

Climate Notebook 2021

EDITORIAL



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Climate: a strategic issue for the planet. The global need to limit global warming creates important opportunities for ENGIE. We are engaged at every level in adapting our operations and accelerating our transition to zero carbon, in keeping with the corporate purpose written in our bylaws.

The urgency of environmental challenges has already triggered important adaptations of our business model. We are committed to the gradual disengagement from coal by 2027, the accelerated development of renewable energy, and the use of methods for improved energy efficiency. We are also assisting customers towards carbon-neutral operations, and choosing suppliers committed to a low carbon world.

Although we are proud of recent achievements, much remains to be done. In 2021, ENGIE decided to go further by announcing a goal of Net Zero Emissions for all its operations by 2045.

This long term goal is key to our strategy, and we have defined detailed intermediate goals to make sure we keep transforming the company at the right speed.

FACING UP TO **THE CLIMATE EMERGENCY**

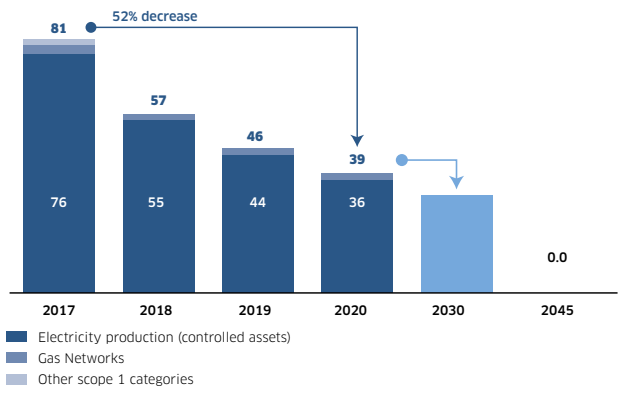
Drought, fires, floods, hurricanes–the events linked to climate change are growing, and the impacts are increasingly spectacular. While 2021 will see the UNFCCC 26th Annual Climate Conference (COP 26), which is expected to result in higher targets for the 110 participating countries, ENGIE has been pursuing a proactive policy of further reductions in its greenhouse gas emissions.

- A reduction of nearly **40% over the past 5 years** in total emissions and of 50% in electricity production;
- **SBT Certification** of the new objectives to 2030, in line with the Paris Agreement:
  - Reduce by **52%** the rate of emissions per kWh of energy production compared with 2017
  - Reduce by **34%** the emissions related to the use of products sold
- Definition of **new Group objectives**:
  - Increase the share of renewables in the energy mix to 58% in 2030
  - Reduce and neutralize emissions related to our working practices
  - Automatically offer decarbonized products and services to all our customers to achieve a GHG emission reduction target of 45 Mt by 2030
  - Give priority to SBT-certified suppliers
- Creation of an in-house **TCFD** (*Task Force on Climate Disclosure*) **working group** to deepen and quantify the risks related to climate effects
- Development of the **Group's adaptation plan** for reducing the exposures of assets and operations;
- Integration of CSR criteria, and in particular climate, into the variable portion of top management's compensation.

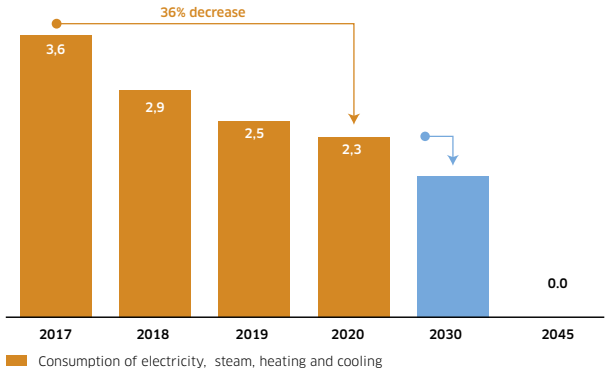
The graphs below illustrate the historical decline of the Group's GHG emissions for a each scope, as well as the decrease in absolute and relative emissions in energy production.[1]

GHG Emissions (Mt CO_2 eq)

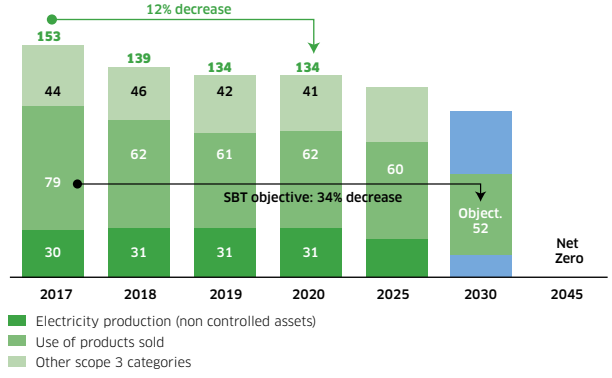
Scope 1 (direct emissions)



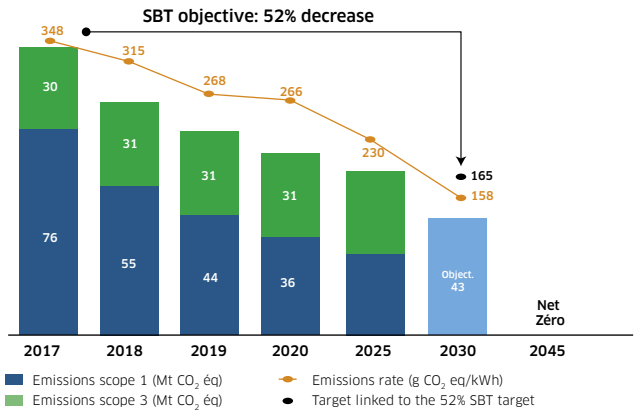
Scope 2 (indirect emissions)



Scope 3 (indirect emissions)



GHG emissions from energy production (Mt CO_2 eq)



[1]*The Group, which applies the GHG protocol, refines the way it calculates its environmental footprint every year This work may result in revisions of previously published data due to the addition of new emissions sources that have become significant or the elimination of emissions sources that have become obsolete, such as steel gas emissions from Arcelor-Mittal's gas-fired plants, which were shut down in 2020 and will in any case no longer be contributing in 2030. All the methodological changes detailed in the URD were first approved by the Statutory Auditors who audit the Group's environmental reporting. The two 2030 GHG emissions targets and the reduction measures taken between 2017 and 2030 regarding the SBT initiative have been maintained despite these methodological changes.*

A PROACTIVE STRATEGY

Because it was identified very early as a major issue, climate change has long been the subject of a plan of action. In 2014, ENGIE was already setting targets to reduce **the carbon intensity of its electricity production by 20%** by 2020, and in 2015 it introduced an **internal carbon price** in order to accelerate its disengagement from coal and promote less carbon-intensive solutions. An internal process was put in place in 2020 to allocate carbon budgets to the Global Business Units based on the Group's reduction targets in order to optimize the management of the decarbonization objectives.

These commitments are matched by actions throughout the entire **value chain**. With all its entities, the Group defines neutrality trajectories for emissions related to **working methods** (buildings, IT, travel and work-related catering) and defines action plans along its various **supply chains**. In addition, it helps **its customers** along their path to decarbonization through a customized program of assistance and services.

ENGIE made a head start on regulatory obligations as one of the first industrial companies to report its **carbon footprint**, including the main items in scopes 2 and 3. The Group has involved itself in various national and international initiatives such as the TCFD (Task Force on Climate Financial Disclosure) and the United Nations "Caring for Climate," initiative, and deepens its understanding and analyses by maintaining constructive dialogue with **experts, NGOs and investors**.

As evidence of the Group's commitment, its first 2030 targets were **certified by the SBT** (Science-Based Targets) initiative and cover the majority of its emissions.

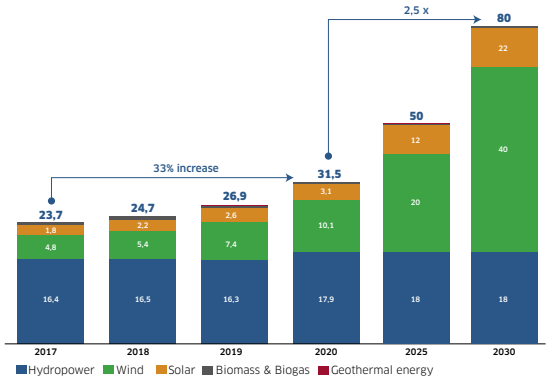
The means to achieve the two 2030 SBT targets are as follows:

- The 52% reduction in 2030 of the rate of emissions per kWh of energy produced compared with 2017 will be achieved by increasing the share of renewable capacity, which will rise from 31% in 2020 to 58% in 2030, by withdrawing totally from thermal production by 2027, and by increasingly green gas production capacity in Europe.
- The 34% reduction in emissions in 2030 from the use of products sold compared with 2017 will be achieved through the disposal in 2018 of the liquefied natural gas business, the decrease in final demand due to greater energy efficiency brought about through the IEA sustainable development scenario, and increasingly green natural gas, mainly in Europe.

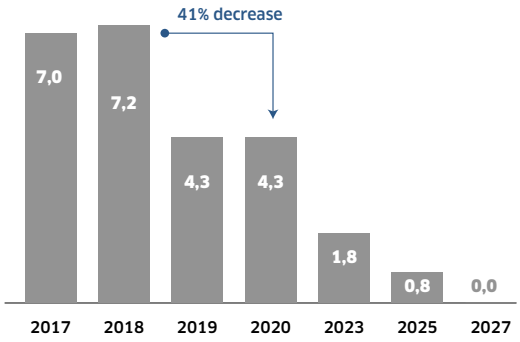
In accordance with its purpose, ENGIE announced in its Strategic Update of May 18, 2021 its commitment to Net Zero Emissions by 2045, applying to the direct and indirect emissions (scopes 1, 2 and 3) of all its operations. In keeping with this new climate goal, the Group has revised its carbon trajectory by 2030 in view of a forthcoming "well-below 2°C" validation by the SBT initiative.

ENGIE also presented a plan to accelerate the development of its renewable capacities to reach 50 GW in 2025 and 80 GW in 2030. This plan will mobilize 6 to 7 billion euros over the period 2021-2023, i.e. +20% compared to the period 2018-2020; and the capital employed for renewable activities will have doubled between 2019 and 2025. Finally ENGIE detailed its plan for discontinuing coal in Europe by 2025 and globally by 2027. To support the execution of this discontinuation plan, ENGIE will give priority to the closure or the conversion of its thermal power plants and will not consider disposing of plants unless necessary due to local constraints. The basic scenario of this exit plan foresees 4 site closures, 4 conversions and 2 disposals.

Change in renewable capacity (GW (@100%))



Change in coal-fired capacity (GW (@100%))





Gas: an important factor in energy transition

Gas plays a major role in energy transition in France and worldwide. By replacing other fossil fuels such as coal and oil, it may in the short term provide large-scale electricity production **that emits far fewer greenhouse gases and pollutants**. Easily storable and readily available, it can supplement renewable energy during peak demand. Later on, with the development of the biogas industry and industrialized methanization, **gas will gradually become green** enough to meet the regions' carbon neutrality objectives, benefit from existing networks and revitalize local businesses.



ANTICIPATING **CLIMATE-RELATED RISKS**

In this climate emergency, ENGIE is confronted with four **major types of impact**: heat waves, lack of rainfall, floods and extreme wind events.

These impacts carry with them further risks, which can be divided into two categories: **physical risks** and **transition risks,** which ENGIE handles by means of appropriate procedures.

PHYSICAL RISKS Risks resulting from damage directly and indirectly caused by weather and climate	**ACTIONS TAKEN IN 2020**
• Production losses and damages to all assets operated by ENGIE, its activities and new projects • Reduced insurance coverage and higher premiums • Health and safety risks to people working for the Group • Risks induced via the supply chains	• Analysis of the exposure of ENGIE operations with meteorological experts data and scenarios (including IPCC RCP8.5 scenario) • Creation of software to determine the vulnerability of operations between 2030 and 2050 by combining: - **The sensitivity index**, which measures the degree of fragility of a technology given an event - **The exposure index**, which measures the specific exposure of a geographic area given an event

TRANSITION RISKS Risks related to political, socio-economic, regulatory, technological and financial developments driving the transition toward energy savings and carbon-neutral business models	**ACTIONS TAKEN IN 2020**
• Political and regulatory risks • Market and technology risks • Reputational, legal and financial risks	• Work on the Group's carbon trajectory with the Science Based Targets (SBT) initiative and the Assessing low Carbon Transition (ACT) initiative led by ADEME, taking into account the IEA's Sustainable Development scenario (SDS) • Setting objectives along the entire emissions chain: suppliers, work practices, carbon footprint on scopes 1,2 and 3, and assistance to customers in achieving a carbon-neutral business model • Collaboration with the Net Zero Initiative, which offers a common language to all organizations committed to global net zero emissions • Contribution to the new ISO standard 14068 to foster a common understanding of carbon neutrality and approaches to take

ENGIE perceives this transition less as a threat than as a true revolution, creating **a host of new opportunities** which the Group has been seizing for several years: the shift toward renewable energies, the development of energy-efficient technologies, investment in renewable gases such as biogas and hydrogen, and support of the boom in green mobility.

INVOLVEMENT AT THE HIGHEST LEVEL OF THE ORGANIZATION

To oversee its actions and reach its objectives sooner, ENGIE has put in place a governance structure tailored to climate issues:

- The **Ethics, Environment and Sustainable Development Committee (EESDC)** of the Board of Directors approves matters related to climate change, such as the targets for lower greenhouse gas emissions, the decarbonization strategy, the risk analysis, and reporting and monitoring the transparency rules and recommendations of the TCFD. At the same time, the members of the Board of Directors receive training modules on climate change.
- A portion of the Chief Executive Officer's compensation now takes into account the achievement of the Group's decarbonization targets. This policy will be extended to the Group's other senior managers and key managers.



Ross McInnes
Chairman of the Ethics, Environment and Sustainable Development Committee

In recent years, ENGIE has undertaken meaningful actions and made ambitious commitments. Our first 2030 targets, which are in line with the Paris Agreement, have been SBT-certified. They embody the path we will take towards our ambition to achieve Net Zero Carbon in all our activities by 2045, which was just announced in May 2021. This performance is due to the robustness of our long-standing strategy and to our constantly updated commitments, which are equal to the challenges we face."

Climate-focused R&D

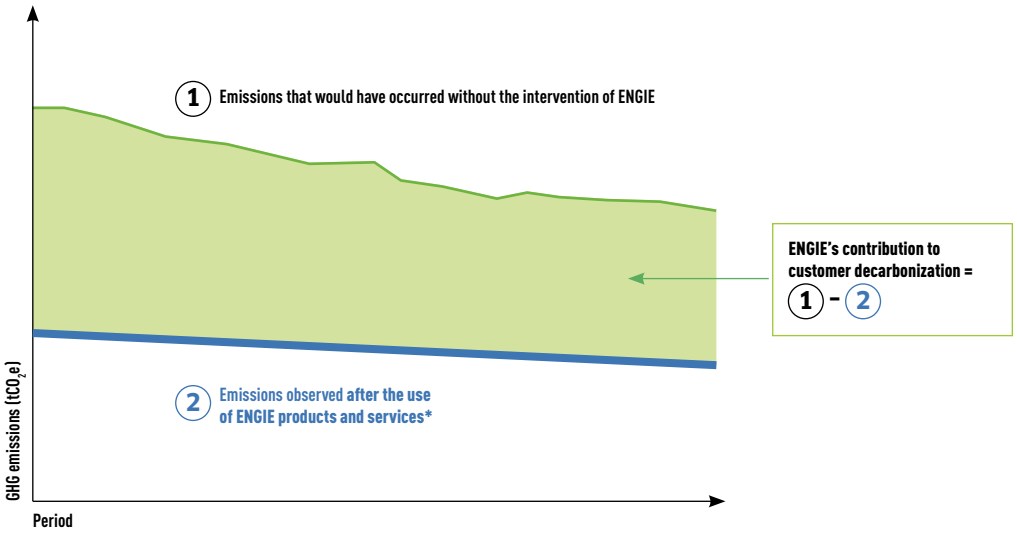
At ENGIE the challenge for R&D is to guarantee access to energy, which is vital for human activities, without impacting the climate or ecosystems. Within the Group, 23 laboratories employing researchers from around the world are implementing a road map defined by three major themes:

- **Low-carbon energy** (gas and renewable energy)
- **Smart and efficient consumption**
- **Group-wide tools** (Artificial Intelligence, drones, robots and sensors)

A new objective: customer decarbonization

In its Strategic Update of May 18, 2018, the Group announced a new objective for 2030: to contribute, through our products and services, to 45 Mt CO_2 eq. of avoided emissions among our customers. In 2021 this indicator replaced the previous customer decarbonization indicator, which was expressed as the portion of our products providing an alternative contributing to decarbonization.

This new objective is based on a methodology devised with external partners (WBCSD, Saint Gobain, Suez, Solar Impulse and the Net Zero initiative.) The ENGIE products and services concerned are green energy production, decentralized energy networks and associated services, energy savings, carbon credits and the purchase or resale of green energy.



** The ENGIE products and services concerned are green energy production, decentralized energy networks and associated services, marketed energy savings, carbon certificates and the purchase or resale of green energy.*



A shared commitment

ENGIE does not design climate change without taking into account its impact on people. All of its actions are designed to ensure a fair transition. ENGIE sees its promotion of energy transition as part of a collaborative, **comprehensive effort** , fueled by discussions with numerous non-profit groups and task forces. Dedicated exclusively to issues related to climate change or involved in broader topics, such as lobbying or responsible taxation, these bodies provide the Group with a finer understanding of shared issues and can, in some cases, lead to concrete results in the form of **the development of standards or shared commitments**.

Before joining a voluntary association of any type, ENGIE looks at several questions related to ethics, the interests of the businesses, the allocation of resources, and the alignment of mutual positions, in particular as regards the fight against climate change. The Group has registered as a lobbyist with the European Union and with France.

Examples of associations in which ENGIE is the most active:

afep · France Nature Environnement · Surfrider Foundation · World Energy Council · wbcsd · United Nations Global Compact · The B Team · Business for Nature · Carbon Pricing Leadership Coalition · ERT · EBA European Biogas Association



Hervé Casterman
Environment Director

Beside its very proactive objectives of reducing its carbon footprint, the Group has defined a decarbonization action plan along its entire value chain. It includes contributing through its products and services to the decarbonization of its customers, reducing emissions related to its working practices, and the selecting suppliers according to their commitment to SBTs. ”

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