

Naturgy

The Carbon
footprint

2021



2. Climate change and energy transition

Climate strategy

Climate change is a global environmental challenge and Naturgy is committed to being a key player in the energy transition to a circular and decarbonised economy model, with the objective of achieving net zero greenhouse gas (GHG) emissions by 2050 at the latest. With this target, Naturgy will continue to improve the eco-efficiency of the energy products and services it offers its customers to make them eco-efficient and carbon neutral.

In the Strategic Plan 2021-2025, in line with contributing to the commitment acquired to achieve net zero GHG emissions by 2050, carbon footprint reduction targets have been set according to science-based targets (SBT), for all scopes (scope 1, 2 and 3) and aligned with the 1.5°C - 2°C temperature scenarios of the Paris Agreement.

Similarly, the identification, measurement and management of climate risks and opportunities in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) are used to prepare and review the company's strategic planning, ensuring its alignment with the international climate agenda. The result of this is the new Strategic Plan 2021-2025, which is committed to:

- Promote renewable energies and encourage their integration through the development of smart networks.
- Developing renewable gases as a lever for decarbonisation of natural gas and the promotion of circular economy, through: biomethane from organic waste and green hydrogen produced with surplus renewable electricity.
- Promote energy eco-efficiency in own and customers' facilities.
- Promote sustainable mobility that reduces GHG emissions and also air pollution, helping to improve air quality.

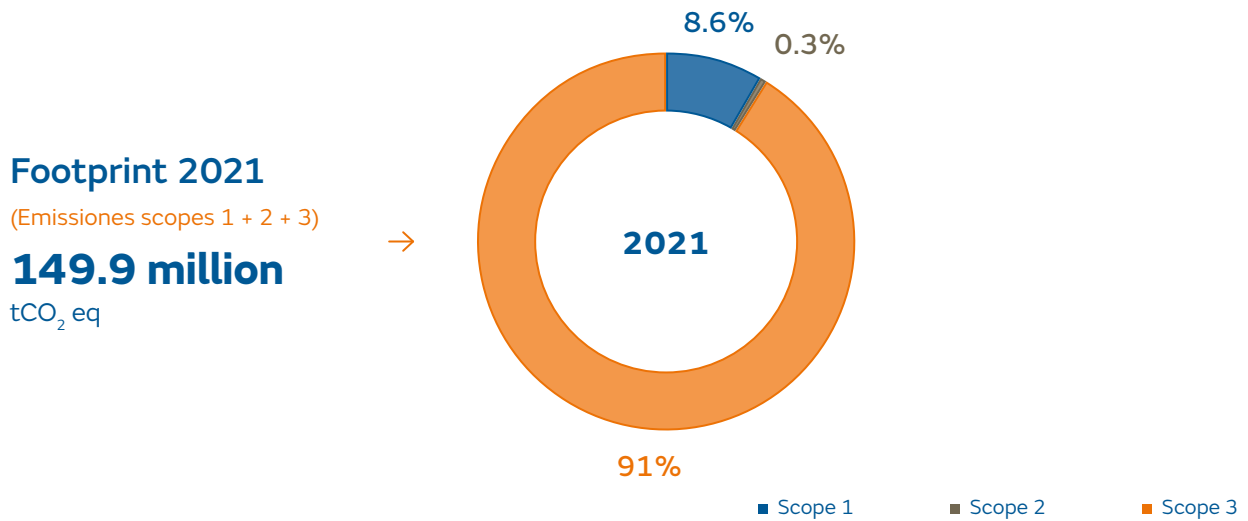
The commitment to transparency and dissemination of information related to climate change is materialised in our participation in international reference indices on climate change. It should be noted that Naturgy has been recognised by the CDP Climate index for its climate management, obtaining the A- list rating and remaining since 2011 in the leadership band.

Moreover, Naturgy has voluntarily undertaken commitments to the fight against climate change by joining climate-related initiatives such as the Carbon Pricing Leadership Coalition (CPLC), Caring for Climate, the Climate Change Trust and Disclosure Statement, the Statement of Support for the Task Force on Climate-related Financial Disclosures (TCFD) and participation in the SBT initiative.

The carbon footprint at a glance

The following shows the carbon footprint at 2021 and the reduction achieved with respect to the base year 2017 in the three scopes, as a sign of the company's commitment and good performance in the fight against climate change:

- Naturgy carbon footprint



Carbon footprint reduction between 2017 and 2021

↓ **37%** Emissiones scopes 1 and 2

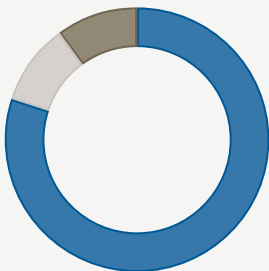
↓ **9%** Total carbon footprint (scopes 1, 2 and 3)



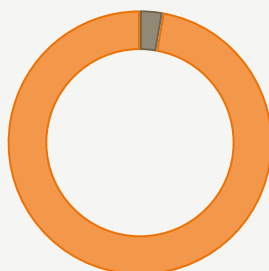
Scope 1
Direct emissions
13.0 mill tCO₂ eq

Scope 2
Indirect emissions
0.5 mill tCO₂ eq

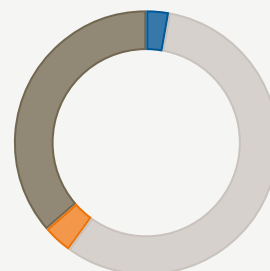
Scope 3
Other indirect emissions
136.5 mill tCO₂ eq



01
84% fossil fuel
power stations



02
99% losses
in electricity
distribution networks



03
95% customer emissions
from gas distributed and
commercialised

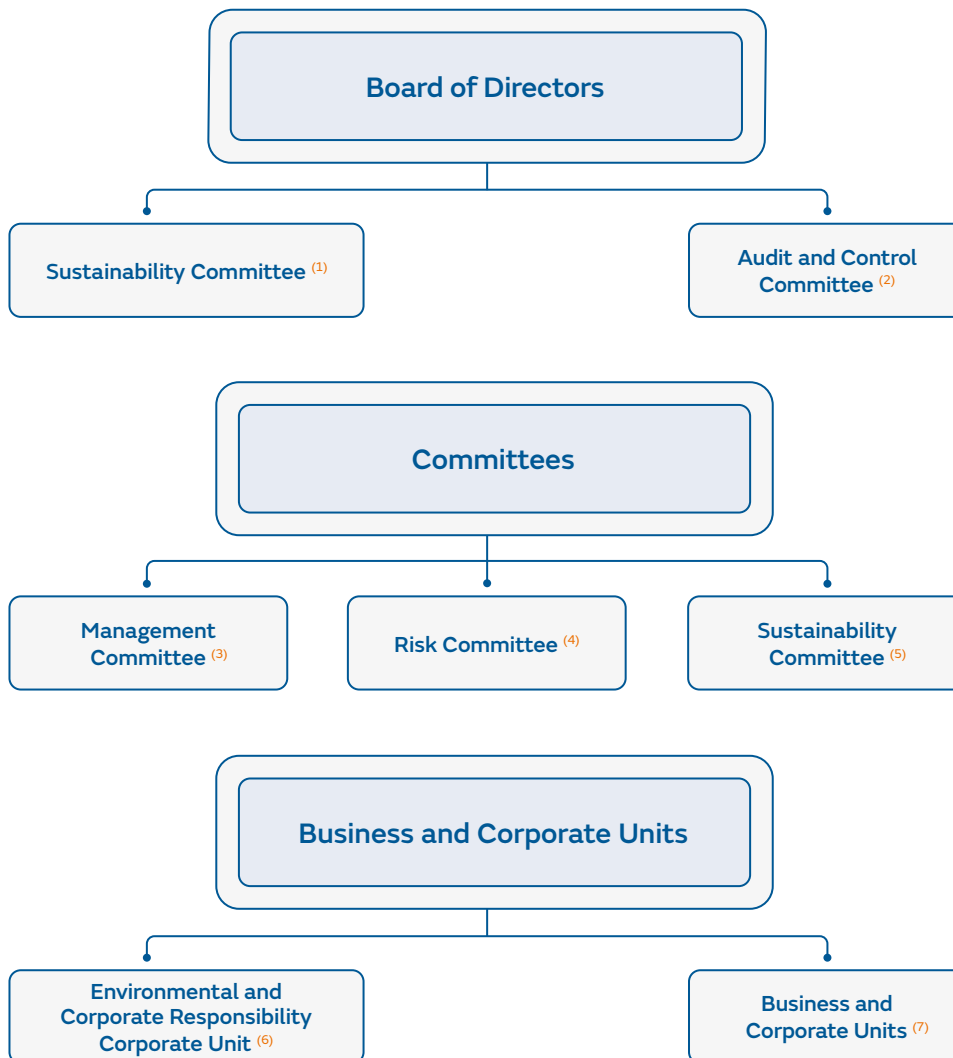
● Electricity generation ● Electricity distribution ● Gas distribution ● Procurement, LNG and gas commercialisation

Climate change governance

The supreme body responsible for climate change governance in Naturgy is the Board of Directors through the Sustainability Committee, which oversees the company's performance in environmental, social and corporate governance policies. This Committee evaluates the performance of important indicators, as well as the management of risks and opportunities, in respect to climate change.

Climate governance involves all of the company's businesses, operating areas, geographies and projects through the Management Committee and the Sustainability Committee. Environmental and climate change risks are integrated into the global risk management model. Ensuring the resilience and sustainability of the business is one of the key aspects of risk management at Naturgy.

Governance agencies and responsibilities in climate change



(1) Sustainability Committee

Oversees sustainability policies, focusing in particular on environmental, social and corporate governance policies. Ensures that the company's actions are aligned with the energy transition and the SDGs.

(2) Audit and Control Committee

Monitors the management and exposure to risk of the different businesses, including climate change related risks.

(3) Management Committee

Ensures the application and monitoring of business and sustainability policies, strategies, plans and objectives, proposing measures in the areas of energy transition, climate change and sustainable development.

(4) Risk Committee

Determines and reviews the target risk profile and monitors its management by the units, including physical and transitory climate risks.

(5) Sustainability Committee

Ensures, through monitoring and action proposals, the performance, implementation and improvement of policies, commitments and the Sustainability Plan, and, more specifically, environmental and climate change plans and objectives.

(6) Environmental and Corporate Responsibility Corporate Unit

Establishes the policy, indicators and objectives for the environment and climate change in coordination with the businesses, monitors the evolution, consolidates the information and centralises reporting for the management committees and Board of Directors.

(7) Business and Corporate Units

They apply general principles and strategies and develop plans, projects and activities to achieve climate change objectives.

In accordance with the Organisation and Operation Regulations of the Board of Directors and its Committees of November 2020, the Sustainability Committee meets at least three times a year. At these meetings, the company monitors performance on climate change and the energy transition, using a high-level indicator scorecard.

This commitment made by shareholders and senior management is transferred to all business and corporate units through the Global Environmental Policy, which establishes climate change and energy transition as one of its strategic environmental areas, defining the basic principles of action listed above. Likewise, specific improvement objectives are defined in the Strategic Plan 2021-2025 and are included in the Sustainability Plan, which can be consulted at the beginning of this chapter.

Management of climate change risks and opportunities according to TCFD

Risk management

Naturgy identifies and assesses the impact of the main risk factors through the risk management model, which seeks to ensure the predictability of the company's performance in all aspects relevant to its stakeholders. The elements that allow for continuous improvement in the process of identifying, characterising and determining Naturgy's risk profile are: the Risk Control and Management Policy, the corporate map and the risk measurement system.

The corporate risk map identifies and quantifies the risks that may affect the company's performance, including those related to the environment, climate change and energy transition. Their measurement allows them to be integrated within the corporate strategy and to set targets with the aim of keeping risks to a minimum and maximising opportunities.

Naturgy uses the TCFD recommendations for climate risk assessment. According to the classification foreseen by this standard, the following are determined: physical risks (acute and chronic) and transition risks (regulatory, technological, market and reputation).

The risk assessment analyses the probability of occurrence, the time horizon and the impact in different temperature scenarios. The section "Scenarios considered" below gives details of these scenarios. The time horizons are: short term in reference to the Strategic Plan 2021-2025, medium term until 2030 and long term 2030-2050, although the intermediate milestones are adapted to the evolution of the emission reduction objectives.



● Main risks linked to climate change at Naturgy

Identification

Type	Risk	Description
Acute physical risks	Damage from extreme weather events.	Damage to facilities, loss of production and/or interruption of energy supplies (gas or electricity).
	Increased frequency and severity of fires.	Damage to facilities and risk of increased fire frequency on electricity distribution lines with possible damage to third parties.
Chronic physical risks	Effects of increased temperature.	Drop in demand for natural gas for heating (residential and commercial). Decrease in the performance of combined-cycle power stations.
	Impacts of changes in rainfall patterns and extreme variability of weather patterns.	Changes in the generation dispatch. Wholesale electricity market price changes.
	Effects of rising sea levels.	Floods. Loss of production and/or interruption of supplies.
Transition: policies and regulation	Regulatory changes of energy and climate policies to mitigate climate change.	More demanding GHG emission reduction paths. Accelerated transition to decarbonisation. Variations in the carbon markets. Changes in environmental taxation. Electrification to the detriment of natural gas.
Transition: technological	Technological disruption in the energy transition.	Technological improvements, cost reductions or innovations that support the transition to a more efficient and low-carbon economic system. For example, implementation of large-scale electricity storage systems.
Transition: market	Changes in traditional energy business models.	Demand for new low-carbon products and services. Financing difficulties for projects not aligned with the reduction of greenhouse gas emissions. Loss in asset valuation (stranded assets).
Transition: reputation	Increased demand for transparency and climate action by stakeholders.	Loss of relevance in climate change and sustainability indices due to failure to achieve the expected standard of climate management or reputational damage resulting from climate change impacts, which may negatively affect the valuation of company intangibles by stakeholders (shareholders, customers or employees).

Evaluation				Risk management
Probability	Time horizon	2°C impact	1.5°C impact	Management and mitigation
Possible	Medium	Low	Very low	Policies for: property damage/loss of profit, environmental liability and land liability. All facilities are designed to operate under extreme weather conditions.
Possible	Short	Medium	Low	Policies for: property damage/loss of profit, environmental liability and land liability. Innovation projects for the improvement of felling and pruning work for the maintenance of power line safety corridors.
Possible	Medium	Low	Very low	Increase the contribution of electricity businesses vs. gas businesses. Operational efficiency plan that establishes objectives to improve specific consumption in thermal power stations, compensating for efficiency losses due to temperature increases.
Possible	Long	Low	Very low	Hydroelectric power station repowering programme. Study of the impact of climate change on hydroelectric power stations. Dominant position in combined-cycle power stations to support the production of electricity from renewable sources.
Possible	Long	Medium	Low	Plans for self-protection and periodic assessment of emergency environmental issues.
Likely	Medium	Low - Medium	Medium - High	Measures to reduce the company's carbon intensity: divestment of high carbon intensity assets (coal mine in South Africa, fuel oil power generation in Kenya), coal plants closure, development of new renewable power, increasing the weight of electricity in the company's portfolio and boosting renewable gases. Positioning natural gas as support for renewables and as a substitute for high-emission fossil fuels (coal and/or oil derivatives) in the energy transition.
Likely	Medium	Medium	Medium - High	Increase up to 14 GWh of installed renewable capacity by 2025. Promote the development of renewable gases (biomethane and green hydrogen), energy storage and other technologies for energy transition to a decarbonised economy.
Likely	Medium	Medium	Medium - High	Accounting adjustment of the book value of conventional electricity generation assets. Closure of coal-fired power stations. Development of new services (self-consumption, commercialisation of renewable electricity, PPAs) and low-carbon or carbon neutral products (Neutral Gas, neutral LNG, GoOs in the gas sector). Increase the contribution of regulated vs. liberalised businesses and increased weight of electricity in the company's portfolio.
Remote	Short	Medium - High	High	Corporate positioning on climate change including net zero target by 2050 and emission reduction pathways aligned with 1.5-2°C scenarios of the Paris Agreement. Presence in the main sustainability indices such as CDP Climate or Sustainalytics.

The analyses carried out show, as can be seen on the table, that the sensitivity of the business is greater to transition risks than to physical ones, since the latter represent a much smaller impact on the company and are properly covered.

Climate risk assessment methodology

The climate change risk model is based on a tool developed by Ms Excel and @Risk that allows the company's risk exposure to be estimated.

The temperature increase scenarios considered in the methodology are as follows:

- Intergovernmental Panel on Climate Change (IPCC):
 - SRES A2 (2°C): 2°C scenario.
 - SR1.5 (1.5°C): 1.5°C scenario used by SBT.
- International Energy Agency (IEA):
 - 2DS ETP (2°C): 50% probability of not exceeding 2°C in 2100 (central scenario).
 - B2DS ETP (well below 2°C): 66% probability of limiting peak warming between now and 2100.

The exposure to the risks of the different scenarios can be broken down into the following areas:

- Temporary: the impacts are analysed over various time horizons (2021-2050) and the risks are classified according to their relevance in the short, medium and long-term.
- Nature of the business: the impacts that could be caused in the company's different businesses (generation, commercialisation and distribution of electricity and gas and operation in markets of CO₂ emission rights) are analysed.
- Geography: the impacts are analysed in the various countries in which Naturgy operates.

The model allows the parameters related to energy markets (penetration of renewables, energy efficiency, CO₂ and energy prices) to be modified in order to carry out sensitivity and regulatory analyses and stress tests. In addition, impact assessment scenarios based on new products and services or R&D&I actions can be simulated.

The tool uses a Monte Carlo simulation with the most relevant parameters for risk assessment:

- Long-term development of demand.
- Energy mix to meet demand.
- Necessary investments in renewable technologies.
- International energy interconnections and energy efficiency scenarios.

In order to carry out the evaluation, the scenarios for different hypotheses of the above parameters are combined, resulting in the optimal costs to achieve GHG reductions (abatement costs) in the European Union. Based on these costs and the reductions achieved, an intermediate unit price of CO₂ of around 40€/tCO₂ is obtained. This price is used internally for:

- Strategic decision-making.
- Investment analysis.
- Identifying opportunities according to the degree of maturity in low-carbon technologies.
- Climate change and energy transition risk analysis, and stress testing.
- Analysis of climate change and GHG regulation.

Along with all of this, the tool allows us to calculate the impact on ebitda and the Value at Risk for the different combinations used, which is used for the company's strategic planning.

Additionally, in 2021, a risk analysis by business and type of facility was performed in collaboration with MSCI, in order to assess the detailed risk of the company's infrastructure and business portfolio for the different temperature scenarios mentioned above. In 2022, the first results that will improve climate risk assessment will be obtained.

Opportunity management

In the same way that climate risks are assessed, opportunities are also identified. The opportunities linked to climate change considered in the Strategic Plan 2021-2025 are detailed below:

• Main opportunities linked to climate change at Naturgy

Opportunity	Opportunity management
Development of new renewable installed capacity (solar and wind)	<p>Development of new renewable projects for the gradual decarbonisation of the generation mix. Reduced investment and operating costs compared to other technologies and the possibility of financing through instruments such as Green Bonds.</p> <p>Positioning in a growing market linked to renewable energies (Power Purchase Agreement, Guarantees of Origin, etc.).</p> <p>In the medium-term, combined-cycle power stations represent the best possible back-up for renewable energy.</p>
Promotion and development of renewable gases	<p>The drive and innovation for the development of renewable gas (biomethane and hydrogen) will provide a new energy product, which can replace natural gas, but with neutral CO₂ emissions in a circular economy model.</p> <p>Renewable gas will maintain the value of distribution network assets in the long-term and allow customers to decarbonise the energy they use with minimal changes to their facilities, in an economically efficient manner thanks to existing gas infrastructures.</p>

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Opportunity	Opportunity management
Smart and integrated networks (gas and electricity)	<p>The digitisation and integration of electricity and gas networks will enable dynamic demand management, cost reduction, increased security of supply and the development of new services associated with big data.</p> <p>In addition, smart networks, coupled with renewable gas generation from surplus electricity generated on wind or solar farms, will enable energy storage by taking advantage of existing infrastructures, without the need for additional batteries, and on the scale required to meet seasonal variations in demand.</p>
Natural gas as energy for the energy transition	<p>Penetration of natural gas and LNG (liquefied natural gas) in carbon-intensive markets, to replace high-emission fossil fuels (coal, oil) in an efficient and rapid manner, in line with the pace of the international climate agenda.</p> <p>Commercialisation of new products, such as neutral LNG or Neutral Gas, to offer customers a decarbonised alternative.</p>
Self-consumption	Development of new services to promote renewable self-consumption by customers.
Energy efficiency	Promotion of energy efficiency in both internal and customer processes, with a commitment to business models of energy service companies (ESCOs). Energy efficiency provides economic competitiveness and makes possible synergies with other sectors, as in the case of cogeneration.
Strengthening the position in the electricity business	Growth in the electricity distribution business associated with the growing trend towards electrification of the economy.
Digitalisation to provide new customer services	The use of technologies such as the Internet of Things (IoT) and artificial intelligence makes it possible to develop the figure of the active customer, who has tools for monitoring and controlling their facilities in order to consume energy more efficiently and integrate new services such as distributed renewable generation or electrical mobility.
Sustainable mobility	Penetration in the road and maritime mobility sector through the development of electric and gas solutions, which allow the reduction of CO ₂ emissions, the improvement of air quality and economic savings for users. In the case of maritime transport, LNG (liquefied natural gas) is the most eco-efficient alternative in terms of GHG emissions.
Positioning, governance and transparency	<p>Strengthening governance and policies on sustainability and climate change to meet the expectations of customers, investors and society in general.</p> <p>Transparency and good performance make it possible to improve the position with ESG investors and access to improved conditions of funding.</p>

Adaptation to climate change

Even if GHG emissions are reduced, climate change is already a reality. Global temperatures have increased compared to the pre-industrial period and their effects are being felt, for example, in the increased frequency of extreme weather events. Even if emissions are reduced and the rise in temperatures is stopped, this trend will continue in the coming decades due to the inertia of the climate system. In this context, adaptation to climate change takes on special importance.

Climate change adaptation measures are aimed at limiting impacts, reducing vulnerabilities and increasing the resilience to climate change of human and natural systems, including biodiversity, forests, coasts, cities, agriculture, industry, etc.

As explained above, Naturgy's risk map considers the physical risks derived from climate change. Several studies have been carried out for its evaluation, which conclude that the risk is low. Nevertheless, the company has rolled out various adaptation measures to minimise negative impacts and increase resilience, including the following:

- The bases of design of the facilities consider safety margins, establishing in the calculations ample and adequate return periods to guarantee the protection of the facilities in the face of variations in rainfall, etc. An example of this is the performance of flood risk studies, dam safety, etc.
- One of the most significant climate risks is that which the increase in large fires could cause on power lines. In order to reduce it, the electricity distribution business in Spain has developed the GALA project, which consists of creating a digital model of the networks, using drone images to detect the areas of vegetation proximity and scheduling felling and clearing for the maintenance of the safety corridor.
- In some infrastructures, protection elements have been built to protect against adverse weather events. This is the case of the Torito hydroelectric power station in Costa Rica, where a dam has been built to prevent damage from possible flooding of the Reventazón river.
- Procedures have been improved in the event of adverse weather conditions (storms, hurricanes, etc.) at various facilities, such as combined-cycle power stations or the gas distribution network in Mexico.

Carbon footprint inventory

• Total GHG emissions (tCO₂eq)

	2021	2020
Scope 1	12,965,240	14,301,874
Scope 2	487,067	1,153,608
Market	0	0
Location	487,067	1,153,608
Scope 3	136,450,026	123,217,903
Goods and services purchased		
Capital goods		
Activities associated with upstream fuels and energy	33,167,755	30,638,299
Coal	0	107,120
Natural gas	28,780,916	20,137,098
Oil	282,272	185,822
Electricity	4,104,567	10,208,259

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• Total GHG emissions (tCO₂eq)

	2021	2020
Scope 3	136,450,026	123,217,903
Transport and distribution of goods		
Waste produced in the operation		
Business trips	362	621
Mobilisation of employees	5,685	8,286
Upstream leased goods		
Downstream transport and distribution		
Procedure for products sold		
Use of products sold: natural gas	103,276,224	92,462,851
End-of-life processing of products sold		
Downstream leased goods		
Franchises		
Investments	0	107,846
Total	149,902,333	138,673,385

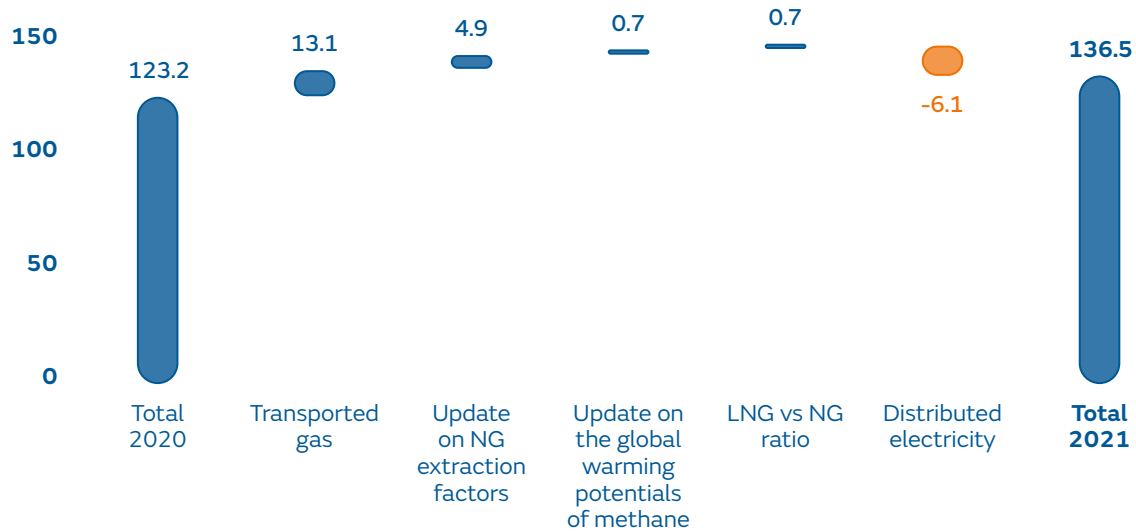
NB: for Scope 3 emissions, within the categories defined by the GHG Protocol, those weighing less than 1% have been excluded, as long as the sum of all of them does not exceed 5%.

Scope 1 emissions have decreased by 9% in the last year mainly due to the non-operation of the coal-fired power stations closed in mid-2020. Scope 2 emissions have also decreased by 58% as a result of the reduction in electricity distribution.

Scope 3 emissions have increased with respect to 2020 due to a number of factors:

1. A greater amount of natural gas has been transported, both in distribution activities, as well as in commercialisation and LNG supply as a result of the increase in demand due to the favourable evolution of the pandemic.
2. The emission factors for natural gas extraction in the main producer countries of Naturgy's supply mix have been updated, replacing bibliographic values used in previous years with actual values.
3. Update of the global warming potential of methane (GWP) according to the IPCC 6th Assessment Report, from 25 (2020 value) to 28. That is, in 2020 calculations, one tonne of CH₄ was 25 tCO₂eq while in 2021, the same amount of methane was 28 tCO₂eq, an increase of 12%.
4. There has been an increase in the proportion of LNG supply by ship versus natural gas transported by pipeline, which has resulted in an increase in emissions. This is because LNG has higher emissions in the upstream value chain than natural gas transported by pipeline.
5. Reduction of indirect emissions associated with the generation of electricity supplied.

- Evolution of the scope 3 carbon footprint



- Inventory of GHG emissions scopes 1, 2 and 3 by country (tCO₂eq)

Country	Scope 1	Scope 2	Scope 3
Spain	6,097,691	253,486	39,937,188
Mexico	5,703,109	669	6,255,823
Chile	116,121	1,091	5,593,512
Dominican Republic	427,487	0	177,213
Argentina	351,986	93,563	18,968,066
Morocco	148,586	1,344	1,101,965
Brazil	117,328	385	18,990,283
Panama	2,186	135,862	800,099
Costa Rica	18	0	19
Australia	729	667	14
Rest	0	0	44,625,843
Total	12,965,240	487,067	136,450,026

• Inventory of GHG emissions Scopes 1, 2 and 3 by business area (tCO₂eq)

	Scope 1	Scope 2	Scope 3
Generation Spain	5,010,912	0	912,491
International generation (GPG)	5,920,764	666.8	1,276,115
Supply, LNG and Commercialisation	997,692	0	81,476,776
Gas distribution Spain	63,587	0	1,895,436
Electricity distribution Spain	21,315	253,486	2,715,831
EMPL&Up/mid	148,349	1,246	1,101,844
Gas distribution Argentina	351,180	1,822	18,252,950
Electricity distribution Argentina	24	91,211	589,116
Gas distribution Brazil	116,601	385	17,798,871
Gas distribution Chile	115,698	1,091	4,466,364
Gas distribution Mexico	209,313	181	5,155,787
Electricity distribution Panama	1,645	135,862	799,621
Corporate	8,160	1,115	8,825
Total	12,965,240	487,067	136,450,026

• GHG emissions intensity ratio

	2021						
	Electricity generation	Gas distribution	Electricity distribution	Gas infrastructure	Commercialisation	Corporate	Total
CO ₂ (tCO ₂ eq)	10,917,161	12,251	-	1,119,606	14,533	7,549	12,071,100
CH ₄ (tCO ₂ eq)	6,196	844,124	-	6,696	36	73	857,124
N ₂ O (tCO ₂ eq)	5,987	6	-	5,155	8	99	11,255
SF ₆ (tCO ₂ eq)	1,355	-	22,983	-	8	-	24,346
HFC (tCO ₂ eq)	978	-	-	-	-	438	1,416
PFC (tCO ₂ eq)	-	-	-	-	-	-	-
Total group	10,931,676	856,380	22,983	1,131,456	14,584	8,160	12,965,240
Net turnover (€M)							22,132
Ratio (tCO₂eq/M€)							586

2020

	Electricity generation	Gas distribution	Electricity distribution	Gas infrastructure	Commercialisation	Corporate	Total
CO ₂ (tCO ₂ eq)	12,481,522	8,570	229,194	717,252	29,730	8,873	13,475,140
CH ₄ (tCO ₂ eq)	5,822	774,663	116	4,304	66	75	785,046
N ₂ O (tCO ₂ eq)	9,660	5	151	3,383	16	115	13,331
SF ₆ (tCO ₂ eq)	914	-	26,288	-	6	-	27,208
HFC (tCO ₂ eq)	713	-	-	-	-	437	1,150
PFC (tCO ₂ eq)	-	-	-	-	-	-	-
Total group	12,498,631	783,238	255,749	724,939	29,818	9,500	14,301,875
Net turnover (€M)							15,345
Ratio (tCO₂eq/M€)							932

The improvement experienced in 2021 in relation to the emissions intensity ratio, which has been reduced by 37% with respect to the previous year, is noteworthy. This fact supports the company's ongoing transformation to make its business and economic results compatible with decarbonisation and reflects the fact that net sales are increasingly decoupled from GHG emissions.

Other climate change indicators

	2021	2020
Emission intensity in electricity generation (tCO ₂ /GWh) ^(*)	261.5	297.3
Emissions associated with electric power supplies ^(**) (MtCO ₂ eq)	9.1	16.3
Installed emission-free electricity generation capacity (%)	36	33
Net electricity production free of emissions (%)	35	32
Total installed capacity in renewable electricity generation (MW)	5,170	4,609
Increase in installed capacity in renewable electricity generation compared to the previous year (%)	12 %	10 %
Emissions by leaks in gas networks (tCH ₄ /km network)	0.223	0.228
Emissions by leaks in gas networks (tCO ₂ eq/km network)	6.3	5.7

^(*) This ratio corresponds to direct CO₂ emissions from electricity generation (Scope 1) divided by electricity produced.

^(**) Emissions associated with electricity supplies include both retail and wholesale customers.

As can be seen, emissions from gas leaks have been reduced in absolute terms by 2% tCH₄/km. However, when expressing this ratio in CO₂eq/km, this trend is reversed due to the update of the global warming potential of methane (in 2021 a value of 28 was considered, established in the IPCC 6th Assessment Report, compared to the value of 25 used in the 2020 calculation), and this increase does not reflect the efforts and results obtained in the reduction of leaks in gas networks.

On the other hand, emission intensity in electricity generation has improved with respect to the previous year and is below the 2021 target value path (263 tCO₂/GWh).

Coverage of facilities regulated by CO₂ emissions trading systems

In Spain, most of Naturgy's thermal power generation facilities are regulated by the European Emissions Trading Directive. Naturgy performs comprehensive portfolio management for the acquisition of emission allowances equivalent to the verified emissions of its combined-cycle and cogeneration facilities, regulated by the European Emissions Trading Directive (Phase IV 2021-2030). For this procurement, Naturgy actively participates both in the primary market, through auctions, and in the secondary market. These emissions correspond mainly to the combined-cycle gas-fired power stations in Spain and account for 38% of Naturgy's direct emissions (Scope 1) in 2021. It is important to remember that the operation of these plants is included in the integrated National Energy and Climate Plan (PNIEC), which is in line with the European goal of climate neutrality by 2050, and that they are a fundamental element to ensure the growth of renewable energies in the national electricity system, as they are the back-up to maintain electricity supply in situations where wind, sun or water are absent.

In Mexico, the Emissions Trading System (ETS) Test Program is being implemented, which includes emissions from combined-cycle power stations. This test phase began in 2020 and will end in 2022. Installations registered in the ETS must submit emission allowances equivalent to the tons of CO₂ they emit. Currently, Naturgy's combined-cycle power stations in Mexico are registered in the ETS and have received emission allowances from the authority for the years 2020 and 2021.

Thus, total emissions under market schemes, aligned with the INECPs of the countries where they take place, amount to 80% of Scope 1 emissions. They therefore meet the objective of these markets, which is to reduce emissions in a cost-efficient manner in line with international climate agreements. In fact, as indicated above, gas-fired combined-cycle power stations currently represent the most eco-efficient generation technology available to provide the necessary back-up for renewables and enable their widespread penetration, which is key to the energy transition.

• CO₂ emissions covered by regulations or trading systems

	2021	2020
Total CO ₂ emissions affected by the regulations governing the European Emissions Trading System (MtCO ₂)	4.9	6.0
Scope 1 emissions covered by emission limitation regulations (MtCO ₂)	10.4	11.4
Scope 1 emissions covered by emission reporting regulations (MtCO ₂ eq)	13.0	14.3

Climate balance sheet 2021

The climate balance sheet shows the relationship between the emissions produced by Naturgy (direct and indirect) and the emissions prevented by its assets, products and services. This balance marks a trend that shows whether the group is in line with the global goal of climate neutrality introduced in the Paris Agreement.

The criteria for the quantification of emissions prevented are as follows:

- During the reporting period, projects and activities must produce quantifiable reductions in GHG emissions and energy with respect to a baseline, which is defined on a case-by-case basis.
- The emissions prevented are calculated as the difference between the emissions of the “with project” and “without project” scenarios. The emissions of the “with project” scenario represent the actual level of GHG emissions. Emissions from the “without project” scenario represent the GHG emission levels that would have been achieved with other more emitting sources if the project had not been implemented.
- The emission factors used for the “with project” and “without project” scenarios have been obtained following the 2006 Intergovernmental Panel on Climate Change (IPCC) guidelines for the preparation of national GHG inventories.
- Calculations have been made in accordance with the United Nations Framework Convention on Climate Change (UNFCCC) methodologies and tools for the Clean Development Mechanism (CDM) projects.

• Climate balance sheet in figures

	2021	2020
Total emissions Scopes 1, 2 and 3 (MtCO ₂ eq)	150	139
Emissions prevented (MtCO ₂)	142	129
Climate balance sheet: emissions prevented/total emissions Scopes 1, 2 and 3 (%)	95	93

In 2021, the balance was 95% higher than in 2020, which shows that the company’s activity is increasingly contributing to preventing GHG emissions at a global level. The table below provides a breakdown of the associated emission reductions and energy savings.

• Initiatives for reducing GHG emissions and associated energy savings

Emissions prevented ⁽¹⁾	Emissions prevented 2021 (tCO₂ eq)	Energy savings 2021 (GWh)	Emissions prevented 2020 (tCO₂ eq)	Energy savings 2020 (GWh)
Natural gas: reduction of CO₂ emissions by displacement of coal and oil derivatives, of higher emissions	131,921,464	180,198	120,304,618	161,636
Electricity production	86,212,063	150,327	76,787,895	133,522
Industry	22,576,604	10,183	22,497,930	10,353
Residential/Commercial	11,349,138	12,043	10,906,893	11,461
Transport	3,523,373	3,529	2,801,792	2,807
Cogeneration	8,260,286	4,116	7,310,108	3,493
Renewable energies: displacement of fossil fuel generation	6,295,866	22,959	5,001,239	19,592
Wind farms	3,411,485	12,387	2,494,745	9,723
Hydroelectric production	2,446,882	8,941	2,179,056	8,616
Photovoltaic production	437,499	1,631	327,438	1,253
Energy savings and efficiency in own and customers' facilities	1,128,579	2,197	1,058,309	2,197
Own facilities: Energy Efficiency Operations Plan				
Renewal of gas transmission and distribution networks	819,569	530	746,958	545
Actions in electricity distribution	9	0	1,109	4
CCGTs	69,359	358	47,361	242
Coal-fired power stations	0	0	7,952	24
Fuel oil-fired power stations	4,428	16	12,680	46
Customer facilities				
Energy services	235,213	1,293	242,249	1,336
Other				
Nuclear production	2,446,339	-4,270	2,309,669	-4,574
Total	141,792,248	201,084	128,673,835	178,851

⁽¹⁾ The emissions prevented are calculated as the difference between the emissions of the “with project” and “without project” scenarios. Using the 2006 IPCC emission factors for the development of national GHG inventories and UNFCCC methodologies and tools for Clean Development Mechanism (CDM) projects.

Naturgy, in line with the renewable and energy efficiency requirements established at European and national level, carries out various activities to increase energy efficiency in its facilities and increase renewable generation.

Naturgy's emissions offsetting

Emission offsetting is a voluntary instrument in the fight against climate change, which consists of the acquisition on the secondary market of emission credits from projects that reduce, avoid or eliminate greenhouse gas (GHG) emissions into the atmosphere (CERs, VERs, etc.). The projects are implemented in developing countries and can be of multiple technologies, ranging from renewable energies (wind farms, biomass, hydropower) to climate change mitigation projects, such as methane elimination in landfills, energy efficiency initiatives or forestry projects.

Emissions offsets are a form of crowdfunding for climate action, as the purchase of emission credits allows projects to continue to reduce emissions while benefiting local communities.

Naturgy conducts several initiatives to offset emissions that go beyond legal requirements. Among these actions being carried out, Neutral Gas and Neutral LNG, which offset the emissions linked to the fuel supplied to customers, stand out.

The new commercialised residential gas contracts (Zen Tariff, Tariff by Use and Online), have the eco attribute implicit, and therefore offer customers an emission-neutral consumption.

With regard to Neutral LNG, in September 2021 the company's first neutral LNG cargo, destined for Spain, was carried out. It offset the CO₂eq emissions corresponding to the extraction, pipeline transport, liquefaction and maritime transport of the ship Castillo de Mérida originating in Qatar and unloading at the Port of Barcelona.

In addition, through the Compensa2 initiative, emissions from work centres and company travel are offset. The following table shows the amount of offset emissions.

• Emissions offsetting

	Emissions offset in 2021 (tCO₂ eq)
Neutral Gas	196,238
Neutral LNG	36,712
Compensa2 Initiative	9,634
Scope 1 emissions from fuel use in workplaces (fixed sources and fleet)	8,160
Scope 2 emissions from electricity consumption in workplaces	1,112
Scope 3 emissions from business trips (air and train)	362
Total	252,218

Objectives and metrics

With the Strategic Plan 2021-2025, the objectives set out in the previous strategic plan have been updated as they have been amply fulfilled and ambition has been increased.

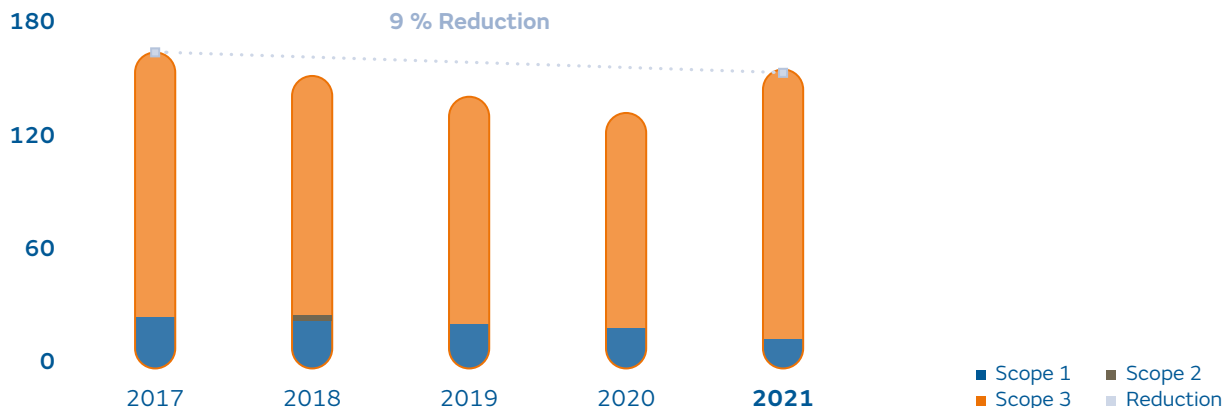
Climate neutrality target by 2050

In the Strategic Plan 2021-2025, Naturgy has committed to achieving climate neutrality, net zero GHG emissions, by 2050. This target includes all scopes 1, 2 and 3 of the carbon footprint, all greenhouse gases and applies to all of the company's activities and geographies, with no exclusions. The priority is to reduce emissions as much as possible, considering, if necessary, the use of GHG emission absorption mechanisms to offset residual emissions.

To reach this target, emission reduction pathways are calculated in the three scopes with the aim of establishing intermediate milestones to be achieved in 2030 and 2040 to achieve net zero in 2050, according to the temperature scenarios of the Paris Agreement.

	Emissions	Approval year	Base year	Target (% reduction)	Target (MtCO ₂ eq)	2021 (MtCO ₂ eq)	2021 (% compliance)	Base year (MtCO ₂ eq)
Neutrality 2050 (net zero)	MtCO ₂ eq	2021	2017	↓100%	100%	149.9	9%	164.5

• Evolution of the carbon footprint (MtCO₂eq)



Intermediate absolute emissions targets for 2025 and 2030

In 2015 Naturgy set targets to 2025 and 2030 taking 2012 as the base year to meet the requirements of the Science Based Target Initiative (SBTI) Tool v.8. These objectives have been reformulated with the new values of the Strategic Plan 2025, increasing the ambition of reductions:

- To reduce GHG Scope 1 and 2 emissions by 56% in 2025 compared to the base year 2012.
- To reduce GHG Scope 1 and 2 emissions by 4.5% in 2030 compared to the base year 2012.

In 2021, with the approval of the Strategic Plan 2025, Naturgy has approved short-term emission reduction targets that are included in the Sustainability Plan:

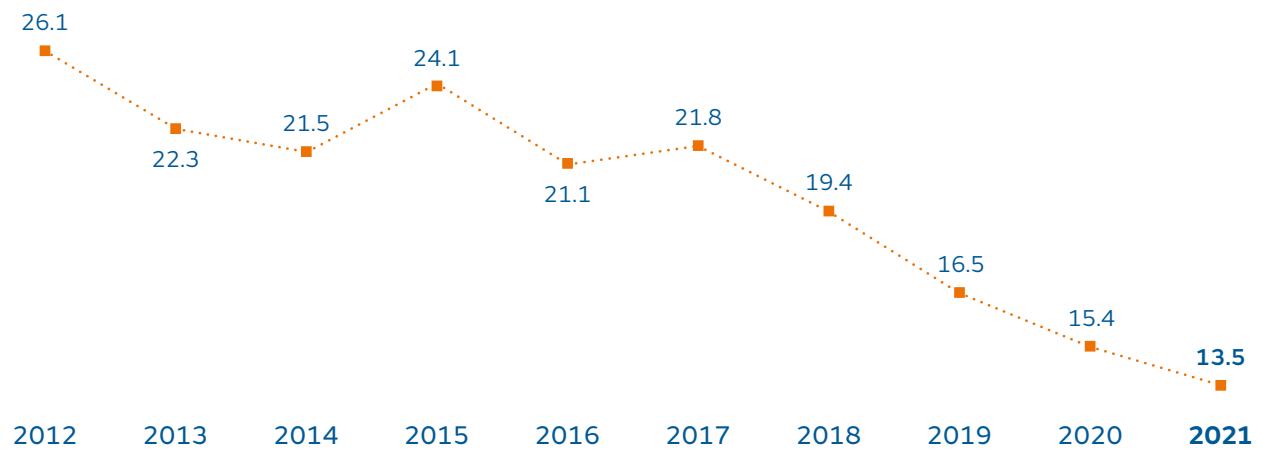
- To reduce GHG Scope 1 and 2 emissions by 48% in 2025 compared to the base year 2017.
- To reduce GHG Scope 3 emissions by 20% in 2025 compared to the base year 2017.

The targets are aligned with the overall average reduction required under SBTi for a 1.5°C increase scenario for Scopes 1 and 2 and WB2DS for Scope 3.

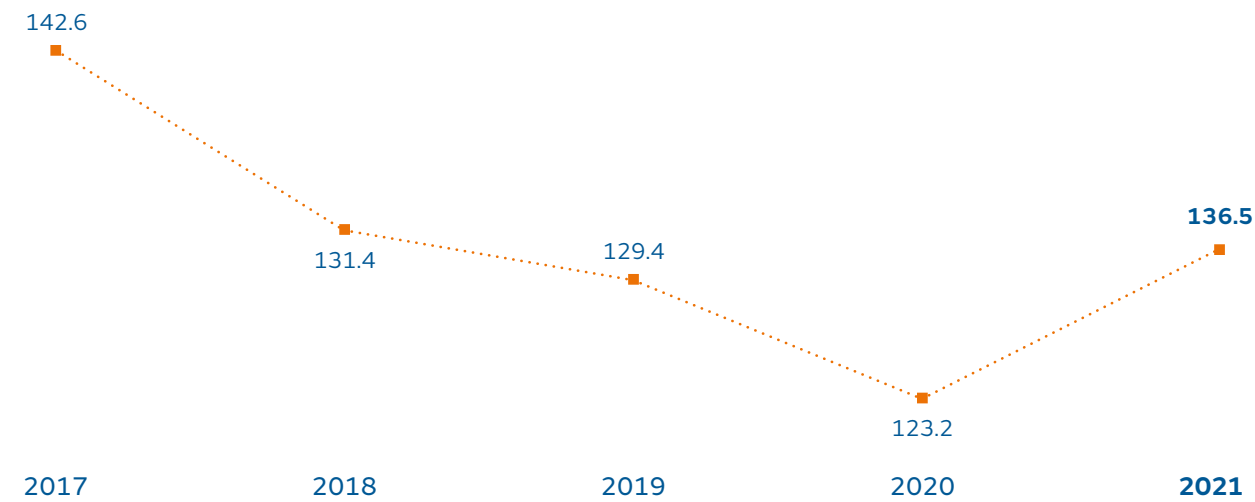
	Scope	Approval year	Base year	Target (% reduction)	Target (MtCO ₂ eq)	Año 2021 (MtCO ₂ eq)	Año 2021 (% compliance)	Base year (MtCO ₂ eq)
Strategic Plan 2025	A1+A2	2021	2017	↓48 %	11.4	13.5	80 %	21.8
Strategic Plan 2025	A3	2021	2017	↓20 %	114.1	136.5	22 %	142.6
2025 SBTi (*)	A1+A2	2016	2012	↓56 %	11.4	13.5	86 %	26.1
2030 SBTi (*)	A1+A2	2015	2012	↓4,5 % anual	11.4	13.5	86 %	26.1

(*) Objective reformulated in 2021 with values from the Strategic Plan 2025.

● GHG Emissions scopes 1 & 2 (MtCO₂eq)



● GHG Emissions scopes 3 (MtCO₂eq)



Intermediate emissions intensity targets for 2025 and 2030

These emissions intensity targets are expressed as the amount of CO₂ emitted per electrical energy produced (tCO₂/GWh) and cover the activity of generation, which is responsible for nearly 90% of the group’s direct emissions.

In 2015, Naturgy set emissions intensity targets to 2025 and 2030 taking 2012 as the base year to meet the requirements of the Science Based Target Initiative (SBTI) tool v.8. These objectives have been reformulated with the new values of the Strategic Plan 2025, increasing the ambition of reductions:

- Reduce the GHG emissions intensity of electricity generation by 59% by 2025 compared to the base year 2012.
- Reduce the GHG emissions intensity of electricity generation by 4.8% per year by 2030 compared to the base year 2012.

In 2021, with the approval of the Strategic Plan 2025, Naturgy adopted short-term emission intensity reduction targets that are included in the Sustainability Plan:

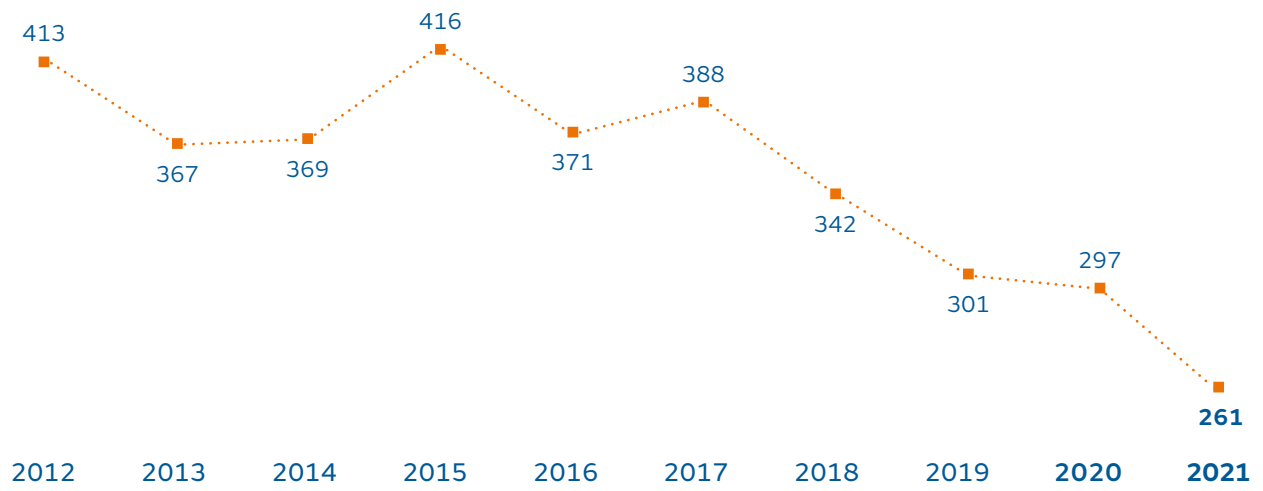
- Reduce the GHG emissions intensity of electricity generation by 56% by 2025 compared to the base year 2017.

The targets are aligned with the SBTI for a 1.5°C scenario.

	Approval year	Base year	Target (% reduction)	Target (MtCO ₂ eq)	Año 2021 (MtCO ₂ eq)	Año 2021 (% compliance)	Base year (MtCO ₂ eq)
Strategic Plan 2025	2021	2017	↓56 %	171	261	58 %	388
2025 SBTI ^(*)	2016	2012	↓59 %	171	261	63 %	413
2030 SBTI ^(*)	2015	2012	↓4,8 % anual	171	261	63 %	413

^(*) Objective reformulated in 2021 with values from the Strategic Plan 2025.

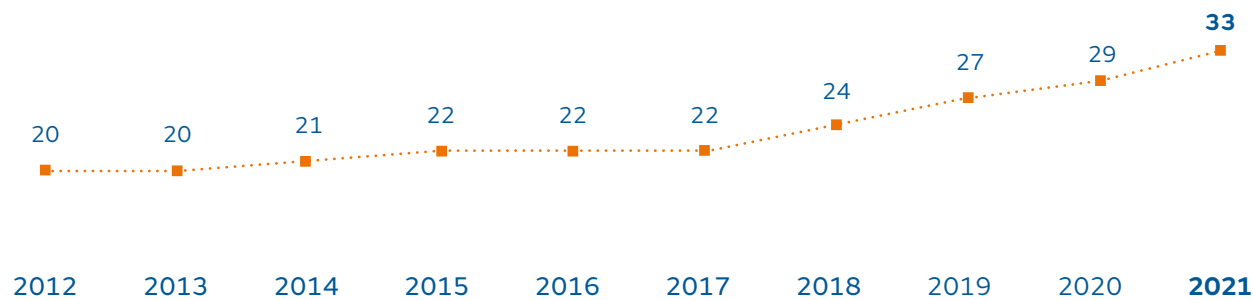
• Electricity generation carbon intensity (tCO₂/GWh)



Renewable energy target

One of the strategic lines to achieve emissions reduction is the commitment to renewable energies. One of the targets of the Strategic Plan is that of reaching a percentage of renewable installed power in the generation mix greater than 56% by 2025.

• Renewable power (%)



Climate change and energy transition: achievement and highlights in 2021

Lines of action	Achievements and highlights in 2021
Climate management	<p>Naturgy has announced its commitment to achieve climate neutrality by 2050 (net zero emissions) in the new Strategic Plan by 2025.</p> <p>Naturgy was externally recognised for its climate management, obtaining the A-rating from the CDP Climate, and has been present in the leadership band since 2011.</p> <p>Diploma “Business Examples of #ForClimate2021 Actions” of the #ForClimate Community on the initiative Biomethane, circular energy for the climate and the demographic challenge.</p>
Reducing direct CO₂ emissions	<p>In 2021, there was no coal-fired electricity generation due to the closure of all Naturgy coal-fired power stations in the first half of 2020. This means a significant reduction in CO₂ emissions and other atmospheric pollutants.</p> <p>Improved start-up procedures for combustion equipment to reduce emissions.</p>
Promoting renewable electricity	<p>Implementation of new renewable projects (562 MW worldwide), which have led to an increase in installed renewable capacity to 33% and an increase in electricity produced from water, wind and solar.</p> <p>The fact that Naturgy has over 9,800 MW of installed capacity in combined-cycle plants, the most eco-efficient conventional thermal technology that acts as a backup for renewable generation in times of lack of water, wind or sun, has spurred the penetration of renewable energies in the system.</p>
Reducing fugitive GHG emissions in gas networks	<p>Renovation of gas networks, replacing cast iron pipes with polyethylene, materials with lower methane leaks.</p> <p>Sectorisation of gas networks by means of shut-off valves that allow the isolation of areas where leaks are detected in order to reduce methane emissions during the work of locating and repairing the incident.</p> <p>Improved control and remote monitoring equipment for distribution systems to facilitate operation, detection and reduction of leaks.</p>

Continues >

Lines of action	Achievements and highlights in 2021
Reducing fugitive GHG emissions in gas networks	<p>Reduction of methane leaks by monitoring the gas network (regular routine inspections to identify undetected leaks), reducing pressure during off-peak consumption and improving leakage response plans to reduce response times.</p> <p>Improvement in the operation and maintenance of gas transport infrastructures to reduce venting.</p>
Reduction of SF₆ emissions	<p>Replacement of SF₆ (greenhouse gas) equipment with new models with a lower leakage rate.</p> <p>Participation of electricity distribution in the Voluntary Agreement for the reduction of SF₆ emissions promoted by the Ministry for Ecological Transition and the Demographic Challenge.</p>
Displace carbon intensive fuels	<p>The distribution and commercialisation of natural gas to replace more carbon-intensive fuels (coal, petroleum derivatives) led to the reduction of 131,921,464 tCO₂eq, and other air pollutants (SO₂, particulate matter, NO_x).</p>
Sustainable mobility for customers	<p>19 LNG bunkering operations have been carried out from a tanker to a tugboat, replacing oil-based fuels with liquefied natural gas, which is the most eco-efficient alternative in maritime transport in terms of both GHG emissions and other pollutants.</p> <p>Implementation of comprehensive and personalised electric mobility solutions that allow customers to enjoy their electric vehicle charging point.</p> <p>Commissioning of 2 new vehicular natural gas stations in Spain.</p>
Sustainable mobility	<p>Increase of the electric fleet replacing combustion vehicles.</p> <p>Commissioning of recharging points at our own facilities to promote electric mobility, for example at the Avenida de América office in Madrid.</p> <p>Digitisation of processes and increase of remote work.</p>
Increasing energy efficiency at our own facilities and those of our customers	<p>Energy Efficiency Operations Plan in own facilities, preventing the emission of 1,128,579 tCO₂eq. To this end, several actions have been carried out to reduce energy consumption: replacement of equipment with more efficient ones, installation of renewable self-consumption systems, etc.</p> <p>Renewal of boilers, conversion of customers to replace the consumption of oil derivatives with natural gas, personalised self-consumption solutions, cogeneration projects, installation of photovoltaics in homes and businesses, efficient lighting and air conditioning solutions.</p>
Innovation in low-carbon energy products and services	<p>Commercialisation of ECO tariffs and products in Spain, based on guarantees of origin, to provide customers with energy from renewable sources. It currently represents approximately 6,500 GWh, 34% of the electricity sold in the free market. With respect to gas, the Gas Neutral product, a natural gas supply service compensated by neutralising its CO₂ emissions, was applied to all new gas customers in 2021.</p>
Collaborations and alliances	<p>Participation in the Wetlands4Climate project, which aims to establish management guidelines for Mediterranean wetlands so that they function as carbon sinks, maintaining their ecological integrity and functionality.</p>



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