



CARBON FOOTPRINT

EDF GROUP 2023

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INTRODUCTION

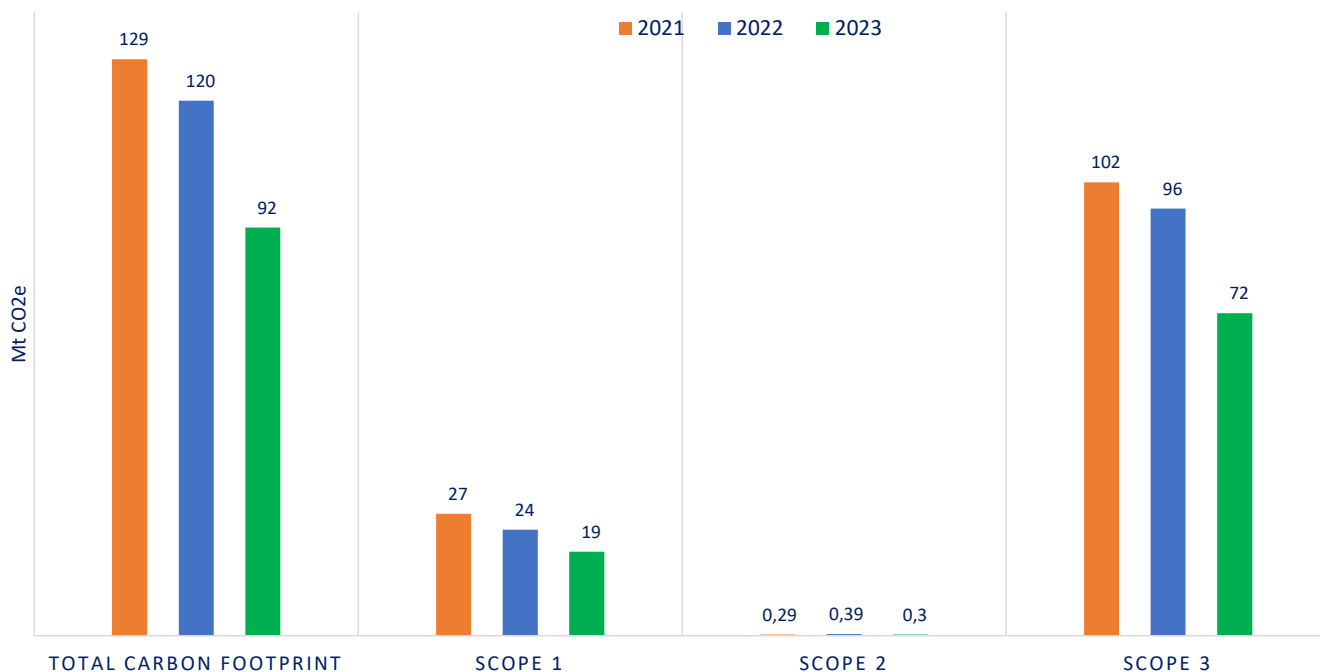
EDF¹ annually publishes a Carbon Footprint covering the Group's geographies² across the three scopes, including significant elements of greenhouse gas emissions in accordance with the GHG Protocol³. This report is an essential tool for monitoring and managing the Group's performance in terms of emissions. The Group's CO₂ emissions reduction trajectory, reinforced in 2023, has been validated according to several standards, notably by Moody's in 2024, which places the Group's emissions trajectory in line with a warming scenario of 1.5°C⁴.

The Greenhouse Gas (GHG) Statement for the EDF Group, pertaining to the three scopes, is disclosed in the Extra-Financial Performance Declaration (DPEF), and more specifically, in the third chapter of the Universal Registration Document (URD). This document is subject to verification by an Independent Third Party.

This report provides additional details on the Group's emissions, highlighting their relative significance and their annual variability.

BILAN CARBONE

In 2023, the EDF Group's carbon footprint shows a significant reduction in its emissions, resulting from an increase in decarbonized production, particularly due to the rise of nuclear production in France and the sobriety effect observed on gas and electricity energy consumption (for example -3.2% of electricity consumed in France in 2023 compared to 2022)⁵. The Group's total emissions amount to 92 MtCO₂e, marking a reduction of 24% compared to the year 2022.



Direct and indirect CO₂e emissions of the EDF Group in 2021, 2022, and 2023

Three categories of emissions represent 80% of Scope 3 and alone account for 64% of the carbon footprint of the Group. These three categories are: the sales of gas to end customers, the purchases of electricity for resale to end customers, and minority investments made by the Group.

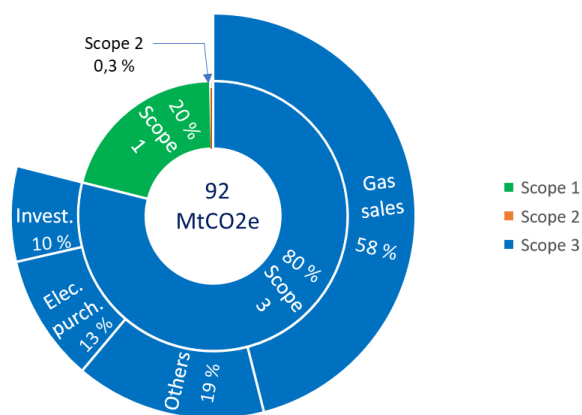
¹ The term "EDF" refers to EDF SA, the parent company. The terms "Group" or "EDF group" refer to EDF and its subsidiaries and shareholdings.

² See section on *Perimeter of the Group*.

³ The Greenhouse Gas Protocol Initiative, more commonly known as the GHG Protocol, is the most internationally recognized GHG accounting method. Introduced in 1998 by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), it was developed in partnership with companies, NGOs, and governments. It provides a set of resources, tools, and data for carbon footprint calculation [<https://ghgprotocol.org/>].

⁴ See [URD 2023](#) for more details.

⁵ [RTE](#)



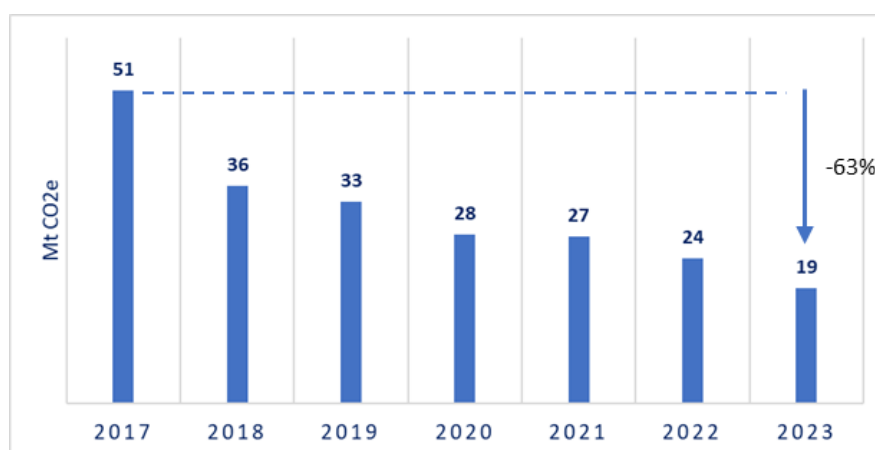
In 2023, all emissions related to Scope 1, 2, and 3 were verified by PwC, acting as the auditor of EDF and the designated Independent Third Party. The complete attestation from PwC is available in the appendix of the document.

Carbon Footprint of the verified greenhouse gas emissions of the EDF Group

Verified Greenhouse Gas Emissions Summary of the 2023 Carbon Footprint	MtCO ₂ e verified	Level of assurance
Direct greenhouse gas emissions from Scope 1	19 MtCO ₂ e	Reasonable
Indirect greenhouse gas emissions from Scope 2	0,3 Mt CO ₂ e	Limited
Indirect greenhouse gas emissions from Scope 3	72 MtCO ₂ e	Limited

Scope 1

Emissions attributed to Scope 1 show a decreasing trend over several years, in line with the environmental commitments made by the Group. Since the year 2017, a reduction of 63% in Scope 1 emissions has been observed.



Trend in direct Scope 1 emissions of the EDF Group from 2017 to 2022

The observed decrease is primarily due to the reduction of direct CO₂⁶ emissions from electricity and heat production plants. These emissions alone account for 96% of the total Scope 1 emissions.

The breakdown of the various emission sources within Scope 1 is detailed in the section titled *Breakdown of Emission Sources according to the GHG Protocol for the EDF Group*, presented below.

⁶ Direct CO₂ emissions from generation, excluding life cycle analysis (LCA) of power plants and fuels.

EDF Group - Scope 1 - Direct CO ₂ equivalent emissions	2021	2022	2023
Direct emissions from Scope 1 (Mt CO ₂ e)	27,4	23,8	18,9
Including direct CO ₂ emissions Scope 1.1: Emissions from fossil-fuel thermal power plants	26,6	23,3	18,2
Including direct CH ₄ emissions Scope 1.1: Emissions from fossil-fuel thermal power plants	0,04	0,04	0,03
Including direct N ₂ O emissions Scope 1.1: Emissions from fossil-fuel thermal power plants	0,13	0,12	0,10
Fugitive SF ₆ Emissions Scope 1.4: Emissions from circuit breaker leaks	0,05	0,05	0,05
Other Scope 1 Emissions	0,6	0,5	0,5

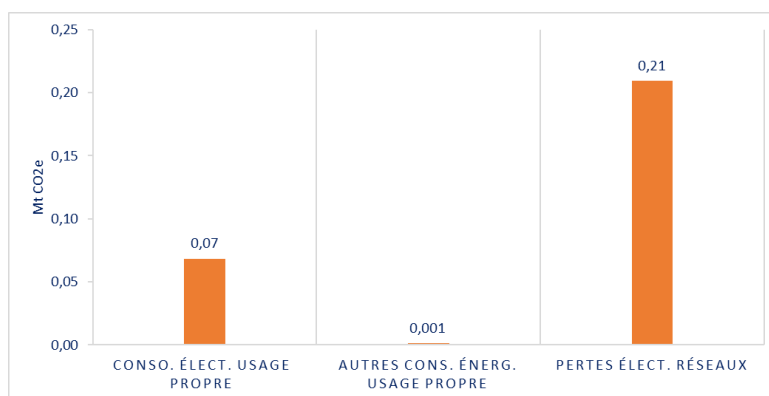
In 2023, the Scope 1 emissions of the EDF Group recorded a reduction of 21% compared to the previous year. This decrease is mainly due to a lesser use of thermal power plants operating on coal, oil, and gas, which saw their electricity production drop by 10 TWh (-23%). This reduction is due, in particular, to the better availability of the nuclear fleet in 2023 compared to 2022 (better control of the treatment of the stress corrosion cracking phenomenon). At the Group level, nuclear production is up by 35 TWh (+11%) in 2023. The contribution of hydropower was also an important factor. This production experienced an increase of 7 TWh (21%) at the Group level. The reduction in dependence on fossil fuels also contributed to the decrease in emissions, with for example, the definitive closure of the coal-fired power plant West Burton A⁷ (1 GW) in the United Kingdom, the conversion of fuel oil to biomass in La Réunion, and a greening of Dalkia's heat networks (progressive shutdown of gas cogeneration plants).

Scope 2

Emissions under Scope 2 are associated with the acquisition of electricity, heat, and cooling necessary for the EDF Group's own operations. Given the Group's role as an electricity producer, a significant portion of these emissions is already accounted for within Scope 1. The Scope 2 data mentioned in this document are calculated using the location-based approach (see section *Details on Methodology* for more details).

EDF Group - Scope 2 - Indirect CO ₂ equivalent emissions	2021	2022	2023
Indirect emissions from Scope 2 (Mt CO ₂ e)	0,29	0,39	0,28

The distribution of indirect emissions from Scope 2 (see § *Breakdown of Emission Sources according to the GHG Protocol for the EDF Group*) is presented in the following graph.



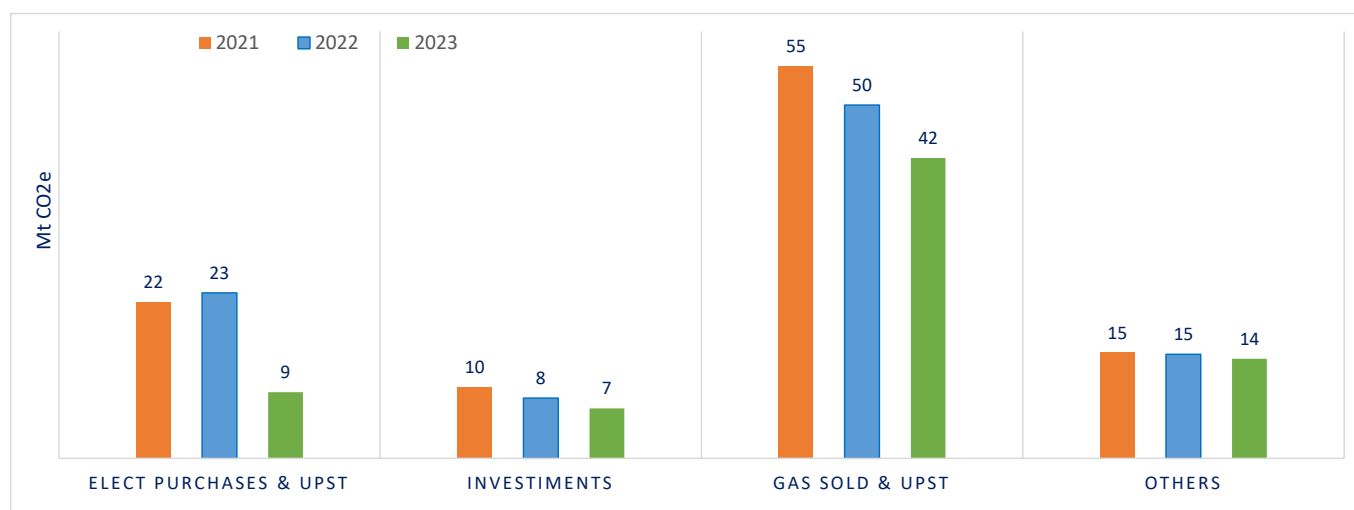
In the EDF Group's carbon footprint, emissions attributed to Scope 2 constitute a marginal fraction, representing only 0.3% of the total. Within this category, emissions due to electrical losses in the distribution networks are predominant, accounting for 75% of Scope 2 emissions. In 2023, a reduction of 110 kt CO₂e in Scope 2 emissions was observed, primarily due to the decrease in electrical losses in the Group's distribution networks. This improvement is attributed on the one hand to a drop in consumption in France and on the other hand to the completion of the Linky meters deployment.

⁷ At the request of the British government, the connection of West Burton A to the ESO national network had been extended for 6 months, until its definitive closure on March 31, 2023.

Scope 3

Indirect emissions under Scope 3 constitute the majority of the EDF group's carbon footprint, reaching a total of 72 Mt CO₂e for the year 2023. The detailed distribution of the main emission sources within Scope 3 is outlined in the section *Breakdown of Emission Sources according to the GHG Protocol for the EDF Group*, whose content is presented below.

EDF Group - Scope 3 - Indirect CO ₂ equivalent emissions	2021	2022	2023
Indirect emissions from Scope 3 (Mt CO ₂ equivalent)	101,8	95,9	72,5
Including emissions from the combustion of gas sold to end customers Scope 3.11: Use of sold products or combustion	45,5	40,9	35,4
Including upstream emissions from gas sales to end customers Scope 3.3: Upstream emissions	9,7	8,7	6,7
Including emissions from the purchase of electricity for resale to end customers Scope 3.3: Combustion for the production of electricity from fossil sources	17,4	18,4	6,6
Including upstream emissions from the purchase of electricity for resale to end customers Scope 3.3: Upstream emissions	4,5	4,8	2,7
Including equity-accounted assets (Investments) Scope 3.15: Scope 1 and 2 emissions from minority participation assets ⁶	10,0	8,4	7,0
Including emissions from other Scope 3 categories	14,8	14,6	14,0



Within Scope 3, indirect emissions resulting from the purchase of energy (gas and electricity) for resale to end customers constitute 71% of the total emissions of the EDF group in 2023. Specifically, emissions related to the combustion of sold gas (corresponding to product use) represent 49% of the total Scope 3 emissions. The inclusion of upstream emissions related to sold gas increases this proportion to 58%. However, a 36% reduction in these emissions was observed in 2023, resulting from the divestment of EES⁸ (marketer in the United States), as well as a general decrease in gas consumption due to a milder winter and the sobriety effect already observed in 2022.

Furthermore, emissions from Scopes 1 and 2 related to assets not consolidated⁹ by full integration are accounted for in the "Investments" item of the carbon footprint, estimated at 7 MtCO₂e in 2023, marking a decrease of 17%. This reduction is mainly due to a decreased reliance on fossil thermal production assets, particularly in China, where production was reduced by 1.1 TWh due to greater renewable production in 2023.

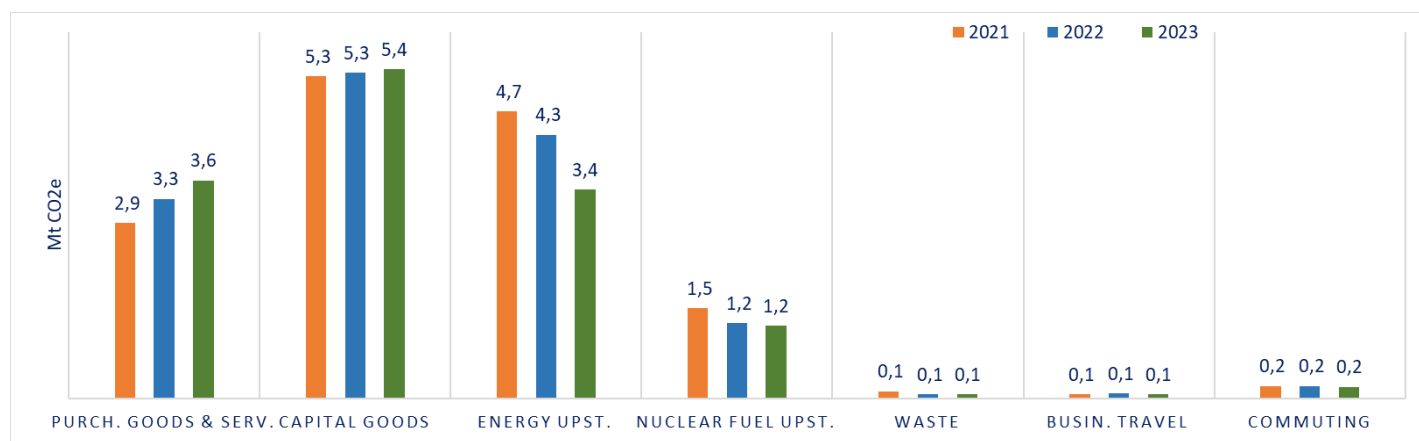
Overall, the reductions recorded in Scope 3 between 2022 and 2023 amount to 24% (-23.5 MtCO₂e) and reach 39% (-47 MtCO₂e) compared to 2019¹⁰.

⁸ See section Perimeter of the Group

⁹ Investments item emissions correspond to the Scope 1 and 2 of the assets acquired in minority interests, accounted for using the equity method and recognized in proportion to EDF's holdings.

¹⁰ Base year for Group's commitment related to scope 3.

The other emission items of Scope 3 are distributed among various categories, including the purchase of goods and services, company equipment, upstream emissions of fuels (fossil and nuclear), purchases of heat for resale, operational waste, as well as emissions related to employee travel and home-to-work journeys, detailed in the section *Breakdown of Emission Sources according to the GHG Protocol for the EDF Group*.



Among the various items of Scope 3, we observe an increase in emissions resulting from the “Purchases of Goods and Services” by 0.3 MtCO₂e and from “Capital Goods” by 0.06 MtCO₂e. However, this increase is offset by a reduction in emissions across other items, amounting to -0.99 MtCO₂e, with a notable decrease in “Upstream Emissions” related to the consumption of fossil fuels of -0.9 MtCO₂e. This trend correlates with the general decline in conventional thermal production of electricity and heat.

PERIMETER OF THE GROUP

The perimeter of the EDF Group is defined in accordance with the IAS-IFRS financial consolidation standards, encompassing the financial and extra-financial data of companies consolidated by full integration. This data thus corresponds to the results presented in the Universal Registration Document (URD) of 2023.

The full integration consolidation method includes 100% of the results from entities directly controlled by the Group. Entities over which the EDF Group has significant influence, but not control, are accounted for using the equity method and their emissions are considered in the Scope 3 calculations, within the “Investments” item.

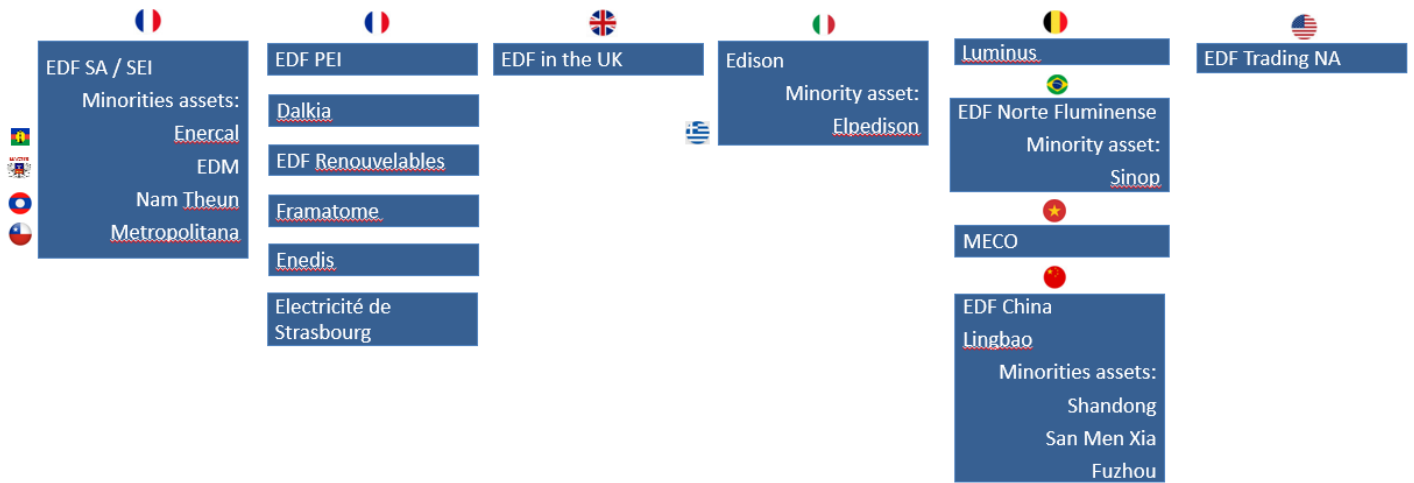
However, the perimeter also takes into account criteria related to the environmental impact of subsidiary activities. Therefore, some subsidiaries, although included in the financial perimeter, may be excluded from the carbon footprint if their activity or size is deemed negligible in relation to environmental issues. Conversely, companies with a significant environmental impact may be included in the environmental perimeter while being excluded from the financial one.

The perimeter considered for the evaluation of greenhouse gas emissions includes the mentioned companies, their subsidiaries, as well as their minority stakes (accounted by equity method). Between 2022 and 2023, the Group proceeded with the divestment of three assets: EES¹¹ Ibiritermo¹² and Sloe¹³. Their contribution to the Group's carbon footprint emissions was accounted for pro rata based on the duration of ownership during the year.

¹¹ EDF Energy Services sold end of November 2022.

¹² Edison's company in minority stake sold end July 2022.

¹³ Sloe sold in the first quarter 2023.



Subsidiaries that are consolidated financially but excluded from the environmental perimeter do not represent a significant importance; indeed, their emissions account for less than 5% of the total carbon footprint of the EDF group. An annual reevaluation of the Group's perimeter is systematically carried out, ensuring the alignment of the environmental strategy with the goals and commitments of the Group.

BREAKDOWN OF EMISSION SOURCES ACCORDING TO THE GHG PROTOCOL FOR THE EDF GROUP

Scopes 1, 2, and 3, as defined by the GHG Protocol, encompass the greenhouse gas emissions identified by the Kyoto Protocol (CO₂, CH₄, N₂O, HFC, PFC, SF₆, NF₃). These scopes cover a wide range of activities, from fuel extraction up to employee travel. To facilitate their comparison and aggregation, data related to these emissions are converted into carbon dioxide equivalents (CO₂e), taking into account the global warming potential (GWP) of each gas.

Scope 1	<p>Direct Emissions :</p> <ul style="list-style-type: none"> From fixed combustion sources : <ul style="list-style-type: none"> CO₂, CH₄, and N₂O emissions from fossil fuel power plants fossil fuel consumption for heating occupied premises From mobile combustion sources : <ul style="list-style-type: none"> fuel consumption of the vehicle and machinery fleet Fugitive emissions : <ul style="list-style-type: none"> fugitive emissions from the water reservoirs of hydraulic power plants fugitive emissions of SF₆ and refrigerant fluids
Scope 2	<p>Indirect emissions associated with the consumption of electricity, heat, or cooling water for own use:</p> <ul style="list-style-type: none"> Electricity consumption for own use (consumption of tertiary buildings, data centers, and losses in electrical networks) Heat and cold consumption for own use
Scope 3	<p>Indirect emissions resulting from the activities of our suppliers and those not included in scopes 1 and 2:</p> <ul style="list-style-type: none"> Purchases of goods and services Upstream of energy fuels used both in generation plants (nuclear and fossil) for heating occupied premises or fuels for vehicles and machinery (extraction refining/enrichment/transport) Upstream and losses from consumption of electricity, heat, and cooling water for own use Depreciation of emissions related to fixed assets (plants, networks, buildings, vehicles & machinery) Upstream and generation of electricity and heat purchased for resale to end customers Upstream and combustion of gas purchased for resale to end customers Emissions from Scope 1 and 2 of minority assets Others: operational waste, business travel and home-to-work journeys of employees

DETAILS ON METHODOLOGY

The data used refers to January 1st until December 31st of year N. Unless specifically mentioned, the applied emission factors are sourced from the Ademe® Carbon Database, as updated in January 2024 and, otherwise, from AIE and Ecoinvent. The global warming potential (GWP) values used correspond to those published in the 6th assessment report of the Intergovernmental Panel on Climate Change (IPCC).

Details on Scope 1

Direct emissions from thermal power plants (CO₂, CH₄, and N₂O): The emissions generated by thermal power plants are determined either through direct measurements or based on analyses of fuels or standard emission factors. This approach covers all stages of the electricity production process, including startup and shutdown phases. CO₂ emissions also account for emissions from industrial processes, such as flue gas desulfurization. Methane (CH₄) and nitrous oxide (N₂O) emissions are converted into tons of CO₂ equivalent for accounting purposes.

Emissions from emergency backup units of nuclear power plants: Emissions resulting from combustion in the emergency backup units of nuclear power plants are calculated based on the quantities of fuel provided by the Group's main supplier during the year, thus reflecting actual consumption.

CO₂ and CH₄ emissions related to the water filling of hydraulic reservoirs: Emissions associated with hydraulic reservoirs, larger than 1 hectare, are estimated using the method recommended by the IPCC. This method is applied to calculate carbon dioxide (CO₂) and methane (CH₄) emissions but does not allow for the assessment of nitrous oxide (N₂O) emissions.

Details on Scope 2

Scope 2 calculation: In accordance with the GHG Protocol guidelines, the calculation of Scope 2 can be carried out either on the basis of the average content of the electricity network (so-called "location-based" method) or on that of the specific content of the electricity supplier (so-called "market-based" method). However, adopting a cautious approach, EDF has chosen to publish the Scope 2 data on the location-based approach.

Conversion of electrical consumption into emissions: Electrical consumptions are converted into emissions (excluding upstream emissions and network losses) without distinction of use. To this end, two methods are applied: the application of the emission factor from the average energy mix recommended by the Ademe, and the use of the specific generation mix carbon content from the supplier. These emissions pertain to the generation of electricity used in tertiary buildings (heating, cooling, processes, lighting, computing, various equipment, etc.) and data centers.

Tertiary buildings: Emissions related to electricity consumption in tertiary buildings are calculated based on an average consumption determined per unit of surface area, derived from consumption data from a representative sample of occupied buildings. This average consumption is then extrapolated to all occupied surfaces.

Management of electrical losses on distribution networks: For the distribution networks of Enedis and Électricité de Strasbourg, a treatment is made to avoid double counting of emissions already included in Scope 1 related to the EDF's electricity generation.

Details on Scope 3

Emissions linked to the nuclear fuel cycle: This emissions item includes emissions resulting from purchases of nuclear fuel, which are estimated from the quantities of fuel charged into the reactors during the year. For the different phases of the fuel cycle (extraction, conversion, enrichment, manufacturing, treatment of spent fuel, and waste management), the emission factor applied is that recommended by Ademe. This method makes it possible to comprehensively integrate the environmental impacts associated with each stage of the nuclear fuel life cycle.

APPENDIX

Report of one of the Statutory Auditors, designated as an independent third party, on the consolidated non-financial performance statement

The Carbon Footprint of the EDF Group for the fiscal year 2023 was published in the Extra-Financial Performance Declaration (URD 2023).

The details of the verification are included in appendix 3 of the PwC report, designated as an independent third party (transcription of the signed French version).

Reasonable assurance report from one of the Statutory Auditors on a selection of Electricité de France's non-financial performance indicators as for the year ended December 31st, 2023

This is a translation into English of the reasonable assurance report from one of the Statutory Auditors on the Identified Sustainability Information in Electricité de France's Compliance Certificate and it is provided solely for the convenience of English-speaking users.

To the Board of Directors of Electricité de France,

In our capacity as Statutory Auditors of Electricité de France (hereinafter the "Entity") and in accordance with your request, we have undertaken a reasonable assurance engagement on the selected sustainability indicators as of the year ended December 31st, 2023 (the "Identified Sustainability Information") and identified with a ✓ in the consolidated non-financial statement ("DPEF") included in the Group Annual Report and presented below:

- EDF Group direct greenhouse gas emissions (scope 1) (Indicator #1)
- Workforce as of December 31st, 2023, and breakdown by gender and age (Indicator #2)
- Carbon intensity: specific CO2 emissions from electricity and heat generation (KPI #1)
- Water intensity: water consumed / electricity generation (KPI #2)

Our assurance does not extend neither to information relating to earlier periods nor to any other information included in the Group Annual Report.

Our Reasonable Assurance Opinion

In our opinion, the Identified Sustainability Information set out in the 2023 DPEF is prepared, in all material respects, in accordance with the guidance prepared by the entity (Indicator # 1: "Processus_Bilan Carbone 2023-2024" and "DDD_EDF_Fiche méthodo_ENV"; Indicator #2: "Glossaire des indicateurs RH bilan 2023"; KPI #1: "KPI N1 Intensité carbone" ; KPI #2: "Fiche méthodo_ENV_CONSO_EAU_v2") and the basis of preparation set out in the section "3.6 Méthodologie" of the DPEF as for the year ended December 31st, 2023.

Preparation of the Identified Sustainability Information

The absence of a commonly used generally accepted reporting framework or a significant body of established practice on which to draw to evaluate and measure Identified Sustainability Information allows for different, but acceptable, measurement techniques that can affect comparability between entities and over time.

Consequently, the Identified Sustainability Information needs to be read and understood together with the reporting framework defined by the Entity and specific to each sustainability indicators available with the Impact Direction and the basis of preparation set out in the section "3.6 Méthodologie" of the DPEF as for the year ended December 31st, 2023 (together "the Reporting Criteria"), which Electricité de France has used to prepare the Identified Sustainability Information.

Inherent Limitations in preparing the Identified Sustainability Information

The Identified Sustainability Information may be subject to inherent uncertainty because of incomplete scientific and economic knowledge and the quality of external data used. Moreover, some information is sensitive to the choice of methodology and the assumptions and/or estimates used for its preparation and presented in the 2023 DPEF.

In addition, greenhouse gas quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

Electricité de France's Responsibilities

Management of the Entity is responsible for:

- selecting or establishing suitable criteria for preparing the Identified Sustainability Information, taking into account, if any, applicable law and regulations related to reporting the Identified Sustainability Information;
- the preparation of the Identified Sustainability Information in accordance with the Reporting Criteria;
- designing, implementing and maintaining internal control over information relevant to the preparation of the Identified Sustainability Information that is free from material misstatement, whether due to fraud or error.

Our Responsibilities

We are responsible for:

- planning and performing the engagement to obtain reasonable assurance about whether the Identified Sustainability Information is free from material misstatement, whether due to fraud or error;
- forming an independent opinion, based on the evidence we have obtained; and
- reporting our opinion to the Board of Directors of the Entity.

As we are engaged to form an independent opinion on the Identified Sustainability Information as prepared by management, we are not permitted to be involved in the preparation of the Identified Sustainability Information as doing so may compromise our independence.

Professional Standards Applied

We performed our reasonable assurance engagement in accordance with the professional guidance issued by the French Institute of Statutory Auditors (Compagnie Nationale des Commissaires aux Comptes) applicable to such engagement and the International Standard on Assurance Engagements 3000 (Revised), *Assurance Engagements other than Audits or Reviews of Historical Financial Information* and, in respect of greenhouse gas emissions included in the Identified sustainability information, in accordance with the International Standard on Assurance Engagements 3410, *Assurance Engagements on Greenhouse Gas Statements*, issued by the International Auditing and Assurance Standards Board.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the French Code of Ethics for Statutory Auditors (*Code de Déontologie*) as well as the provisions set forth in Article L.821-28 of the French Commercial Code (*Code de Commerce*) and the *International Code of Ethics for Professional Accountants (including International Independence Standards)* issued by the International Ethics Standards Board for Accountants (IESBA Code) which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Our firm applies International Standard on Quality Management 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

Our work was carried out by an independent and multidisciplinary team with experience in sustainability reporting and assurance.

Summary of the work we performed as the basis for our assurance opinion

A reasonable assurance engagement involves performing procedures to obtain evidence about the Identified Sustainability Information. The nature, timing and extent of procedures selected depend on professional judgment, including the assessment of risks of material misstatement, whether due to fraud or error, in the Identified Sustainability Information. In making those risk assessments, we considered internal control relevant to the Entity's preparation of the Identified Sustainability Information. A reasonable assurance engagement also includes:

- evaluating the suitability in the circumstances of the Entity's use of the Reporting Criteria;
- evaluating the appropriateness of measurement and evaluation methods, reporting policies used and the reasonableness of estimates made by the Entity; and
- evaluating the disclosures in, and overall presentation of, the Identified Sustainability Information.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Neuilly-sur-Seine, February 16th, 2024

One of the Statutory Auditors
PricewaterhouseCoopers Audit

Cédric Haaser
Partner

Aurélie Castellino-Cornetto
Partner, Sustainability Development