

# Carbon Footprint Report 2018





Carbon Footprint Report  
**2018**

Naturqu



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# Letter from the Chairman

I am pleased to present to you Naturgy's tenth Carbon Footprint Report, which contains the most relevant data on our company with regards to greenhouse gas emissions and climate change policies. This report was prepared following the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and the Non-binding Guidelines (NBG) of the Non-financial Reporting Directive (NFRD) of the European Commission.

Technological progress and global awareness with respect to the environment is leading the sector towards a significant process of transformation. The reduction of CO<sub>2</sub> emissions, the growth of renewable energies, energy efficiency, distributed generation and digitalisation are the main trends the sector is facing today.

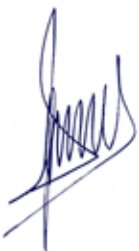
At Naturgy, as a global player in the energy sector, we see this juncture as a great opportunity, and we are also aware of the great responsibility we have to our shareholders, our customers and society as a whole.

The current trends, decarbonisation, decentralisation and digitalisation, are clear, we bet on them through our Strategic Plan 2018-2022, the driver of the transformation of our company. At the same time, we are working on our vision of the energy mix of the future. This is a process that is moving forward at a different pace, but it is advancing along the same path followed by the renewable technologies that are thriving today. Along these lines, we are making a strong commitment to biomethane, a carbon-neutral energy and exponent of the circular economy and local economic development. In the context of innovation, we are working on various lines, such as sustainable mobility, distributed generation and energy storage, that are capable of contributing to decarbonisation of the economy.

In 2018, our company emitted 18.3 MtCO<sub>2</sub>eq, which represents a reduction of 10.7% compared to 2017. We are confident that our commitment to closing the plants with the highest emissions and to developing a new non-emitting power will lead us to continue improving these results in coming years.

Our company's engagement in the area of climate change has been recognised by the leading international sustainability indexes again, such as the Dow Jones Sustainability Index and the CDP. The latter has placed Naturgy at the forefront internationally for its action against climate change for being the only Spanish energy company included on the Climate Change A-list, in recognition of its actions to reduce emissions, mitigate climate risks and develop a low-carbon economy.

In line with our commitment to information transparency in the area of climate change, I invite you all to consult our greenhouse gas emission inventory in depth, along with our vision of climate change and performance in emission reduction.



**Francisco Reynés**  
Chairman





**Transition indicators**

## Transition risks: Share of fossil technologies in the mix

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### Installed power in 2018 (change with respect to 2017)



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### Officially communicated shutdowns within the next 5 years

Coal  
**1,766**  
MW



## Physical risks: water stress

Due to collecting water for cooling in thermal plants:

- 58% of the installed power at thermal plants is located in zones without water stress.
- 85% of the power installed in zones with water stress uses seawater or recycled water to prevent the impacts and risks associated with scarcity of the resource.

## Transition opportunities

**Investment in renewable.  
Strategic Plan 2018-2022**  
(€ million)

1,573

**Renewable energies under construction (MW)**

1,466

Spain  
962

International  
504

**Wind energy quota Canary Islands: 45**  
**Wind energy Mainland Spain: 667**  
**PV Solar energy Mainland Spain: 250**

**Wind energy Australia 91**  
**PV Solar energy Brazil 83**  
**Wind energy/PV Chile 330**

- Opportunities for growth in distributed generation, smart grids, energy services and smart applications.
- Technological innovation will boost decentralised energy, creating new business models and services for energy companies that will strengthen customer relations.
- Biogas as a renewable fuel that contributes to the circular economy and to climate change mitigation.
- The investment in new projects aligned with the energy transition in the Strategic Plan 2018-2022 is 2,141 million euros.

## Governance and Strategy

- In 2017 Naturgy finalised an €800 million issue of green bonds maturing in May 2025 that will be used for the construction of approximately 700 MW of wind energy and around 250 MW of solar energy.
- Integration of climate risk in the company's overall risk assessment and reporting in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)
- Emission reduction targets (absolute and specific) according to the Sectoral Decarbonization Approach SDA\_Tool.v8 of the Science Based Targets Initiative (SBTI).
- Performance objectives for the management team regarding energy efficiency and, thus, emission reduction.



## Description of the company

Naturgy is a leading multinational group in the energy sector and a pioneer in gas and electricity integration, a sector that it leads in Latin America and Spain. It is present in 30 countries, providing service to over 18 million customers. It has 15.6 GW of installed power and a diversified electricity generation mix.

### Countries

30

### Customers

Over  
**18**  
million customers  
worldwide

### Employees

Staff of  
**12,700**  
employees

The company operates in regulated and deregulated gas and electricity markets, with a growing contribution from international activities, mainly in the following areas:

- Gas and electricity distribution
- Power generation and distribution
- Gas infrastructure, supply and transport

Its Corporate Responsibility Policy is based on eight commitments:

- Excellent service
- Commitment to results
- Responsible environmental management
- Concern for people
- Health and safety
- Responsible supply chain
- Social commitment
- Integrity and transparency



# Naturgy at a glance

## America

### Argentina

Gas distribution (30 municipalities in the north and west of the province of Buenos Aires, 1.7 million customers) and electricity distribution (0.2 million customers).

### Brazil

Gas distribution (Rio de Janeiro state, São Paulo South and 1.1 million customers). NG/LNG commercialisation and generation (153 MW solar).

### Chile

Gas distribution (18 provinces and 0.6 million customers), electricity distribution and transportation (13 provinces and 2.9 million customers). Wind and solar generation projects.

### Costa Rica

Generation (101 MW, hydraulic).

### Jamaica

NG/LNG commercialisation.

### Mexico

Gas distribution (ten states including Mexico City and 1.8 million customers) and generation (2,289 MW, combined cycles and 234 MW, wind).

### Panama

Electricity distribution (Central Panama, West, Inland, Chiriquí and 0.7 million customers) and generation (22 MW, hydraulic).

### Peru

Gas distribution (Arequipa).

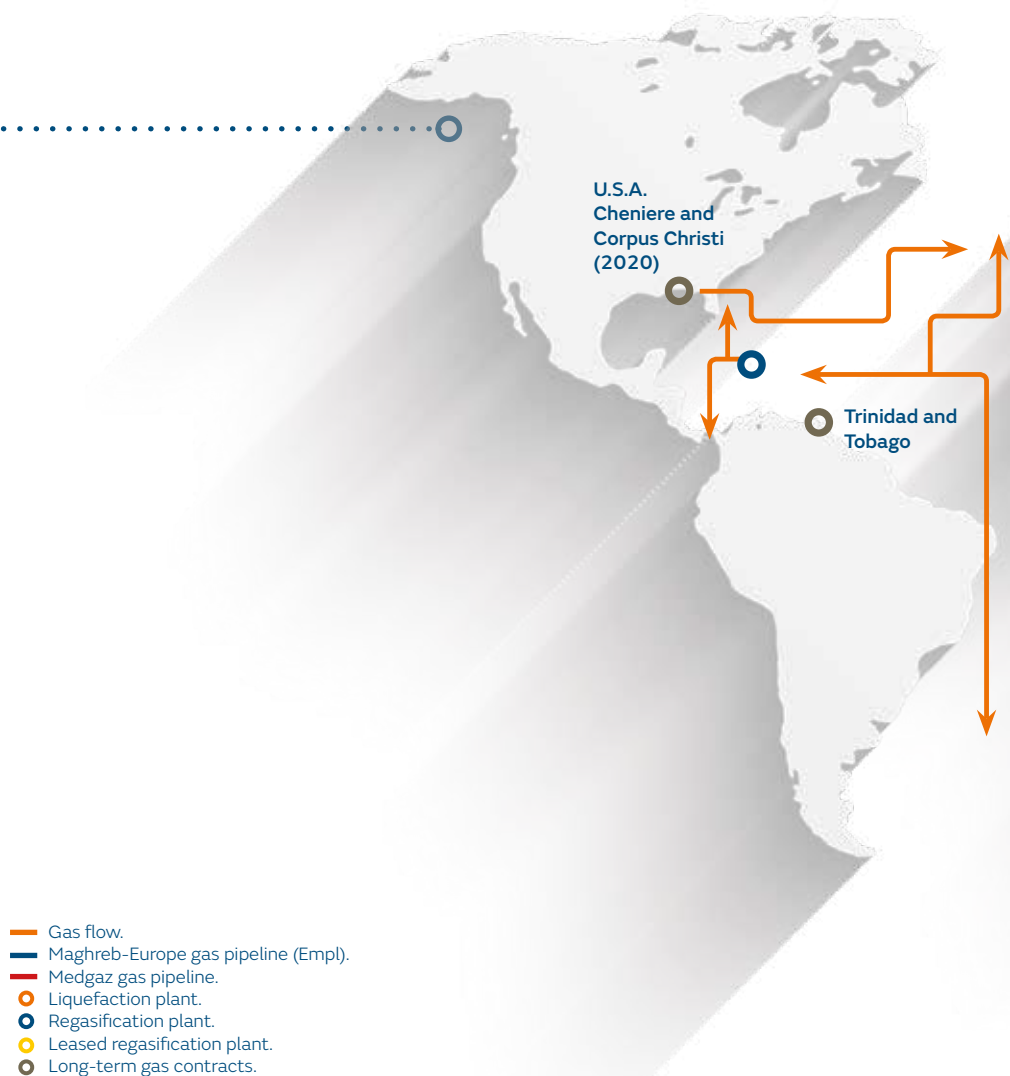
### Puerto Rico

NG/LNG (regasification plant) infrastructure and generation of electricity.

### Dominican Republic

Generation (198 MW, fuel-oil).

Naturgy operates in over 30 countries with more than 18 million customers, and nearly 50% of its employees work outside Spain. Its international presence puts it in an ideal position to capitalise on the growth of new regions which are in the process of economic growth, making it one of the world's most important operators.



NB: Does not include the power distribution business in Colombia as the stake in Electricaribe ceased to be consolidated as at 31 December 2016 nor in the gas distribution in Italy and Colombia, electricity distribution in Moldova, electricity generation in Kenya and mining in South Africa business because they have been reclassified to discontinued operations.

**Europe**

**Portugal**

NG/LNG and electricity commercialisation.

**Ireland**

NG/LNG and electricity commercialisation.

**Spain**

Exploration, transportation, distribution and commercialisation of gas and electricity. Generation (combined cycles, nuclear, hydraulic, coal, co-generation, mini-hydraulic and wind).

**United Kingdom**

NG/LNG commercialisation.

**France**

NG/LNG commercialisation. Montoir regasification.

**Belgium**

NG/LNG commercialisation.

**Netherlands**

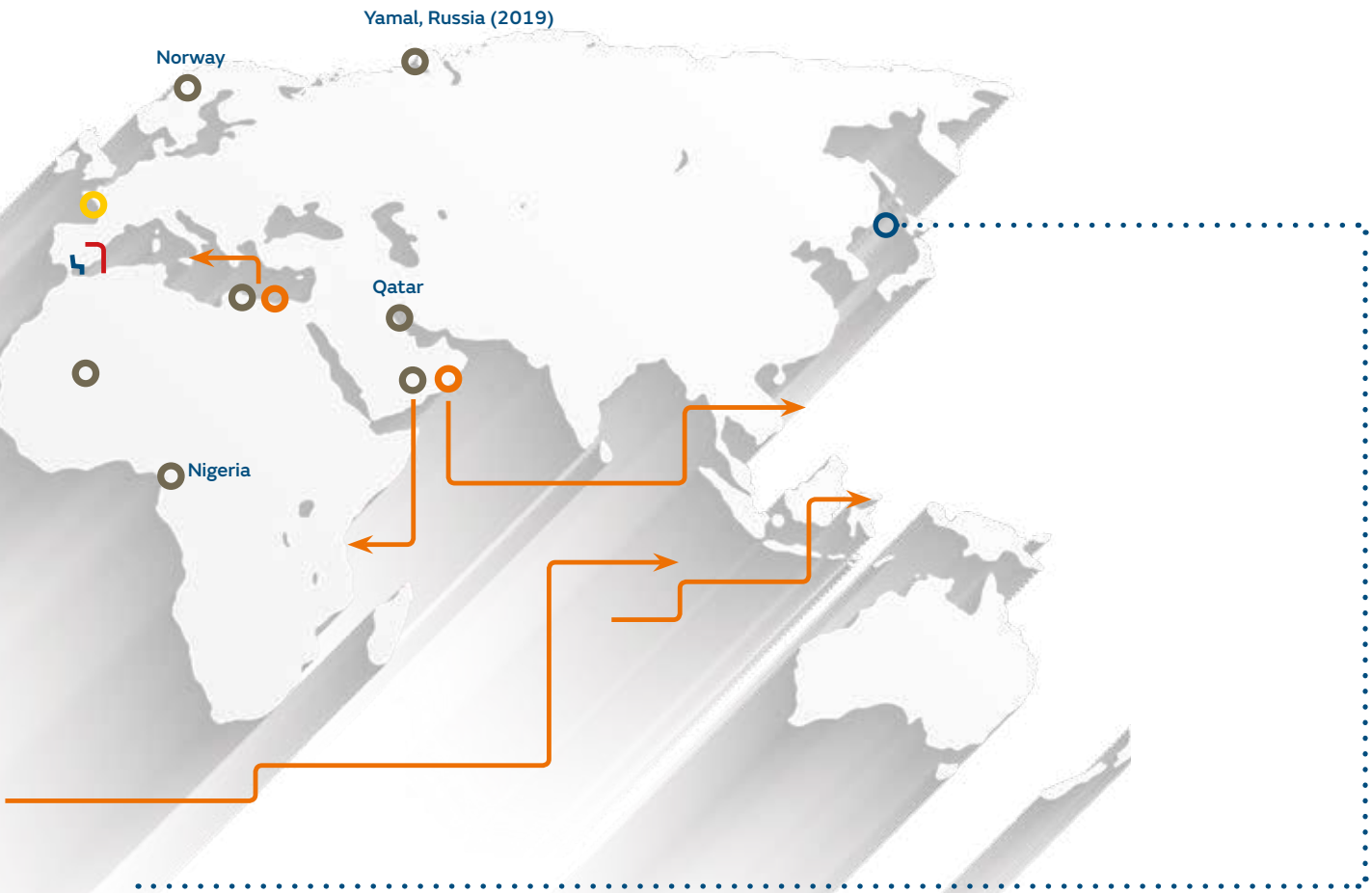
NG/LNG commercialisation.

**Luxembourg**

NG/LNG commercialisation.

**Germany**

NG/LNG commercialisation.



**Asia, Africa and Oceania**

**Algeria**

NG/LNG supply and infrastructure, and Medgaz gas pipeline.

**Australia**

Wind generation (96 MW).

**China**

NG/LNG commercialisation.

**Egypt**

NG/LNG supply and infrastructure (Damietta liquefaction plant).

**Japan**

NG/LNG commercialisation.

**India**

NG/LNG commercialisation.

**Jordan**

NG/LNG commercialisation.

**Morocco**

NG/LNG infrastructure and Maghreb-Europe gas pipeline.

**Oman**

NG/LNG supply and infrastructure (Qalhat liquefaction plant).

**Pakistan**

NG/LNG commercialisation.

**Singapore**

NG/LNG commercialisation.



# Governance

As established in its Corporate Responsibility Policy, Naturgy is committed to promoting the sustainable development of society.

Naturgy considers climate change to be a global environmental challenge and considers the energy transition to be an opportunity. Given Naturgy's potential

to contribute to environmental protection, it voluntarily assumes, in its Global Environmental Policy, the commitment to be a key player in the energy transition towards a low-carbon, digital model of circular economy; by assuring the supply of competitive and safe energy and with the utmost respect for the environment.



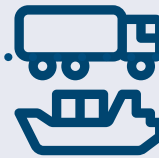
## Climate Change Strategy

Naturgy's Climate Change Strategy, included in the Global Environmental Policy, has the main objective of reducing emissions in operations and promoting the use of sustainable energy. This strategy is structured around four lines of action.

Promote renewable energies, natural gas, and energy savings and efficiency as key elements in moving towards a low-carbon model.



Offer solutions for cities and land and sea transport that reduce emissions and improve air quality.



Innovate in technologies and business models that help reduce greenhouse gas emissions.



Support international climate change negotiations and market mechanisms that foster the development of the most appropriate technologies at each stage of the energy transition.



## Risk management

Naturgy's Corporate Risk Map includes the risks and opportunities associated with climate change. Once quantified, they can be integrated into the corporate strategy, and goals can be established to minimise risks and maximise opportunities.

To do so, Naturgy has a specific tool, developed in Ms Excel and @Risk, for estimating exposure to risks, both aggregately and separately by business, geography, technology and time frame (short, medium and long term). Using this tool, the company analyses the impact of climate change variables in the following contexts:

- Time: impacts are analysed over various time horizons (2018-2050), and risks are classified according to their relevance in the short, medium and long term.

- Nature of the business: the impacts that could be caused to the various businesses of the company are analysed (generation, marketing and distribution; natural gas distribution and marketing; regasification and liquefaction; and operations in CO<sub>2</sub> emissions-trading markets).

- Geography: the impacts are analysed in the various countries.

Thus, the impacts of the different climate change scenarios established by the climate change (IPCC) are estimated using physical, environmental, business and economic indicators. Moreover, impact assessment scenarios can be simulated based on new products and services or on R&D&i actions.



## Types of risks and opportunities

The risks and opportunities identified are classified into four different categories.



### Physical parameters

Temperature increases, changes in precipitation, rising sea levels and extreme weather events, among others.



### Market

Risk related to the existence of CO<sub>2</sub> markets and the development of other possible markets with similar features.



### Regulatory

Development of energy policies to mitigate climate change and which revolve around fostering the use of renewable energies and promoting energy efficiency.



### Reputational

The company's response capacity and its reporting frequency on issues related to climate change.

## Impact category

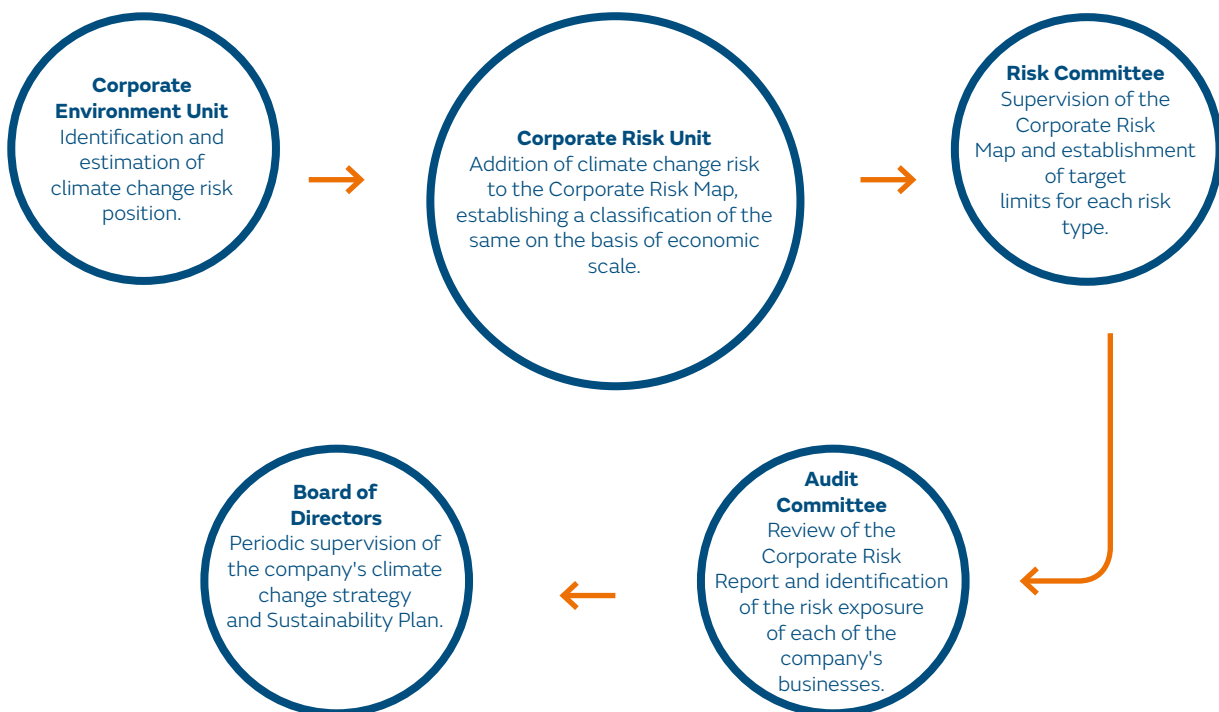
Impacts according to identified risk are grouped in impact categories.

Category	Factors
Environmental temperature.	Natural gas demand.
	Electricity demand.
	Yield by combined-cycle facilities.
Rainfall.	Generation dispatch.
	Price of the wholesale electricity market.
Rising sea level.	Floods.
	Loss of productivity.
Extreme weather events.	Variation in the frequency and intensity of extreme weather events.
CO <sub>2</sub> markets.	2013-2020 trading greenhouse gas emission rights scheme.
	Intervention of the European Commission.
	Introduction of CO <sub>2</sub> capture technology.
	Price of the wholesale electricity market.
Renewable energies.	Thermal gap.
	Impact on the power generation.
Energy efficiency.	Awareness of the wholesale electricity market prices.
	Natural gas and electricity demand.
Reputación empresa.	Penetration of the electric car: increased demand for electricity and increased use of installed power.
	Impacto en la reputación de la empresa.

## Reporting and monitoring process in the organisation

Once climate change risks have been identified, a reporting and monitoring process is carried out to address them and track their evolution.

### Process of reporting and overseeing climate change risks of the organisa



## CO<sub>2</sub> scenarios and optimal price

Naturgy has developed a Monte Carlo simulation model to determine the optimum abatement cost in the European Union for achieving the 2030 reduction targets and obtaining CO<sub>2</sub> price scenarios that reflect the evolution of renewable energy penetration, fuel prices, electricity demand, electricity prices, the impact on the EBITDA, Value at Risk, etc.

In the last simulation conducted, we worked with 2° C scenarios for physical risks and with four scenarios for covering demand to 2030. As a result, we obtained CO<sub>2</sub> prices that, in the 50% probability scenario, show an optimum abatement cost of €15.35/tCO<sub>2</sub>.

For the sensitivity analysis, two additional scenarios were used in which the price of CO<sub>2</sub> and the penetration of renewable energies have been pushed towards their upper limits (with regards to the previous scenario), which would correspond to ambitious scenarios of compliance with emission reduction policies in the event that potentially stricter climate policies are put in place.

## Metrics and targets

# Objective 1: Reduce emissions in scopes 1 and 2 compared to 2012

Remarks and calculation bases of the objective:

- Applicable to scopes 1 and 2.
- Applicable to all greenhouse gases (GHG) and not just CO<sub>2</sub>.
- Applicable to all countries and sectors, not just to EU guideline sectors.

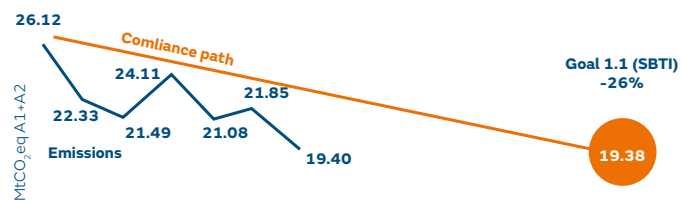
## Target 1.1: reduce absolute emissions by 26% by 2025

(according to the SBTi tool v.8) compared to the 2012 base year

### 2018 follow-up:

- 2018 Emissions: 19.40 MtCO<sub>2</sub>eq
- Degree of achievement of the target:  $(26.12 - 19.40) \text{ MtCO}_2\text{eq} / (26.12 - 19.38) \text{ MtCO}_2\text{eq} = 99.7\%$
- Degree of progress towards the target: 6 years / 13 years = 46.2%.

**Assessment of compliance: the degree of achievement of the target is much greater than the degree of progress.**



2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
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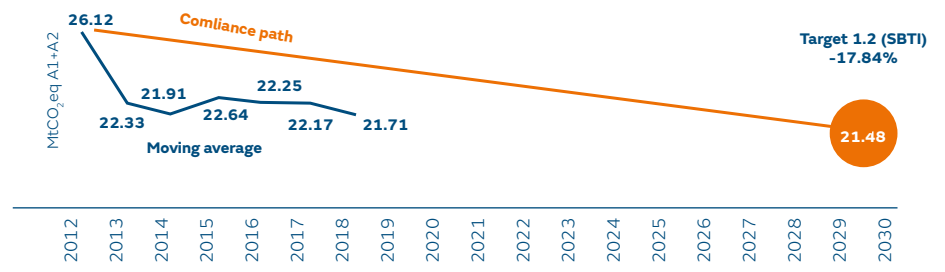
# Target 1.2: reduce average emissions by 17.8%

for 2013-2030 compared to the 2012 base year

## 2018 follow-up

- Total reductions to be achieved in the 2013-30 period:  $(26.12 - 21.48) \text{ MtCO}_2\text{eq/year} \times 18 \text{ years} = 83.53 \text{ MtCO}_2\text{eq}$
- Actual reductions achieved in the 2013-18 period:  $26.12 - 21.71 \text{ MtCO}_2\text{eq/year} \times 6 \text{ years} = 26.48 \text{ MtCO}_2\text{eq}$  for 2013-18
- Degree of achievement of the target:  $26.48 \text{ MtCO}_2\text{eq} / 83.53 \text{ MtCO}_2\text{eq} = 31.7\%$
- Degree of progress towards the target: 6 years have passed (2013-2018) out of a total of 18 years (2013-2030): 33.3% progress:

**Assessment of compliance: the degree of achievement (31.7%) is slightly below the degree of progress towards the target (33.3%). However, this is considered to be in line with total compliance, given that most reductions will occur in the 2020-2030 period.**



# Objective 2: Reduce the specific tCO<sub>2</sub>/GWh emissions from electricity generation compared to 2012

Remarks and calculation bases of the objective:

- This relative objective is set only for CO<sub>2</sub> from electricity generation, as this accounts for approximately 90% of GNF emissions.

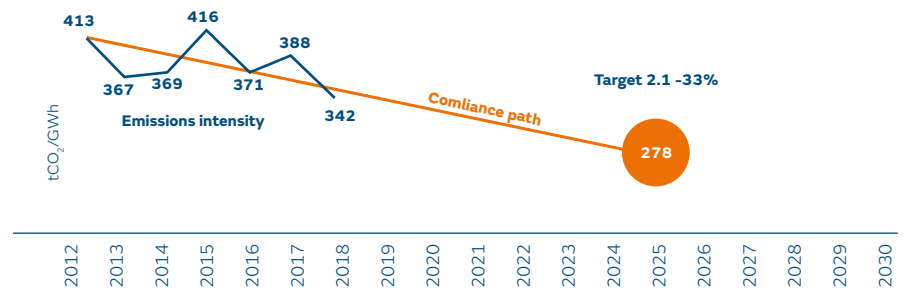
## Target 2.1: reduce specific emissions by 33% by 2025

(according to the SBTi tool v.8) compared to the 2012 base year

### 2018 follow-up

- Specific emissions 2018: 342 tCO<sub>2</sub>/GWh
- Degree of achievement of the target:  $(413-342)tCO_2/GWh / (413-278) MtCO_2 = 52.4\%$
- Degree of progress towards the target: 6 years / 13 years = 46.2%.

Assessment of compliance: the degree of achievement of the target is in line with the degree of progress.

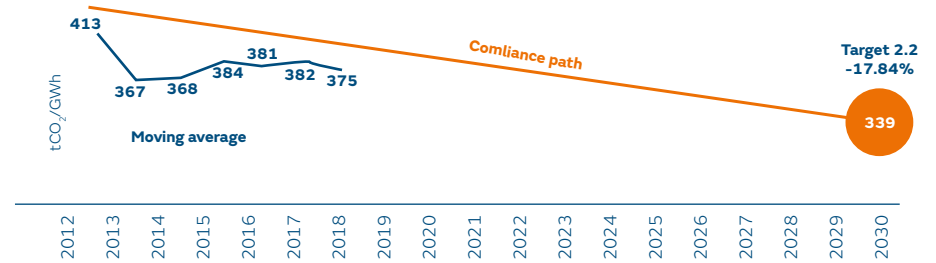


## Target 2.2: reduce average specific emissions by 17.8% for 2013-2030 compared to the 2012 base year

### 2018 follow-up

- Average specific emissions for 2013-2018: 376 tCO<sub>2</sub>/GWh
- Degree of achievement of the target:  $(413-376) tCO_2/GWh / (413-339) MtCO_2 = 50.2\%$
- Degree of progress towards the target: 6 years / 18 years = 33.3%.

Assessment of compliance: the current degree of achievement of the target (50.2%) is greater than the degree of progress towards the target (33.3%). It is considered that we are on track to meet the target, given that the largest drop in the specific emission factor is expected from 2020 onwards.



# Objective 3: Achieving carbon neutrality in 2050 (Scopes 1+2+3)

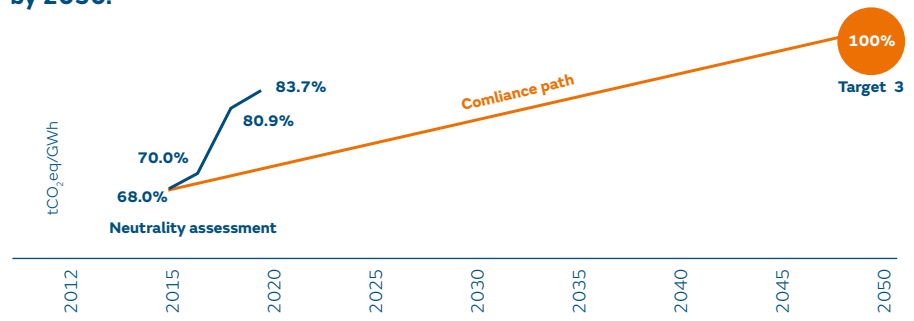
Remarks and calculation bases of the objective:

- Applicable to scopes 1, 2 and 3
- Applicable to all GHG, not just CO<sub>2</sub>
- Applicable to all countries and sectors.
- The reductions are calculated according to the Clean Development Mechanisms (CDM) methodologies from UNFCCC.

## 2018 follow-up

- Total GHG emissions (scopes 1+2+3) 2018: 150.8 MtCO<sub>2</sub>eq
- Total GHG emissions avoided (Scopes 1+2+3) 2018: 126.2 MtCO<sub>2</sub>eq
- Degree of achievement of the target: 83.7%

**Assessment of compliance: the current degree of achievement of the target (81%) has increased by nearly 15.7% with regards to the previous year (70%), indicating that the Company is on track to achieve climate neutrality by 2050.**



For more information regarding calculation of the indicator, see the chapter, Emissions Neutrality Assessment.

## Greenhouse Gas Inventory

# The 2018 inventory at a glance

Emissions from all Naturgy activities and businesses are set out in the greenhouse gas emissions (GHG) inventory. Below is the data obtained from the three scopes distributed by unit, business segment, greenhouse gas type and country.

### Scope emissions 1: 18,305,632 tCO<sub>2</sub>eq

These are mainly due to CO<sub>2</sub> emissions in the combustion of natural gas for the end use of distributed and marketed natural gas

#### By business unit

Gas & Power	90.62%
EMEA infrastructures	4.07%
South Latam Infrastructures	4.05%
North Latam Infrastructures	1.09%
Offices	0.17%

#### By activity segment

Electricity Generation	87.37%
Gas Distribution	6.42%
Gas (Infrastructures and Marketing)	4.62%
Electricity Distribution	1.43%
Offices	0.17%

#### By type of GHG

CO <sub>2</sub>	93.18%
CH <sub>4</sub>	6.46%
SF <sub>6</sub>	0.17%
N <sub>2</sub> O	0.11%
HFC	0.07%

#### By country

Spain	52.77%
Mexico	34.48%
Dominican Rep.	4.08%
International Maritime Transport	3.14%
Other	5.54%

### Scope emissions 2: 1,093,343 tCO<sub>2</sub>eq

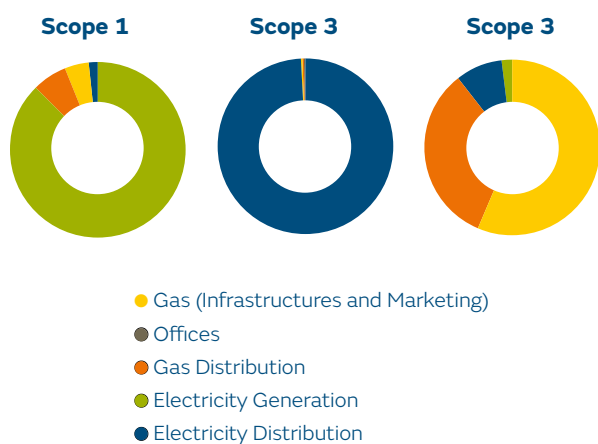
These are mainly due to CO<sub>2</sub> emissions associated with electricity distribution losses

By business unit	
South Latam Infrastructures	60.90%
EMEA infrastructures	23.91%
North Latam Infrastructures	14.95%
Offices	0.25%
Gas & Power	0.00%
By activity segment	
Electricity Distribution	99.28%
Gas Distribution	0.31%
Offices	0.25%
Gas (Infrastructures and Marketing)	0.16%
Electricity Generation	0.00%
By type of GHG	
CO <sub>2</sub>	99.63%
N <sub>2</sub> O	0.33%
CH <sub>4</sub>	0.05%
SF <sub>6</sub>	0.00%
HFC	0.00%
By country	
Chile	52.93%
Spain	23.74%
Panama	14.93%
Argentina	8.04%
Other	0.35%

### Scope emissions 3: 131,390,996 tCO<sub>2</sub>eq

These are mainly due to CO<sub>2</sub> emissions in the combustion of natural gas for the end use of distributed and marketed natural gas

By business unit	
Gas & Power	55.41%
South Latam Infrastructures	35.16%
EMEA infrastructures	4.99%
North Latam Infrastructures	4.43%
Offices	0.01%
By activity segment	
Gas (Infrastructure and Marketing)	56.61%
Gas Distribution	32.93%
Electricity Distribution	8.80%
Electricity Generation	1.65%
Offices	0.01%
By type of GHG	
CO <sub>2</sub>	95.39%
CH <sub>4</sub>	4.52%
N <sub>2</sub> O	0.09%
SF <sub>6</sub>	0.00%
HFC	0.00%
By country	
Spain	24.86%
Brazil	11.29%
Chile	13.25%
Argentina	12.30%
Other	38.30%



### Scope 3 by category (tCO<sub>2</sub>eq and %)

End use of the natural gas distributed/marketed	100,756,160	76.68%
Natural gas life cycle	17,488,011	13.31%
Life cycle electricity distributed	11,489,144	8.74%
Financial investments	837,165	0.64%
Coal life cycle	373,124	0.28%
Oil derivative life cycle	435,839	0.33%
Employee travel	9,985	0.01%
Flights	1,567	0.001%
Train travel	1	0.0000004%



# Greenhouse Gas Inventory

The emissions generated by each type of GHG are shown below:

## Naturgy inventory by type of GHG (tCO<sub>2</sub>eq). Data series 2016-2018

GHG emissions	Scope 1		
tCO <sub>2</sub> eq	2016	2017	2018
CO <sub>2</sub>	18,173,252	19,018,367	17,056,885
CH <sub>4</sub>	1,397,140	1,455,449	1,183,363
N <sub>2</sub> O	24,694	25,634	20,973
SF <sub>6</sub>	24,910	29,655	30,991
PFC*	-	-	-
HFC	4,529	2,022	13,419
<b>All</b>	<b>19,624,525</b>	<b>20,531,127</b>	<b>18,305,632</b>

GHG emissions	Scope 2		
tCO <sub>2</sub> eq	2016	2017	2018
CO <sub>2</sub>	1,453,156	1,312,491	1,089,251
CH <sub>4</sub>	641	608	504
N <sub>2</sub> O	4,324	4,081	3,587
SF <sub>6</sub>	-	-	-
PFC*	-	-	-
HFC	-	-	-
<b>All</b>	<b>1,458,120</b>	<b>1,317,179</b>	<b>1,093,343</b>

GHG emissions	Scope 3		
tCO <sub>2</sub> eq	2016	2017	2018
CO <sub>2</sub>	131,141,913	135,464,116	125,330,224
CH <sub>4</sub>	6,825,472	6,205,257	5,943,722
N <sub>2</sub> O	127,697	131,888	117,050
SF <sub>6</sub>	-	-	-
PFC*	-	-	-
HFC	-	-	-
<b>All</b>	<b>138,095,082</b>	<b>141,801,261</b>	<b>131,390,996</b>

\*As there are no emissions of this gas, it will not appear in subsequent tables.

## Inventory by business

The GHG emissions generated by each business segment are shown below:

### Naturgy inventory by business segment (tCO<sub>2</sub>eq). Data series 2016-2018

GHG emissions	Scope 1		
tCO <sub>2</sub> eq	2016	2017	2018
Generation	17,521,399	18,142,821	15,993,542
Electricity Distribution	24,667	245,830	261,013
Gas Distribution	1,370,458	1,424,143	1,175,150
Gas *	663,772	673,981	845,364
Mining	24,640	23,218	-
Offices	19,589	21,135	30,563
<b>All</b>	<b>19,624,525</b>	<b>20,531,127</b>	<b>18,305,632</b>

GHG emissions	Scope 2		
tCO <sub>2</sub> eq	2016	2017	2018
Generation	-	-	-
Electricity Distribution	1,392,825	1,238,947	1,085,493
Gas Distribution	12,718	12,239	3,362
Gas *	3,318	1,477	1,766
Mining	44,005	42,844	-
Offices	5,254	21,672	2,722
<b>All</b>	<b>1,458,120</b>	<b>1,317,179</b>	<b>1,093,343</b>

GHG emissions	Scope 3		
tCO <sub>2</sub> eq	2016	2017	2018
Generation	2,870,886	2,670,570	2,165,045
Electricity Distribution	12,195,641	12,955,979	11,568,295
Gas Distribution	48,540,149	50,877,085	43,261,099
Gas *	70,007,533	71,561,044	74,379,115
Mining	4,173,053	3,707,338	-
Offices	307,821	29,245	17,442
<b>All</b>	<b>138,095,082</b>	<b>141,801,261</b>	<b>131,390,996</b>

\*Includes the businesses related to natural gas infrastructure, procurement and marketing.

# Inventory by country

Shown below are the GHG emissions generated by the countries where we operate:

## Naturgy inventory by country (tCO<sub>2</sub>eq), Data series 2016-2018

GHG emissions tCO <sub>2</sub> eq	Scope 1		
	2016	2017	2018
Algeria	-	-	-
Argentina	299.638	301.167	309.602
Belgium	-	-	-
Brazil	115.926	129.781	118.698
Canada	-	-	-
Chile	305.214	317.899	328.524
China	-	-	-
Colombia	163.661	164.732	-
Costa Rica	-	-	-
Dominican Republic	636.379	637.844	746.310
Egypt	-	-	-
France	-	-	60
Germany	-	-	-
India	-	-	-
International Maritime Transport	421.851	461.297	574.316
Ireland	-	-	-
Italy	106.073	106.465	-
Jamaica	-	-	-
Japan	-	-	-
Jordan	-	-	-
Kenya	132.429	185.784	-
Korea	-	-	-
Kuwait	-	-	-
Mexico	6.151.362	6.279.129	6.311.287
Moldova	963	1.949	-
Morocco	233.572	204.025	250.720
Oman	-	-	-
Pakistan	-	-	-
Panama	5.064	8.355	5.934
Peru	-	-	-
Portugal	-	-	-
Puerto Rico	-	-	-
Singapore	-	-	-
South Africa	24.584	23.208	-
Spain	11.027.808	11.709.493	9.660.180
Taiwan	-	-	-
Thailand	-	-	-
The Netherlands	-	-	-
Turkey	-	-	-
Ukraine	-	-	-
United Arab Emirates	-	-	-
United States of America	-	-	-
<b>All</b>	<b>19.624.525</b>	<b>20.531.127</b>	<b>18.305.632</b>

**Naturgy inventory by country (tCO<sub>2</sub>eq), Data series 2016-2018 (cont.)**

GHG emissions tCO <sub>2</sub> eq	Scope 2		
	2016	2017	2018
Algeria	-	-	-
Argentina	75.034	59.498	87.958
Belgium	-	-	-
Brazil	650	616	594
Canada	-	-	-
Chile	515.712	608.623	578.673
China	-	-	-
Colombia	391.923	2.819	-
Costa Rica	-	-	-
Dominican Republic	-	-	-
Egypt	-	-	-
France	-	3	2
Germany	-	-	-
India	-	-	-
International Maritime Transport	-	-	-
Ireland	-	-	-
Italy	567	423	-
Jamaica	-	-	-
Japan	-	-	-
Jordan	-	-	-
Kenya	-	-	-
Korea	-	-	-
Kuwait	-	-	-
Mexico	7.997	7.960	1.354
Moldova	110.691	120.368	-
Morocco	1.693	1.568	1.872
Oman	-	-	-
Pakistan	-	-	-
Panama	209.137	209.794	163.288
Peru	-	-	-
Portugal	-	-	-
Puerto Rico	-	-	-
Singapore	-	-	-
South Africa	44.005	42.844	-
Spain	100.711	262.663	259.601
Taiwan	-	-	-
Thailand	-	-	-
The Netherlands	-	-	-
Turkey	-	-	-
Ukraine	-	-	-
United Arab Emirates	-	-	-
United States of America	-	-	-
<b>All</b>	<b>1.458.120</b>	<b>1.317.179</b>	<b>1.093.343</b>

**Naturgy inventory by country (tCO<sub>2</sub>eq), Data series 2016-2018 (cont.)**

GHG emissions tCO <sub>2</sub> eq	Scope 3		
	2016	2017	2018
Algeria	451.863	805.293	839.711
Argentina	137.043	121.344	177.668
Belgium	15.269.346	15.253.816	16.157.604
Brazil	1.001.425	1.511.665	1.454.674
Canada	15.294.605	18.275.310	14.834.652
Chile		514.187	207.414
China	16.662.806	17.138.911	17.409.406
Colombia		739.627	4.627.810
Costa Rica	7.634.980	5.454.041	-
Dominican Republic	-	456.350	525.087
Egypt	16	14	14
France	2.815.209	859.896	2.079.724
Germany	443.986	-	-
India	35.414.257	33.534.114	32.660.022
International Maritime Transport	-	2.189.428	1.608.848
Ireland	11.895.948	7.866.304	8.050.611
Italy	1.074.901	1.431.751	1.191.043
Jamaica	2.705.378	4.214.490	3.226.060
Japan	125.984	322.517	380.668
Jordan	1.590.801	3.071.778	504.607
Kenya	-	-	555.144
Korea	-	1.436.358	2.721.493
Kuwait	494.826	1.243.857	2.942.216
Mexico	45.004	62.166	-
Moldova	240.969	287.213	-
Morocco	3.853.729	3.722.768	3.741.889
Oman	4.544.023	5.400.387	5.499.145
Pakistan	1.228.116	1.345.340	-
Panama	59.595	23.103	35
Peru	452.195	293.250	-
Portugal	1.639.915	1.578.173	1.232.890
Puerto Rico	-	-	20.021
Singapore	5.355.240	4.900.638	4.501.163
South Africa	2.584.922	1.834.204	2.493.655
Spain	241.728	430.497	468.950
Taiwan	4.173.029	3.707.334	-
Thailand	-	-	264.882
The Netherlands	-	-	226.459
Turkey	242.984	268.614	219.480
Ukraine	420.259	121.134	159.584
United Arab Emirates	-	521.523	408.368
United States of America		265.834	-
<b>All</b>	<b>138.095.082</b>	<b>141.801.261</b>	<b>131.390.996</b>

# Inventory by business and GHG

## Inventory of Emissions by Business Unit

	tCO <sub>2</sub> eq	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	HFC	CO <sub>2</sub> eq
Scope 1	Gas&Power	16,551,650	11,895	20,345	1,910	2,646	16,588,446
	EMEA infrastructures	249,387	476,562	132	19,540	-	745,620
	North Latam Infrastructures	-	194,310	-	5,244	-	199,554
	South Latam Infrastructures	236,586	500,391	175	4,298	-	741,449
	Corporation	19,263	206	322	-	10,773	30,563
	<b>TOTAL</b>	<b>17,056,885</b>	<b>1,183,363</b>	<b>20,973</b>	<b>30,991</b>	<b>13,419</b>	<b>18,305,632</b>
Scope 2	Gas&Power	2	0	0	-	-	2
	EMEA infrastructures	260,410	106	849	-	-	261,365
	North Latam Infrastructures	162,808	135	463	-	-	163,406
	South Latam Infrastructures	663,316	262	2,270	-	-	665,848
	Corporation	2,716	1	5	-	-	2,722
	<b>TOTAL</b>	<b>1,089,251</b>	<b>504</b>	<b>3,587</b>	<b>-</b>	<b>-</b>	<b>1,093,343</b>
Scope 3	Gas&Power	69,634,956	3,120,907	46,590	-	-	72,802,453
	EMEA infrastructures	5,648,965	889,899	11,851	-	-	6,550,715
	North Latam Infrastructures	5,634,128	185,764	6,659	-	-	5,826,551
	South Latam Infrastructures	44,395,158	1,746,856	51,820	-	-	46,193,834
	Corporation	17,017	296	129	-	-	17,442
	<b>TOTAL</b>	<b>125,330,224</b>	<b>5,943,722</b>	<b>117,050</b>	<b>-</b>	<b>-</b>	<b>131,390,996</b>

# Inventory by country, activity and GHG

## Carbon inventory 2018

tCO <sub>2</sub> eq	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	HFC	CO <sub>2</sub> eq
<b>Argelia</b>						
<b>Scope 3</b>						
Global Argelia	92,538	84,989	141	-	-	177,668
Gas	92,538	84,989	141	-	-	177,668
% per/Naturgy	0.07%	1.43%	0.12%	0.00%	0.00%	0.14%
<b>Argentina</b>						
<b>Scope 1</b>						
Global Argentina	4,754	304,641	20	30	158	309,602
Electricity Distribution	-	-	-	30	-	30
Gas Distribution	3,788	304,633	2	-	-	308,423
Offices	965	8	18	-	158	1,149
% per/Naturgy	0.03%	25.74%	0.09%	0.10%	1.18%	1.69%
<b>Scope 2</b>						
Global Argentina	87,782	51	125	-	-	87,958
Electricity Distribution	85,267	49	122	-	-	85,438
Gas Distribution	1,551	1	2	-	-	1,554
Offices	964	1	1	-	-	965
% per/Naturgy	8.06%	10.02%	3.49%	0.00%	0.00%	8.04%
<b>Scope 3</b>						
Global Argentina	15,486,593	659,853	11,158	-	-	16,157,604
Electricity Distribution	737,712	425	1,051	-	-	739,188
Gas Distribution	14,191,211	634,523	9,724	-	-	14,835,457
Gas	556,869	24,893	382	-	-	582,143
Offices	802	12	1	-	-	815
% per/Naturgy	12.36%	11.10%	9.53%	0.00%	0.00%	12.30%
<b>Belgium</b>						
<b>Scope 3</b>						
Global Belgium	1,401,947	51,902	826	-	-	1,454,674
Gas	1,401,947	51,902	826	-	-	1,454,674
% per/Naturgy	1.12%	0.87%	0.71%	0.00%	0.00%	1.11%
<b>Brazil</b>						
<b>Scope 1</b>						
Global Brazil	944	107,124	16	-	10,614	118,698
Gas Distribution	-	107,097	-	-	-	107,097
Offices	944	26	16	-	10,614	11,601
% per/Naturgy	0.01%	9.05%	0.07%	0.00%	79.10%	0.65%
<b>Scope 2</b>						
Global Brazil	592	0	1	-	-	594
Gas Distribution	189	0	0	-	-	189
Offices	404	0	1	-	-	405
% per/Naturgy	0.05%	0.06%	0.04%	0.00%	0.00%	0.05%
<b>Scope 3</b>						
Global Brazil	14,110,331	713,841	10,480	-	-	14,834,652
Gas Distribution	13,219,559	668,770	9,722	-	-	13,898,051
Gas	890,148	45,032	655	-	-	935,835
Offices	623	39	104	-	-	766
% per/Naturgy	11.26%	12.01%	8.95%	0.00%	0.00%	11.29%

tCO <sub>2</sub> eq		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	HFC	CO <sub>2</sub> eq
<b>Canada</b>							
<b>Scope 3</b>							
Global Canada		197,866	9,428	120	-	-	207,414
	Gas	197,866	9,428	120	-	-	207,414
% per/Naturgy		0.16%	0.16%	0.10%	0.00%	0.00%	0.16%
<b>Chile</b>							
<b>Scope 1</b>							
Global Chile		235,378	88,664	214	4,268	-	328,524
	Electricity Distribution	231,659	117	156	4,268	-	236,199
	Gas Distribution	1,138	88,543	17	-	-	89,699
	Offices	2,581	3	41	-	-	2,625
% per/Naturgy		1.38%	7.49%	1.02%	13.77%	0.00%	1.79%
<b>Scope 2</b>							
Global Chile		576,316	212	2,145	-	-	578,673
	Electricity Distribution	574,815	211	2,140	-	-	577,166
	Gas Distribution	1,494	1	6	-	-	1,500
	Offices	7	0	0	-	-	7
% per/Naturgy		52.91%	41.99%	59.81%	0.00%	0.00%	52.93%
<b>Scope 3</b>							
Global Chile		16,905,127	472,519	31,760	-	-	17,409,406
	Electricity Distribution	6,747,642	15,203	24,958	-	-	6,787,804
	Gas Distribution	9,480,022	426,937	6,353	-	-	9,913,312
	Gas	672,679	30,375	442	-	-	703,496
	Offices	4,783	4	7	-	-	4,793
% per/Naturgy		13.49%	7.95%	27.13%	0.00%	0.00%	13.25%
<b>China</b>							
<b>Scope 3</b>							
Global China		4,471,895	152,194	3,721	-	-	4,627,810
	Gas	4,471,895	152,194	3,721	-	-	4,627,810
% per/Naturgy		3.57%	2.56%	3.18%	0.00%	0.00%	3.52%
<b>Costa Rica</b>							
<b>Scope 3</b>							
Global Costa Rica		14	-	-	-	-	14
	Electricity Generation Electricidad	14	-	-	-	-	14
% per/Naturgy		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Dominican Rep.</b>							
<b>Scope 1</b>							
Global Dominican Republic		743,841	730	1,740	-	-	746,310
	Electricity Generation	743,804	729	1,739	-	-	746,273
	Offices	37	0	1	-	-	38
% per/Naturgy		4.36%	0.06%	8.30%	0.00%	0.00%	4.08%
<b>Scope 3</b>							
Global Dominican Republic		460,605	7,608	738	-	-	468,950
	Gas	184,843	6,677	72	-	-	191,593
	Electricity Generation	275,745	930	665	-	-	277,341
	Offices	16	0	0	-	-	16
% per/Naturgy		0.37%	0.13%	0.63%	0.00%	0.00%	0.36%



tCO <sub>2</sub> eq		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	HFC	CO <sub>2</sub> eq
<b>Egypt</b>							
<b>Scope 3</b>							
Global Egypt		1,940,540	138,296	889	-	-	2,079,724
	Gas	1,940,540	138,296	889	-	-	2,079,724
% per/Naturgy		1.55%	2.33%	0.76%	0.00%	0.00%	1.58%
<b>France</b>							
<b>Scope 1</b>							
Global France		59	0	1	-	-	60
	Offices	59	0	1	-	-	60
% per/Naturgy		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Scope 2</b>							
Global France		2	0	0	-	-	2
	Gas	2	0	0	-	-	2
	Offices	1	0	0	-	-	1
% per/Naturgy		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Scope 3</b>							
Global France		7,738,602	307,056	4,954	-	-	8,050,611
	Gas	7,738,532	307,056	4,953	-	-	8,050,541
	Offices	70	0	0	-	-	70
% per/Naturgy		6.17%	5.17%	4.23%	0.00%	0.00%	6.13%
<b>Germany</b>							
<b>Scope 3</b>							
Global Germany		807,022	32,113	576	-	-	839,711
	Gas	807,022	32,113	576	-	-	839,711
% per/Naturgy		0.64%	0.54%	0.49%	0.00%	0.00%	0.64%
<b>India</b>							
<b>Scope 3</b>							
Global India		3,046,667	177,563	1,829	-	-	3,226,060
	Gas	3,046,667	177,563	1,829	-	-	3,226,060
% per/Naturgy		2.43%	2.99%	1.56%	0.00%	0.00%	2.46%
<b>International Maritime Transport</b>							
<b>Scope 1</b>							
Global International		569,882	1,074	3,360	-	-	574,316
	Gas	569,882	1,074	3,360	-	-	574,316
% per/Naturgy		3.34%	0.09%	16.02%	0.00%	0.00%	3.14%
<b>Scope 3</b>							
Global International		144,587	14,784	214	-	-	159,584
	Gas	144,587	14,784	214	-	-	159,584
% per/Naturgy		0.12%	0.25%	0.18%	0.00%	0.00%	0.12%
<b>Ireland</b>							
<b>Scope 3</b>							
Global Ireland		367,262	13,184	222	-	-	380,668
	Gas	367,262	13,184	222	-	-	380,668
% per/Naturgy		0.29%	0.22%	0.19%	0.00%	0.00%	0.29%
<b>Italy</b>							
<b>Scope 3</b>							
Global Italy		482,204	22,083	321	-	-	504,607
	Gas	482,204	22,083	321	-	-	504,607
% per/Naturgy		0.38%	0.37%	0.27%	0.00%	0.00%	0.38%

tCO <sub>2</sub> eq		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	HFC	CO <sub>2</sub> eq
<b>Jamaica</b>							
<b>Scope 3</b>							
Global Jamaica		529,047	25,916	180	-	-	555,144
	Gas	529,047	25,916	180	-	-	555,144
% per/Naturgy		0.42%	0.44%	0.15%	0.00%	0.00%	0.42%
<b>Japan</b>							
<b>Scope 3</b>							
Global Japan		2,611,046	108,960	1,488	-	-	2,721,493
	Gas	2,611,046	108,960	1,488	-	-	2,721,493
% per/Naturgy		2.08%	1.83%	1.27%	0.00%	0.00%	2.07%
<b>Jordan</b>							
<b>Scope 3</b>							
Global Jordan		2,750,840	189,433	1,943	-	-	2,942,216
	Gas	2,750,840	189,433	1,943	-	-	2,942,216
% per/Naturgy		2.19%	3.19%	1.66%	0.00%	0.00%	2.24%
<b>Korea</b>							
<b>Scope 3</b>							
Global Korea		503,719	21,096	272	-	-	525,087
	Gas	503,719	21,096	272	-	-	525,087
% per/Naturgy		0.40%	0.35%	0.23%	0.00%	0.00%	0.40%
<b>Mexico</b>							
<b>Scope 1</b>							
Global Mexico		6,109,644	197,144	3,347	502	651	6,311,287
	Gas Distribution	-	194,310	-	-	-	194,310
	Electricity Generation	6,103,421	2,699	3,218	502	651	6,110,491
	Offices	6,222	135	130	-	-	6,487
% per/Naturgy		35.82%	16.66%	15.96%	1.62%	4.85%	34.48%
<b>Scope 2</b>							
Global Mexico		1,351	1	3	-	-	1,354
	Gas Distribution	118	0	0	-	-	118
	Offices	1,233	1	2	-	-	1,236
% per/Naturgy		0.12%	0.13%	0.07%	0.00%	0.00%	0.12%
<b>Scope 3</b>							
Global Mexico		5,036,130	458,913	4,102	-	-	5,499,145
	Gas Distribution	4,406,307	184,744	3,163	-	-	4,594,215
	Gas	350,098	15,091	204	-	-	365,394
	Electricity Generation	276,973	258,918	724	-	-	536,615
	Offices	2,751	159	10	-	-	2,921
% per/Naturgy		4.02%	7.72%	3.50%	0.00%	0.00%	4.19%

tCO <sub>2</sub> eq		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	HFC	CO <sub>2</sub> eq
<b>Morocco</b>							
<b>Scope 1</b>							
Global Morocco		249,220	1,364	136	-	-	250,720
	Gas	248,965	1,363	132	-	-	250,460
	Offices	255	0	4	-	-	260
% per/Naturgy		1.46%	0.12%	0.65%	0.00%	0.00%	1.37%
<b>Scope 2</b>							
Global Morocco		1,864	1	7	-	-	1,872
	Gas	1,756	1	7	-	-	1,764
	Offices	108	0	0	-	-	108
% per/Naturgy		0.17%	0.14%	0.20%	0.00%	0.00%	0.17%
<b>Scope 3</b>							
Global Morocco		2,850,405	888,746	2,739	-	-	3,741,889
	Gas	2,850,223	888,745	2,739	-	-	3,741,707
	Offices	182	0	0	-	-	182
% per/Naturgy		2.27%	14.95%	2.34%	0.00%	0.00%	2.85%
<b>Oman</b>							
<b>Scope 3</b>							
Global Oman		17	18	0	-	-	35
	Gas	17	18	0	-	-	35
% per/Naturgy		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Panama</b>							
<b>Scope 1</b>							
Global Panama		668	1	11	5,255	-	5,934
	Electricity Distribution	-	-	-	5,244	-	5,244
	Electricity Generation	-	-	-	11	-	11
	Offices	668	1	11	-	-	679
% per/Naturgy		0.00%	0.00%	0.05%	16.96%	0.00%	0.03%
<b>Scope 2</b>							
Global Panama		162,690	135	463	-	-	163,288
	Electricity Distribution	162,690	135	463	-	-	163,288
% per/Naturgy		14.94%	26.78%	12.91%	0.00%	0.00%	14.93%
<b>Scope 3</b>							
Global Panama		1,228,373	1,020	3,496	-	-	1,232,890
	Electricity Distribution	1,227,821	1,019	3,495	-	-	1,232,336
	Offices	552	1	1	-	-	554
% per/Naturgy		0.98%	0.02%	2.99%	0.00%	0.00%	0.94%
<b>Peru</b>							
<b>Scope 3</b>							
Global Peru		19,011	998	11	-	-	20,021
	Gas Distribution	19,011	998	11	-	-	20,021
% per/Naturgy		0.02%	0.02%	0.01%	0.00%	0.00%	0.02%
<b>Portugal</b>							
<b>Scope 3</b>							
Global Portugal		4,440,410	57,791	2,962	-	-	4,501,163
	Gas	4,440,410	57,791	2,962	-	-	4,501,163
% per/Naturgy		3.54%	0.97%	2.53%	0.00%	0.00%	3.43%
<b>Puerto Rico</b>							
<b>Scope 3</b>							
Global P Rico		2,378,591	113,749	1,314	-	-	2,493,655
	Gas	2,041,263	102,986	1,133	-	-	2,145,382
	Electricity Generation	337,328	10,764	181	-	-	348,273
% per/Naturgy		1.90%	1.91%	1.12%	0.00%	0.00%	1.90%

tCO <sub>2</sub> eq		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	HFC	CO <sub>2</sub> eq
<b>Singapore</b>							
<b>Scope 3</b>							
Global Singapore		252,619	12,124	138	-	-	264,882
	Gas	252,619	12,124	138	-	-	264,882
% per/Naturgy		0.20%	0.20%	0.12%	0.00%	0.00%	0.20%
<b>Spain</b>							
<b>Scope 1</b>							
Global Spain		9,142,496	482,622	12,130	20,937	1,995	9,660,180
	Electricity Distribution	-	-	-	19,540	-	19,540
	Gas Distribution	422	475,198	0	-	-	475,620
	Gas	20,255	323	11	-	-	20,588
	Electricity Generation Electricidad	9,114,288	7,069	12,018	1,398	1,995	9,136,768
	Offices	7,532	31	102	-	-	7,665
% per/Naturgy		53.60%	40.78%	57.84%	67.56%	14.87%	52.77%
<b>Scope 2</b>							
Global Spain		258,653	105	842	-	-	259,601
	Electricity Distribution	258,653	105	842	-	-	259,601
	Gas	-	-	-	-	-	-
% per/Naturgy		23.75%	20.88%	23.48%	0.00%	0.00%	23.74%
<b>Scope 3</b>							
Global Spain		31,577,131	1,054,533	28,358	-	-	32,660,022
	Electricity Distribution	2,798,715	1,140	9,113	-	-	2,808,967
	Gas Distribution	27	14	0	-	-	41
	Gas	27,958,685	864,897	17,304	-	-	28,840,887
	Electricity Generation	812,466	188,401	1,935	-	-	1,002,802
	Offices	7,238	81	6	-	-	7,325
% per/Naturgy		25.20%	17.74%	24.23%	0.00%	0.00%	24.86%
<b>Taiwan</b>							
<b>Scope 3</b>							
Global Taiwan		209,562	9,779	139	-	-	219,480
	Gas	209,562	9,779	139	-	-	219,480
% per/Naturgy		0.17%	0.16%	0.12%	0.00%	0.00%	0.17%
<b>Thailand</b>							
<b>Scope 3</b>							
Global Thailand		211,789	14,515	155	-	-	226,459
	Gas	211,789	14,515	155	-	-	226,459
% per/Naturgy		0.17%	0.24%	0.13%	0.00%	0.00%	0.17%
<b>The Netherlands</b>							
<b>Scope 3</b>							
Global Holland		1,148,687	41,716	640	-	-	1,191,043
	Gas	1,148,687	41,716	640	-	-	1,191,043
% per/Naturgy		0.92%	0.70%	0.55%	0.00%	0.00%	0.91%
<b>Turkey</b>							
<b>Scope 3</b>							
Global Turkey		394,188	13,948	231	-	-	408,368
	Gas	394,188	13,948	231	-	-	408,368
<b>United States of America</b>							
<b>Scope 3</b>							
Global United States		1,534,859	73,057	932	-	-	1,608,848
	Gas	1,534,859	73,057	932	-	-	1,608,848
% per/Naturgy		1.22%	1.23%	0.80%	0.00%	0.00%	1.22%

## Emissions Neutrality Assessment

Presentation in the form of a balance sheet of the relationship between our emissions (direct and indirect) and the emissions avoided by our assets, products and services due to the displacement of sources with higher levels of emissions.

### Emissions 2018 (tCO<sub>2</sub>eq)

1. Direct Emissions (Scope 1)	18,305,632
2. Indirect emissions due to electricity use (Scope 2)	1,093,343
3. Indirect Emissions (Scope 3)	131,390,996
3.1 Indirect Emissions (Scope 3) upstream	29,797,670
3.1.1. Goods and Services acquired	-
3.1.2. Capital goods	-
3.1.3. Activities linked to fuels and energy upstream	
3.1.3. a. Upstream emissions of acquired fuels (recovery, production and transportation)	
3.1.3.a.i. Coal	373,124
3.1.3.a.ii. Natural Gas	17,488,011
3.1.3.a.iii. Petroleum	435,839
3.1.3.b. Emissions of electricity acquired (recovery, production and transportation of fuels for electricity generation)	-
3.1.3.c. Emissions from losses in transportation and distribution of electricity consumed (electricity generation of losses)	-
3.1.3.d. Emissions of electricity acquired for sale to third parties (generation of electricity sold)	11,489,144
3.1.4. Goods transport and distribution	-
3.1.5. Wastes generated by operations	-
3.1.6. Business travel	1,568
3.1.7. Worker travel	9,985
3.1.8. Leased goods	-
3.2 Indirect Emissions (Scope 3) downstream	101,593,326
3.2.1. Goods transport and distribution	-
3.2.2. Treatment of products sold	-
3.2.3. Use of products sold	
3.2.3.a. End use of the natural gas distributed/ marketed	100,756,160
3.2.3.b. End use of retrieved coal	-
3.2.4. End of life cycle treatment for sold products	-
3.2.5. Leased goods	-
3.2.6. Franchises	-
3.2.7. Investments	837,165
<b>Total</b>	<b>150,789,971</b>

## Avoided emissions (tCO<sub>2</sub>eq)

	Avoided emissions 2018 (tCO <sub>2</sub> eq)	Energy saving 2018 (TJ)
<b>1. Gas natural</b>	<b>117,087,371</b>	<b>154,450</b>
Natural gas, best fossil fuel because it displaces other fossil fuels:		
1.1. Electricity Production	72,032,142	125,395
1.2. Tertiary	22,474,173	10,006
1.3. Residential/Commercial	12,125,495	12,785
1.4. Transport	2,702,044	2,707
1.5. Cogeneration	7,753,518	3,557
<b>2. Natural resource management</b>	<b>4,794,848</b>	<b>16,853</b>
Renewable generation due to displacement of fossil fuels		
2.1. Wind farms	1,835,989	6,335
2.2. Hydropower Production	2,853,530	10,129
2.3. Photovoltaic production	74,766	389
2.4. Voluntary offsets "CO2pensados Initiative"	30,563	-
<b>3. Energy savings and efficiency</b>	<b>1,238,398</b>	<b>3,129</b>
Saving and energy efficiency actions in our installations or the end customer's installations		
3.1. Own facilities: Energy Efficiency Operational Plan		
3.1.1. Renewal of networks in Gas T&D	739,793	544
3.1.2. Electricity distribution actions	56,601	296
3.1.2. Electricity generation actions		
3.1.2.i. Combined Cycle	78,837	416
3.1.2.ii. Coal-fired power plants	39,576	116
3.1.2.iii. Fuel-based power plants	7,036	26
3.2. End client		
3.2.1. Energy services	316,555	1,732
<b>4. Others</b>	<b>3,095,565</b>	<b>-10,662</b>
4.1. Nuclear production	3,095,565	-10,662
<b>Total</b>	<b>126,216,183</b>	<b>163,771</b>

Criteria for quantification:

1. During the reporting period, projects must generate quantifiable reductions in GHG and/or fuel/energy emissions with regards to a baseline.
2. The baseline is defined on a case-by-case basis.
3. The emissions avoided are calculated as the difference between emissions from "with project" and "without project" scenarios.
4. The "with project" scenario represents the actual level of GHG emissions.
5. The "without project" baseline scenario represents the GHG emissions levels that would have been reached if the project had not been implemented.
6. The emission factors used for the "with project" and "without project" scenarios were obtained according to the IPCC 2006 guidelines for national GHG inventories.
7. The calculations were performed as per the UNFCCC methodologies and simplified tools for Clean Development Mechanisms (CDM).



## Evaluation and reduction of uncertainty

# The uncertainty associated with the report on Scope 1 emissions for 2018 is 6.28%

For facilities under the EU emissions trading scheme, according to Decision 2007/589/EC of 18 July, uncertainties regarding GHG emission values will be less than or equal to those corresponding to the levels approved by the competent authority. For all other emission sources, the uncertainty associated with the calculation of GHG emissions is a combination of the uncertainties associated with the activity data and the emission factors, using the references established in 2.38. IPCC 2006 GHG, Vol.2, table 2.12.

To minimise the uncertainty associated with the activity data, all emission sources have environmental and quality management systems that conform to the ISO 14001:2015 and ISO 9001:2015 standards. In order to minimise the uncertainty associated with the emission factors, official sources are always used, as are, by default, the core values recognised in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.



## Methodology

# Calculation of GHG emissions from the Naturgy Inventory

To quantify Naturgy's greenhouse gas emissions, we have developed an application and calculation methodology based on the following guidelines and methodologies:

- Includes scope 1, 2 and 3 emissions according to "The Greenhouse Gas Protocol. A Corporate Accounting and reporting standard".
- Report of Scope 3 according to Corporate Value Chain (Scope 3).
- Includes the emissions of the six GHGs set out in the 2006 IPCC guidelines for national GHG inventories (hereinafter 2006 IPCC GHG).
- Standard UNE-ISO 14064-1. Greenhouse Gases Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.
- Standard UNE-ISO 14064-2. Greenhouse Gases Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.
- Standard UNE-ISO 14064-3. Greenhouse Gases Part 3: Specification with guidance for the verification and validation of greenhouse gas statements.
- Definition of life cycles in accordance with the UNE-EN-ISO 14040 and ENE-EN-ISO 14044 standards on life cycle analyses.
- Use of specific emission factors pursuant to the 2006 IPCC guidelines on national GHG inventories (hereinafter GHG IPCC 2006) and use of other documentary sources and checkable bibliographies.



# Operational limits

Naturgy's Carbon Footprint inventory includes GHG emissions from the following activities of the group:

- Natural gas extraction, road transport, liquefaction, maritime transport, regasification, distribution and marketing.
- Thermal power plants from coal and fuel oil and combined cycle thermal generation, cogeneration, generation at wind farms, photovoltaic power plants and hydropower plants.
- Electricity distribution.
- Offices, fleets and travel.

Within each of the aforementioned activities, different calculation units corresponding to each of the facilities comprising those activities have been included. These calculation units or facilities are treated according to the global consolidation criterion, in accordance with the shareholding percentages.

## Life cycle of fuels used

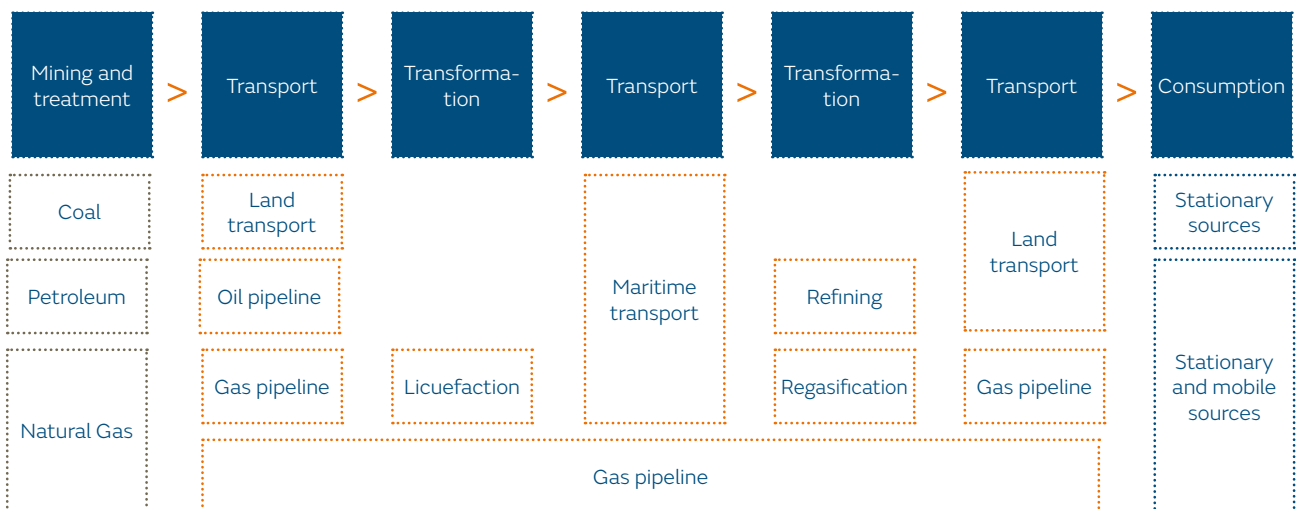
Energy (fuels, electricity) is consumed throughout the various processes, thereby generating emissions throughout their life cycle. A diagram with the life cycles of the main fuels used is included below.

The fuels used in both stationary sources (fuels for thermal power plants, offices, gas transmission and distribution facilities, etc.) and mobile sources have been considered.

## Electrical energy

Emissions from electrical power have only been considered when it is used as primary energy and is not generated by any of the calculation units of the group:

- Electricity consumption purchased from external suppliers.
- Losses related to transport and distribution of the energy distributed and not generated by the company in each country.
- Emissions from the life cycle of the fuels used in the generation mix of each country.



## Geographical limits

All the countries in which activities are developed have been considered, as well as the countries from which the fuels originate.

For annual preparation of the inventory, a series of prior studies are undertaken to update the initial data, such as review of the gas, coal and crude oil supply routes (over 500 routes connecting 165 recovery points in 30 destination countries).

Annually, three types of data are updated:

- Characteristics of the extraction points (specific factors based on the country, technology, type of well or mine...).
- Definition of the routes themselves (distances for each country and specific factors).
- Fuel balances in destination countries.

## Types of emissions

- Scope 1. Direct GHG emissions, meaning those from sources owned by the company itself.
- Scope 2. Indirect emissions due to the generation of electrical energy purchased by the company for its own consumption but not generated by the group.
- Scope 3. Indirect emissions, not included in scope 2, related to the value chain of activities, including upstream and downstream emissions, over which the group has no direct influence or control. Within the categories defined by the GHG Protocol, those with a weight of less than 1% have been excluded, as long as the sum of all of them does not exceed 5%. The reported categories are the following:
  - Fuel life cycles: emissions from the life cycles of the fuels. This category includes the following sub-categories:
    - A.1: emissions from coal extraction, treatment and transport.
    - A.2: emissions related to natural gas extraction, treatment (liquefaction and gasification) and transport (via gas pipeline and/or LNG carrier not owned by the company).
    - A.3: emissions related to the extraction, treatment (refining) and transport (via oil pipeline and/or oil tanker) of petroleum derivatives.
  - B: emissions produced in the life cycles of the fuels used for electricity generation of the energy mix of each country.
  - C: emissions due to electricity losses in the transmission and distribution of electricity consumed but not generated.
  - D: emissions from the energy that has been consumed by the group but has not been generated and/or distributed.
- Business travel: emissions related to movements of employees by plane, train or any means other than the vehicle fleet owned by the group. It is divided into two sub-categories:
  - A: train travel by company employees.
  - B: airline travel by company employees.
- Employee commutes: emissions related to employees commuting from their respective homes to work.
- Use of products sold: emissions related to combustion of the goods, which are those corresponding to the combustion of natural gas sold by the group to the customer, discounting the gas consumed within the organisation.
- Investments: includes emissions from coal handling at the Richards Bay coal terminal in South Africa, as well as direct and indirect emissions from activities not included in the consolidation scope (Ecoeléctrica, Unión Fenosa Gas, Nueva Generadora del Sur, etc.).

# Organisational limits

The GHG inventory in the Carbon Footprint Report 2018 includes all the businesses and activities in accordance with the criterion of financial consolidation, in accordance with the shareholding percentages.

## Electricity generation

Includes the electricity generated in Spain, Costa Rica, Mexico, Panama, Puerto Rico and the Dominican Republic by combined cycle, thermal, nuclear, hydroelectric, co-generation and wind and solar power plants.

Companies:

- Naturgy Generation S.L.U. (Electricity generating power plants in the Ordinary Scheme in Spain).
- Naturgy Renovables, S.L.U. (Facilities in the Special Scheme in Spain).
- Global Power Generation S.A.U. (Electricity power plants in Panama, the Dominican Republic, Costa Rica, Mexico and Puerto Rico).

## Gas distribution

Encompasses the regulated gas distribution business in Spain, Argentina, Brazil, Chile and Mexico.

Companies:

- Holding de Negocios de Gas S.A (gas transmission and distribution in Spain), which includes Nedgia S.A., GN Transporte SDG S.L. and GN Redes GLP S.A.
- Naturgy Distribución Latinoamérica, S.A. (Gas distribution in Brazil, Argentina, Mexico and Peru).
- GGE Gas Natural S.A. (gas distribution in Chile).

## Gas

Includes activity related to gas infrastructure, the supply and marketing activity, and Unión Fenosa Gas. The infrastructures business includes gas exploration and production from extraction up to the liquefaction process. It also includes the activities in the Liquefied Natural Gas (LNG) value chain, from the moment that it leaves exporting countries (liquefaction plants) to the points of entry in end markets, including maritime transport of the LNG and the regasification process. It also encompasses operation of the Maghreb-Europe gas pipeline. The Supply and Marketing business includes the supply and marketing of natural gas to wholesale and retail customers from the deregulated Spanish market, as well as supplies of goods and services related to retail sales. Sales of natural gas to customers outside Spain are also included.

Companies:

- Metragaz, S.A.
- Medgaz, S.A.
- E.M.P.L.
- Petroleum Oil & Gas España, S.A.
- Naturgy Almacенamientos de Andalucía, S.A.
- Naturgy Aprovisionamiento SDG, S.A.
- Sagane, S.A.
- Naturgy Iberia S.A.
- Comercializadora Regulada Gas&Power S.A.
- Gas Natural Comercializadora SDG, S.A.
- GN Europe S.A.S (France)
- GNF LNG GOM, LTD (marketing of liquefied natural gas worldwide)
- Unión Fenosa Gas

## Electricity Distribution

Encompasses the regulated electricity generation business in Argentina, Chile, Spain and Panama.

Companies:

- Unión Fenosa Distribución, S.A. (Spain)
- Naturgy Distribución Latinoamérica S.A. (Panama)
- CGE S.A. (Chile)

## Offices

Includes all the offices that are related to the activities described previously.

Companies:

- Naturgy Energy Group, S.A. (Work centres in all the countries where we are present)

# Emission factors

## Emission factors used in Naturgy's 2018 CF

LCV ng	MJ/kg	47.585	Naturgy internal data
HCV ng	MJ/kg	52.873	Naturgy internal data
LCV petrol	MJ/kg	44.3	OECC Carbon Footprint Calculation Guide
LCV Diesel/Gas oil A & C Spain	MJ/kg	43	OECC Carbon Footprint Calculation Guide
LCV ethanol	MJ/kg	27	Table 1.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
LCV biodiesel	MJ/kg	27	Table 1.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
LCV fuel oil	MJ/kg	40.4	OECC Carbon Footprint Calculation Guide
Density ng	kg/m <sup>3</sup>	0.8076	Naturgy internal data
Density petrol	kg/l	0.7475	OECC Carbon Footprint Calculation Guide
Density diesel/gas oil A	kg/l	0.8325	OECC Carbon Footprint Calculation Guide
Density diesel/gas oil C	kg/l	0.9	OECC Carbon Footprint Calculation Guide
Density ethanol	kg/l	0.789	Naturgy internal data
Density biodiesel	kg/l	0.845	Royal Decree 61/2006
Density methane	kg/m <sup>3</sup>	0.7175	Naturgy internal data
Density propane	kg/l	0.5185	CEPSA product sheet
LCV propane	MJ/kg	46.2	OECC Carbon Footprint Calculation Guide
HCV propane	MJ/kg	49.98	CEPSA product sheet
EF CO <sub>2</sub> petrol	kg CO <sub>2</sub> /GJ	69.30	OECC Carbon Footprint Calculation Guide
EF CH <sub>4</sub> petrol	kg CH <sub>4</sub> /GJ	0.025	Table 3.2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF N <sub>2</sub> O petrol	kg N <sub>2</sub> O/GJ	0.008	Table 3.2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CO <sub>2</sub> diesel/gas oil A	kg CO <sub>2</sub> /GJ	74.10	OECC Carbon Footprint Calculation Guide
EF CO <sub>2</sub> diesel/gas oil C	kg CO <sub>2</sub> /GJ	73.00	OECC Carbon Footprint Calculation Guide
EF CH <sub>4</sub> diesel/gas oil stationary sources (hereinafter ss)	kg CH <sub>4</sub> /GJ	0.01	Table 2.4. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF N <sub>2</sub> O diesel/gas oil ss	kg N <sub>2</sub> O/GJ	0.0006	Table 2.4. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CO <sub>2</sub> MDO carriers	tCO <sub>2</sub> /tMDO	3.206	International Maritime Organization
EF CH <sub>4</sub> diesel/gas oil mobile sources (hereinafter ms)	kg CH <sub>4</sub> /GJ	0.007	Table 3.5.3. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF N <sub>2</sub> O diesel/gas oil ms	kg N <sub>2</sub> O/GJ	0.002	Table 3.5.3. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CH <sub>4</sub> diesel/gas oil electricity generation	kg CH <sub>4</sub> /GJ	0.003	Table 2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF N <sub>2</sub> O diesel/gas oil electricity generation	kg N <sub>2</sub> O/GJ	0.0006	Table 2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CO <sub>2</sub> HFO carriers	tCO <sub>2</sub> /tHFO	3.1144	International Maritime Organization
EF CH <sub>4</sub> fuel oil ms	kg CH <sub>4</sub> /GJ	0.007	Table 3.5.3. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF N <sub>2</sub> O fuel oil ms	kg N <sub>2</sub> O/GJ	0.002	Table 3.5.3. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CH <sub>4</sub> fuel oil electricity generation	kg CH <sub>4</sub> /GJ	0.003	Table 2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories

EF N <sub>2</sub> O fuel oil electricity generation	kg N <sub>2</sub> O/GJ	0.0006	Table 2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CH <sub>4</sub> domestic coal	kg CH <sub>4</sub> /GJ	0.0006	Table 1.4.2. (01.01.01) National Atmospheric Emission Inventories 1990-2012. Volume 2: Analysis by SNAP Activities.
EF N <sub>2</sub> O domestic coal	kg N <sub>2</sub> O/GJ	0.0008	Table 1.4.2. (01.01.01) National Atmospheric Emission Inventories 1990-2012. Volume 2: Analysis by SNAP Activities.
EF CH <sub>4</sub> imported coal	kg CH <sub>4</sub> /GJ	0.0006	Table 1.4.2. (01.01.01) National Atmospheric Emission Inventories 1990-2012. Volume 2: Analysis by SNAP Activities.
EF N <sub>2</sub> O imported coal	kg N <sub>2</sub> O/GJ	0.0008	Table 1.4.2. (01.01.01) National Atmospheric Emission Inventories 1990-2012. Volume 2: Analysis by SNAP Activities.
EF CH <sub>4</sub> coke	kg CH <sub>4</sub> /GJ	0.0003	Table 1.4.2. (01.01.01) National Atmospheric Emission Inventories 1990-2012. Volume 2: Analysis by SNAP Activities.
EF N <sub>2</sub> O coke	kg N <sub>2</sub> O/GJ	0.0025	Table 1.4.2. (01.01.01) National Atmospheric Emission Inventories 1990-2012. Volume 2: Analysis by SNAP Activities.
EF CO <sub>2</sub> natural gas	kg CO <sub>2</sub> /GJ	56.40	OECC Carbon Footprint Calculation Guide
EF CH <sub>4</sub> natural gas ss	kg CH <sub>4</sub> /GJ	0.005	Table 2.4. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF N <sub>2</sub> O natural gas ss and electricity generation	kg N <sub>2</sub> O/GJ	0.0001	Table 2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CH <sub>4</sub> natural gas ms	kg CH <sub>4</sub> /GJ	0.092	Table 3.2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF N <sub>2</sub> O natural gas ms	kg N <sub>2</sub> O/GJ	0.003	Table 3.2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CH <sub>4</sub> natural gas electricity generation	kg CH <sub>4</sub> /GJ	0.001	Table 2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF CO <sub>2</sub> LNG carriers	tCO <sub>2</sub> /tLNG	2.75	International Maritime Organization
EF CH <sub>4</sub> natural gas carriers	kg CH <sub>4</sub> /GJ	0.004	Table 2.7. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. By analogy with the type of turbine. Gas turbines >3MW
EF N <sub>2</sub> O natural gas carriers	kg N <sub>2</sub> O/GJ	0.001	Table 2.7. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. By analogy with the type of turbine. Gas turbines >3MW
EF CO <sub>2</sub> propane	kgCO <sub>2</sub> /GJ	63.6	OECC Carbon Footprint Calculation Guide
EF CH <sub>4</sub> propane ms	kgCH <sub>4</sub> /GJ	0.062	Table 3.2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories LPG
EF N <sub>2</sub> O propane ms	kgCO <sub>2</sub> /GJ	0.0002	Table 3.2.2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories LPG
EF CH <sub>4</sub> propane ss	kgCO <sub>2</sub> /GJ	0.005	Table 2.4. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
EF NO <sub>2</sub> propane ss	kgCO <sub>2</sub> /GJ	0.0001	Table 2.4. 2006 IPCC Guidelines for National Greenhouse Gas Inventories
GWP Methane	kgCO <sub>2</sub> /kgCH <sub>4</sub>	25	IPCC 4th Assessment Report
GWP SF <sub>6</sub>	kgCO <sub>2</sub> /tSF <sub>6</sub>	22800000	IPCC 4th Assessment Report
GWP N <sub>2</sub> O	kgCO <sub>2</sub> /tN <sub>2</sub> O	298000	IPCC 4th Assessment Report
GWP HFC	kgCO <sub>2</sub> /tHFC	14800000	IPCC 4th Assessment Report
GWP PFC	kgCO <sub>2</sub> /kg PFC	12200000	IPCC 4th Assessment Report

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## Indirect CO<sub>2</sub> Emissions (Scope 2)

Country	kgCO <sub>2</sub> /kWh
Spain	0.41

It corresponds to the CNMC electricity mix factor for 2018 (published in April 2019)

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## EN17 Administration

Average distance short-haul plane journey	km	510
Average distance medium-haul plane journey	km	1,643
Average distance long-haul plane journey	km	6,096
Average distance train journeys	km	659
Emission factor short-haul plane journeys	kg CO <sub>2</sub> /km	0.14
Emission factor medium-haul plane journeys	kg CO <sub>2</sub> /km	0.10
Emission factor long-haul plane journeys	kg CO <sub>2</sub> /km	0.08
Emission factor train journeys	kg CO <sub>2</sub> /km	0.06

# Independent statement



## INDEPENDENT VERIFICATION STATEMENT

This Independent Verification Statement is an extract from the Verification Report of Verico SCE, number LK-2019-08-HC\_NATURGY, prepared as a consequence of the verification process of Naturgy's 2018 Greenhouse Gas Emissions Inventory.

**Naturgy** has commissioned **verico SCE** to carry out the verification of the 2018 Greenhouse Gas Emissions Inventory, contained in the document "Carbon Footprint Report 2018", corresponding to the corporate carbon footprint for the period 2018.

During the verification process of the 2018 Greenhouse Gas Emissions Inventory, the following elements were reviewed:

- The consistency of the report with previous reports and the procedure for allocating emissions.
- Implementation of monitoring processes.
- Compliance of the measures to ensure the accuracy of required measurements and their quality.
- Information on fuels and raw materials
- Data management
- Integrity and correctness of manual and electronic data flow
- Internal quality control

The verification process checks and confirms the correctness, by an independent third party, of the information given in the annual emissions report, and also examines the annual emissions and the implementation of internal control and management procedures.





### Scope:

Naturgy is present in more than 40 countries serving more than 18 million customers. Naturgy operates in the regulated and liberalized gas and electricity markets, mainly in the following areas:

- Gas and electricity distribution
- Generation and commercialization of electricity
- Infrastructure, supply and marketing of gas

The organization has decided to include in its Greenhouse Gas Emissions Inventory scopes 1, 2 and 3..

- Scope 1:
  - Direct GHG emissions, understood as those coming from sources controlled by the company itself.
  - They are mainly due to CO<sub>2</sub> emissions from thermal electricity generation and CH<sub>4</sub> emissions as diffuse emissions from natural gas distribution networks..
- Scope 2:
  - Indirect emissions due to the generation of electricity that is acquired by the company for its own consumption but is not generated by the group..
  - Are mainly due to CO<sub>2</sub> emissions associated with electricity distribution losses
- Scope 3:
  - Indirect emissions, not included in Scope 2, derived from the value chain of activities, including upstream and downstream emissions, over which the group has no direct control or influence. Within the categories defined by the GHG Protocol, those with a weight of less than 1% have been excluded, provided that the sum of all of them does not exceed 5%..
  - Are mainly due to CO<sub>2</sub> emissions in the combustion of natural gas by the final use of natural gas distributed and marketed..

Inventory coverage includes the entire corporate activity, differentiating the following Business segments

- Generation
- Electricity Distribution
- Gas Distribution
- Gas (infrastructure, supply and marketing of natural gas)
- Office

The Greenhouse Gases included in this carbon footprint calculation are:

- CO<sub>2</sub>
- CH<sub>4</sub>
- N<sub>2</sub>O
- SF<sub>6</sub>
- HFC



### Inventory Result 2018:

The aggregate result of the 2018 Greenhouse Gas Emissions Inventory is as follows:

Naturgy's 2018 GHG Emissions Inventory	
	tCO <sub>2</sub> e
<b>Scope 1</b>	<b>18,305,632</b>
<b>Scope 2</b>	<b>1,093,343</b>
<b>Scope 3</b>	<b>131,390,996</b>
1. Purchased and good services	-
2. Capital goods	-
3. Fuel and energy related activities	29,786,118
4. Upstream transportation and distribution	-
5. Waste generated in operations	-
6. Business travel	1,568
7. Employees commuting	9,985
8. Upstream leased assets	-
9. Downstream transportation and distribution	-
10. Processing of sold products	-
11. Use of sold products	100,756,160
12. End-of-life treatment of sold products	-
13. Downstream leased assets	-
14. Franchises	-
15. Investments	837,165



### Verification Statement

**verico SCE** has carried out the verification of the 2018 Greenhouse Gas Emissions Inventory, contained in the document "Carbon Footprint Report 2018", corresponding to Naturgy's corporate carbon footprint for that monitoring period, in accordance with the requirements established in standards UNE-ISO 14064 and GHG Protocol (for the definition of sectoral scopes), and other rules applicable to Naturgy's Greenhouse Gas Emissions Inventory.

The Verico SCE verification team has reached the opinion that Naturgy's 2018 Greenhouse Gas Emissions Inventory is prepared in accordance with the requirements defined in the Standard, complies with the greenhouse gas quantification methodology, and the monitored data and emissions calculation are evaluated and confirmed as substantially correct. Therefore, verico SCE hereby confirms that the reported emissions during the 2018 monitoring period amount to **150,789,971 tCO<sub>2</sub>e**.

Madrid, 26/06/2019

LUIS ROBLES OLMOS  
Lead Verifier

JOSE ANTONIO GESTO  
Verifier

VERICO SCE is a European Cooperative Society accredited by the German Accreditation Entity, DAkkS (D-VS-19003-01-00), for the verification of greenhouse gas emissions, according to ISO 14065 (translated as UNE EN ISO 14065 in Spain and DIN EN ISO 14065 in Germany) and EU Regulation No. 600/2012. Likewise, VERICO SCE is accredited for the verification of non-regulated schemes, such as EN ISO 14064-1; EN ISO 14064-2; and EN ISO 14064-3..



## Certificate

The Greenhouse Gas Emissions Inventory for the year 2018 of

### NATURGY

meets the requirements according to UNE ISO 14064-1

Verification carried out in May and June 2019 at Naturgy's Headquarters (Spain).

GHG emissions amount to:

Scope 1:	18,305,632	tCO <sub>2e</sub>
Scope 2:	1,093,343	tCO <sub>2e</sub>
Scope 3:	131,390,996	tCO <sub>2e</sub>

### Total Emissions 2018:

**150,789,971 tCO<sub>2e</sub>**

Certificate N° LK-2019-08-HC\_NATURGY



Langenbach, 27<sup>th</sup> June 2019 *J. Javier Vallejo Drehs.*  
**Javier VALLEJO DREHS**  
verico SCE, Hagenastrasse 7, 85416 Langenbach, Alemania

verico SCE is accredited by DAkkS according to DIN EN ISO 14065: 2013.  
Accreditation applies to the scopes detailed in the  
certified D-VS-19003-01-.

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