fair value hedges, the same principle applies to the hedged items.

No significant impact in terms of ineffectiveness or disqualification of certain hedges was recognized at December 31,2022.

Foreign currency and interest rate derivatives designated as cash flow hedges can be analyzed as follows by maturity

In millions of euros	2023	2024	2025	2026	2027	Beyond 5 years	Total at Dec. 31, 2022	Total at Dec. 31, 2021
Fair value of derivatives by maturity	43	13	18	12	42	19	147	(235)

Amounts presented in the statement of changes in equity and the statement of comprehensive income

The following table provides a reconciliation of each component of equity and an analysis of other comprehensive income:

	Cash flow hedge			Net investment hedge
In millions of euros	Derivatives hedging borrowings - currency risk hedging (1) (3)	Derivatives hedging other items - interest rate risk hedging (1) (3)	Derivatives hedging other items - currency risk hedging (2) (3)	Derivatives hedging other items - currency risk hedging (2) (4)
AT DECEMBER 31, 2021	**45**	**(751)**	**27**	**(371)**
Effective portion recognized in equity	424		23	(82)
Amount reclassified from the hedge reserve to profit or loss	507		-	25
Translation differences	-	-	-	-
Changes in scope of consolidation and other	-	2	(15)	42
AT DECEMBER 31, 2022	**46**	**181**	**35**	**(386)**

(1) Cash flow hedges for given periods.
(2) Cash flow hedges for given transactions.
(3) Of which a negative €86 million of cash flow hedge reserves for which hedge accounting is no longer applied.
(4) All of the reserves relate to continuing hedging relationships.

15.2 Counterparty risk

Due to its financial and operational activities, the Group is exposed to the risk of default of its counterparties (customers, suppliers, EPC contractors, partners, intermediaries, and banks). Default could affect payments, delivery of goods and/or asset performance.

The principles of counterparty risk management are set out in the Group counterparty risk policy, which:

- assigns roles and responsibilities for managing and controlling counterparty risk at different levels (Corporate, BU or entity), and ensures operational procedures are in place and consistent across the Group;
- characterizes counterparty risk and the mechanisms by which it impacts the economic performance and financial statements of the Group;
- defines indicators, reporting and control mechanisms to ensure visibility and to provide tools for financial performance management; and
- provides guidelines on the use of mitigating mechanisms such as collateral and guarantees, which are widely used by some businesses.

Depending on the nature of the business, the Group is exposed to different types of counterparty risk. As a result some businesses use collateral instruments – particularly the Energy Management business, where the use of margin calls and other types of financial collateral (standardized legal framework) is a market standard. In addition, other businesses may request guarantees from their counterparties in certain cases (parent company guarantees, bank guarantees, etc.).

Under the new IFRS 9 standard, the Group has defined and applied a Group-wide methodology, which includes two different approaches:

- a portfolio approach, whereby the Group determines that:
  - coherent customer portfolios and sub-portfolios have to be considered (i.e., portfolios that have comparable credit risk and/or comparable payment behavior), taking into account the following aspects:
    - public or private counterparties,
    - residential or BtoB counterparties,
    - geography,
    - type of activity,
    - size of the counterparty, and
    - any other aspects the Group may consider relevant,
  - impairment rates must be determined based on historical aging balances and, when correlation is proven and documentation possible, historical data must be adjusted by forward-looking elements; and

- an individualized approach for significant counterparties, for which the Group has set rules for defining the stage of the concerned asset for Expected Credit Loss (ECL) calculations:

  - stage 1 covers financial assets that have not deteriorated significantly since initial recognition. The ECL for stage 1 is calculated on a 12-month basis,
  - stage 2 covers financial assets for which the credit risk has significantly increased. The ECL for stage 2 is calculated on a lifetime basis. The decision to move an asset from stage 1 to stage 2 is based on certain criteria such as:
    - a significant downgrade in the creditworthiness of a counterparty and/or its parent company and/or its guarantor (if any),
    - significant adverse change in the regulatory environment,
    - changes in political or country-related risk, and
    - any other aspect the Group may consider relevant.

  Regarding financial assets that are more than 30 days past due, the move to stage 2 is not systematically applied as long as the Group has reasonable and verifiable information that demonstrates that, even if payments become more than 30 days past due, this does not represent a significant increase in the credit risk since initial recognition.

  - stage 3 covers assets for which default has already been observed, such as:
    - when there is evidence of significant and ongoing financial difficulty of the counterparty,
    - when there is evidence of failure in credit support from a parent company to its subsidiary (in this case the subsidiary is the Group's at risk counterparty),
    - when a Group entity has initiated legal proceedings against the counterparty for non-payment.

  Regarding financial assets that are more than 90 days past due, the presumption can be rebutted if the Group has reasonable and supportable information that demonstrates that even if payments become more than 90 days past due, this does not indicate counterparty default.

The ECL formula applicable in stages 1 and 2 is ECL = EAD x PD x LGD, where:

- for 12-month ECL, Exposure At Default (EAD) equals the carrying amount of the financial asset, to which the relevant Probability of Default (PD) and the Loss Given Default (LGD) are applied;

- for lifetime ECL, the calculation method consists in identifying changes in exposure for each year, especially the expected timing and amount of the contractual repayments, and then applying to each repayment the relevant PD and the LGD, and discounting the figures obtained. ECL is then the sum of the discounted figures; and

- probability of default is the likelihood of default over a particular time horizon (in stage 1, this time horizon is 12 months after the reporting period; in stage 2 this time horizon is the entire lifetime of the financial asset). This information is based on external data from a well-known rating agency. The PD depends on the time horizon and of the rating of the counterparty. The Group uses external ratings if they are available; ENGIE's credit risk experts determine an internal rating for major counterparties with no external rating.

LGD levels are notably based on Basel standards:

- 75% for subordinated assets; and
- 45% for standard assets.

For assets considered to be of strategic importance for the counterparty, such as essential public services or goods, LGD is set at 30%.

The Group has decided that write-offs apply in the following situations:

- assets for which a legal recovery procedure is pending: these should not be written off as long as the procedure is ongoing; and

- assets for which no legal recovery procedure is pending: should be written off once the trade receivable is 3 years overdue (5 years overdue for public counterparties).

Against the backdrop of a deteriorating global economic environment, historically high energy prices and the ongoing war in Ukraine, the Group continued to monitor cash receipts throughout the year and strengthened its monitoring of default risk in its BtoB, BtoC and Energy Management activities.

In the context of its market activities (mainly on BtoB clients), the Group has taken into account, in the assessment of its expected credit losses, prospective information that best reflects the situation of a series of economic sectors considered to be the most critical. In particular, a specific adjustment of the provisioning rate for expected credit losses was made as at December 31, 2022 on certain customers in business sectors with high energy consumption, and therefore particularly exposed to a significant increase in commodity prices.

In addition, the risk of default on the Group's BtoC energy supply activities has so far been relatively limited, given the introduction of government measures in some countries to limit price increases (tariff shields, energy vouchers, payment deferral plans, etc.), as well as the existence in the Group's portfolio of customers who still have a contract with a fixed price that was signed before the crisis.

15.2.1 Counterparty risk arising on operating activities

Counterparty risk arising on operating activities is managed via standard mechanisms such as third-party guarantees, netting agreements and margin calls, using dedicated hedging instruments or special prepayment and debt recovery procedures, particularly for retail customers.

Under the Group’s policy, each global business unit is responsible for managing counterparty risk, although the Group continues to manage the biggest counterparty exposures centrally.

The credit rating of large- and mid-sized counterparties with which the Group has exposures above a certain threshold is measured based on a specific rating process, while a simplified credit scoring process is used for commercial customers with which the Group has fairly low exposures. These processes are based on formally documented, consistent methods across the Group. Consolidated exposures are monitored by counterparty and by segment (credit rating, sector, etc.) using standard indicators (payment risk, mark-to-market exposure).

GEMS' large exposures to trading counterparties and large commercial clients are regularly monitored by the Group's governance committees.

15.2.1.1 Trade and other receivables, assets from contracts with customers

Total outstanding exposures presented in the tables below do not include impacts relating to VAT or to any other item not subject to credit risk, which amounted to €6,084 million at December 31, 2022 (compared to €14,438 million at December 31, 2021).

Individual approach

		Dec. 31, 2022							
In millions of euros		Individual approach	Level 1: low credit risk	Level 2: increased credit risk	Level 3: impaired assets	Total by risk level	Investment Grade [1]	Other	Total by counterparty type
Trade and other receivables, net	Gross	**22,754**	21,321	1,316	118	**22,754**	20,668	2,086	**22,754**
	Expected credit losses	**(737)**	(533)	(75)	(129)	**(737)**	(452)	(285)	**(737)**
TOTAL		**22,017**	**20,787**	**1,241**	**(11)**	**22,017**	**20,216**	**1,801**	**22,017**
Assets from contracts with customers	Gross	**5,277**	5,245	29	3	**5,277**	4,100	1,177	**5,277**
	Expected credit losses	**(20)**	(16)	-	(4)	**(20)**	(13)	(7)	**(20)**
TOTAL		**5,256**	**5,229**	**29**	**(1)**	**5,256**	**4,087**	**1,169**	**5,256**

In millions of euros		Dec. 31, 2021 Individual approach	Level 1: low credit risk	Level 2: increased credit risk	Level 3: impaired assets	Total by risk level	Investment Grade (1)	Other	Total by counterparty type
Trade and other receivables, net	Gross	**15,997**	15,023	830	144	**15,997**	14,063	1,933	**15,997**
	Expected credit losses	**(377)**	(237)	(23)	(116)	**(377)**	(174)	(203)	**(377)**
TOTAL		**15,620**	**14,786**	**806**	**28**	**15,620**	**13,890**	**1,730**	**15,620**
Assets from contracts with customers	Gross	**3,366**	3,327	37	3	**3,366**	2,434	933	**3,366**
	Expected credit losses	**(12)**	(10)	-	(2)	**(12)**	(8)	(4)	**(12)**
TOTAL		**3,354**	**3,316**	**37**	**1**	**3,354**	**2,425**	**929**	**3,354**

(1) Investment Grade corresponds to counterparties that are rated at least BBB- by Standard & Poor's.

Collective approach

In millions of euros		Dec. 31, 2022 Collective approach	0 to 6 months	6 to 12 months	beyond	Total past due assets at Dec. 31, 2022
Trade and other receivables, net	Gross	4,459	300	101	272	673
	Expected credit losses	(1,151)	(19)	(47)	(172)	(238)
TOTAL		**3,308**	**281**	**54**	**100**	**435**
Assets from contracts with customers	Gross	7,370	8	-	1	10
	Expected credit losses	(27)	-	(8)	-	(8)
TOTAL		**7,343**	**8**	**(8)**	**1**	**2**

In millions of euros		Dec. 31, 2021 Collective approach	0 to 6 months	6 to 12 months	beyond	Total past due assets at Dec. 31, 2021
Trade and other receivables, net	Gross	3,529	544	152	267	964
	Expected credit losses	(971)	(21)	(21)	(221)	(263)
TOTAL		**2,558**	**523**	**132**	**46**	**701**
Assets from contracts with customers	Gross	5,042	584	5	16	604
	Expected credit losses	(4)	-	-	(1)	(1)
TOTAL		**5,038**	**584**	**5**	**15**	**603**

15.2.1.2 Commodity derivatives

In the case of commodity derivatives, counterparty risk arises from positive fair value. Counterparty risk (CVA), which is taken into account when calculating the fair value of these derivative instruments, is based on default probabilities whose parameters have been updated, in a context of uncertainty, to take account of an increased risk of default.

The extreme volatility of commodity prices has not significantly changed the Group's exposure thanks to the credit quality of its counterparties.

In millions of euros	Dec. 31, 2022 Investment Grade(1)	Total	Dec. 31, 2021 Investment Grade(1)	Total
Gross exposure (2)	36,371	46,012	35,386	43,660
Net exposure (3)	12,434	16,124	15,796	19,089
% of credit exposure to "Investment Grade" counterparties	77.1%		82.7%	

(1) Investment Grade corresponds to transactions with counterparties that are rated at least BBB- by Standard & Poor's, Baa3 by Moody's, or equivalent by Dun & Bradstreet. "Investment Grade" is also determined based on an internal rating tool that has been rolled out within the Group, and covers its main counterparties.
(2) Corresponds to the maximum exposure, i.e., the value of the derivatives shown under assets (positive fair value).
(3) After taking into account the liability positions with the same counterparties (negative fair value), collateral, netting agreements and other credit enhancement techniques.

15.2.2 Counterparty risk arising on financing activities

For its financing activities, the Group has put in place procedures for managing and monitoring risk based on (i) the accreditation of counterparties according to external credit ratings, objective market data (credit default swaps, market capitalization) and financial structure, and (ii) counterparty risk exposure limits.

To reduce its counterparty risk exposure, the Group has drawn increasingly on a structured legal framework based on master agreements (including netting clauses) and collateralization contracts (margin calls).

The oversight procedure for managing counterparty risk arising from financing activities is managed by a Middle Office that operates independently of the Group's Treasury department and reports to the Finance division.

15.2.2.1 Loans and receivables at amortized cost

The total outstanding exposures presented in the tables below do not include impacts relating to VAT or to any other item not subject to credit risk, which amounted to €547 million at December 31, 2022 (compared to €977 million at December 31, 2021).

	Dec. 31, 2022						
In millions of euros	Level 1: low credit risk	Level 2: increased credit risk	Level 3: impaired assets	Total by risk level	Investment Grade (1)	Other	Total by counterparty type
Gross	6,596	274	720	**7,591**	3,490	4,101	**7,591**
Expected credit losses	(99)	(38)	(1,154)	**(1,291)**	(158)	(1,133)	**(1,291)**
TOTAL	**6,497**	**236**	**(434)**	**6,300**	**3,332**	**2,967**	**6,300**

	Dec. 31, 2021						
In millions of euros	Level 1: low credit risk	Level 2: increased credit risk	Level 3: impaired assets	Total by risk level	Investment Grade (1)	Other	Total by counterparty type
Gross	4,643	302	26	**4,971**	1,906	3,065	**4,971**
Expected credit losses	(76)	(36)	(113)	**(226)**	(147)	(79)	**(226)**
TOTAL	**4,567**	**265**	**(87)**	**4,745**	**1,759**	**2,986**	**4,745**

(1) Investment Grade corresponds to counterparties that are rated at least BBB- by Standard & Poor's.

In 2022, the Group impaired the loan related to the financing of the Nord Stream 2 pipeline project for a total amount of €987 million (including capitalized interest).

15.2.2.2 Counterparty risk arising on investing activities and the use of derivative financial instruments

The Group is exposed to counterparty risk arising on investments of surplus cash and from the use of derivative financial instruments. In the case of financial instruments at fair value through income, counterparty risk arises on instruments with a positive fair value. Counterparty risk is taken into account when calculating the fair value of these derivative instruments.

	Dec. 31, 2022				Dec. 31, 2021			
In millions of euros	Total	Investment Grade (1)	Unrated (2)	Non Investment-Grade (2)	Total	Investment Grade (1)	Unrated (2)	Non-Investment Grade (2)
Exposure	15,738	92.3%	4.5%	3.2%	14,194	85.9%	8.2%	5.9%

(1) Investment Grade corresponds to counterparties that are rated at least BBB- by Standard & Poor's or Baa3 by Moody's.

(2) Most of these two exposures is carried by consolidated companies that include non-controlling interests, or by Group companies that operate in emerging countries, where cash cannot be pooled and is therefore invested locally.

Furthermore, at December 31, 2022, Crédit Agricole Corporate and Investment Bank (CACIB) is the main Group counterparty and represents 30% of cash surpluses. This relates mainly to a depositary risk.

15.3 Liquidity risk

In the context of its operating activities, the Group is exposed to a risk of having insufficient liquidity to meet its contractual obligations. As well as the risks inherent in managing working capital requirements (WCR), margin calls are required in certain market activities, which are a way of mitigating counterparty risk on hedging instruments through the use of collateral.

The Group has set up a committee that meets weekly and is tasked with managing and monitoring liquidity risk throughout the Group, by maintaining a broad range of investments and sources of financing, preparing forecasts of cash investments and divestments. ENGIE has set up a comprehensive framework to monitor and streamline cash movements related to OTC margin calls and margin calls via clearing houses, based on the use of liquidity swaps with its key counterparties, as well as the issuing of letters of credit. Given the current high volatility of the markets, these margin calls may have a significant timing impact on the Group's cash position, and the use of the two abovementionned levers has therefore been reinforced in order to monitor the impact on its cash position. Quartely stress-tests are also performed on the margin calls put in place when commodity, interest rate and currency derivatives are negotiated to assess the Group's resilience in terms of liquidity.

The Group centralizes virtually all the financing needs and cash flow surpluses of the companies it controls, as well as most of their medium- and long-term external financing requirements. Centralization is provided by financing vehicles (long-term and short-term) and by dedicated Group cash pooling vehicles based in France, Belgium and Luxembourg.

Surpluses held by these structures are managed in accordance with a uniform policy. In accordance with this policy, unpooled cash surpluses are invested in instruments selected on a case-by-case basis in light of local financial market imperatives and the financial strength of the counterparties concerned.

The succession of financial crises since 2008 and the ensuing rise in counterparty risk prompted the Group to tighten its investment policy with the aim of keeping an extremely high level of liquidity and protecting invested capital and a daily monitoring of performance and counterparty, allowing the Group to take immediate action where required in response to market developments. Consequently, 81% of the cash pooled at December 31, 2022 was invested in overnight bank deposits and standard money market funds with daily liquidity.

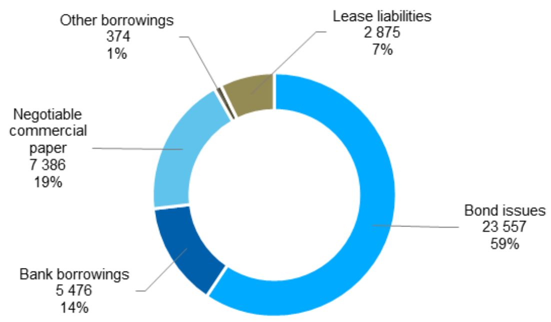
The Group's financing policy is based on:

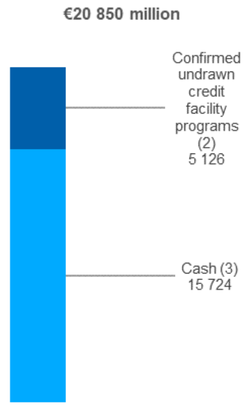
- centralizing external financing;
- diversifying sources of financing between credit institutions and capital markets;
- achieving a balanced debt repayment profile.

The Group seeks to diversify its sources of financing by carrying out public or private bond issues within the scope of its Euro Medium Term Notes program. It also issues negotiable commercial paper in France (Negotiable European Commercial Paper) and in the United States (U.S. Commercial Paper) as well as the issuance of deeply-subordinated perpetual notes. As negotiable commercial paper is relatively inexpensive and highly liquid, it is used by the Group in a cyclical or structural manner to finance its short-term cash requirements. However, the refinancing of all outstanding negotiable commercial paper remains secured by confirmed bank lines of credit – mainly centralized – allowing the Group to continue to finance its activities if access to this financing source were to dry up. These facilities are appropriate for the scale of its operations and for the timing of contractual debt repayments.

The various actions carried out by the Group ensure a high and reinforced level of liquidity.

Diversifying sources of financing and liquidity [1]
In millions of euros





(1) *These sources of financing and liquidity do not include the deeply-subordinated perpetual notes recognized in equity (see Note 16.2.1 "Issuance of deeply-subordinated perpetual notes").*
(2) *Net amount of negotiable commercial paper.*
(3) *Cash corresponds to cash and cash equivalents for €15,570 million, other financial assets deducted from net financial debt for €769 million, net of bank overdrafts and current accounts for €615 million, of which 78% was invested in the Eurozone.*

At December 31, 2022, all Group entities whose debt is consolidated complied with the covenants and declarations included in their financial documentation, except for some non-significant entities for which compliance actions are being implemented. None of the available centralized credit lines contain a default clause linked to financial ratios or rating level.

15.3.1 Undiscounted contractual payments relating to financial activities

Undiscounted contractual payments on outstanding borrowings and debt by maturity

In millions of euros	2023	2024	2025	2026	2027	Beyond 5 years	Total at Dec. 31, 2022	Total at Dec. 31, 2021
Bond issues	2,550	930	1,518	2,316	2,493	13,751	23,557	26,240
Bank borrowings	797	381	447	247	464	3,141	5,476	5,806
Negotiable commercial paper	7,386	-	-	-	-	-	7,386	4,962
Lease liabilities	403	398	304	275	251	1,624	2,875	2,043
Other borrowings	140	4	2	1	2	225	374	903
Bank overdrafts and current accounts	615	-	-	-	-	-	615	499

Other financial assets and cash and cash equivalents deducted from net financial debt have a liquidity of less than one year.

Undiscounted contractual interest payments on outstanding borrowings and debt by maturity

In millions of euros	2023	2024	2025	2026	2027	Beyond 5 years	Total at Dec. 31, 2022	Total at Dec. 31, 2021
Undiscounted contractual interest flows on outstanding borrowings and debt	916	796	757	701	602	7,358	11,131	10,676

Undiscounted contractual payments on outstanding derivatives (excluding commodity instruments) by maturity

In millions of euros	2023	2024	2025	2026	2027	Beyond 5 years	Total at Dec. 31, 2022	Total at Dec. 31, 2021
Derivatives (excluding commodity instruments)	(15)	(127)	(20)	(12)	(10)	423	239	126

To better reflect the economic substance of these transactions, the cash flows linked to the derivatives recognized in assets and liabilities shown in the table above relate to net positions.

Undiscounted contractual payments related to leases

At December 31, 2022, the Group, as lessee, was potentially exposed to future cash outflows not reflected in the measurement of lease liabilities for €1,407 million (of which approximately 72% relate to potential cash outflows beyond 2027). Those potential future cash outflows relate to leases not yet commenced to which the Group is committed (real estate and LNG vessels).

In addition, the Group is also exposed to future cash outflows in the form of variable lease payments in connection with the extension of the Rhone concession. These variable lease payments are dependent on revenue from electricity sales.

Undrawn credit facility programs

In millions of euros	2023	2024	2025	2026	2027	Beyond 5 years	Total at Dec. 31, 2022	Total at Dec. 31, 2021
Confirmed undrawn credit facility programs	1,339	854	5,670	-	4,004	644	12,511	11,961

Of these undrawn programs, an amount of €7,386 million is allocated to covering commercial paper issues.

At December 31, 2022, no single counterparty represented more than 10% of the Group's confirmed undrawn credit lines.

15.3.2 Undiscounted contractual payments relating to operating activities

The table below provides an analysis of undiscounted fair values due and receivable in respect of commodity derivatives recorded in assets and liabilities at the reporting date.

The Group provides an analysis of residual contractual maturities for commodity derivative instruments included in its portfolio management activities. Derivative instruments relating to trading activities are considered to be liquid in less than one year, and are presented under current items in the statement of financial position.

In millions of euros	2023	2024	2025	2026	2027	Beyond 5 years	Total at Dec. 31, 2022	Total at Dec. 31, 2021
Derivative instruments carried in								
relating to portfolio management	*(11,693)*	*(24,661)*	*(7,271)*	*(2,458)*	*(1,075)*	*(2,102)*	*(49,260)*	*(35,541)*
relating to trading activities	-	-	-	-	-	-	-	*(9,365)*
Derivative instruments carried in assets								
relating to portfolio management	*10,035*	*18,122*	*7,860*	*4,323*	*432*	*202*	*40,975*	*35,368*
relating to trading activities	*5,098*	-	-	-	-	-	*5,098*	*8,304*
TOTAL	**3,441**	**(6,538)**	**589**	**1,866**	**(644)**	**(1,900)**	**(3,187)**	**(1,234)**

15.3.3 Commitments relating to commodity purchase and sale contracts entered into in the ordinary course of business

Some Group operating companies have entered into long-term contracts, some of which include "take-or-pay" clauses. These consist of firm commitments to purchase or sell specified quantities of gas, electricity or steam as well as related services, in exchange for a firm commitment from the other party to deliver or purchase said quantities and services. These contracts were documented as falling outside the scope of IFRS 9. The table below shows the main future commitments arising from contracts entered into by GBU Renewables and GEMS (expressed in TWh).

In TWh	2023	2024-2027	Beyond 5 years	Total at Dec. 31, 2022	Total at Dec. 31, 2021
Firm purchases	(423)	(762)	(700)	(1,884)	(1,922)
Firm sales	435	552	256	1,243	1,421

NOTE 16 EQUITY

16.1 Share capital

	Number of shares			Value *(in millions of euros)*		
	Total	Treasury stock	Outstanding	Share capital	Additional paid-in capital	Treasury stock
AT DECEMBER 31, 2021	**2,435,285,011**	**(15,083,149)**	**2,420,201,862**	**2,435**	**26,058**	**(199)**
Dividend paid in cash	-	-	-	-	(394)	-
Link 2022 worldwide employee	-	13,079,518	13,079,518	-	-	171
Capital increase Link	3,081,774	-	3,081,774	3	29	-
Capital decrease Link	(3,081,774)	3,081,774	-	(3)	(27)	40
Purchase/disposal of treasury stock	-	(19,054,771)	(19,054,771)	-	-	(245)
Delivery of treasury stock (bonus)	-	3,446,201	3,446,201	-	-	43
Revaluation	-	-	-	-	-	-
AT DECEMBER 31, 2022	**2,435,285,011**	**(14,530,427)**	**2,420,754,584**	**2,435**	**25,667**	**(189)**

Changes in the number of shares during 2022 resulted from:

- employee share issues as part of the “Link 2022” worldwide employee share plan. All in all, 16.2 million shares were subscribed. At December 22, 2022 the transaction resulted in the sale to employees of 13.1 million shares purchased on the market in the fourth quarter of 2022 for €171 million and a capital increase of €32.4 million. The latter amount is divided into a capital increase of €3.1 million and additional paid-in capital of €29.3 million;
- a capital decrease of €40.4 million by the cancellation of 3.1 million shares in the form of a capital decrease, €10.7 million charged to consolidated reserves and €26.6 million charged to additional paid-in capital;
- the delivery of 3.4 million treasury shares as part of bonus share plans; and
- the purchase of 2.9 million of treasury shares on the market.

16.1.1 Potential share capital and instruments providing a right to subscribe for new ENGIE SA shares

Since 2017, the Group no longer has any stock purchase or subscription option plans.

Shares to be allocated under the performance share award plans described in Note 19 “Share-based payments” are covered by existing ENGIE SA shares.

16.1.2 Treasury stock

Accounting standards

Treasury shares are recognized at acquisition cost and deducted from equity. Gains and losses on disposals of treasury shares are recorded directly in equity and do not, therefore, impact income for the period.

The Group has a stock repurchase program as a result of the authorization granted to the Board of Directors by the Ordinary and Extraordinary Shareholders’ Meeting of April 21, 2022. This program provides for the repurchase of up to 10% of the shares comprising the share capital of ENGIE SA at the date of the said Shareholders’ Meeting. The aggregate amount of acquisitions net of expenses under the program may not exceed €7.3 billion, and the purchase price must be less than €30 per share excluding acquisition costs.

At December 31, 2022, the Group held 14.5 million treasury shares. To date, all the shares have been allocated to cover the Group's share commitments to employees and corporate officers.

The liquidity agreement signed with an investment service provider assigns to the latter the role of operating on the market on a daily basis, to buy or sell ENGIE SA shares, in order to ensure liquidity and an active market for the shares on the Paris and Brussels stock exchanges. To date, the resources allocated to the implementation of this agreement amount to €50 million.

16.2 Other disclosures concerning additional paid-in capital, consolidated reserves and issuance of deeply-subordinated perpetual notes (Group share)

Total additional paid-in capital, consolidated reserves and issuance of deeply subordinated perpetual notes (including net income for the year), amounted to €34,097 million at December 31, 2022, including €25,667 million in additional paid-in capital. Additional paid-in capital includes a portion of the cash dividend payment for 2021 in an amount of €394 million.

Consolidated reserves include the cumulative income of the Group, the legal and statutory reserves of ENGIE SA, cumulative actuarial gains and losses, net of tax and the change in fair value of equity instruments at fair value through OCI.

Under French law, 5% of the net income of French companies must be allocated to the legal reserve until the latter reaches 10% of share capital. This reserve can only be distributed to shareholders in the event of liquidation. The ENGIE SA legal reserve amounts to €244 million.

16.2.1 Issuance of deeply-subordinated perpetual notes

In October 2022, ENGIE SA carried out an early redemption of deeply subordinated perpetual notes for a total amount of €374 million, resulting in:

- A €244 million early redemption of green deeply subordinated perpetual notes (PERP NC 04/2023, a 1.375% coupon, ISIN code: FR0013310505), out of a residual nominal amount of €274 million. Following the redemption, the Group, having redeemed more than 80% of this deeply subordinated perpetual debt, carried out a squeeze-out for the remaining €30 million, paid on December 5, 2022;
- The partial early redemption of two other tranches of deeply-subordinated perpetual notes for a total amount of €100 million, i.e. :
  - €55 million (PERP NC 06/2024, a 3.875% coupon, ISIN code: FR0011942283), out of a residual nominal amount of green deeply subordinated perpetual notes of €393 million;
  - €45 million (PERP NC 07/2031, a 1.875% coupon, ISIN code: FR00140046Y4), out of a nominal amount of €750 million.

In accordance with IAS 32 - Financial Instruments - Presentation, and given their characteristics, these instruments are recognized in equity in the Group's consolidated financial statements.

At December 31, 2022, the outstanding nominal value of deeply subordinated perpetual notes amounted to €3,393 million (against €3,767 million at December 31, 2021).

In 2022, the Group paid €77 million to the holders of these notes, i.e., €90 million coupons, net of €13 million early redemption allowances received. This amount is accounted for as a deduction from equity in the Group's consolidated financial statements; the related tax saving is accounted for in the income statement.

16.2.2 Distributable capacity of ENGIE SA

ENGIE SA's distributable capacity totaled €27,365 million at December 31, 2022 (compared with €27,758 million at December 31, 2021), including €25,667 million of additional paid-in capital.

16.2.3 Dividends

It was proposed, at the Shareholders' Meeting convened to approve the ENGIE Group financial statements for the year ended December 31, 2021, to pay a dividend of €0.85 per share, representing a total payout of €2,060 million based on the number of shares outstanding at December 31, 2021. It was increased by 10% for all shares held for at least two years on December 31, 2021 and up to the 2021 dividend payment date. Based on the number of outstanding shares on December 31, 2021, this increase is valued at €22 million.

Proposed dividend in respect of 2022

At the Shareholders' Meeting convened to approve the ENGIE Group financial statements for the year ended December 31, 2022, the shareholders will be asked to approve a dividend of €1.40 per share, representing a total payout of €3 389 million based on the number of shares outstanding at December 31, 2022. It will be increased by 10% for all shares held for at least two years at December 31, 2022 and up to the 2022 dividend payment date. Based on the number of outstanding shares at December 31, 2022, this increase is valued at €40 million.

Subject to approval by the Shareholders' Meeting of Wednesday April 26, 2023, this dividend will be detached on Friday 28 April, 2023 and paid on Wednesday May 3, 2023. It is not recognized as a liability in the financial statements at December 31, 2022, since the financial statements at the end of 2022 were presented before the appropriation of earnings.

16.2.4 Other transactions

On March 31, 2022, the Group signed an agreement to sell a 49% interest, without loss of control, in a portfolio of two wind and one solar projects for 665 MW of renewable energy in the United States to the American group InfraRed Capital Partners. ENGIE continues to fully consolidate these assets and to operate and maintain them. This transaction resulted in an inflow of €224 million and a similar increase in equity.

16.3 Recyclable gains and losses recognized in equity (Group share)

All items shown in the table below correspond to cumulative gains and losses (Group share) at December 31, 2022 and December 31, 2021, which are recyclable to income in subsequent periods.

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Debt instruments	(369)	9
Net investment hedges (1)	(386)	(371)
Cash flow hedges (excl. commodity instruments) (1)	218	(699)
Commodity cash flow hedges (1)	(318)	4,383
Deferred taxes on the items above	(112)	(1,064)
Share of equity method entities accounted in recyclable items, net of tax (2)	300	(546)
Recyclable items relating to discontinued operations, net of tax	-	118
TOTAL RECYCLABLE ITEMS BEFORE TRANSLATION ADJUSTMENTS	**(668)**	**1,831**
Translation adjustments	(1,422)	(2,136)
TOTAL RECYCLABLE ITEMS	**(2,090)**	**(306)**

(1) See Note 15 "Risks arising from financial instruments".

(2) See Note 3 "Investments in equity method entities".

16.4 Capital management

ENGIE SA seeks to optimize its financial structure at all times by pursuing an optimal balance between its economic net debt and its EBITDA. The Group's key objective in managing its financial structure is to maximize value for shareholders and reduce the cost of capital, while ensuring that the Group has the financial flexibility required to continue its expansion. The Group manages its financial structure and makes any necessary adjustments in light of prevailing economic conditions. In this context, it may choose to adjust the amount of dividends paid to shareholders, reimburse a portion of capital, carry out share buybacks *(see Note 16.1.2 "Treasury stock")*, issue new shares, launch share-based payment plans, recalibrate its investment budget, or sell assets in order to scale back its net debt.

The Group's policy is to maintain an "strong investment grade" rating from the rating agencies. To achieve this, it manages its financial structure in line with the indicators usually monitored by these agencies, namely the Group's operating profile, financial policy and a series of financial ratios. One of the most commonly used ratios is the ratio where the numerator includes operating cash flows less cost of debt and taxes paid, and the denominator includes adjusted net financial debt. Net financial debt is mainly adjusted for nuclear provisions and provisions for pensions, as well as for 50% of hybrid debt (deeply-subordinated notes). In addition, the Group has issued a guidance targeting an "economic net debt to EBITDA" ratio less than or equal 4x.

The Group's objectives and processes for managing capital have remained unchanged over the past few years.

ENGIE SA is not obliged to comply with any external minimum capital requirements except those provided for by law.

NOTE 17 PROVISIONS

Accounting standards

General principles related to the recognition of a provision

The Group recognizes a provision where it has a present obligation (legal or constructive) towards a third party arising from past events and where it is probable that an outflow of resources will be necessary to settle the obligation with no expected consideration in return.

A provision for restructuring costs is recognized when the general criteria for setting up a provision are met, i.e., when the Group has a detailed formal plan relating to the restructuring and has raised a valid expectation in those affected that it will carry out the restructuring by starting to implement that plan or announcing its main features to those affected by it.

Provisions with a maturity of over 12 months are discounted when the effect of discounting is material. The Group's main long-term provisions are provisions for the back-end of the nuclear fuel cycle, provisions for dismantling facilities, provisions for site restoration costs, and provisions for post-employment and other long-term benefits. The discount rates used reflect current market assessments of the time value of money and the risks specific to the liability concerned. Expenses with respect to unwinding the discount on the provision are recognized as other financial income and expenses.

Estimates of provisions

Factors having a significant influence on the amount of provisions, and particularly, but not solely, those relating to the back-end of the nuclear fuel cycle, to the dismantling of nuclear facilities and of gas infrastructures in France, include:

- cost estimates (notably the retained scenario for managing radioactive nuclear fuel consumed) (*see Note 17.2*);
- the timing of expenditure (notably, for nuclear power generation activities, the timetable for reprocessing radioactive nuclear fuel consumed and for dismantling facilities as well as the timetable for the end of gas operations regarding the main gas infrastructure businesses in France) (*see Notes 17.2 and 17.3*); and
- the discount rate applied to cash flows.

These factors are based on information and estimates deemed by the Group to be the most appropriate as of today.

Modifications to certain factors could lead to a significant adjustment in these provisions.

In millions of euros	Post-employment and other long-term benefits	Back-end of the nuclear fuel cycle and dismantling of nuclear facilities	Dismantling of non-nuclear facilities	Other contingencies	Total
AT DECEMBER 31, 2021	**7,000**	**15,119**	**1,172**	**2,169**	**25,459**
Additions	279	1,028	6	669	1,981
Utilizations	(379)	(163)	(62)	(630)	(1,235)
Reversals	(1)	-	-	(41)	(42)
Changes in scope of consolidation	29	-	(3)	46	72
Impact of unwinding discount adjustments	89	454	28	5	576
Translation adjustments	13	-	14	4	32
Other	(2,558)	2,579	175	(13)	184
AT DECEMBER 31, 2022	**4,471**	**19,017**	**1,330**	**2,209**	**27,027**
Non-current	4,393	18,594	1,329	346	**24,663**
Current	78	423	1	1,863	**2,365**

The impact of unwinding discount adjustments in respect of post-employment and other long-term benefits relates to the interest expense on the benefit obligation, net of interest income on plan assets.

The “Other” line mainly comprises actuarial gains and losses arising on post-employment benefit obligations in 2022, which are recorded in “Other comprehensive income” as well as provisions recorded against a dismantling or site rehabilitation asset.

Additions, utilizations, reversals and the impact of unwinding discount adjustments are presented as follows in the consolidated income statement:

In millions of euros	Dec. 31, 2022
Income/(loss) from operating activities	(738)
Other financial income and expenses	(577)
TOTAL	**(1,315)**

The different types of provisions and the calculation principles applied are described below.

17.1 Post-employment benefits and other long-term benefits

See Note 18 “Post-employment benefits and other long-term benefits”.

17.2 Obligations relating to nuclear power generation activities

In the context of its nuclear power generation activities, the Group assumes obligations related to the management of the back-end of the nuclear fuel cycle and the dismantling of nuclear facilities.

17.2.1 Legal framework

The Belgian law of April 11, 2003, partially repealed and amended by the law of July 12, 2022, granted Group subsidiary Synatom responsibility for managing provisions set aside to cover the costs of dismantling nuclear power plants and managing spent fuel. The tasks of the Commission for Nuclear Provisions (CNP) set up pursuant to the above-mentioned law is to oversee the process of computing and managing these provisions.

In accordance with the law, every three years the CNP conducts an audit of the application and adequacy of the calculation methods used to compute nuclear provisions.

To this end, Synatom submitted its triennial report on the revaluation of nuclear provisions to the CNP on September 2, 2022, which issued a set of remarks on December 16, 2022, confirming the reference scenarios, adding additional costs and adjusting the discount rates. The provisions recorded as of December 31, 2022 take full account of the comments and assumptions made by the CNP.

However, contesting some of the CNP's remarks as being overly conservative or technically unsuitable, the Group submitted a new adapted proposal on February 14, 2023, in accordance with the law, explaining the reasons why it considered that these remarks could not be implemented. The CNP will then give its final opinion, if necessary, under the jurisdiction of the Belgian Market Court in Brussels.

In addition, with a view to a possible extension of the Doel 4 and Tihange 3 nuclear reactors, the ENGIE Group has entered into discussions with the Belgian government on the capping of nuclear waste processing costs for ENGIE, which represent approximately 58% of the total provisions recorded at December 31, 2022. A letter of intent between the parties was signed on July 22, 2022, then reiterated and supplemented by a non-binding agreement in principle dated January 9, 2023. These documents provide for broad agreements in principle by March 15 and a binding agreement by June 2023. Assuming that the parties reach an agreement, the difference between the amount of the cap and the amount of the provisions recognized at December 31, 2022 would constitute a liability to be recognized.

In the absence of an overarching agreement to date, the provisions recognized at December 31, 2022 do not take into account any additional commitments or adjustments to the Group's liabilities that may result from these discussions and remain based on the current contractual and legal framework, which sets the operating life of the nuclear units at 50 years for Tihange 1 and Doel 1 and 2, and at 40 years for the other units.

The provisions include in their assumptions all existing or planned environmental regulatory requirements on a European, national and regional level. If new legislation were to be introduced in the future, the cost estimates used as a basis for the calculations could vary.

The estimated provision amounts include margins for contingencies and other risks that may arise in connection with dismantling and radioactive spent fuel management procedures. Contingency margins relating to the disposal of waste are determined by the Belgian Agency for Radioactive Waste and Enriched Fissile Material (ONDRAF) and built into its fees. The Group also estimates appropriate margins for each cost category.

The CNP's remarks and the obligations related to projects to dispose of nuclear waste have resulted in a €3.3 billion increase in the ENGIE Group's nuclear liabilities, in addition to the net recurring annual expense for the year due mainly to a decrease in the discount rate used for the provision for managing spent fuel and an increase in certain costs used to estimate the provision for dismantling nuclear power plants.

Lastly, the amount recorded for these provisions may also be revised in the event of an agreement yet to be signed with the Belgian government.

The breakdown of dismantling provisions between Synatom and Electrabel is shown below:

In millions of euros	Current	Non-current	Dec. 31, 2022
Provisions for dismantling nuclear facilities – Synatom	305	8,464	**8,769**
Provisions for the back-end of the nuclear fuel cycle – Synatom	118	8,970	**9,088**
Provisions for dismantling nuclear facilities – Electrabel	-	1,160	**1,160**
TOTAL	**423**	**18,594**	**19,017**

17.2.2 Provisions for the back-end of the nuclear fuel cycle

Accounting standards

Allocations to provisions for the management of spent fuel are computed based on the average unit cost of the quantities expected to be used up to the end of the operating life of the plants, applied to quantities used at the closing date. An annual allocation is also recognized with respect to unwinding the discount on the provisions.

When spent fuel is removed from a reactor and temporarily stored on-site, it requires conditioning, before being consigned to long-term storage.

The long-term disposal assumption in the scenario adopted by the CNP is based on the assumption that the waste will be buried in a deep geological repository at a site yet to be identified and classified in Belgium. This scenario has not yet been confirmed, as Belgium has not yet adopted a national program that complies with Article 12 of Directive 2011/70/EURATOM. On November 27, 2019, the European Commission sent a reasoned opinion to Belgium under the breach procedure provided for in Article 258 of the Treaty on the Functioning of the European Union. A Royal Decree issued on October 28, 2022 has since introduced "the first part of the National Policy for the Long-Term Management of High-Level and/or Long-Lived Radioactive Waste and specifying the process for the introduction in phases of the other parts of this National Policy". This Royal Decree confirms that "the disposal deep underground of this waste on Belgian territory on one or more sites" is "the preliminary draft concept for the long-term management of the radioactive waste referred to in Article 3, pending the outcome of the decision-making process (...)". It also sets out "the reversibility of the National Policy, which implies that, following reconsideration, one or more parts of this Policy may be reversed". It is therefore not possible to guarantee that Belgium will retain the disposal deep underground of category B waste – i.e., low- or medium-activity long-lived waste from dismantling - and category C waste – i.e., high-activity and/or long-lived waste – as its technical solution of choice.

If this assumption were to be challenged, the costs of downstream management may need to be adjusted. The ENGIE Group has also sent a formal notice to the Belgian State requesting that it put an end to the uncertainty created by this state of affairs and to the damage caused by having postponed the various projects necessary for the management of nuclear waste in Belgium, and reserves its right to seek compensation if necessary.

In view of a series of developments in the nuclear fuel market, Synatom has proposed, and the CNP has confirmed, that the scenario of reprocessing a portion of fuel in order to allow for the processing of MOX fuel historically used in Belgian power plants, in particular, could no longer be the reference scenario. Contrary to previous assessments, the reference scenario no longer includes the cost of a reprocessing contract or the associated margins for contingencies, but includes an assumption that MOX will be directly disposed of deep underground. Should circumstances change, the costing may be revised.

The provisions booked by the Group for managing spent fuel cover all of the costs linked to this scenario, including on-site storage, transportation, conditioning, storage and geological disposal. They are calculated based on the following principles and inputs:

- storage costs primarily comprise the costs of building and operating additional dry storage facilities and operating existing facilities, along with the costs of purchasing containers;
- radioactive spent fuel that has not been reprocessed is to be conditioned, which requires conditioning facilities to be built according to ONDRAF's approved criteria. ONDRAF's recommendations as regards the cost of these facilities have been fully taken into account;
- the cost of burying fuel in deep geological repositories is estimated using the fee rate established by ONDRAF based on a total disposal facility cost of €12 billion;
- the long-term obligation is calculated using estimated internal costs and external costs assessed based on offers received from third parties;
- the baseline scenario includes ONDRAF's latest scenario, with geological storage starting in around 2070 and ending in around 2135;
- the discount rate used by the CNP is 3.0% (including inflation of 2.0%).

The costs effectively incurred in the future may differ from the estimates in terms of their nature and timing of payment. Certain ONDRAF recommendations that have not yet been quantified will be discussed by the CNP, which will issue an additional opinion in 2023 if necessary.

Sensitivity

Provisions for the back-end of the nuclear fuel cycle remain sensitive to assumptions regarding costs, the timing of operations and expenditure, as well as to discount rates:

- on the basis of an analysis carried out by ENGIE Group experts, certain remarks made by the CNP as part of the triennial review procedure described above are considered as unjustified and have been the subject of a reasoned opinion sent to the CNP. The impact of taking this opinion into account (at a discount rate of 3.0% as recommended by the CNP) would represent a decrease in provisions of €0.5 billion.

- ENGIE is also contesting the 25 basis points reduction from the previous rate and the 50 basis points reduction from Synatom's initial proposal. Maintaining the 3.25% rate used since 2019 would represent a decrease in provisions of €0.7 billion.
- These various elements were the subject of a reasoned opinion sent by the ENGIE Group to the CNP on February 14, 2023, as provided for by the law of July 12, 2022.
- A 10% increase in ONDRAF's fees above the fee for the removal of category C waste would lead to an increase in provisions of approximately €0.3 billion based on unchanged contingency margins

17.2.3 Provisions for dismantling nuclear facilities

Accounting standards

A provision is recognized when the Group has a present legal or constructive obligation to dismantle facilities or to restore a site. The present value of the obligation at the time of commissioning represents the initial amount of the provision for dismantling with, as the counterpart, an asset for the same amount, which is included in the carrying amount of the facilities concerned. This asset is depreciated over the operating life of the facilities and is included in the scope of assets subject to impairment tests. Adjustments to the provision due to subsequent changes in (i) the expected outflow of resources, (ii) the timing of dismantling expenses or (iii) the discount rate, are deducted from or subject to specific conditions, added to the cost of the corresponding asset. The impacts of unwinding the discount are recognized in expenses for the period.

A provision is also recorded for nuclear units for which the Group holds a capacity right up to its share of the expected dismantling costs to be borne by the Group.

Nuclear power plants have to be dismantled at the end of their operating life. Provisions are set aside in the Group's financial statements to cover all costs relating to (i) the shutdown phase, which involves removing radioactive spent fuel from the site and (ii) the dismantling phase, which consists of decommissioning and cleaning up the site.

The dismantling strategy is based on the facilities being dismantled (i) immediately after the reactor is shut down, (ii) on a mass basis rather than on a site-by-site basis, and (iii) completely, the land being subsequently returned to greenfield status.

Provisions for dismantling nuclear facilities are calculated based on the following principles and inputs:

- the start of the technical shutdown procedures depends on the facility concerned and on the timing of operations for the nuclear reactor as a whole. The shutdown procedures are immediately followed by dismantling operations;
- the scenario adopted is based on a dismantling program and on timetables that have to be approved by the nuclear safety authorities. A dialogue on the safety conditions for the shutdown and dismantling phases of the power plants has been initiated with the Belgian Federal Agency for Nuclear Control (AFCN). The costs may change depending on the outcome of these discussions and the detailed schedule for the implementation of these phases which is currently being defined;
- costs payable over the long term are calculated by reference to the estimated costs for each nuclear facility, based on a study conducted by independent experts under the assumption that the facilities will be dismantled on a mass basis. The costs effectively incurred in the future may differ from the estimates in terms of their nature and timing of payment.
- fees for handling Class A - low or medium activity and short-lived - and B - low or medium activity and long-lived dismantling waste are determined using the fee rate established by ONDRAF and include the margins recommended by ONDRAF for waste reclassification risk given the uncertainty over the definition of the criteria for classification in those classes; the difficulty in obtaining operating permits for class A waste storage led ONDRAF to redefine a technical solution for storage and set a new assessment in 2022;

- for the various phases, margins for contingencies, reviewed by ONDRAF and the Commission for Nuclear Provisions, are included;
- an inflation rate of 2.0% is applied until the dismantling obligations expire in order to determine the value of the future obligation;
- the discount rate used by the CNP is 2.5% (including inflation of 2.0%).

In addition, the liabilities for the disposal of operational waste at Electrabel include the tariff update approved by the Board of Directors of ONDRAF in May 2022.

Lastly, the Group has also set aside provisions, based on provisions for the Belgian assets most closely related to these plants, to cover the costs relating to the final shutdown phase of its drawing rights in Tricastin and Chooz B, as well as for the dismantling period leading to the decommissioning and clean-up of the Chooz B site, in accordance with the respective agreements with EDF.

Sensitivity

- On the basis of an analysis carried out by ENGIE Group experts, certain remarks made by the CNP as part of the triennial review procedure described above are considered as unjustified and have been the subject of a reasoned opinion sent to the CNP. The impact of taking this opinion into account (at a discount rate of 2.50% as recommended by the CNP) would represent a decrease in provisions of €0.6 billion.

- Based on currently applied inputs for estimating costs and the timing of payments, a change of 10 basis points in the discount rate used could lead to an adjustment of approximately €85 million in dismantling provisions. A fall in discount rates would lead to an increase in outstanding provisions, while a rise in discount rates would reduce the provision amount.

17.2.4 Financial assets set aside to cover the future costs of dismantling nuclear facilities and managing radioactive fissile material

17.2.4.1 Principles, objectives and governance

As indicated above, the Belgian law of July 12, 2022, partially repealing and amending the law of April 11, 2003, granted the Group's wholly-owned subsidiary Synatom responsibility for managing and investing funds received from operators of nuclear power plants in Belgium and intended to cover the costs of dismantling nuclear power plants and managing spent fuel. Pursuant to the law of April 11, 2003, Synatom could lend up to 75% of these funds to nuclear power plant operators provided that certain credit quality criteria are met.

In accordance with the law of July 12, 2022, the amount of the outstanding loans between Synatom and the nuclear operators representing the countervalue of the provisions for managing spent fuel will be repaid by December 31, 2025 to Synatom according to a schedule provided for in the law. The amount of the outstanding loans between Synatom and Electrabel representing the countervalue of the dismantling provisions will be repaid to Synatom by December 31, 2030 according to a schedule provided for in the law.

The percentage of the provisions not subject to loans to nuclear operators is invested by Synatom either in external financial assets or in loans to legal entities meeting the "credit quality" criteria imposed by law.

Accordingly, in 2022, Synatom invested nearly €1.9 billion in such assets.

Synatom's objective in terms of investment in these assets is to offer, in the long term and for an acceptable level of risk, a sufficient return, in order to cover dismantling costs and the management of radioactive fissile material, under the constraints of diversification, risk minimization and availability as defined by the law of July 12, 2022.

The Synatom Board of Directors and its Investment Committee are responsible for defining Synatom's investment policy after consultation with the CNP, in accordance with the law of July 12, 2022. Based on a rigorous risk control policy, the Investment Committee oversees investment decisions, which are managed by a team headed by an investment director.

17.2.4.2 Strategic allocation and composition of financial assets

The strategic allocation of financial assets is determined on the basis of a periodic asset-liability analysis, which consists of determining the asset categories and their respective weighting in order to meet the return objective while respecting the risk framework identified for each type of liability.

This allocation varies according to the type of liability and the different investment horizons and discount rates. Separate risk profiles are considered for:

- assets in relation to provisions for dismantling nuclear power plants,
- assets in relation to provisions for managing spent fuel.

The target allocation of plan assets based on the two aforementioned risk profiles is as follows:

In %	Management of radioactive fissile material	Dismantling
Shares	40%	35%
Bonds	40%	55%
Unlisted assets	20%	10%
TOTAL	**100%**	**100%**

Listed equities consist of international securities. Listed bonds consist of international sovereign bonds and international corporate bonds. Unlisted assets consist of securities representing funds or real estate, private equity, infrastructure or private debt investment vehicles. Investments are managed by specialized asset management companies.

Synatom believes that the inclusion of Environmental, Social and Governance (ESG) principles in investment decisions allows for better management of non-financial risks in order to generate long-term sustainable returns. The integration of ESG principles implies a broader consideration of the risks and opportunities that can influence financial performance. The selection process for external managers also incorporates ESG principles.

To implement this investment policy, Synatom has an investment company with variable share capital (SICAV) under Luxembourg law, the Nuclear Investment Fund (“NIF”), and an investment company with variable share capital under Belgian law, the Belgian Nuclear Liabilities Fund ("BNLF").

17.2.4.3 Changes in financial assets in 2022

The value of financial assets dedicated to covering nuclear provisions amounted to €6,626 million at December 31, 2022, and their return was -13.56% for the year. 2022 was marked by unprecedented events that greatly increased the volatility of global equity and bond markets. The inflationary pressures that followed the Covid crisis prompted the various central banks to carry out a series of interest rate hikes. Mixed published macroeconomic data and the war in Ukraine have particularly impacted the equity markets, especially in Europe. All asset classes, except monetary assets, had negative returns in 2022.

17.2.4.4 Valuation of financial assets in 2022

Loans to entities outside the Group and other cash investments are shown in the table below:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Loans to third parties	**5**	**8**
Loan to Sibelga	5	8
Other loans and receivables at amortized cost	**2,270**	**167**
Debt instruments - restricted cash UCITS	2,270	167
Total loans and receivables at amortized cost	**2,276**	**175**
Equity and debt instruments at fair value	863	1,509
Equity instruments at fair value through other comprehensive income	24	11
Equity instruments at fair value through income	**887**	**1,520**
Debt instruments at fair value through other comprehensive income	2,418	2,254
Debt instruments at fair value through income	933	1,552
Debt instruments at fair value	**3,350**	**3,806**
Total equity and debt instruments at fair value	**4,237**	**5,326**
Derivative instruments	**113**	**4**
TOTAL (1)	**6,626**	**5,505**

(1) Not including €308 million in uranium inventories at December 31,2022 (€414 million at December 31, 2021).

Loans to legal entities outside the Group and the cash held by the Undertaking for Collective Investment in Transferable Securities (UCITS) are presented in the statement of financial position under "Loans and receivables at amortized cost". Bonds and associated hedging instruments held by Synatom through the UCITS are presented under equity or debt instruments (*see Note 14.1 "Financial assets"*).

The breakdown in the change in the cumulative fair value of Synatom's assets is presented as follows:

	Cumulative change in the fair value of dedicated financial assets	
In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Equity instruments at fair value through other comprehensive income	(157)	116
Debt instruments at fair value through other comprehensive income	(282)	51
Debt instruments at fair value through income	(52)	154
TOTAL	**(491)**	**321**

Net loss for the period generated by these assets amounted to €210 million in 2022 (gain of €228 million in 2021).

	Effects on the result of the return on dedicated financial assets	
In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Disposal proceeds	14	50
Dividends received	66	45
Interest received	7	7
Change in fair value of derivatives not designated as hedges	(15)	(115)
Change in fair value of dedicated assets through income	(282)	241
TOTAL	**(210)**	**228**

17.3 Dismantling of non-nuclear plant and equipment and site rehabilitation

17.3.1 Dismantling obligations arising on non-nuclear plant and equipment

Certain items of plant and equipment, including conventional power stations, transmission and distribution pipelines, storage facilities and LNG terminals, have to be dismantled at the end of their operational lives or at least safely shut down. These obligations are the result of prevailing environmental regulations in the countries concerned, contractual agreements, or an implicit Group commitment. The most important issue for the Group concerns gas infrastructures in France.

France's political and societal guidelines for the energy transition aim to achieve carbon neutrality by 2050, by reducing greenhouse gas emissions and promoting renewable or so-called "green" energies, particularly biomethane and hydrogen. The various scenarios that make it possible to achieve carbon neutrality, in particular the National Low Carbon Strategy in France, the French Environment and Energy Management Agency (ADEME) scenarios, and the "Energy Futures" study by the electricity transmission system operator, RTE, all lead to a significant decrease in the quantities of gas consumed, while maintaining a high number of gas connection points to manage peak electricity demand. The Group is closely analyzing this prospect, particularly for the purpose of defining its strategy and assessing the useful life of assets and evaluating provisions for their possible dismantling.

The future French Strategy for Energy and Climate (SFEC) will set out France's updated roadmap to achieve carbon neutrality by 2050 and ensure that France can adapt to the impacts of climate change. It will encompass the first five-year programming law on energy and the climate (LPEC), which must be adopted before the end of first-half 2023 and set out in the *National Low-Carbon Strategy* (SNBC, 3rd issue), the *National Climate Change and Adaptation Plan* (PNACC, 3rd issue) and the *Long Term Energy Schedule* (PPE 2024-2033), which must be adopted in the first half of 2024. Consequently, the next five-year review of the PPE and the SNBC will be preceded for the first time by the adoption of a programming law on energy and the climate, which will set the French policy for energy and climate's priorities for action.

In line with the objective of carbon neutrality by 2050, the long-term scenario adopted by the Group, which governs the implementation of its strategy, is one that combines reasonable electrification, i.e. just under 50% of final demand in 2050, with the development of a diversified range of green gases (biomethane, synthesized e-CH_4, natural gas with the Carbon-Capture and Storage process, pure hydrogen). The scenario used by the Group is close to the ADEME's S3 scenario.

Due to the importance of green gases in the French energy mix scheduled for 2050 and beyond, gas infrastructures will remain largely necessary and will be essential to provide flexibility to the energy system. The adaptation and conversion of these infrastructures to green gas mean that they can be used in the very distant future, which means that the present value of provisions for their dismantling is almost zero, except in the specific cases of LNG terminals and reduced operation and non-regulated storage sites, for which provisions for dismantling amounted to €382 million at December 31, 2022 and €402 million at December 31, 2021.

Given its time horizon and the many underlying inputs (in particular, better knowledge of the compatibility of gas infrastructures with hydrogen, and changes in French and European public policies), the Group will continue to assess the long-term scenario that will enable it to achieve carbon neutrality by 2050 on a regular basis. These assessments will be accompanied by a review of the valuation of dismantling provisions.

17.3.2 Hazelwood Power Station & Mine (Australia)

The Group and its partner Mitsui announced in November 2016 their decision to close the coal-fired Hazelwood Power Station, and cease coal extraction operations from the adjoining mine from late March 2017. The Group holds a 72% interest in the former 1,600 MW power station and adjoining coal mine, which has been consolidated as a joint operation.

At December 31, 2022, the Group's share (72%) of the provision covering the obligation to dismantle and rehabilitate the mine amounted to €220 million, versus €251 million at December 31, 2021.

Dismantling and site rehabilitation work commenced in 2017 and focused on: managing site contamination; planning site wide environmental clean-up; the demolition and dismantling of all of the site's industrial facilities, including the former power station; and ongoing aquifer pumping and designated earthworks within the mine to ensure mine floor and batter stability with a view to long-term rehabilitation into a pit lake.

Several policies and laws that have a direct or indirect impact on mine rehabilitation and on the agencies that administer them have recently been reformed. Consequently, the ultimate regulatory obligations are likely to be revised during the life of the project and could therefore have an impact on provisions.

The average discount rate used to determine the amount of the provisions is 4%.

The amount of the provision recognized is based on the Group's best current estimate of the demolition and rehabilitation costs that Hazelwood is expected to incur. However, the amount of this provision may be adjusted in the future to take into account any changes in the key inputs.

17.4 Other contingencies

This caption essentially includes provisions for commercial litigation, tax claims and disputes (except income tax, pursuant to IFRIC 23) as well as provisions for onerous contracts relating to storage and transport capacity reservation contracts.

NOTE 18 POST-EMPLOYMENT BENEFITS AND OTHER LONG-TERM BENEFITS

Accounting standards

Depending on the laws and practices in force in the countries where the Group operates, Group companies have obligations in terms of pensions, early retirement payments, retirement bonuses and other benefit plans. Such obligations generally apply to all employees within the companies concerned.

The Group's obligations in relation to pensions and other employee benefits are recognized and measured in compliance with IAS 19. Accordingly:

- the cost of defined contribution plans is expensed based on the amount of contributions payable in the period;
- the Group's obligations concerning pensions and other employee benefits payable under defined benefit plans are assessed on an actuarial basis using the projected unit credit method. These calculations are based on assumptions relating to mortality, staff turnover and estimated future salary increases, as well as the economic conditions specific to each country or entity of the Group. Discount rates are determined by reference to the yield, at the measurement date, on investment grade corporate bonds in the related geographical area (or on government bonds in countries where no representative market for such corporate bonds exists).

Pension commitments are measured on the basis of actuarial assumptions. The Group considers that the assumptions used to measure its obligations are relevant and documented. However, any change in these assumptions could have a significant impact on the resulting calculations.

Provisions are recorded when commitments under these plans exceed the fair value of plan assets. Where the value of plan assets (capped where appropriate) is greater than the related commitments, the surplus is recorded as an asset under "Other assets" (current or non-current).

As regards post-employment benefit obligations, actuarial gains and losses are recognized in other comprehensive income. Where appropriate, adjustments resulting from applying the asset ceiling to net assets relating to overfunded plans are treated in a similar way. However, actuarial gains and losses on other long-term benefits such as long-service awards, are recognized immediately in profit or loss.

Net interest on the net defined benefit liability (asset) is presented in net financial income/(loss).

18.1 Description of the main pension plans

18.1.1 Companies belonging to the Electricity and Gas Industries sector in France

Since January 1, 2005, the CNIEG (*Caisse Nationale des Industries Électriques et Gazières*) has operated the pension, disability, death, occupational accident and occupational illness benefit plans for electricity and gas industry (hereinafter "EGI") companies in France. The CNIEG is a social security legal entity under private law placed under the joint responsibility of the ministries in charge of social security and the budget.

Employees and retirees of EGI sector companies have been fully affiliated to the CNIEG since January 1, 2005. The main affiliated Group entities are ENGIE SA, GRDF, GRTgaz, Elengy, Storengy, ENGIE Thermique France, CPCU, CNR and SHEM.

Following the funding reform of the special EGI pension plan introduced by Law No. 2004-803 of August 9, 2004 and its implementing decrees, specific benefits (pension benefits on top of the standard benefits payable under ordinary law) already vested at December 31, 2004 ("past specific benefits") were allocated between the various EGI entities. Past specific benefits (benefits vested at December 31, 2004) relating to regulated transmission and distribution businesses ("regulated past specific benefits") are funded by the levy on gas and electricity transmission and distribution services (*Contribution Tarifaire d'Acheminement*) and therefore no longer represent an obligation for the ENGIE Group. Unregulated past specific benefits (benefits vested at December 31, 2004) are funded by EGI sector companies to the extent defined by Decree No. 2005-322 of April 5, 2005.

The special EGI pension plan is a legal pension plan available to new entrants.

The specific benefits vested under the plan since January 1, 2005 are wholly financed by EGI sector companies in proportion to their respective weight in terms of payroll costs within the EGI sector.

As this plan is a defined benefit plan, the Group has set aside a pension provision in respect of specific benefits payable to employees of unregulated activities and specific benefits vested by employees of regulated activities since January 1, 2005. This provision also covers the Group's early retirement obligations. The provision amount may be subject to fluctuations based on the weight of the Group's companies within the EGI sector.

Pension benefit obligations and other "mutualized" obligations are assessed by the CNIEG.

At December 31, 2022, the projected benefit obligation in respect of the special pension plan for EGI sector companies amounted to €2.6 billion.

The duration of the pension benefit obligation of the EGI pension plan is 20 years.

18.1.2 Companies belonging to the electricity and gas sector in Belgium

In Belgium, the rights of employees in electricity and gas sector companies, principally Electrabel, Laborelec and some ENGIE Energy Management Trading and ENGIE CC employee categories, are governed by collective bargaining agreements.

These agreements, applicable to "wage-rated" employees recruited prior to June 1, 2002 and managerial staff recruited prior to May 1, 1999, specify the benefits entitling employees to a supplementary pension equivalent to 75% of their most recent annual income, for a full career and in addition to the statutory pension. These top-up pension payments provided under defined benefit plans are partly reversionary. In practice, the benefits are paid in the form of a lump sum for the majority of plan participants. Most of the obligations resulting from these pension plans are financed through pension funds set up for the electricity and gas sector and by certain insurance companies. Pre-funded pension plans are financed by employer and employee contributions. Employer contributions are calculated annually based on actuarial assessments.

The projected benefit obligation relating to these plans represented around 23% of total pension obligations and related liabilities at December 31, 2022. The average duration is nine years.

"Wage-rated" employees recruited after June 1, 2002 and managerial staff (i) recruited after May 1, 1999 or (ii) having opted for the transfer through defined contribution plans, are covered under defined contribution plans. Prior to January 1, 2017, the law specified a minimum average annual return (3.75% on wage contributions and 3.25% on employer contributions) when savings are liquidated.

The law on supplementary pensions, approved on December 18, 2016 and enforced on January 1, 2017 henceforth specifies a minimum rate of return, depending on the actual rate of return of Belgian government bonds, within a range of 1.75%-3.25% (the rates are now identical for employee and employer contributions). In 2022, the minimum rate of return stood at 1.75%.

An expense of €38 million was recognized in 2021 and 2022 in respect of these defined contribution plans.

18.1.3 Other pension plans

Most other Group companies also grant their employees retirement benefits. In terms of financing, pension plans within the Group are almost equally split between defined benefit and defined contribution plans.

The Group's main pension plans outside France, Belgium and the Netherlands concern:

- the United Kingdom: the large majority of defined benefit pension plans is now closed to new entrants and future benefits no longer vest under these plans. All entities run a defined contribution scheme. The pension obligations of International Power's subsidiaries in the United Kingdom are covered by the special Electricity Supply Pension Scheme (ESPS). The assets of this defined benefit scheme are invested in separate funds. Since June 1, 2008, the scheme has been closed and a defined contribution plan has been set up for new entrants;
- Germany: the Group's German subsidiaries have closed their defined benefit plans to new entrants and now offer defined contribution plans;
- Brazil: ENGIE Brasil Energia operates its own pension scheme. This scheme has been split into two parts, one for the (closed) defined benefit plan, and the other for the defined contribution plan that has been available to new entrants since the beginning of 2005.

18.2 Description of other post-employment benefit obligations and other long-term benefits

18.2.1 Other benefits granted to current and former EGI sector employees

Other benefits granted to EGI sector employees are:

- Post-employment benefits:
  - reduced energy prices;
  - end-of-career indemnities;
  - bonus leave;
  - death capital benefits.
- Long-term benefits:
  - allowances for occupational accidents and illnesses;
  - temporary and permanent disability allowances;
  - long-service awards.

The Group's main obligations are described below.

18.2.1.1 Reduced energy prices

Under Article 28 of the national statute for electricity and gas industry personnel, all employees (current and former employees, provided they meet certain length-of-service conditions) are entitled to benefits in kind, which take the form of reduced energy prices known as "employee rates".

This benefit entitles employees to electricity and gas supplies at a reduced price. For retired employees, this provision represents a post-employment defined benefit. Retired employees are only entitled to the reduced rate if they have completed at least 15 years' service within EGI sector companies.

In accordance with the agreements signed with EDF in 1951, ENGIE provides gas to all current and former employees of ENGIE and EDF, while EDF supplies electricity to these same beneficiaries. ENGIE pays (or benefits from) the balancing contribution payable in respect of its employees as a result of energy exchanges between the two utilities.

The obligation to provide energy at a reduced price to current and former employees during their retirement is measured as the difference between the energy sale price and the preferential rate granted (including, in 2022, the impacts of the tariff shield for electricity) and the preferential rate granted.

The provision set aside in respect of reduced energy prices stood at €2.8 billion at December 31, 2022. The duration of the obligation is 20 years.

18.2.1.2 End-of-career indemnities

Retiring employees (or their dependents in the event of death during active service) are entitled to end-of-career indemnities, which increase in line with the length of service within the EGI sector.

18.2.1.3 Compensation for occupational accidents and illnesses

EGI sector employees are entitled to compensation for accidents at work and occupational illnesses. These benefits cover all employees or the dependents of employees who die as a result of occupational accidents or illnesses, or injuries undergone on the way to work.

The amount of the obligation corresponds to the likely present value of the benefits to be paid to current beneficiaries, taking into account any reversionary annuities.

18.2.2 Other benefits granted to employees of the gas and electricity sector in Belgium

Electricity and gas sector companies also grant other post-employee benefits such as the reimbursement of medical expenses, electricity and gas price reductions, as well as length-of-service awards and early retirement schemes. These benefits are not prefunded, with the exception of the special "*allocation transitoire*" termination indemnity, considered as an
end-of-career indemnity.

18.2.3 Other collective agreements

Most other Group companies also grant their staff post-employment benefits (early retirement plans, medical coverage, benefits in kind, etc.) and other long-term benefits such as jubilee and length-of-service awards.

18.3 Defined benefit plans

18.3.1 Amounts presented in the statement of financial position and statement of comprehensive income

In accordance with IAS 19, the information presented in the statement of financial position relating to post-employment benefit obligations and other long-term benefits results from the difference between the gross projected benefit obligation and the fair value of plan assets. A provision is recognized if this difference is positive (net obligation), while a prepaid benefit cost is recorded in the statement of financial position when the difference is negative, provided that the conditions for recognizing the prepaid benefit cost are met.

Changes in provisions for pension plans, post-employment benefits and other long-term benefits, plan assets and reimbursement rights recognized in the statement of financial position are as follows:

In millions of euros	Provisions	Plan assets	Reimbursement rights
AT DECEMBER 31, 2021	**(6,999)**	**72**	**229**
Exchange rate differences	(22)	(2)	-
Changes in scope of consolidation and other	109	(94)	(29)
Actuarial gains and losses	2,466	308	-
Periodic pension cost	(331)	(23)	2
Contributions/benefits paid	306	55	6
AT DECEMBER 31, 2022	**(4,471)**	**316**	**208**

Plan assets and reimbursement rights are presented in the statement of financial position under “Other non-current assets” or “Other current assets”.

The cost recognized for the period amounted to €354 million in 2022 (€547 million in 2021). The components of this defined benefit cost in the period are set out in Note 18.3.3 “Components of the net periodic pension cost”.

The Eurozone represented 98% of the Group’s net obligation at December 31, 2022, (98% at December 31, 2021).

Cumulative actuarial gains and losses recognized in equity amounted to €1,400 million at December 31, 2022, compared to €4,232 million at December 31, 2021.

Net actuarial differences arising in the period and presented on a separate line in the statement of comprehensive income represented a net actuarial gain of €2,774 million in 2022 and a gain of €1,803 million in 2021.

18.3.2 Change in benefit obligations and plan assets

The table below shows the amount of the Group's projected benefit obligations and plan assets, changes in these items during the periods presented, and their reconciliation with the amounts reported in the statement of financial position:

		Dec. 31, 2022				Dec. 31, 2021			
In millions of euros		Pension benefit obligations (1)	Other post-employment benefit obligations (2)	Long-term benefit obligations (3)	Total	Pension benefit obligations (1)	Other post-employment benefit obligations (2)	Long-term benefit obligations (3)	Total
A - CHANGE IN PROJECTED BENEFIT OBLIGATION									
Projected benefit obligation at January 1		**(7,566)**	**(4,649)**	**(499)**	**(12,715)**	**(9,186)**	**(5,167)**	**(565)**	**(14,919)**
Service cost		(229)	(97)	(45)	(372)	(353)	(88)	(80)	(521)
Interest expense		(124)	(60)	(6)	(190)	(85)	(39)	(3)	(126)
Contributions paid		(8)	-	-	(8)	(13)	-	-	(13)
Amendments		-	-	-	-	(2)	-	-	(2)
Changes in scope of consolidation		10	2	-	12	1,108	4	58	1,170
Curtailments/settlements		(87)	-	-	(87)	13	1	-	13
Financial actuarial gains and losses		2,118	1,390	81	3,590	869	533	32	1,434
Demographic actuarial gains and losses		8	(4)	34	39	(230)	2	11	(217)
Benefits paid		346	110	39	495	389	107	47	543
Other (of which translation adjustments)		(33)	-	(1)	(34)	(78)	-	(1)	(78)
Projected benefit obligation at December 31	**A**	**(5,565)**	**(3,308)**	**(395)**	**(9,268)**	**(7,566)**	**(4,649)**	**(499)**	**(12,715)**
B - CHANGE IN FAIR VALUE OF PLAN ASSETS									
Fair value of plan assets at January 1		**5,843**	**-**	**-**	**5,843**	**6,034**	**-**	**-**	**6,034**
Interest income on plan assets		97	-	-	97	58	-	-	58
Financial actuarial gains and losses		(739)	-	-	(739)	629	-	-	629
Contributions received		133	-	-	133	198	-	-	198
Changes in scope of consolidation		3	-	-	3	(862)	-	-	(862)
Settlements		81	-	-	81	(11)	-	-	(11)
Benefits paid		(260)	-	-	(260)	(283)	-	-	(283)
Other (of which translation adjustments)		22	-	-	22	81	-	-	81
Fair value of plan assets at December 31	**B**	**5,181**	**-**	**-**	**5,181**	**5,843**	**-**	**-**	**5,843**
C - FUNDED STATUS	**A+B**	**(384)**	**(3,308)**	**(395)**	**(4,087)**	**(1,723)**	**(4,649)**	**(499)**	**(6,872)**
Asset ceiling		(68)	-	-	(68)	(55)	-	-	(55)
NET BENEFIT OBLIGATION		**(452)**	**(3,308)**	**(395)**	**(4,155)**	**(1,779)**	**(4,649)**	**(499)**	**(6,927)**
ACCRUED BENEFIT LIABILITY		**(768)**	**(3,308)**	**(395)**	**(4,471)**	**(1,850)**	**(4,649)**	**(499)**	**(6,999)**
PREPAID BENEFIT		**316**	**-**	**-**	**316**	**72**	**-**	**-**	**72**

(1) *Pensions and retirement bonuses.*
(2) *Reduced energy prices, healthcare, gratuities and other post-employment benefits.*
(3) *Length-of-service awards and other long-term benefits.*

18.3.3 Components of the net periodic pension cost

The net periodic cost recognized in respect of defined benefit obligations for the years ended December 31, 2022 and 2021 breaks down as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Current service cost	372	521
Actuarial gains and losses (1)	(116)	(43)
Gains or losses on pension plan curtailments, terminations and settlements	6	-
Total accounted for under current operating income including operating MtM and share in net income of equity method entities	**261**	**479**
Net interest expense	93	68
Total accounted for under net financial income/(loss)	**93**	**68**
TOTAL	**354**	**547**

(1) On the long-term benefit obligation.

18.3.4 Funding policy and strategy

When defined benefit plans are funded, the related plan assets are invested in pension funds and/or with insurance companies, depending on the investment practices specific to the country concerned. The investment strategies underlying these defined benefit plans are aimed at striking the right balance between return on investment and acceptable levels of risk.

The objectives of these strategies can be summarized as follows: to maintain sufficient liquidity to cover pension and other benefit payments; and as part of risk management, to achieve a long-term rate of return higher than the discount rate or, where appropriate, at least equal to future required returns.

When plan assets are invested in pension funds, investment decisions are the responsibility of the fund management concerned. For French companies, where plan assets are invested with an insurance company, the latter manages the investment portfolio for unit-linked policies or euro-denominated policies, in a manner adapted to the risk and long-term profile of the liabilities.

The funding of these obligations for each of the periods presented can be analyzed as follows:

In millions of euros	Projected benefit obligation	Fair value of plan assets	Asset ceiling	Total net obligation
Underfunded plans	(3,886)	3,391	(63)	(558)
Overfunded plans	(1,360)	1,788	(4)	424
Unfunded plans	(4,021)	-	-	(4,021)
AT DECEMBER 31, 2022	**(9,267)**	**5,180**	**(68)**	**(4,156)**
Underfunded plans	(5,891)	4,671	(50)	(1,271)
Overfunded plans	(1,116)	1,172	(5)	51
Unfunded plans	(5,708)	-	-	(5,708)
AT DECEMBER 31, 2021	**(12,715)**	**5,843**	**(55)**	**(6,927)**

The allocation of plan assets by principal asset category can be analyzed as follows:

In %	Dec. 31, 2022	Dec. 31, 2021
Equity investments	27	29
Sovereign bond investments	25	21
Corporate bond investments	35	27
Money market securities	4	3
Real estate	2	2
Other assets	8	18
TOTAL	**100**	**100**

All plan assets were quoted on an active market at December 31, 2022.

The actual return on assets of EGI sector companies stood at a negative 12.2% in 2022.

In 2022, the actual return on plan assets of Belgian entities amounted to approximately 2.6% in Group insurance and a negative 14.2% in pension funds.

The allocation of plan asset categories by geographic area of investment can be analyzed as follows:

In %	Europe	North America	Latin America	Asia - Oceania	Rest of the World	Total
Equity investments	53	33	-	12	2	100
Sovereign bond investments	76	1	19	-	3	100
Corporate bond investments	61	29	1	6	3	100
Money market securities	85	4	3	1	7	100
Real estate	92	2	6	-	1	100
Other assets	13	-	-	-	87	100

18.3.5 Actuarial assumptions

Actuarial assumptions are determined individually by country and company in conjunction with independent actuaries. Weighted discount rates for the main actuarial assumptions are presented below:

		Pension benefit obligations		Other post-employment benefit obligations		Long-term benefit obligations		Total benefit obligations	
		2022	2021	2022	2021	2022	2021	2022	2021
Discount rate	Eurozone	3.8%	1.2%	3.8%	1.2%	3.8%	1.2%	3.8%	1.2%
	UK Zone	2.1%	1.6%	-	-	-	-	-	-
Inflation rate	Eurozone	4.2%	1.8%	4.2%	1.8%	4.2%	1.8%	4.2%	1.8%
	UK Zone	3.9%	3.6%	-	-	-	-	-	-

18.3.5.1 Discount and inflation rates

The discount rate applied is determined based on the yield, at the date of the calculation, of investment grade corporate bonds with maturities mirroring the term of the plan.

The rates were determined for each monetary area based on data for AA corporate bond yields. For the Eurozone, data (from Bloomberg) are extrapolated on the basis of government bond yields for long maturities.

According to the Group's estimates, a 100-basis-point increase (decrease) in the discount rate would result in a decrease (increase) of approximately 13% in the projected benefit obligation.

The inflation rates were determined for each monetary area. A 100-basis-point increase (decrease) in the inflation rate (with an unchanged discount rate) would result in an increase (decrease) of approximately 12% in the projected benefit obligation.

18.3.6 Estimated employer contributions payable in 2023 under defined benefit plans

The Group expects to pay around €172 million in contributions into its defined benefit plans in 2023, including €122 million for EGI sector companies. Annual contributions in respect of EGI sector companies will be made by reference to rights vested during the year, taking into account the funding level for each entity in order to even out contributions over the medium term.

18.4 Defined contribution plans

In 2022, the Group recorded a €91 million expense in respect of amounts paid into Group defined contribution plans of which €9 million concerning multi-employers plans in Netherlands (€196 million in 2021, of which €74 million concerning multi-employers in Netherlands). These contributions are recorded under “Personnel costs” in the consolidated income statement.

NOTE 19 SHARE-BASED PAYMENTS

Accounting standards

Under IFRS 2, share-based payments made in consideration for services provided are recognized as personnel costs. These services are measured at the fair value of the instruments awarded.

The fair value of bonus share plans is estimated by reference to the share price at the grant date, taking into account the fact that no dividend is payable over the vesting period, and based on the estimated turnover rate for the employees concerned and the probability that the Group will meet its performance targets. The fair value measurement also takes into account the non-transferability period associated with these instruments. The cost of shares granted to employees is expensed over the vesting period of the rights and offset against equity.

A Monte Carlo pricing model is used for performance shares granted on a discretionary basis and subject to external performance criteria.

Expenses recognized in respect of share-based payments break down as follows:

	Expense for the year	
In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Employee share issues [1]	(49)	(1)
Bonus/performance share plans [2] [3]	(40)	(47)
Other Group companies' plans	(3)	-
TOTAL	**(92)**	**(48)**

(1) *Including Share Appreciation Rights set up within the scope of employee share issues in certain countries.*

(2) *Of which an additional expense of €4.2 million in 2022 following the review of the performance conditions (a reversal of €0.3 million in 2021).*

(3) *Of which a reversal of €9.8 million in 2022 for failure to meet the condition of continuing employment within the Group (€4 million in 2021).*

19.1 Link 2022

19.1.1 Description of available ENGIE share plans

In 2022, Group employees and former Group employees were entitled to purchase ENGIE shares as part of the "Link 2022" worldwide employee share ownership plan. The offering mainly involved the sale of treasury shares. Employees could subscribe to either:

- the Link Classique Plan: this plan allows employees to subscribe to shares at a discount, either directly or via an employee mutual fund and with an employer top-up contribution;
- the Link Multiple Plan: under this plan, employees may subscribe to shares at a discount, either directly or via an employee mutual fund, and also benefit from any increase in the share price (leverage effect) in addition to the amounts invested. Through a Swap Agreement with the bank that structures the Plan, employees are guaranteed to recover 100% of the invested amount as well as a minimum capitalized return;
- Share Appreciation Rights (SARs): this leveraged plan entitles beneficiaries who purchase shares to receive a cash bonus equal to the increase in the share price after a period of five years. The resulting employee liability is covered by warrants.

The Link Classique Plan featured an employer contribution under the terms and conditions described below:

- participating French employees were entitled to bonus ENGIE shares depending on the amount of their own contribution to the plan:

- for an employee contribution of €200, the employer contribution corresponded to 200% of this amount; for an additional employee contribution of €100, the employer contribution represented 50% of the amount. The employer contribution was capped at €450.

- for employees in other countries, ENGIE shares were granted through a bonus share award plan, subject to the still being employed with the Group and depending on their own contribution to the plan:
  - for an employee contribution of €200, the employer contribution corresponded to 200% of this amount; for an additional employee contribution of €100, the employer contribution represented 50% of the amount. The employer contribution was capped at €450;
  - the bonus shares will be awarded to employees on December 22, 2027, provided that they are still employed by the ENGIE Group.

19.1.2 Accounting impacts

The subscription price for the 2022 plan represents the average closing price of the ENGIE share on the Euronext Paris over the 20 trading days between October 18, 2022 and November 14, 2022 inclusive. The reference price is set at €13.14 less 20% for the Link Classique and the Link Multiple plans, i.e. €10.51.

The expense recognized in the consolidated financial statements in respect of the Link Classique, and Link Multiple plans corresponds to the difference between the fair value of the shares subscribed and the subscription price. The fair value takes into account the lock-up period of five years, as provided for by French legislation.

The following assumptions were applied:

	5 years
Risk-free interest rate	2.70%
Spread applicable to the retail banking network	1.00%
Employee financing cost	3.70%
Share lending cost	1.00%
Share price at grant date	14.38

The accounting impacts break down as follows:

	Link Classique	**Link Multiple**	**Link Classique France - additional employer's contribution**	**Total**
Amount subscribed (in millions of euros)	27	135	-	162
Number of shares subscribed (in millions of shares)	2.6	12.8	0.8	16.2
Discount (€/share)	3.9	3.9	14.4	-
Non-transferability restriction (€/share)	(1.4)	(1.4)	(1.4)	-
Cost for the Group (in millions of euros)	**6**	**32**	**10**	**48**

Subscriptions to the Link 2022 worldwide employee share ownership plan totaled €162 million and break down as follows:

- the sale of treasury shares to employees amounted to €130 million;
- a capital increase and additional paid-in capital of €32 million (excluding issuance costs). This amount is broken down into €8 million for Link Classique and €24 million for Link Multiple.

The Group recognized a total expense of €48 million for 2022 in respect of the 15.4 million shares subscribed and the 0.8 million bonus shares awarded under employer contributions.

The accounting impact of cash-settled Share Appreciation Rights consists in recognizing a payable to the employee over the vesting period, with a corresponding adjustment recorded in profit or loss. At December 31, 2022, the fair value of the liability relating to the 2018 and 2022 awards amounted to €0.2 million.

19.2 Performance shares

19.2.1 New awards in 2022

ENGIE Performance Share plan of December 8, 2022

On December 8, 2022, the Board of Directors approved the award of 4.7 million performance shares to members of the Group's executive and senior management, breaking down into three tranches:

- performance shares vesting on March 14, 2026, subject to a one-year lock-up period;
- performance shares vesting on March 14, 2026, without a lock-up period; and
- performance shares vesting on March 14, 2027, without a lock-up period.

In addition to a condition requiring employees to be employed with the Group at the vesting date, each tranche is made up of instruments subject to four different conditions, excluding the first 500 performance shares granted to beneficiaries (excluding top management), which are exempt from performance conditions. The performance conditions are as follows:

- a market performance condition relating to ENGIE’s Total Shareholder Return compared to that of a reference panel of six companies, as assessed between December 2022 and February 2026, which accounts for 25% of the total award;
- an internal performance condition relating to net recurring income Group share compared to that of a reference panel of six companies, as assessed between the second half of 2022 and the first half of 2025, which accounts for 25% of the total award;
- an internal performance condition relating to Return On Capital Employed (ROCE) in 2025 which accounts for 30% of the total award;
- an internal performance condition relating to non-financial criteria in terms of targets for greenhouse gas emissions from energy productions, increasing the share of renewable capacities and increasing the percentage of women in management, as assessed between December 2022 and December 2025, which accounts for 20% of the total award.

Under this plan, performance shares without conditions were also awarded to the winners of the Innovation and Incubation programs (6,450 shares awarded).

ENGIE Bonus Share plan of November 18, 2022

As part of the Link 2022 employee share plan, bonus shares were awarded to subscribers of the Link Classique plan (outside France). A total of 247,163 bonus shares were awarded under this plan (*see Note 19.1.1 Description of available ENGIE share plans*).

19.2.2 Fair value of bonus share plans with or without performance conditions

The following assumptions were used to calculate the unitary fair value of the new plans awarded by ENGIE in 2022:

Award date	Vesting date	End of the lock-up period	Price at the award date	Expected dividend	Market-related performance condition	Unitary fair value
November 18, 2022	December 22, 2027	December 22, 2027	14.4	1,15	no	9.20
Weighted average fair value of the December 22, 2022 plan						9.20
December 8, 2022	March 14, 2026	March 14, 2027	14.3	1,15	yes	9.91
December 8, 2022	March 14, 2026	March 14, 2026	14.3	1,15	yes	9.91
December 8, 2022	March 14, 2026	March 14, 2026	14.3	1,15	no	11.05
December 8, 2022	March 14, 2027	March 14, 2027	14.3	1,15	yes	8.93
Weighted average fair value of the December 8, 2022 plan						10.24

19.2.3 Review of internal performance conditions applicable to the plans

In addition to the condition of continuing employment within the Group, eligibility for certain bonus share and performance share plans is subject to an internal performance condition. When this condition is not fully met, the number of bonus shares granted to employees is reduced in accordance with the plans' regulations, leading to a decrease in the total expense recognized in relation to the plans in accordance with IFRS 2. Performance conditions are reviewed at each reporting date.

NOTE 20 RELATED PARTY TRANSACTIONS

This note describes material transactions between the Group and its related parties.

Compensation payable to key management personnel is disclosed in Note 21 “Executive compensation”.

Transactions with joint ventures and associates are described in Note 3 “Investments in equity method entities”.

Only material transactions are described below.

20.1 Relations with the French State and with entities owned or partly owned by the French State

20.1.1 Relations with the French State

The French State’s interest in the Group at December 31, 2022 remained unchanged at 23.64% compared with the previous year. This entitles it to three of the 15 seats on the Board of Directors (one director representing the State appointed by decree, and two directors appointed by the Shareholders’ Meeting at the proposal of the State).

The French State holds 33.56% of the theoretical voting rights (33.71% of exercisable voting rights) compared with 33.20% at end-2021.

On May 22, 2019, the PACTE Law (“Action plan for business growth and transformation”) was enacted, enabling the French State to dispose of its ENGIE shares without restriction.

In addition, the French State holds a golden share aimed at protecting France’s critical interests and ensuring the continuity and safeguarding of supplies in the energy sector. The golden share is granted to the French State indefinitely and entitles it to veto decisions taken by ENGIE if it considers they could harm France’s interests.

Public service engagements in the energy sector are defined by the law of January 3, 2003.

Transmission rates on the GRTgaz transportation network and the gas distribution network in France, as well as rates for accessing the French LNG terminals and revenues from storage capacities, are all regulated.

The Law on Energy and Climate enacted on November 8, 2019 will put an end to regulated gas tariffs and will restrict regulated electricity tariffs for consumers and small businesses. The final date for the discontinuation of regulated gas tariffs is July 1, 2023.

20.1.2 Relations with EDF

Following the creation on July 1, 2004 of the French gas and electricity distribution network operator (EDF Gaz de France Distribution), Gaz de France SA and EDF entered into an agreement on April 18, 2005 setting out their relationship as regards the distribution business. The December 7, 2006 law on the energy sector reorganized the natural gas and electricity distribution networks. Enedis SA, a subsidiary of EDF SA, and GRDF SA, a subsidiary of ENGIE SA, were created on January 1, 2007 and December 31, 2007, respectively, and act in accordance with the agreement previously signed by the two incumbent operators. With the deployment of smart meters for both electricity and gas, the "common" activities operated by the two distributors evolved significantly. The remaining mixed activities are mainly in the areas of inventory management, human resources, medical field, local IT and accountancy. This scope will be further reduced in 2023 to be limited to areas relating to medical field and social activities.

20.2 Relations with the CNIEG (*Caisse Nationale des Industries Électriques et Gazières*)

The Group's relations with the CNIEG, which manages all old-age, death and disability benefits for active and retired employees of the Group who belong to the special EGI pension plan, employees of EDF and Non-Nationalized Companies (*Entreprises Non Nationalisées* – ENN), are described in Note 18 "Post-employment benefits and other long-term benefits".

NOTE 21 EXECUTIVE COMPENSATION

The executive compensation presented below includes the compensation of the members of the Group's Executive Committee and Board of Directors.

The Executive Committee had 10 members at December 31, 2022 (compared to 11 members at December 31, 2021).

Their compensation breaks down as follows:

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Short-term benefits	34	22
Post-employment benefits	-	1
Share-based payments	4	3
Termination benefits	-	7
TOTAL	**37**	**33**

NOTE 22 WORKING CAPITAL REQUIREMENTS, INVENTORIES, OTHER ASSETS AND OTHER LIABILITIES

Accounting standards

In accordance with IAS 1, the Group's current and non-current assets and liabilities are shown separately in the consolidated statement of financial position. For most of the Group's activities, the breakdown into current and non current items is based on when assets are expected to be realized, or liabilities extinguished. Assets expected to be realized or liabilities extinguished within 12 months of the reporting date are classified as current, while all other items are classified as non-current.

Inventories

Inventories are measured at the lower of cost and net realizable value. Net realizable value corresponds to the estimated selling price in the ordinary course of business, less the estimated costs of completion and the estimated costs necessary to make the sale.

The cost of inventories is determined based on the first-in, first-out method or the weighted average cost formula.

Nuclear fuel purchased is consumed in the process of producing electricity over a number of years. The consumption of this nuclear fuel inventory is recorded based on estimates of the quantity of electricity produced per unit of fuel.

Gas inventories

Gas injected into underground storage facilities includes working gas, which can be extracted without adversely affecting the subsequent operation of the reservoirs, and cushion gas, which is inseparable from the reservoirs and essential for their operation (*see Note 13.3 "Property, plant and equipment"*).

Working gas is classified in inventories and measured at weighted average purchase cost upon entering the transportation network regardless of its source, including any regasification costs.

Group inventory outflows are valued using the weighted average unit cost method.

Certain inventories are used for trading purposes and are recognized at fair value less selling costs, in accordance with IAS 2. Any changes in said fair value are recognized in the consolidated income statement for the year in which they occur.

Greenhouse gas emission rights, energy saving certificates and green certificates

In the absence of specific IFRS standards or IFRIC interpretations on accounting for greenhouse gas emission allowances, energy saving certificates and green certificates, the Group has decided to recognize certificates in inventories at their acquisition or production cost. At the reporting date, a liability is recognized if the certificates held by the Group are insufficient to meet the obligation to return certificates to the French government. When not covered by the certificates held in inventories, the liability is measured at the market value or based on the price of any future contracts that have been entered into, when applicable.

Tax equity

The ENGIE Group finances its renewables projects in the United States through tax equity structures, in which part of the necessary funds is provided by a tax partner. The tax partner obtains, up to a pre-determined level, a preferential right essentially to the project's tax credits, which it can deduct from its own tax base.

The tax partner's investments meet the definition of a liability under IFRS. Since the tax equity liability corresponding to these tax benefits does not give rise to any cash outflow for the project entity, it does not represent a financial debt and is accounted for in "Other liabilities".

Besides the unwinding effect, the liability changes mainly in line with the tax credits allocated to the tax partner and recognized in profit or loss.

22.1 Composition of change in working capital requirements

In millions of euros	Change in working capital requirements at Dec. 31, 2022	Change in working capital requirements at Dec. 31, 2021
Inventories	(2,115)	(2,349)
Trade and other receivables, net	(11,614)	(11,043)
Trade and other payables, net	8,521	10,676
Tax and employee-related receivables/payables	1,545	364
Margin calls and derivative instruments hedging commodities relating to trading activities	199	(706)
Other	1,040	680
TOTAL	**(2,424)**	**(2,377)**

22.2 Inventories

In millions of euros	Dec. 31, 2022	Dec. 31, 2021
Inventories of natural gas, net	4,628	3,079
Inventories of uranium (1)	308	408
CO_2 emissions allowances, green certificates and energy saving certificates, net	1,788	1,526
Inventories of commodities other than gas and other inventories, net	1,420	1,161
TOTAL	**8,145**	**6,175**

(1) Financial hedging instruments are backed by these uranium inventories and represented a negative amount of €229 million at December 31, 2022.

22.3 Other assets and other liabilities

	Dec. 31, 2022				Dec. 31, 2021			
	Assets		Liabilities		Assets		Liabilities	
In millions of euros	Non-current	Current	Non-current	Current	Non-current	Current	Non-current	Current
Other assets and liabilities	766	18,294	(3,646)	(23,583)	478	13,202	(2,341)	(16,752)
Tax receivables/payables	*-*	*14,647*	*-*	*(16,863)*	*-*	*10,628*	*-*	*(11,316)*
Employee receivables/payables	*523*	*22*	*(2)*	*(2,479)*	*300*	*18*	*(2)*	*(2,033)*
Dividend receivables/payables	*-*	*12*	*-*	*(23)*	*-*	*15*	*-*	*(9)*
Other	*243*	*3,614*	*(3,644)*	*(4,218)*	*178*	*2,541*	*(2,339)*	*(3,395)*

At December 31, 2022, other non-current assets included a receivable towards EDF Belgium in respect of nuclear provisions amounting to €162 million (€96 million at December 31, 2021).

Other liabilities include €1,981 million in investments made by tax partners as part of the financing of renewable projects in the United States by tax equity (€1,229 million at December 31, 2021).

NOTE 23 LEGAL AND ANTI-TRUST PROCEEDINGS

The Group is party to a number of legal and anti-trust proceedings with third parties or with legal and/or administrative authorities (including tax authorities) in the normal course of its business.

The main disputes and investigations presented hereafter are recognized as liabilities or give rise to contingent assets or liabilities.

In the normal course of its business, the Group is involved in a number of disputes and investigations before state courts, arbitral tribunals or regulatory authorities. The disputes and investigations that could have a material impact on the Group are presented below.

23.1 Renewables

23.1.1 Mexico – Renewable energy

In 2021, the Mexican government and public authorities took positions and legislative and regulatory measures that directly affect private players in the energy sector (in particular renewable energy producers) and go against the letter and spirit of the latest energy sector reforms introduced in 2013 and 2014. The constitutionality and legality of some of these measures have been contested in legal proceedings launched by non-government bodies and private investors, in particular by ENGIE subsidiaries that develop or implement renewable energy projects in the country. These proceedings are currently ongoing. The Mexican President has also submitted a draft revision of the Constitution that would substantially change the regulatory framework applicable to the electricity sector. The case was put on hold in the first half of 2022.

23.2 Networks

23.2.1 Investigation into the regulatory framework for natural gas storage in France

On February 29, 2020, the European Commission announced that it had launched an in-depth investigation into the regulatory framework for natural gas storage introduced on January 1, 2018 to secure France’s natural gas supply. Storengy and Géométhane provided the Commission with all the necessary information to substantiate their analyses. The European Commission closed its investigation and published a press release on June 28, 2021 announcing that it had concluded that the regulatory framework for natural gas storage complies with EU rules on State aid. Nevertheless, the Commission considered that the scheme constituted illegal State aid for the period during which it was implemented without having been approved in advance. This decision was published in the Official Journal on March 18, 2022, marking the start of the two-month period for filing an appeal. To our knowledge, no appeal has been filed.

23.3 Energy Solutions

23.3.1 Spain - Púnica

In the Púnica case (procedure concerning the awarding of contracts), 15 Cofely España employees, as well as the company itself, were placed under investigation by the examining judge in charge of the case. The criminal investigation was closed on July 19, 2021 with the referral of Cofely España and eight (former) employees before the criminal court. Cofely España lodged an appeal against this decision on September 30, 2021. On March 9, 2022, the appeal was dismissed and the referral decision upheld. The hearings are expected to begin in 2023.

23.3.2 Italy - Competition procedure

On May 9, 2019, a fine of €38 million was jointly and severally imposed on ENGIE Servizi SpA and ENGIE Energy Services International S.A. ("ENGIE ESI") by the Italian Competition Authority (the "Authority") for certain alleged anti-competitive practices relating to the award of the Consip FM4 2014 contract. An appeal was lodged with the Lazio Regional Administrative Court (Lazio RAC). On July 18, 2019, the Lazio RAC suspended the payment of the fine, and on July 27, 2020, it overturned the Authority's decision as regards both ENGIE Servizi SpA and ENGIE ESI. On November 17, 2020, the Authority appealed the Lazio RAC's decision before Italy's highest administrative court. On May 9, 2022, the Italian administrative court rejected the Authority's appeal and upheld the Lazio RAC's reversal of the Authority's decision. Two companies filed a special appeal against the administrative court's decision before the administrative court itself on June 13, 2022, and an appeal challenging the administrative court's rejection of the appeal before the Supreme Court on July 11, 2022. These appeals do not have a suspensive effect. Both proceedings are still pending.

23.3.3 Italy – Manitalidea

In 2012, ENGIE Servizi formed a temporary association ("*associazione temporanea di imprese*" or "ATI) with Manitalidea with the aim of submitting a bid for a public contract launched by CONSIP. ENGIE Servizi had an 85% stake in the ATI, with Manitalidea holding the remaining 15%. The purpose of the contract was to provide energy and maintenance services to hospitals.

In September 2012, three lots of the contract were awarded to the ATI.

On March 11, 2022, Manitalidea filed for damages against ENGIE Servizi with the Rome Civil Court, claiming that (i) ENGIE Servizi had not complied with the provisions of the temporary association agreement relating to the distribution of contracts between the partners, and (ii) as a result, Manitalidea had missed an opportunity to increase its revenue. After Manitalidea filed for bankruptcy, the claim was extended to include the alleged responsibility of ENGIE Servizi for Manitalidea's financial difficulties and bankruptcy.

A hearing is scheduled for the first half of 2023.

23.4 Supply

23.4.1 Canvassing

EDF brought an action against ENGIE before the Nanterre Commercial Court on July 20, 2017, seeking €13.5 million in damages for alleged losses due to unfair competitive practices pursued by ENGIE mainly in its door-to-door canvassing campaigns. In its judgment of December 14, 2017, the court ordered ENGIE to pay EDF the sum of €150,000, concluding that ENGIE was guilty of unfair competition but acknowledging that there had been no disparagement of EDF and that ENGIE had set up training and control arrangements for its partners.

ENGIE appealed the judgment and EDF brought a cross-appeal seeking €94.7 million in damages for its alleged loss. The Versailles Court of Appeal delivered its judgment on March 12, 2019, ordering ENGIE to pay EDF €1 million. It also ordered ENGIE to cease and desist from all parasitic business practices and disparagement to the detriment of EDF, subject to a penalty of €10,000 per infringement for a period of one year.

On July 6, 2020, EDF asked the enforcement judge at the Nanterre Court to assess the penalty ordered by the Versailles Court of Appeal, seeking payment from ENGIE of the sum of €106.89 million and a final penalty of €50,000 per infringement for a period of one year. On December 11, 2020, the enforcement judge ordered ENGIE to pay EDF the sum of €230,000 and ordered a new provisional penalty of €15,000 per new infringement reported by EDF for a period of one year as of notification of the judgment.

On December 22, 2020, EDF appealed the enforcement judge's decision before the Versailles Court of Appeal. The Versailles Court of Appeal handed down its decision on July 1, 2021. It reduced ENGIE's fine to €190,000 and, considering that ENGIE had demonstrably implemented measures that were likely to be efficient and that the difficulties encountered stemmed for the most part from the behavior of service providers/partners and door-to-door salespeople, annulled the new provisional penalty and rejected EDF's request to impose a definitive penalty. EDF appealed this decision before the French Court of Cassation on July 29, 2021. The Court of Cassation rejected EDF's appeal in its ruling of October 6, 2022. The case is therefore closed.

23.4.2 Peru – Antamina

In 2012, following a tender for the annual purchase of 170 MW until 2032, ENGIE Energía Perú S.A. entered into a long-term gas purchase agreement with the Peruvian mining company Antamina (the "Agreement").

In 2021, however, Antamina launched another tender for the same annual volume and entered into three purchase agreements with three new suppliers for a six-month period renewable twice. This called into question the exclusivity and "take or pay" clause that ENGIE Energía Perú S.A. believed it had been granted until 2032 under the Agreement. Following the signing of these new agreements, Antamina refused, as of January 2022, to accept delivery of the agreed upon quantity of gas under the Agreement and, consequently, to pay the corresponding penalty.

On April 26, 2022, ENGIE Energía Perú S.A. filed an arbitration procedure against Antamina, seeking recognition of the exclusive nature of the Agreement and Antamina's obligation to only procure gas supplies from ENGIE. The suit also seeks the payment of invoices that have been outstanding since January 2022. The arbitration procedure is governed by the rules of the Arbitration Center of the Lima Chamber of Commerce. On January 4, 2023, ENGIE Energía Perú S.A. filed its pleading. Antamina will have to file its pleading by the end of March at the latest.

23.4.3 GEM – GPE

At the beginning of the fourth quarter of 2022, ENGIE initiated an arbitration procedure against Gazprom Export LLC seeking, in particular to obtain (i) recognition of Gazprom Export LLC's non-performance of its gas delivery obligations towards ENGIE under long-term gas delivery agreements and (ii) payment of contractual penalties as well as compensation for damages resulting from this non-performance from Gazprom Export LLC.

This arbitration procedure is due to the significant delivery shortages by Gazprom Export LLC to ENGIE as of mid-June 2022, followed by Gazprom Export LLC's unilateral decision at the end of summer 2022 to reduce its deliveries to ENGIE due to a disagreement between the parties on the application of the agreements.

23.4.4 Commissioning

Regarding the customer management services carried out on behalf of the grid manager in the electricity sector (in this case ERDF, now ENEDIS), following proceedings brought by ENGIE, in a decision of July 13, 2016, the *Conseil d'État* ruled that the principle whereby the grid manager pays compensation to the supplier should apply. In the same decision, the *Conseil d'État* denied the CRE the right to set a customer threshold beyond which the compensation would not be payable, which hitherto prevented ENGIE from receiving any compensation. In light of this decision, ENGIE brought an action against ENEDIS seeking payment for these customer management services. The legislature has adopted a decision that retroactively validates the agreements entered into with ENEDIS and precludes any request for compensation for unpaid customer management services. In a decision handed down on April 19, 2019, the Constitutional Court ruled that this provision was constitutional. On April 11, 2022, the Paris Commercial Court recorded the termination of the proceedings. The case against ENEDIS is therefore closed.

23.4.5 Chile – TOTAL

On January 3, 2023, ENGIE Energía Chile S.A. initiated international arbitration proceedings against TotalEnergies Gas & Power Limited for breaching its contractual obligations under an LNG supply contract entered into in August 2011.

23.5 Thermal

23.5.1 Italy - Vado Ligure

On March 11, 2014, the Court of Savona seized and closed down the VL3 and VL4 coal-fired production units at the Vado Ligure thermal power plant belonging to Tirreno Power S.p.A. (TP), a company which is 50%-owned by the ENGIE Group. This decision was taken as part of a criminal investigation against the present and former executive managers of TP into environmental infringements and public health risks. The investigation was closed on July 20, 2016. The case was referred to the Savone Court to be tried on the merits. The proceedings before the Court of First Instance began on December 11, 2018 and will continue through 2022 and 2023.

23.5.2 Brazil – Claim against sales tax adjustments

On December 14, 2018, the Brazilian tax authorities sent ENGIE Brasil Energia S.A. tax deficiency notices for the 2014, 2015 and 2016 fiscal years considering that the company was liable for the PIS and COFINS taxes (federal value added taxes) on the reimbursement of certain fuels used in the production of energy by thermoelectric plants. The adjustments amounted to a total of 581 million Brazilian real, including 229 million Brazilian real in taxes plus fines and interest.

ENGIE Brasil Energia disputes these tax deficiency notices and introduced tax claims in 2019, which the tax authorities have rejected, however.

On November 22, 2022, ENGIE Brasil Energia filed a special administrative appeal, which was not recognized by the Administrative Court. On January 9, 2023, the company filed another administrative appeal seeking recognition of the special administrative appeal and an analysis of the merits of the case. If these proceedings are unsuccessful, the case will have to be brought before the ordinary courts and tribunals.

23.5.3 Italy – Tax on excess profits

In December 2022, ENGIE filed an action to obtain the reimbursement of the tax it paid in July and November 2022 for a total amount of more than €308 million, pursuant to two legislative decrees (no. 21 and 50/2022) that introduced an exceptional solidarity contribution to be paid by operators in the energy sector. ENGIE contests the validity of the basis of the tax in relation to the decree’s objective, its compatibility with the Italian Constitution as well as its compatibility with Italy’s European commitments (European law).

23.5.4 Flémalle – EPC

In November 2021, Electrabel SA entered into an EPC (Engineering, Procurement, Construction) agreement with SEPCO III for the construction of a gas-fired power plant in Flémalle (Belgium), in the context of the CRM (Capacity Remuneration Mechanism).

In August 2022, Electrabel SA terminated the EPC agreement with SEPCO III for non-performance of its contractual obligations and initiated arbitration proceedings in November 2022, to obtain compensation for its damages.

23.6 Nuclear

23.6.1 Extension of operations at the nuclear power plants 2015-2025

Various associations have brought actions before the Constitutional Court, the *Conseil d’État* and the ordinary courts against the laws and administrative decisions authorizing the extension of operations at the Doel 1 and 2 reactors. On June 22, 2017 the Constitutional Court referred the case to the Court of Justice of the European Union (CJEU) for a preliminary ruling. In its judgment of July 29, 2019, the CJEU ruled that the Belgian law extending the operating lives of the Doel 1 and Doel 2 reactors (law extending Doel 1 and Doel 2) was adopted without the required environmental assessments being carried out first, but that the effects of the law on extension may provisionally be maintained where there is a genuine and serious threat of an interruption to electricity supply, and then only for the length of time that is strictly necessary to eliminate this threat. In its decision of March 5, 2020, the Constitutional Court overturned the law extending Doel 1 and Doel 2, while maintaining its effects until the legislator adopts a new law after having carried out the required environmental assessment, including a cross-border public consultation process, by December 31, 2022 at the latest.

The environmental assessment and the cross-border public consultation were carried out by the Belgian State in 2021. The draft law incorporating the conclusion of the assessment and the consultation was passed by the Belgian Federal Parliament on October 11, 2022 and published on November 3, 2022.

The appeal before the *Conseil d'État* against the administrative decisions that allowed the extension of operations at the Doel 1 and Doel 2 plants is still pending.

23.6.2 Shutdown of the Doel 3 and Tihange 2 power plants

Various associations have lodged appeals before the Brussels Court of First Instance against Electrabel, the Belgian State, the Nuclear Safety Authority and/or the Elia electricity transmission network to contest the decisions and actions to shut down the Doel 3 (on September 23, 2022) and/or Tihange 2 (on January 31, 2023) power plants. In a first judgment dated November 16, 2022, the Brussels Court of First Instance, ruling in summary proceedings in one of the cases, confirmed the decisions and actions taken in relation to the shutdown. The cases are ongoing with a timetable extending into 2023.

23.7 Other

23.7.1 Withholding tax

In their tax deficiency notice dated December 22, 2008, the French tax authorities questioned the tax treatment of the non recourse sale by SUEZ (now ENGIE) of a withholding tax (*précompte*) receivable in 2005 for an amount of €995 million (receivable relating to the *précompte* paid in respect of the 1999-2003 fiscal years). The Montreuil Administrative Court handed down a judgment in ENGIE's favor in April 2019, which led the French tax authorities to appeal the decision before the Versailles Court of Appeal, which overturned the prior Court's decision on December 22, 2021. While recognizing the fiscal nature of the receivable sold, the Court did not validate the exemption of the sale price because there was no text or principle to that effect, and because the sale was not authorized by the State.

Regarding the dispute over the *précompte* itself, on February 1, 2016, the *Conseil d'État* dismissed the appeal before the Court of Cassation seeking the repayment of the *précompte* in respect of the 1999, 2000 and 2001 fiscal years. On June 23, 2020, the Versailles Administrative Court of Appeal found in favor of ENGIE as regards the cases seeking repayment of the *précompte* in respect of the 2002 and 2003 fiscal years but rejected the case in respect of the 2004 fiscal year. As the *précompte* receivables for 2002/2003 have been assigned, the relevant amounts have been repaid to the assignee banks. The case has been referred to the *Conseil d'État* by the two parties. In parallel, following the decision of the Court of Justice of the European Union of May 12, 2022, interpreting the deduction of the *précompte* on the redistribution by a parent company of dividends received from subsidiaries established in the European Union as incompatible with Directive 90/435/EC of 1990, in June 2022, several groups, including ENGIE, invited the *Conseil d'État* to submit a request for a priority ruling on an issue of constitutionality to the Constitutional Court to rule on the unconstitutionality of the *précompte* legislation. The *Conseil d'État* granted this request. In October 2022, the Constitutional Court rejected the request of ENGIE and the other groups. This decision will have no impact on ENGIE's financial statements and little impact on the other ongoing proceedings.

Furthermore, after ENGIE and several French groups lodged a complaint, on April 28, 2016, the European Commission issued a reasoned opinion to the French State as part of infringement proceedings, setting out its view that the *Conseil d'État* did not comply with European Union law when handing down decisions in disputes regarding the *précompte*, such as those involving ENGIE. On July 10, 2017, the European Commission referred the matter to the Court of Justice of the European Union on the grounds of France's failure to comply. On October 4, 2018, the Court of Justice of the European Union ruled partially in favor of the European Commission. Following this decision, France must revisit its methodology in order to determine the *précompte* repayment amounts in closed and pending court cases. No action has been initiated to date due to parallel litigation proceedings on the basis of Directive 90/435/EC.

23.7.2 Luxembourg – State aid investigation

On September 19, 2016, the European Commission announced its decision to open an investigation into whether or not two private rulings granted by the Luxembourg State in 2008 and 2010 covering two similar transactions between several of the Group's Luxembourg subsidiaries constituted State aid. On June 20, 2018, the European Commission adopted a final, unfavorable decision deeming that Luxembourg had provided ENGIE with State aid. On September 4, 2018, ENGIE requested the annulment of the decision before the European Courts, thereby challenging the existence of a selective advantage. As these proceedings did not have a suspensive effect, ENGIE paid a sum of €123 million into an escrow account on October 22, 2018 in respect of one of the two transactions in question, since no aid was actually received for the other. Following the proceedings before the European Courts, this sum will be returned to ENGIE or paid to the Luxembourg State depending on whether or not the Commission's decision is annulled. On May 12, 2021, the Court rejected the appeals of the Luxembourg State and of ENGIE, thereby confirming the European Commission's position on the existence of State aid granted to the Group's Luxembourg subsidiaries. On July 22, 2021, ENGIE referred the matter to the Court of Justice of the European Union seeking the annulment of the Court's decision. The proceedings are currently ongoing. After the parties exchanged their pleadings with the Commission, ENGIE filed an application for a hearing and joinder of appeals on March 21, 2022. The hearing was held in late January 2023

23.7.3 Poland – Competition procedure

On November 7, 2019, a fine of 172 million Polish zloty (€40 million) was imposed on ENGIE Energy Management Holding Switzerland AG (EEMHS) for failing to respond to a request for disclosure of documents from the Polish Competition Authority (UOKiK) in proceedings initiated by the UOKiK which suspected a potential failure to notify by EEMHS and other financial investors involved in the financing of the Nord Stream 2 pipeline (main proceeding). EEMHS filed an appeal with the Competition Protection Court. The appeal proceedings are pending.

In the context of the main proceedings, on October 6, 2020, the UOKiK ordered EEMHS to pay a fine of 55.5 million Polish zlotys (approximately €12.3 million). The UOKiK also ordered the termination of the financing agreements for the Nord Stream 2 project. On November 5, 2020, EEMHS appealed this decision with the Competition Protection Court (the "Court"). The appeal automatically suspends the execution of all of the penalties ordered by the UOKiK. On November 21, 2022, the Court overturned the UOKiK's decision in its entirety. The UOKiK has appealed this decision.

23.7.4 Claim by the Dutch tax authorities related to interest deductibility

Based on a disputable interpretation of a statutory modification that came into force in 2007, the Dutch tax authorities refused the deductibility of a portion (€1.1 billion) of the interest paid on financing contracted for the acquisition of investments made in the Netherlands since 2000. Following the Dutch tax authorities' rejection of the administrative claim against the 2007 tax assessment, action was brought before the Arnhem Court of First Instance in June 2016. On October 4, 2018, the court ruled in favor of the tax authorities. On October 26, 2020, the ruling was confirmed by the Arnhem Court of Appeal. ENGIE Energie Nederland Holding BV considers that the Court committed errors in law and that its decision was not well-founded, either under Dutch or European law. It has therefore appealed the decision before the Court of Cassation. In July 2022, the Court of Cassation decided to refer questions on the compatibility of the Dutch legislation on interest with three of the European fundamental freedoms to the Court of Justice of the European Union for a preliminary ruling.

23.7.5 Transfer price of gas

The Belgian tax authorities' Special Tax Inspectorate has issued two tax deficiency notices in respect of taxable income for fiscal years 2012 and 2013 for an aggregate amount of €706 million, considering that the price applied for the supply of gas by ENGIE (then GDF SUEZ) to Electrabel S.A. was excessive. ENGIE and Electrabel S.A. are challenging this adjustment and have submitted a request for conciliation proceedings, which was accepted by France and Belgium in

May 2018. The proceedings are ongoing between the two States, who have rediscussed their respective positions, with no major progress having made in 2022. No major problems were identified.

NOTE 24 SUBSEQUENT EVENTS

No significant subsequent events have occurred since the closing of the accounts at December 31, 2022.

NOTE 25 FEES PAID TO THE STATUTORY AUDITORS AND TO MEMBERS OF THEIR NETWORKS

Pursuant to Article 222-8 of the General Regulations of the French Financial Markets Authority (AMF), the following table presents information on the fees paid by ENGIE SA, its fully consolidated subsidiaries and joint operations to each of the auditors in charge of auditing the annual and consolidated financial statements of the ENGIE Group.

The Shareholders' Meeting of ENGIE SA of May 14, 2020 decided to renew the terms of office of Deloitte and EY as Statutory Auditors for a six-year period from 2020 to 2025.

	Deloitte			EY			
In millions of euros	**Deloitte & Associés**	**Network**	**Total**	**EY & others**	**Network**	**Total**	**Total**
Statutory audit and review of consolidated and parent company financial statements	**4.5**	**5.7**	**10.2**	**5.2**	**10.5**	**15.7**	**25.9**
ENGIE SA	2.4	-	2.4	2.8	-	2.8	5.1
Controlled entities	2.1	5.7	7.8	2.4	10.5	12.9	20.7
Non-audit services	**0.6**	**1.1**	**1.7**	**0.9**	**1.0**	**1.8**	**3.5**
ENGIE SA	**0.5**	**0.5**	**1.0**	**0.7**	**-**	**0.7**	**1.8**
Of which services related to legal and regulatory requirements	*0.4*	*-*	*0.4*	*0.4*	*-*	*0.4*	*0.7*
Of which other audit services	*0.1*	*-*	*0.1*	*0.3*	*-*	*0.3*	*0.5*
Of which reviews of internal control	*-*	*-*	*-*	*0.0*	*-*	*0.0*	*0.0*
Of which due diligence	*-*	*0.5*	*0.5*	*-*	*-*	*-*	*0.5*
Of which tax services	*0.0*	*-*	0.0	*-*	*-*	*-*	0.0
Controlled entities	**0.1**	**0.5**	**0.7**	**0.1**	**1.0**	**1.1**	**1.7**
Of which services related to legal and regulatory requirements	*0.0*	*0.3*	*0.3*	*0.1*	*0.2*	*0.3*	*0.6*
Of which other audit services	*0.1*	*0.0*	*0.1*	*0.0*	*0.2*	*0.2*	*0.3*
Of which reviews of internal control	*-*	*-*	*-*	*-*	*-*	*-*	*-*
Of which due diligence	*0.0*	*-*	*0.0*	*-*	*-*	*-*	*0.0*
Of which tax services	*-*	*0.2*	*0.2*	*-*	*0.5*	*0.5*	*0.8*
Total	**5.1**	**6.8**	**11.9**	**6.1**	**11.4**	**17.5**	**29.4**

NOTE 26 INFORMATION REGARDING LUXEMBOURG AND DUTCH COMPANIES EXEMPTED FROM THE REQUIREMENTS TO PUBLISH ANNUAL FINANCIAL STATEMENTS

Some companies do not publish annual financial statements pursuant to domestic provisions under Luxembourg law (Article 70 of the Law of December 19, 2002) and Dutch law (Article 403 of the Civil Code) relating to the exemption from the requirement to publish audited annual financial statements.

The companies exempted are notably: ENGIE Energie Nederland NV, ENGIE Energie Nederland Holding BV, ENGIE Nederland Retail BV, ENGIE United Consumers Energie BV, Electrabel Invest Luxembourg, ENGIE Treasury Management SARL and ENGIE Invest International SA.

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