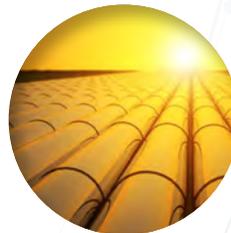


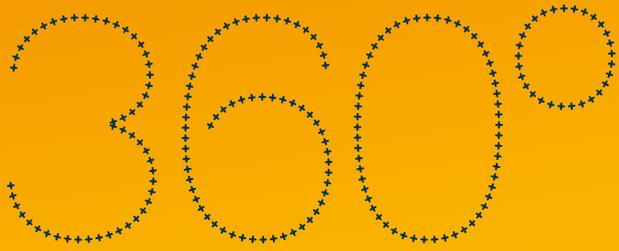
Carbon  
Footprint  
Report 2016

gasNatural   
fenosa

Hecho y dicho



360°

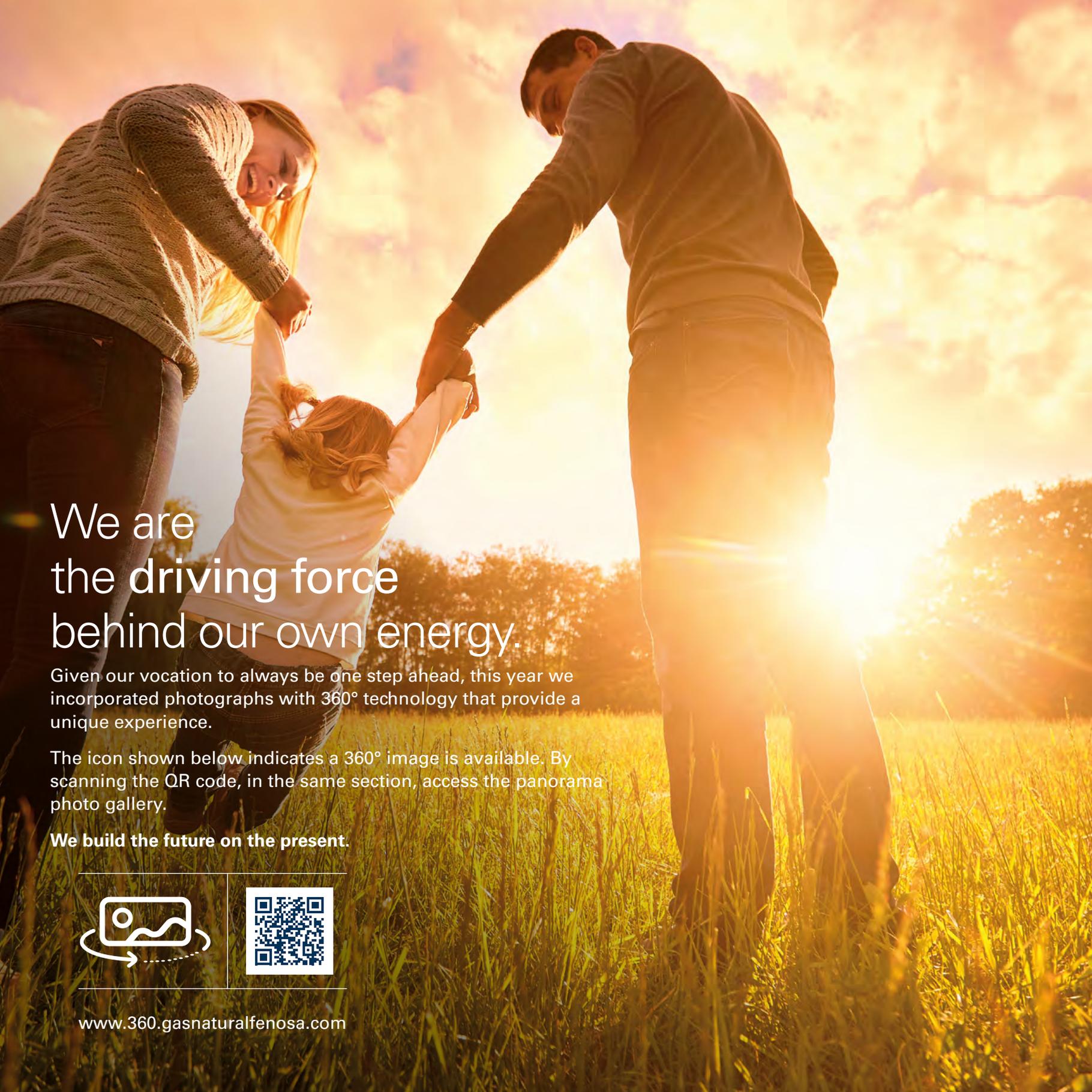
The logo consists of the numbers '360' followed by a degree symbol, all formed by a series of small, dark blue stars arranged in a circular pattern.

This journey begins every time  
with renewed energies and ideas  
to improve, innovate and evolve

Gas Natural Fenosa 360° is a journey through each chapter of the Carbon Footprint Report via a global vision of the company, without omissions or gaps. Just as energy is everywhere, the values of Gas Natural Fenosa are in each facet of its activity.

A 360° tour implies a starting point and an arrival, but also a new beginning every time. Our main effort aims to understand the needs of our customers in depth, and this would not be possible without the commitment and great work of each person in the company.





# We are the driving force behind our own energy.

Given our vocation to always be one step ahead, this year we incorporated photographs with 360° technology that provide a unique experience.

The icon shown below indicates a 360° image is available. By scanning the QR code, in the same section, access the panorama photo gallery.

**We build the future on the present.**



[www.360.gasnaturalfenosa.com](http://www.360.gasnaturalfenosa.com)

# Carbon Footprint Report 2016

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## Letter from the CEO

I am pleased to present the eighth Gas Natural Fenosa Carbon Footprint Report.

At the end of 2016, the Task Force on Climate-Related Financial Disclosures, an initiative by the Financial Stability Board, published its first report of recommendations on standards for greater transparency in climate information.

Our company welcomes this initiative to establish the starting point for regulation in this field, and we are pleased to have anticipated this information to our stakeholders for years.

Climate change is a global and long-term challenge if we do not want it to become a serious problem. This scope makes it difficult to assess the magnitude and chronology of its effects, blurring the veritable risk to which we are exposed. Thus, the current situation could lead to mistakes in decision making, postponing important and urgent reflections, something that we must avoid.

Fortunately, the implications for the energy sector of greenhouse gas reduction policies, the evolution of renewable technologies, the development of energy efficiency and the important role of natural gas in this new energy paradigm clearly indicate the route to take.

However, the challenge for our sector will be to match the rhythm of this development, and it is precisely at this speed of transition that the risk for the global economy lies. Adequate time is essential, that does not jeopardise the security of the system or the competitiveness of our economy and yet allows us to fulfil the necessary commitments. Otherwise, abrupt last-minute measures could generate traumatic effects for companies, leaving them with no room to adapt their business models.

In order to face a transition to a low carbon model, it is important to have clear, realistic and progressive objectives that help mobilise investments.



This transition must be rational, balanced and consist of a long-term vision, taking into account four fundamental points: emission reduction, cost efficiency, security of supply and quality of service, while maintaining the competitiveness of our economy and financial sustainability.

2016 was a positive year for CO<sub>2</sub> emissions in our Company, a well-balanced power generation mix took advantage of the favorable weather conditions for the hydroelectric and wind power generation allowing us to reduce our direct emissions by 14% compared to the previous year. Gas Natural Fenosa is committed to the gas-renewable energy relationship in electricity generation, which will provide us with a flexible, safe, economically viable and environmentally friendly system. Thus, we have committed ourselves to two ambitious emission reduction goals for 2025, aligned with the criteria set by the scientific community regarding the admissible emission levels in our sector by that time.

The participation of our company has once again been recognized by the main international sustainability indicators, such as CDP or DJSI, which place Gas Natural Fenosa among the leading companies worldwide in the fight against climate change. Our lines of action in the Climate and Air Axis are based on: reducing emissions in our operations, improving energy efficiency, developing sustainable products and services for our customers, integrating the climate change variable in our internal management and excellence in information transparency.

Please, read on for the comprehensive Greenhouse Gas (GHG) emissions inventory of our business, along with our perspective of climate change and the tasks we have carried out to reduce our carbon footprint.

**CEO.**

**Mr. Rafael Villaseca Marco.**

## Transition indicators

Transition risks: share of generation from fossil fuels.

Installed electric power 2016 (MW)

Free of emissions	4,005 (26%)
Emissions	11,414 (74%)
Gas	9,036 (59%)
Coal	2,010 (13%)
Fuel	310 (2%)
Cogeneration	58 (0.4%)
<b>Total Gas Natural Fenosa</b>	<b>15,419</b>

## Physical risks: water stress

By collecting water for cooling in thermal plants

97% percent of installed power in thermal power plants is not impacted either by the availability of the resource or thanks to measures taken to capture sea water or to use recycled water

The remaining 3% is in areas of water stress, although these plants use technology requiring a low amount of water for operation

## Transition opportunities

### Investment in renewable energies

Net CAPEX for 2016-2020. (€ billions)

	4
Renewable energies under construction / authorized (MW)	
Spain*	61
Wind. Cupo canario**	61
International	475
Photovoltaic Brazil**	60
Wind power Australia	91
Wind power Chile	204
Photovoltaic Chile	120

\* Awarded 667 MW of renewable capacity in the auction of May 2017 in Spain

\*\* Under construction

### New business models

Opportunities for growth in distributed generation, smart grids, and smart applications

Technological innovation will boost decentralized energy, creating new business models and services for energy companies that will strengthen customer relations

Net CAPEX for 2016-2020. New Business Models. (€ billions)

0.7

### Governance and Strategy

Emission reduction targets (absolute and specific) according to the Sectoral Decarbonization Approach SDA\_Tool.v8 of the Science Based Targets Initiative

Integration of climate risk in the overall company risk assessment.

Performance targets in energy efficiency, transferable to emission reduction, and to the management team



GPG, the international generation subsidiary of Gas Natural Fenosa, has a portfolio of projects focused mainly on renewable energies that aims to incorporate 2,700 MW by 2020



Using 360° technology, virtually visit the facilities of the Canredondo wind power farm (Guadalajara).





360°

## Reduction

Reduce emissions and improve energy efficiency.

Enhancing the gas - renewable binomial, reducing our fugitive emissions, increasing energy efficiency in both our own operations and for our customers.



Carbon Footprint  
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## Gas Natural Fenosa and climate change

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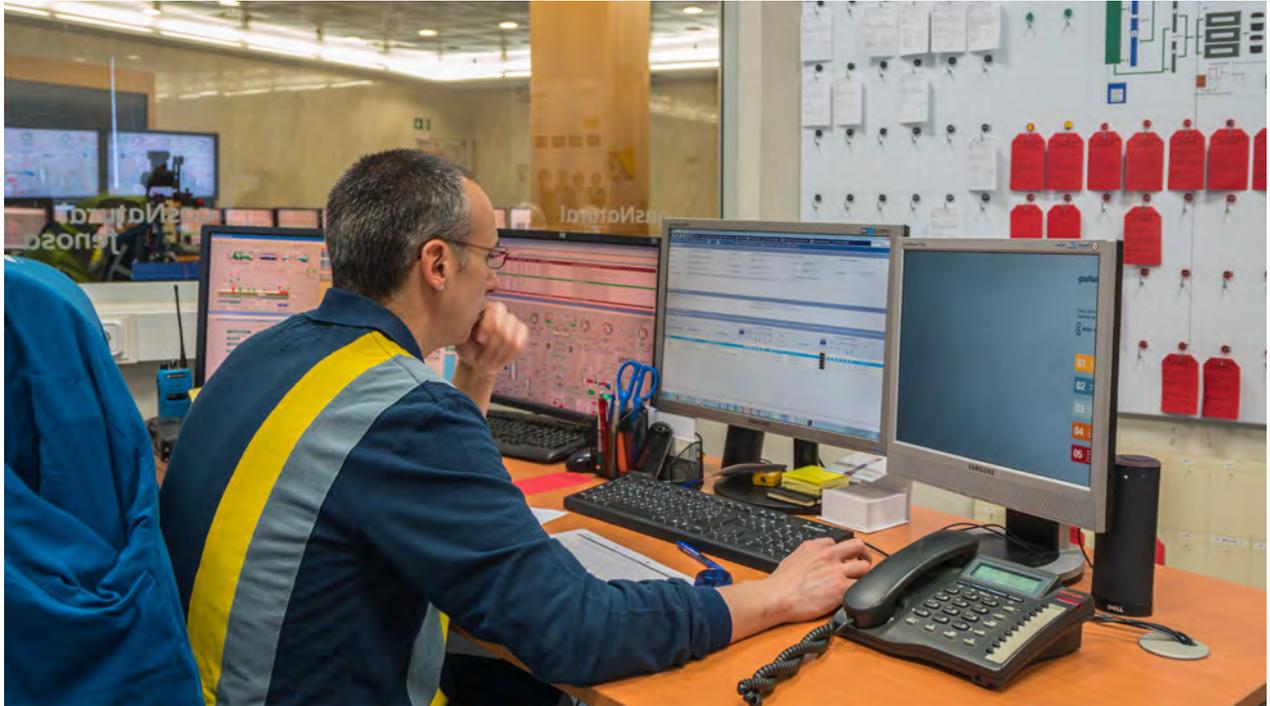
Risks and opportunities. Page 16

The price of CO<sub>2</sub>, position of Gas Natural Fenosa.  
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Using 360° technology, visit the facilities of the combined cycle power plant of Barcelona Port.



## Profile

Gas Natural Fenosa is the largest integrated gas and electricity company in Spain and Latin America, with around 22 million customers in more than 30 countries around the world. Its main objective is to meet society's energy needs to maximise its development and well-being, making innovation, energy efficiency and sustainability the key pillars of its business model.

The business model is supported by four fundamental strengths:

- > To be a "best in our class" energy sales and distribution operator.

- > To have a pool of electricity generation assets that enables us to manage the available natural resources competitively.
- > To have a solid international positioning with extensive prospects for development.
- > To have a committed workforce with good business experience.

Gas Natural Fenosa's business model has two main pillars: gas and electricity, which account for more than 97% of its ebitda. On the one hand, Gas Natural Fenosa

operates throughout the gas value chain, from exploration and supply to distribution and commercialization. On the other hand, the company operates in the generation, distribution and commercialization of electricity. These activities are joined by other business areas: trading in the gas and electricity markets, operation and maintenance of facilities services, engineering services and construction of energy facilities, operation of the Savmore coal mine and gas storage at the Marshes (Marismas) project.

# Organisation of climate change

Sustainability and climate change are part of the corporate strategy, in the objectives of each area and business. The structure of the governing body on climate change is shown on the following diagram:



## Positioning

At Gas Natural Fenosa, we believe that climate change is a global environmental challenge as well as an important vector of economic growth. We share the vision that advocates an orderly and efficient transition of our economy towards a low-carbon paradigm, while remaining aware of the opportunity created by the fact that our industry must comply with this premise, which is reflected in the guiding principle of our corporate responsibility policy:

"Help to mitigate and adapt to climate change by using renewable and low-carbon energies, promoting energy saving and efficiency, applying new technologies". Gas Natural Fenosa's position on Climate Change is based on this principle.

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Corporate Responsibility  
Policy

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Position on climate change: the "LESS  
GHG" initiative

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Risks and opportunities and strategic vision

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Environmental Strategy

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Climate and Air Axis

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### Position on Climate Change

Gas Natural Fenosa's position on climate change is reflected in these eight principles:

Maintain energy strategies and policies consistent with security of supply, competitiveness and environmental sustainability.

Establish quantified emissions reduction targets for greenhouse gases.

Level the balance of social, environmental and economic vectors in order to contribute to a low-carbon economy.

Optimize and promote energy savings and efficiency both in our facilities and those of our clients as the most effective contribution in the fight against global warming.

Be active in carbon markets and support their globalization so that trends in energy production and consumption are sustainable.

Guide the company's actions to raise awareness of Society of the global solution of climate change.

Establish specific measures that contribute to achieving global, equitable and sustainable emissions reduction commitments.

Promote the implementation of greenhouse gas emission reduction projects on a global scale, with particular attention to developing countries.



We share the vision of an orderly and efficient transition of our economy towards a low-carbon paradigm

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# Strategy and Lines of Action

Gas Natural Fenosa’s position and strategy on climate change is based on positioning and on our 2016-2020 Strategic Plan, focusing on:

- > Adding value to carbon management.
- > Identifying options and solutions to

meet our obligation to comply with the restrictions on greenhouse gas emissions.

- > Minimising risks derived from future restrictions on greenhouse gas emissions in the light of political and legislative developments.
- > Developing business opportunities created by the need to mitigate global warming.

Due to all of the above, our climate change strategy includes the promotion and development of natural gas as the best fossil fuel; the commitment to renewable energies and energy efficiency; support for carbon markets; technological innovation combined with communication and awareness.

## GHG Mitigation Strategy and 2016-2020 Strategic Plan



## Strategy to minimise GHG vs Strategic Vision 2016-2020 vs Environmental strategy 2016-2020

			Environmental strategy 2016-2020	
			Crosscutting axes	
Strategy to minimise GHG emissions line of action	Actions considered in the strategic vision 2016-2020	Communication and training axis	Integrated management axis (Innovation)	
Natural Gas	Electricity generation	Gasification in LatAm (Chile, Mexico, Colombia and Peru).		
	Residential / commercial	Growth in Spain.		
	Tertiary	Development of midstream investments.		
	Transport	500-1000MW projects in combined cycles.		
Renewable resources management	Renewable energies	Development of 2,500 MW in renewable energies in Spain and international		
	Sinks			
Energy savings and efficiency	Installations	Extension of the ESE model to Latin America		
	End Use			
Management	CO <sub>2</sub> price	Development of renewable energies and gas		
	Risks and opportunities			
	Market mechanisms			
	Compensations			
Innovation	Development of sustainable products and services			
	Technology solutions	Digitalisation and innovation. Distributed generation.		
Transparency	Measurement, control and reporting	Smart grids.		
	Interaction with stakeholders			



## Risks and opportunities

The Gas Natural Fenosa Corporate Risk Map includes the risks and opportunities associated with climate change. Once these have been quantified they can be integrated into the corporate strategy and goals can be established to minimise risks and maximise opportunities.

### Types of risks and opportunities

- > Physical parameters: rising temperatures, changes in rainfall, rising sea levels and extreme weather phenomena.
- > Market: such as the existence of CO<sub>2</sub> markets and the development of other markets with similar characteristics.
- > Regulatory: development of energy policies to mitigate climate change that involve driving renewable energies and promotion of energy efficiency.
- > Risk and opportunities concerning reputation.



### Impact of the categories on the risk map

Category	Factors
Ambient temperature	Demand for natural gas. Demand for electricity. Performance of combined cycles.
Rainfall	Generation dispatch. Wholesale electricity price.
Rising sea level	Floods. Production loss.
Extreme weather phenomena	Variation in frequency and intensity of extreme weather phenomena.
CO <sub>2</sub> Markets	Commercial scheme of emissions rights 2013-2020. European Commission Regulation Introduction of CO <sub>2</sub> capturing technology. Wholesale electricity price. Thermal gap.
Renewable energies	Impact on generation dispatch. Sensitivity of the wholesale electricity price market.
Energy efficiency	Demand for natural gas and electricity. Penetration of the electric car: increased demand for electricity and greater use of installed power.
Company reputation	Impact on the company's reputation.

## The price of CO<sub>2</sub>, position of Gas Natural Fenosa

The European Emission Trading System (EU ETS) must be one of the main reasons for compliance with the European Climate and Energy Framework 2030. The development of renewable energies is an important part of the CO<sub>2</sub> emission reduction process. Renewable energies must be developed based on the

market (with a CO<sub>2</sub> price appropriate to the emission reduction objective) and without subsidies that distort the market. An effective price of CO<sub>2</sub> is required to achieve an efficient transition towards a low-carbon economy.

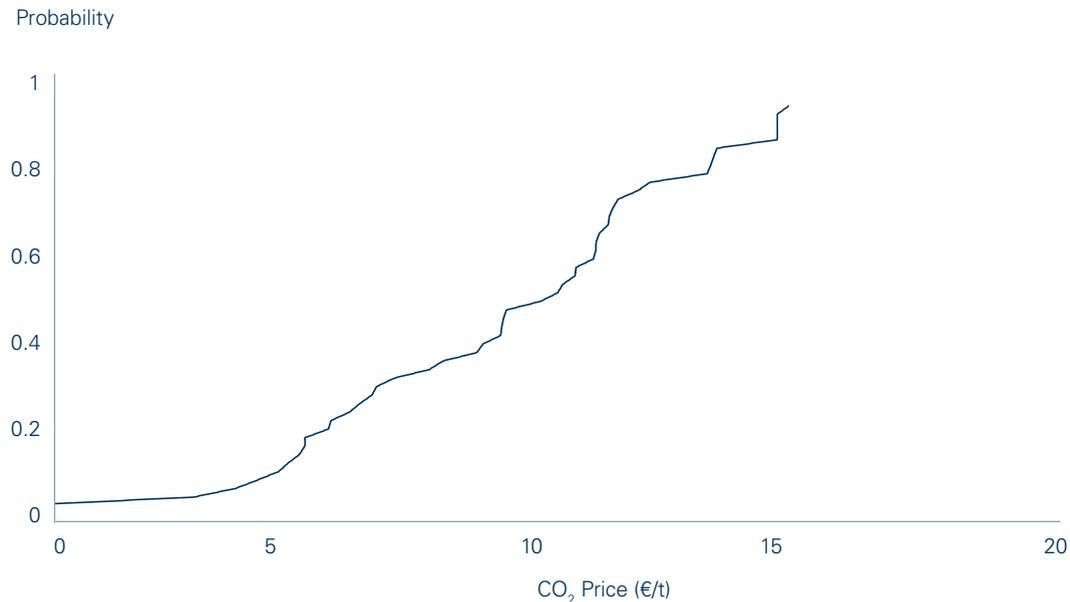
To assess the economic impact that CO<sub>2</sub> price would have on its activities, Gas Natural Fenosa has developed a stochastic model with a Monte Carlo simulation to determine the optimal streamlining in the EU to reach the emission reduction objectives in 2030. The streamlining cost of each mitigation alternative is calculated as its Net Present Value divided by the emission reduction reached.

This simulation is carried out every year to reach a CO<sub>2</sub> price in 2030 that reflects technological development, fuel prices, electricity demand, electricity price, etc.

In the last simulation conducted, we worked with 4 demand scenarios for 2030.

- > The mean estimate price for these 2030 scenarios ranges between 10-15 €/tCO<sub>2</sub>.

CO<sub>2</sub> price probability function (2030)





With 360° technology, visit the facilities of the Mariné service station, Santa Perpetua de Moguda (Barcelona).



## Objectives

These targets have been established in the medium and long term to comply with the scientific criteria to prevent a temperature increase of above 2 °C.

Objectives 1 and 2 have been calculated according to SBTi (Science Based Targets Initiative) tool v8 .

This methodology defines the reduction levels required by type of activity and for a given year based on:

- > The global carbon budget for the 2 ° C target (1010 GtCO<sub>2</sub>)
- > Emission scenario:
  - The IPCC 5AR (R.C.P 2.6)
  - IEA 2DS (ETP 2016)

- > Allocation of sectoral emissions

The objectives may be revised with the publication of future strategic plans.



**Target 1:** Reduce scope 1 and 2 absolute emissions compared to the base year 2012  
 Goal 1.1. Reduce by 26% by 2025 (Aligned with SBTi v8 tool)  
 Goal 1.2. Reduce by 17.8% the average emissions of the period 2013-2030

> **Goal 1.1. Follow-up 2016:**

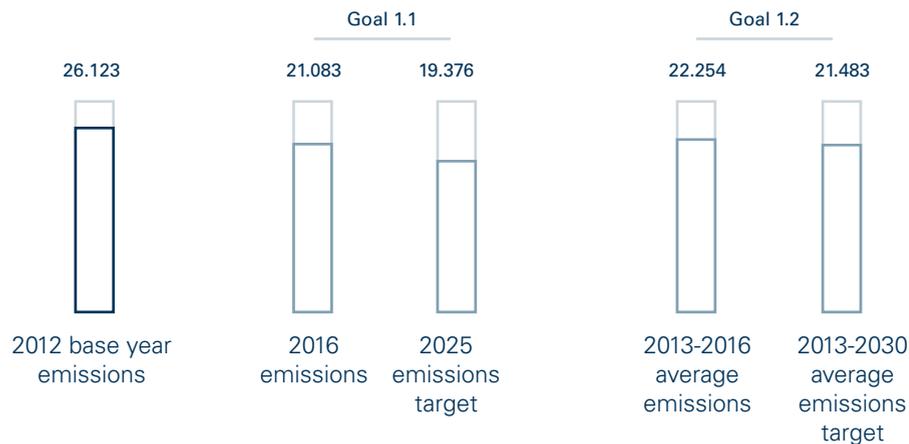
- 2016 Emissions: 21.083 (19.3% decrease)
- Objective progress: 4 years / 13 years = 31 %
- Objective fulfilment progress:  $(26.123 - 21.083) \text{ MtCO}_2 \text{ eq} / (26.123 - 19.376) \text{ MtCO}_2 \text{ eq} = 75\%$

The objective fulfilment progress is much greater than the objective progress since the year 2016 was a very hydro year in Spain.

> **Goal 2.1. Follow-up 2016:**

In order to avoid distortions due to annual rainfall the average emissions of the period 2013-2016 are monitored.

- 2013-2016 Average Emissions: 22.254 MtCO<sub>2</sub> eq (14.8% decrease)
- Objective progress: 4 years / 13 years = 31 %
- Objective fulfilment progress:  $(26.123 - 22.254) \text{ MtCO}_2 \text{ eq} / (26.123 - 21.483) \text{ MtCO}_2 \text{ eq} = 83\%$



> **Remarks and objective calculation bases:**

- Applicable to Scopes 1 and 2.
- Applicable to all GHG, not just CO<sub>2</sub>.
- Applicable to all countries and sectors, (not just to EU guideline sectors).
- Target calculated using the SBTi tool v8.



**Target 2:** Reduce the specific CO<sub>2</sub> emissions from electricity generation compared to the base year 2012

Goal 2.1: Reduce by 33% by 2025 (aligned with SBTi v8 tool)

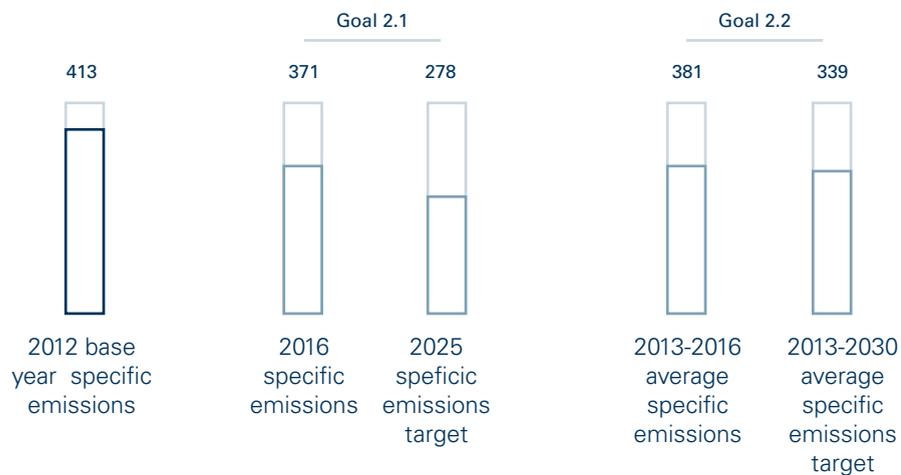
Goal 2.2: Reduce by 17.8% the average specific emissions of the period 2013-2030

> **Goal 2.1. Follow-up 2016:**

- 2016 Emissions: 371 tCO<sub>2</sub>/GWh (10.2 % decrease)
- Objective progress: 4 years / 13 years = 31 %
- Objective fulfilment progress:  $(413 - 371) \text{ tCO}_2/\text{GWh} / (413 - 278) \text{ tCO}_2/\text{GWh} = 31 \%$

> **Goal 2.2. Follow-up 2016:**

- 2013 – 2016 average specific emissions: 381 tCO<sub>2</sub>/GWh (7.8 % decrease)
- Objective progress: 4 years / 13 years = 31 %
- Objective fulfilment progress:  $(413 - 381) \text{ tCO}_2/\text{GWh} / (413 - 339) \text{ tCO}_2/\text{GWh} = 43 \%$



> **Remarks and objective calculation bases:**

- This relative objective is set only for CO<sub>2</sub> from electricity generation which accounts for approximately 90% of Gas Natural Fenosa emissions. Electricity generation in Chile is excluded.
- Target calculated using the SBTi tool v8.



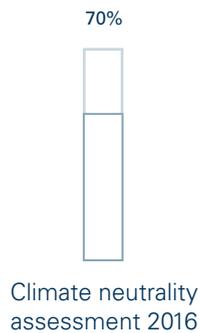
### Target 3: Reach carbon neutrality in 2050 (Scopes 1+2+3)

#### > Follow-up 2016:

- Total GHG emissions (Scopes 1+2+3) 2016: 159.2 MtCO<sub>2</sub>-eq
- Total prevented GHG emissions (Scopes 1+2+3) 2015: 111.1 MtCO<sub>2</sub>-eq.
- Objective fulfilment progress: 69.8%.

#### > Fulfilment assessment:

The current fulfilment level (70%) has increased by about 2% over the previous year (68%), indicating that the Company is on track to achieve climate neutrality by 2050.



Recalculated Historical Series

Year	Neutrality Balance (A1+A2+A3)
2015	68%
2016	70%

#### > Remarks and objective calculation bases:

- Applicable to Scopes 1, 2 and 3.
- Applicable to all GHG, not just CO<sub>2</sub>.
- Applicable to all countries and sectors.
- The decreases are calculated according to the UNFCCC CDM projects.

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For more information regarding the calculation of the indicator, see "Emission Neutrality Assessment".

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360°

## Innovation

Develop sustainable products and services for our clients.

Design and market new sustainable products, develop new technologies that contribute to the mitigation of climate change and promote projects in sustainable mobility.



Carbon Footprint  
Report 2016

## Greenhouse Gas Inventory

Operational limits, scope and methodology.  
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The 2016 inventory at a glance. Page 26

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## Operational Limits

The GHG inventory of Gas Natural SDG, S.A. includes all the businesses and activities according to the criteria of financial consolidation, according to the shareholding percentages defined by the Financial Management, grouped by segments.

### Electricity Generation process

Includes electricity generation in Chile, Costa Rica, Spain, Kenya, Mexico, Puerto Rico and the Dominican Republic with combined cycle thermal power stations and combined generation of natural gas, carbon and nuclear energy, hydraulic power stations and wind and solar power plants.

It includes the following companies:

- > Gas Natural Fenosa Generación, S.L.U. (Electrical power stations of the Ordinary Regime in Spain).
- > Gas Natural Fenosa Renovables, S.L.U. (Electrical power stations of the Special Regime in Spain).
- > Global Power Generation, S.A.U. (Electrical generation facilities and plants in Chile, Costa Rica, Kenya, Mexico, Panama, Puerto Rico and Dominican Republic).
- > Empresa Eléctrica de Magallanes, S.A. and Gasco, S.A. (Electricity generation in Chile).

### Gas distribution process

It includes the regulated gas transportation and distribution business in Argentina, Brazil, Chile, Colombia, Spain, Italy, Mexico and Peru.

It includes the following companies:

- > Holding Negocios Regulados Gas Natural, S.A. (Gas transport and distribution in Spain)
- > Nedgia, S.p.A. (Gas distribution in Italy).
- > Gas Natural Distribución Latinoamérica, S.A. (gas distribution in Argentina, Brazil, Colombia, Mexico and Peru).
- > Metrogas, S.A.

### Gas process

Includes activity derived from the gas infrastructure, the supply and commercialisation activity and Unión Fenosa Gas.

The infrastructures business includes gas exploration and production from extraction until 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 includes operation of the Maghreb-Europe gas pipe.

The Supply and Commercialisation business includes supply and commercialisation of natural gas to wholesale and retail customers from

the deregulated Spanish market, as well as supplies of products and services related to retail sales. Sales of natural gas to customers outside Spain are also included.

It includes the following companies:

- > E.M.PL.
- > Petroleum Oil & Gas España, S.A.
- > Metragaz, S.A.
- > Gas Natural Almacенamientos Andalucía, S.A.
- > Gas Natural Aprovisionamiento SDG, S.A.
- > Sagane, S.A.
- > Unión Fenosa Gas, S.A.
- > Gas Natural Comercializadora SDG, S.A.
- > Gas Natural Servicios SDG, S.A.
- > Gas Natural S.U.R., S.A.
- > Gas Natural Fenosa LNG, S.L (Commercialisation of liquefied natural gas worldwide).
- > Gas Natural Fenosa Internacional, S.A. (Commercialisation of natural gas in Germany, Argentina, Belgium, Brazil, Chile, Colombia, France, Holland, Italy, Luxembourg, Mexico and Puerto Rico).
- > Medgaz, S.A.

### Electricity distribution process

It includes the regulated electrical power transportation and distribution business in Argentina, Chile, Colombia, Spain, Panama and Moldova.

It includes the following companies:

- > Unión Fenosa Distribución, S.A. (Electricity transport and distribution).
- > Gas Natural Fenosa Internacional, S.A. (Transportation and distribution of electricity in Argentina, Chile, Colombia, Panama and Moldova).

### Mining process

Includes operation of a coal field owned by the company Kangra Coal (Proprietary) Ltd, in South Africa

- > Unión Fenosa Minería, S.A. (Spain and South Africa)

### Offices process

Includes all offices linked to the activities of Gas Natural SDG, S.A.

- > Gas Natural SDG, S.A. (Work centres in all the countries where we are located)

### Emissions scope

The scopes used to classify the GHG emissions considered in the inventory are given below:

- > **Scope 1** Direct GHG emissions, understood as those coming from sources that are controlled by the company itself, emissions from electricity generation plants, gas and electricity distribution and transport, LNG transport, fuel consumed extracting coal from mines, from fleet vehicles and from the combustion of fuels in office air-conditioning.
- > **Scope 2.** Indirect emissions from electricity consumed, discounting double accounting of countries where the company generates electricity.
- > **Scope 3.** Indirect emissions from each of the life cycle systems that the company cannot control or that are not directly related to the company's own activities. Nomenclature used, according to the Value Chain indications (Scope 3) Accounting and Reporting Standard of the GHG Protocol.
- > IPCC 2006 Guidelines for National GHG Inventories (hereinafter IPCC 2006 GHG).
- > UNE-ISO 14064-1 standard. Greenhouse Gases. Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.
- > UNE-ISO 14064-2 standard. Greenhouse Gases. Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.
- > UNE-ISO 14064-3 standard. Greenhouse Gases. Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.
- > UNE-EN-ISO 14040 and ENE-EN-ISO 14044 standards on life cycle analysis.
- > Other documentary sources and reference bibliographies.

### Methodology

In order to quantify direct and indirect emissions, we have developed the internal procedure PE.02770-GN: "Quantification and Report of GHG Emissions and Removals" and a calculation tool based on the application of the following standards and methodologies:

- > The Greenhouse Gas Protocol. A corporate accounting and reporting standard
- > The Greenhouse Gas Protocol. Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

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The perimeter used in the Carbon Footprint Report corresponds to the financial consolidation perimeter of Gas Natural SDG, S.A., which is higher than that used in other global reports (Annual or Corporate Responsibility Reports) where climate indicators are reported. This report includes the following activities: nuclear, offices and vehicle fleets

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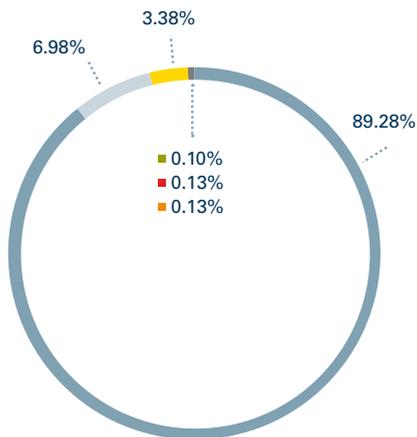
# The 2016 inventory at a glance.

## Scope 1 emissions

tCO <sub>2</sub> eq	<b>19,624,525</b>
tCO <sub>2</sub> eq/M€ ebitda	<b>3,949</b>

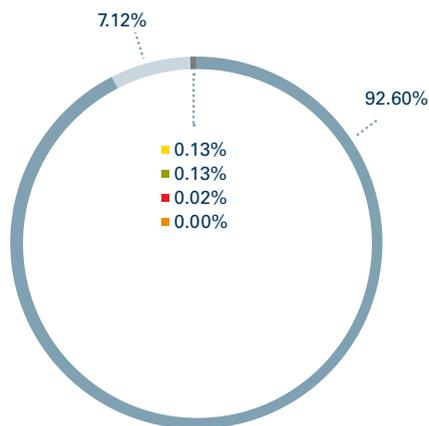
Mainly due to CO<sub>2</sub> emissions in countries with thermal electricity generation.

By segments



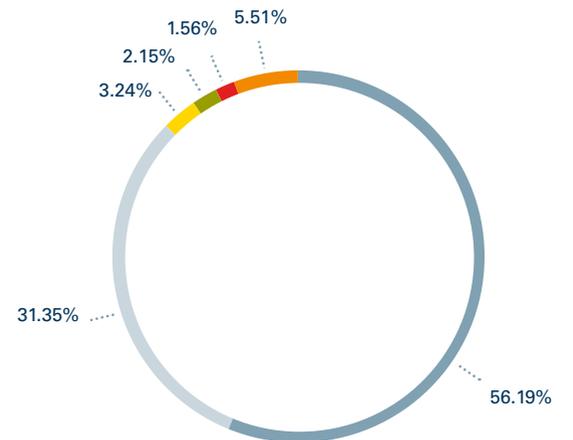
- Generation.
- Gas distribution.
- Gas.
- Offices.
- Mining.
- Electricity distribution.

By type of GHG



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

By countries



- Spain.
- Mexico.
- Dominican Republic.
- International Maritime Transport.
- Chile.
- All others.

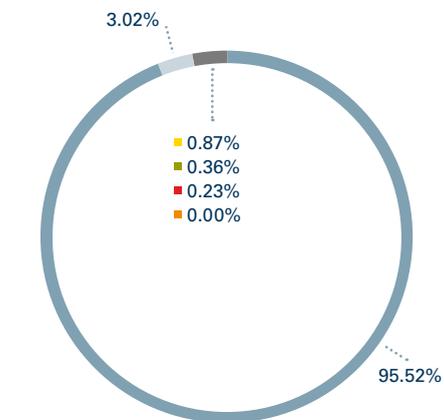
## Scope 2 emissions

tCO <sub>2</sub> eq	<b>1,458,120</b>
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tCO <sub>2</sub> eq/M€ ebitda	<b>293</b>
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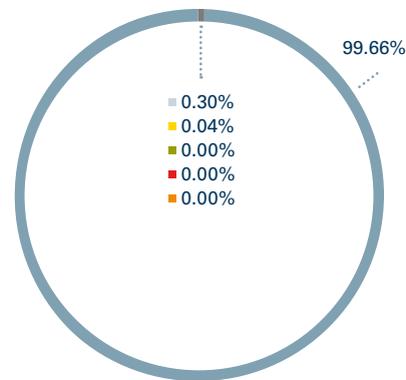
These are mainly due to CO<sub>2</sub> emissions associated with electricity distribution losses.

By segments



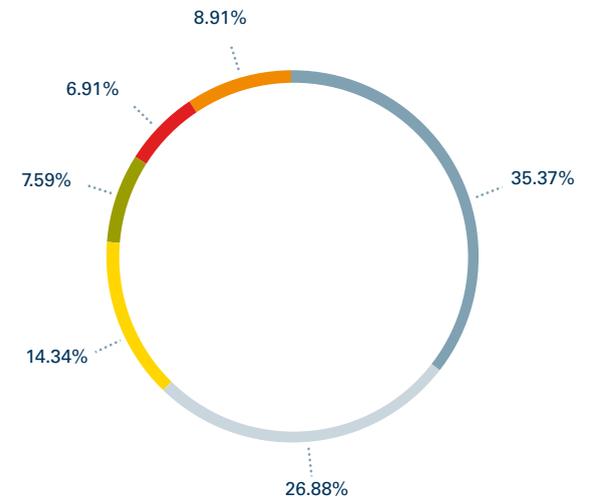
- Electricity distribution.
- Mining.
- Gas distribution.
- Offices.
- Gas.
- Generation.

By type of GHG



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

By countries



- Chile.
- Colombia.
- Panama.
- Moldova.
- Spain.
- All others.

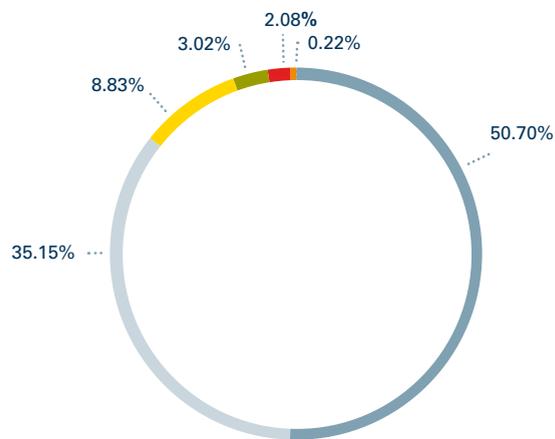
### Scope 3 emissions

tCO<sub>2</sub>eq **138,095,082**

tCO<sub>2</sub>eq/M€ ebitda **27,786**

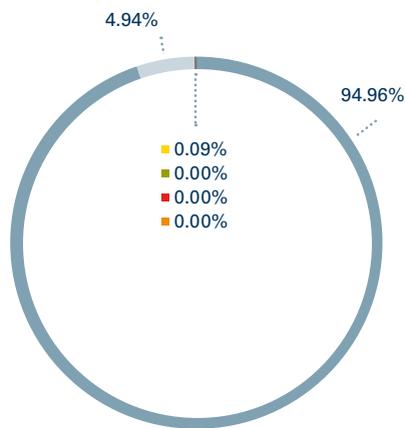
These are mainly due to CO<sub>2</sub> emissions in natural gas consumption for distributed and market use

By segments



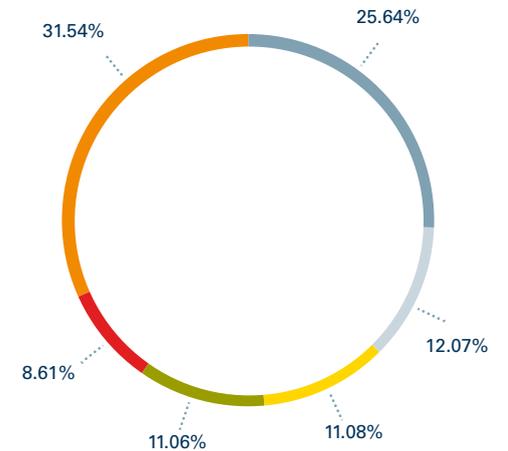
- Gas.
- Gas distribution.
- Electricity distribution.
- Mining.
- Generation.
- Offices.

By type of GHG



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

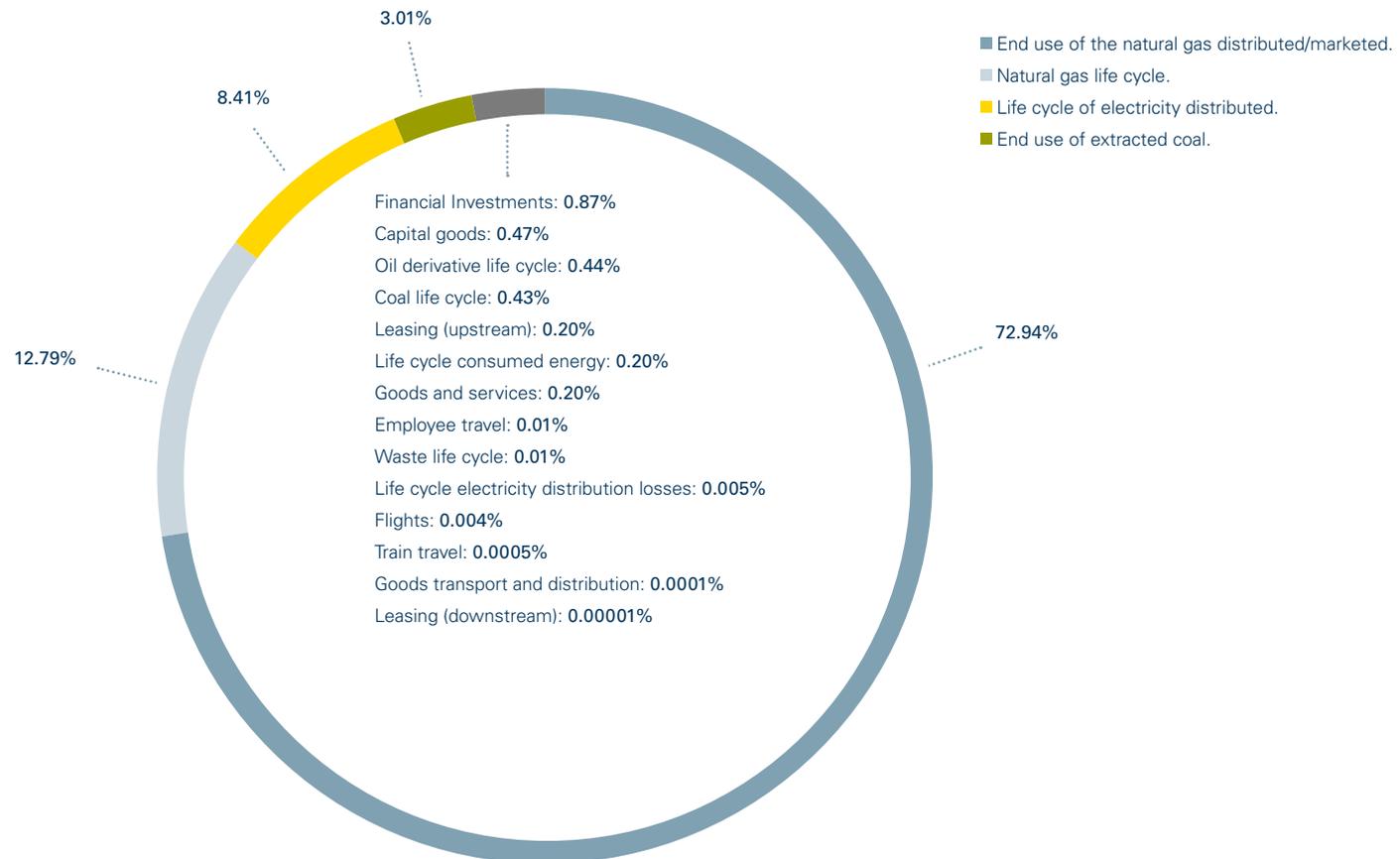
By countries



- Spain.
- Chile.
- Brazil.
- Argentina.
- France.
- All others.

## Scope 3 emissions

### By categories





Using 360° technology you can visit the facilities of the combined cycle power plant of Barcelona Port.



## Evaluation and reduction of Uncertainty

**The uncertainty associated with the report on Scope 1 emissions for 2016 is 6.6%.**

There is an increase in uncertainty with respect to the previous year because the emissions of which partial uncertainty is very low, i.e. generation emissions with coal and gas, have been significantly reduced, gaining weight in global value emissions with higher partial uncertainties, such as natural gas network fugitives.

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

To minimise the uncertainty of the activity data all the emission sources have environmental and quality management systems in accordance with the ISO 14001:2004 and ISO 9001:2000 standards. Official sources are always used to minimise uncertainty related to the emission factors and, by default, the core values recognised in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

The following is an analysis of the development of emissions 2015-2016 for Gas Natural Fenosa in each of its business segments.



## 2015-2016 Emissions assessment

Scope 1 emissions fell by 3.15 MtCO<sub>2</sub>-eq, a reduction of 14% compared to the previous year.

### Electricity Generation

Emissions from electricity generation decreased by 3,118 MtCO<sub>2</sub>-eq, mainly due to an increase of hydraulic and wind power in Spain.

### Gas distribution

Emissions in the Gas distribution process have decreased by 115 ktCO<sub>2</sub>-eq, due to divestment in Gasco's distribution networks in Chile.

### Electricity distribution

Emissions in the Electricity Distribution process have decreased by 1 ktCO<sub>2</sub>-eq, mainly due to a lower SF6 emission level in Spain and Panama.

### Offices

Office emissions decreased by 8 ktCO<sub>2</sub>-eq, mainly due to energy efficiency schemes.

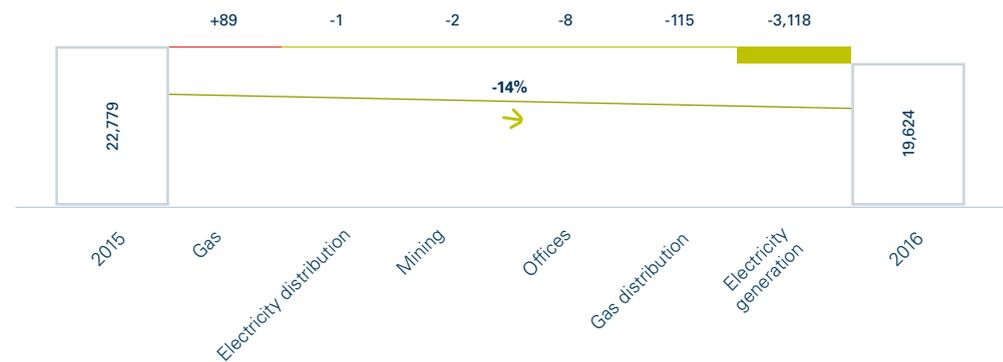
### Gas

Emissions in the Gas supply, infrastructures and marketing process have increased by 89 ktCO<sub>2</sub>-eq, due to increased international maritime transport activity.

### Mining

Emissions in the Mining process have decreased by 2 ktCO<sub>2</sub>-eq, due to a decrease in the use of fossil fuels.

In ktCO<sub>2</sub>eq





## 2015-2016 Emissions assessment

Scope 2 emissions have increased by 128 ktCO<sub>2</sub>-eq, mainly due to a decrease in electricity production in Spain which has led to an increase in the emissions due to losses in the transport and distribution of the electricity not generated at our facilities.

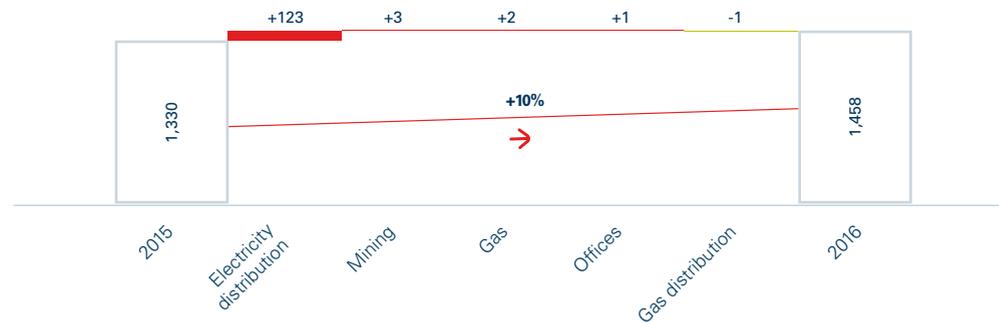
### Electricity distribution

Scope 2 emissions have increased by 123 ktCO<sub>2</sub>-eq, mainly due to a decrease in electricity production in Spain which has led to an increase in the emissions due to losses in the transport and distribution of the electricity not generated at our facilities.

### Other processes

The variations are mainly due to changes in the electricity national emissions factors.

In ktCO<sub>2</sub>eq





## 2015-2016 Emissions assessment

Scope 3 emissions have increased by 3.168 ktCO<sub>2</sub>-eq, an increase of 2% compared to the previous year. Due to the increase in natural gas marketed.

### Gas distribution

The reduction of 2.340 MCO<sub>2</sub>-eq is due to divestment in Gasco's distribution networks in Chile.

### Electricity distribution

The increase of 471 KtCO<sub>2</sub>eq is determined by a greater amount of electrical power transported and distributed that has not been generated at our facilities.

### Generation

The decrease of 299 ktCO<sub>2</sub>eq is due to decreased use of fossil fuels in electricity generation in Spain due to increased hydraulic and wind power generation which reduces the emissions of the life cycle of fossil fuels.

### Offices

The increase of 471 ktCO<sub>2</sub>eq is due to the incorporation into our inventory of the emissions of our suppliers that do not generate power.

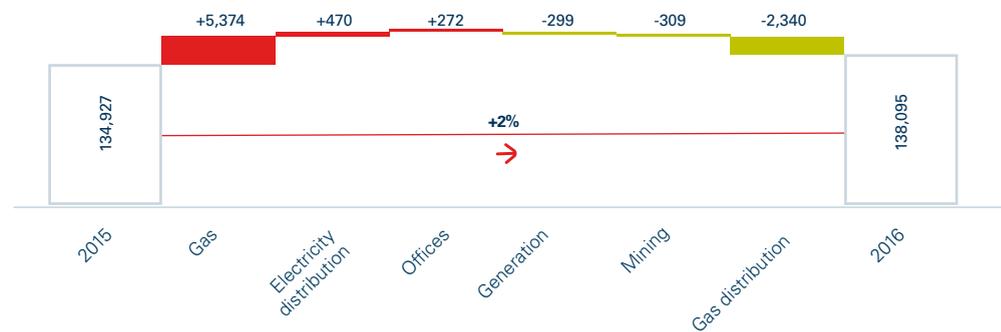
### Gas

The increase of 5.374 MtCO<sub>2</sub>eq is mainly due to the increase in natural gas marketed for the end use thereof by our clients.

### Mining

The fall of 309 ktCO<sub>2</sub>eq is due to the lower production level of the Kangra mine, which has caused emissions to drop as a result of the end use of this extracted fuel.

In ktCO<sub>2</sub>eq





# 360°

## Management

Integrate internal management of climate change.

Implement tools for the management of risks and climate opportunities, reinforce the integration of the price of carbon in the company's key decisions and support the creation of the mechanisms included in article 6 of the Paris Agreement.



Carbon Footprint  
Report **2016**

Neutrality  
assessment

## Neutrality assessment

Gas Natural Fenosa has set a target of neutral impact on climate change by 2050.

For this purpose, this year we start measuring our "climate neutrality assessment" where we will state the ratio between our emissions (direct and indirect) and the emissions prevented by our assets, products and services, due to the displacement of other emitters.

This assessment, although dependent on the annual variability that characterises our business, will set a long-term trend that will indicate that we are on the right track to our global climate neutrality objective established in the Paris Agreement.

The criteria to quantify prevented emissions are as follows:

- During the reporting period, the projects must produce quantifiable GHG and/or fuel/energy reductions with respect to a reference baseline.
- The baseline is defined on a case-by-case basis.
- The emissions prevented are calculated as the difference between emissions from "with project" and "without project" scenarios
- The "with project" scenario represents the actual value of GHG emissions.
- The "without project" baseline scenario represents the GHG emissions levels that would have been reached if the project had not been implemented.

- The emission factors used for the "with project" and "without project" scenarios have been obtained based on the IPCC 2006 guidelines for national GHG inventories.
- The calculations have been performed as per the UNFCCC methodologies and tools for Clean Development Mechanisms (CDM).

The following are the main actions implemented to reduce emissions, classified by the lines of action described in Gas Natural Fenosa's Strategy against Climate Change.



Using 360° technology you can visit the facilities of the Bolarque hydroelectric power plant (Guadalajara).



## Emissions

Emissions 2016 (tCO<sub>2</sub>e)

<b>1. Direct Emissions (Scope 1)</b>	<b>19,624,525</b>
<b>2 Indirect emissions due to electricity use (Scope 2)</b>	<b>1,458,120</b>
<b>3. Indirect Emissions (Scope 3) upstream</b>	<b>31,997,217</b>
3.1. Goods and Services acquired	281,415
3.2. Capital goods	655,658
3.3. Activities linked to fuels and energy upstream	
3.3.a. Upstream emissions of acquired fuels (recovery, production and transportation)	
3.3.a.i. Coal	593,534
3.3.a.ii. Natural Gas	17,658,426
3.3.a.iii. From petroleum	608,592
3.3.b. Emissions of electricity acquired (recovery, production and transportation of fuels for generation)	272,723
3.3.c. Emissions from losses in transportation and distribution of electricity consumed (electricity generation of losses)	6,778
3.3.d. Emissions of electricity acquired for sale to third parties (generation of electricity sold)	11,606,974
3.4. Goods transport and distribution	122
3.5. Wastes generated by operations	19,580
3.6. Business travel	5,923
3.7. Worker travel	14,176
3.8. Leased goods	273,316
<b>Indirect Emissions (Scope 3) downstream</b>	<b>106,097,865</b>
3.9. Goods transport and distribution	-
3.10. Treatment of products sold	-
3.11. Use of products sold	
3.11.a. End use of the natural gas distributed/marketed	100,733,129
3.11.b. End use of retrieved coal	4,161,924
3.12. End of life cycle treatment for sold products	-
3.13. Leased goods	20
3.14. Franchises	-
3.15. Investments	1,202,792
<b>Total</b>	<b>159,177,727</b>

Carbon neutrality assessment 2016: **69.8%**

## Prevented emissions

	Emissions prevented 2016 (tCO <sub>2</sub> e)	Energy saving 2016 (TJ)
<b>1. Natural gas</b>	<b>100,580,886</b>	<b>456,431</b>
Natural gas, best fossil fuel because it displaces other fossil fuels:		
1.1. Electricity Production	55,122,580	347,937
1.2. Tertiary	22,304,946	37,000
1.3. Residential/Commercial	14,144,703	53,126
1.4. Transport	1,845,746	6,657
1.5. Cogeneration	7,162,912	11,711
<b>2 Natural resource management</b>	<b>5,630,402</b>	<b>71,118</b>
Renewable generation due to displacement of fossil fuels		
2.1. Wind farms	1,946,102	24,324
2.2. Hydraulic Production	3,644,160	46,785
2.3. Photovoltaic production	737	9
2.4. Voluntary offsets "COmpensa2 Initiative"	39,403	0
<b>3. Energy savings and efficiency</b>	<b>1,347,604</b>	<b>21,782</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	937,640	2,480
3.1.2. Electricity distribution actions	17,764	87
3.1.2. Electricity generation actions		
3.1.2.i. Combined Cycle	30,695	546
3.1.2.ii. Coal-fired power plants	23,267	250
3.1.2.iii. Fuel-based power plants	6,628	86
3.2. End client		
3.2.1. Energy services	331,610	18,333
<b>4. Others</b>	<b>3,529,673</b>	<b>-6,701</b>
4.1. Nuclear production	3,529,673	-6,701
<b>Total</b>	<b>111,088,565</b>	<b>542,630</b>

Carbon neutrality assessment 2016: **69.8%**

## Natural Gas

The business activity focuses on the complete life cycle of gas, from supply to marketing. The natural gas distributed or marketed by Gas Natural Fenosa has prevented the emission of 100.6 MtCO<sub>2</sub>-eq by taking the place of other fossil fuels that produce more emissions, particularly in the electricity generation business but also in the industrial, residential/commercial and transportation sectors.

In this regard, Gas Natural Fenosa's generation portfolio is mainly based on Combined Cycles, that account for 9,036 MW installed between Spain and Mexico. Production in 2016 amounted to 27,611 GWh.

## Renewable resources

In 2016, Gas Natural Fenosa's installed wind power increased slightly to 1,213 MW between Spain and Mexico, with an associated production of 2,637 GWh, which entails 1.9 MtCO<sub>2</sub>-eq of prevented emissions by taking the place of thermoelectric power in both countries. The wind power plant of Bii Hioxo in Mexico is registered as a CDM project.

In 2016 the hydraulic power installed was maintained at 2,188 MW among Spain, Costa Rica and Panama, with an associated production of 4,991 GWh, which implies 3.6 MtCO<sub>2</sub>-eq of prevented emissions. Hydraulic power plants La Joya and Torito in Costa Rica and Macho de Monte, Dolega and Los Algarrobos in Panama are registered as CDM projects.

Offsets through purchase of green energy (Guarantees of Origin), Certified Emission Reductions (CERs) and photovoltaic power generation have caused additional decreases in the management of natural resources.

## Energy savings and efficiency

Energy efficiency actions in our installations are primarily based on improving the performance of our electricity generation and distribution installations and using materials with low leak rates in the development and update process of gas distribution networks. These actions have accounted for 1.3 MtCO<sub>2</sub>-eq of prevented emissions.

The actions of energy service companies mainly include replacing fossil fuels with biomass, energy management, indoor lighting, public lighting and combined generation for self-consumption. In 2016, these measures prevented 0.3 MtCO<sub>2</sub>-eq of emissions.



The main actions to achieve carbon neutrality are based on a combination of gas and renewable energy and savings and energy efficiency

# Gas Natural Fenosa Emission Offsetting Plan CCompensa2 Initiative

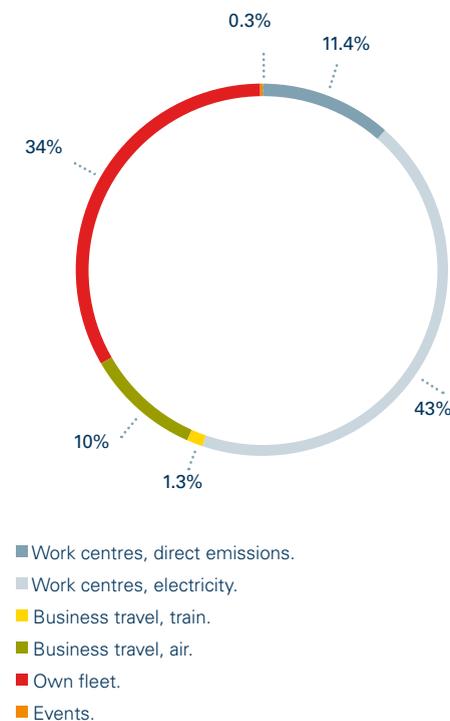
Gas Natural Fenosa has continued the voluntary CO<sub>2</sub> offsetting plan, through the "CCompensa2 Initiative" implemented in 2014.

The voluntary offset plan of our company is one more element of our emission reduction strategy. Its objective is to progressively reduce our carbon footprint and to convert Gas Natural Fenosa into a company with zero impact on climate change in the future by calculating our emissions on the one hand and the benefits we generate for society on the other.

Emissions in 2016 were compensated by offsetting 39,403 tCO<sub>2</sub> with Certified Emission Reductions (CERs) generated by the UNFCCC822 Loma Los Colorados project: and 12,866 tCO<sub>2</sub> by providing Guarantees of Origin (GOO) corresponding to electricity consumption of all our work centres in Spain for a total of 44,366 GWh. A total of 52,269 tCO<sub>2</sub> were incorporated into this initiative.

The activities offset in 2016 were: electricity and fuel consumption associated with our work centres, the fleet of road vehicles and flights and train travel.

Offsetting emissions 2016 (tCO<sub>2</sub>q-eq)



CCompensa2 Project	tCO <sub>2</sub>
CCompensa2	52,269
CERs	39,403
Guarantees of origin	12,866

Activities	tCO <sub>2</sub>
<b>Work centres</b>	<b>28,442</b>
Spain	14,673
Direct	1,807
electricity consumption	12,866
International	13,769
Direct	4,150
electricity consumption	9,619
<b>Business travel</b>	<b>5,876</b>
Train	676
Air	5,201
<b>Own fleet (vehicles)</b>	<b>17,822</b>
Spain	6,896
International	10,926
<b>Events</b>	<b>129</b>
Functional Day Events	129

Natural gas emissions marketed in Spain by Gas Natural Fenosa in 2016 for stationary combustion in the residential, commercial and institutional sector:

- Scope 1 = 0,18226287 kgCO<sub>2</sub>e/kWh hcv
- Scope 3 (natural gas LCA\*) = 0,03163494 kgCO<sub>2</sub>e/kWh hcv
- LCA with respect to scope 1 = 17,36%

\* From extraction to commercialization



360°

## Transparency

Excellence in communication  
with stakeholders.

Being transparent in the measurement,  
control and reporting of our carbon footprint,  
participating in the international indexes on  
the subject of climate change and promoting  
interaction with the stakeholders.

An aerial night view of a city skyline. The foreground shows residential buildings with snow on their roofs and some lit windows. In the middle ground, several tall office buildings are illuminated with warm yellow and orange lights. The background features a large body of water, likely a bay or harbor, with a distant city skyline visible across the water under a dark, twilight sky.

Carbon Footprint Report  
**2016**

Annexes

## Gas Natural Fenosa Inventory by type of GHG (tCO<sub>2</sub>-eq) Data series 2014-2016

GEI emissions tCO <sub>2</sub> eq	Scope 1			Scope 2			Scope 3		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
CO <sub>2</sub>	18,798,671	21,270,018	18,173,252	1,215,316	1,326,089	1,453,156	133,812,339	128,043,026	131,141,913
CH <sub>4</sub>	1,417,219	1,445,627	1,397,140	792	584	641	6,833,634	6,757,325	6,825,472
N <sub>2</sub> O	24,985	30,081	24,694	2,303	3,635	4,324	119,848	126,750	127,697
SF <sub>6</sub>	21,222	26,238	24,910	-	-	-	-	-	-
PFC*	-	-	-	-	-	-	-	-	-
HFC	14,673	7,363	4,529	-	-	-	-	-	-
<b>All</b>	<b>20,276,770</b>	<b>22,779,327</b>	<b>19,624,525</b>	<b>1,218,412</b>	<b>1,330,308</b>	<b>1,458,120</b>	<b>140,765,821</b>	<b>134,927,101</b>	<b>138,095,082</b>

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

## Gas Natural Fenosa Inventory by business segments (tCO<sub>2</sub>-eq) Data series 2014-2016

GEI emissions tCO <sub>2</sub> eq	Scope 1			Scope 2			Scope 3		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Generation	18,066,070	20,639,772	17,521,399	-	-	-	3,680,731	3,170,338	2,870,886
Electricity distribution	20,677	26,029	24,667	1,170,175	1,269,650	1,392,825	12,742,112	11,725,139	12,195,641
Gas distribution	1,458,818	1,484,985	1,370,458	6,305	13,856	12,718	53,228,317	50,880,201	48,540,149
Gas*	660,717	574,520	663,772	104	1,589	3,318	66,680,144	64,633,256	70,007,533
Mining	29,337	26,234	24,640	37,199	40,521	44,005	4,387,980	4,482,504	4,173,053
Offices	41,152	27,788	19,589	4,628	4,692	5,254	46,537	35,663	307,821
<b>All</b>	<b>20,276,770</b>	<b>22,779,327</b>	<b>19,624,525</b>	<b>1,218,412</b>	<b>1,330,308</b>	<b>1,458,120</b>	<b>140,765,821</b>	<b>134,927,101</b>	<b>138,095,082</b>

\* It includes the businesses of natural gas infrastructures, supplies and commercialisation.

Gas Natural Fenosa Inventory by countries (tCO<sub>2</sub>-eq) Data series 2014-2016

GEI emissions tCO <sub>2</sub> -eq	Scope 1			Scope 2			Scope 3		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Germany	-	-	-	-	-	-	162,220	232,674	451,863
Algeria	-	-	-	-	-	-	138,429	126,098	137,043
Argentina	339,369	340,973	299,638	82,443	77,055	75,034	15,574,160	14,746,839	15,269,346
Belgium	-	-	-	-	-	-	1,100,407	669,120	1,001,425
Brazil	126,873	117,717	115,926	51	115	650	22,012,584	21,935,691	15,294,605
Chile	410,070	410,070	305,214	528,237	527,913	515,712	19,285,031	16,446,799	16,662,806
Colombia	151,246	158,394	163,661	261,943	413,091	391,923	6,439,347	7,627,997	7,634,980
Korea	-	-	-	-	-	-	2,190,469	2,016,442	-
Costa Rica	-	-	-	-	-	-	35	3	16
Egypt	-	-	-	-	-	-	47,443	29,877	2,815,209
United Arab Emirates	-	-	-	-	-	-	-	-	443,986
Spain	11,618,180	14,188,040	11,027,808	35,911	17,031	100,711	37,350,709	33,694,989	35,414,257
United States of America	-	-	-	-	-	-	184,171	-	-
France	41	-	-	3	-	-	4,640,274	6,225,961	11,895,948
Holland	-	-	-	-	-	-	856,695	932,143	1,074,901
India	-	-	-	-	-	-	2,200,883	2,385,968	2,705,378
Ireland	-	-	-	-	-	-	-	-	125,984
Italy	104,631	105,122	106,073	454	613	567	1,081,616	1,252,958	1,590,801
Japan	-	-	-	-	-	-	3,098,965	1,560,451	-
Jordan	-	-	-	-	-	-	-	-	494,826
Kenya	212,400	85,799	132,429	-	-	-	95,613	28,050	45,004
Kuwait	-	-	-	-	-	-	-	-	240,969
Morocco	254,074	237,237	233,572	210	185	1,693	3,839,140	3,210,798	3,853,729
Mexico	5,988,438	6,096,234	6,151,362	1,518	8,143	7,997	4,083,888	4,342,593	4,544,023
Moldova	1,967	935	963	124,453	123,036	110,691	1,199,925	1,204,557	1,228,116
Oman	-	-	-	-	-	-	60,895	56,243	59,595
Pakistan	-	-	-	-	-	-	-	-	452,195
Panama	9,359	5,368	5,064	145,989	122,607	209,137	1,393,491	1,175,564	1,639,915
Portugal	-	-	-	-	-	-	4,271,240	5,258,405	5,355,240
Puerto Rico	-	-	-	-	-	-	2,664,742	2,493,041	2,584,922
Dominican Republic	635,341	679,572	636,379	-	-	-	227,716	447,732	241,728
Singapore	-	-	-	-	-	-	193,397	-	-
South Africa	29,298	26,215	24,584	37,199	40,521	44,005	4,387,785	4,482,412	4,173,029
Taiwan.	-	-	-	-	-	-	-	-	242,984
International Maritime Transport	395,485	327,651	421,851	-	-	-	526,211	508,019	420,259
Trinidad and Tobago	-	-	-	-	-	-	1,458,339	1,643,510	-
Turkey	-	-	-	-	-	-	-	192,165	-
<b>All</b>	<b>20,276,770</b>	<b>22,779,327</b>	<b>19,624,525</b>	<b>1,218,412</b>	<b>1,330,308</b>	<b>1,458,120</b>	<b>140,765,821</b>	<b>134,927,101</b>	<b>138,095,082</b>

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Germany Carbon Inventory 2016

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**Scope 3**

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> e
Global Germany	434,457	17,100	306	-	-	451,863
Gas	434,457	17,100	306	-	-	451,863
% Gas Natural Fenosa:	0.33%	0.25%	0.24%	-	-	0.33%

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Algeria Carbon Inventory 2016

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**Scope 3**

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> e
Global Algeria	73,516	63,419	107	-	-	137,043
Gas	73,516	63,419	107	-	-	137,043
% Gas Natural Fenosa:	0.06%	0.93%	0.08%	-	-	0.10%

## Argentina. Carbon Inventory 2016

**Scope 1**

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> e
Global Argentina	5,739	293,744	7	-	148	299,638
Electricity distribution	-	-	-	-	-	-
Gas distribution	5,407	293,741	3	-	-	299,152
Offices	332	3	4	-	148	487
% Gas Natural Fenosa:	0.03%	21.02%	0.03%	0.00%	3.27%	1.53%

**Scope 2**

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> e
Global Argentina	74,890	43	102	-	-	75,034
Electricity distribution	72,072	41	98	-	-	72,211
Gas distribution	1,802	1	2	-	-	1,805
Offices	1,016	1	1	-	-	1,018
% Gas Natural Fenosa:	5.15%	6.67%	2.35%	-	-	5.15%

**Scope 3**

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> e
Global Argentina	14,626,005	633,312	10,029	-	-	15,269,346
Electricity distribution	707,331	405	960	-	-	708,696
Gas distribution	11,450,406	520,411	7,457	-	-	11,978,274
Gas	2,467,296	112,415	1,611	-	-	2,581,323
Offices	972	81	1	-	-	1,054
% Gas Natural Fenosa:	11.15%	9.28%	7.85%	-	-	11.06%

## Belgium. Carbon Inventory 2016

**Scope 3**

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> e
Global Belgium	962,250	38,388	787	-	-	1,001,425
Gas	962,250	38,388	787	-	-	1,001,425
% Gas Natural Fenosa:	0.73%	0.56%	0.62%	-	-	0.73%

## Brazil. Carbon Inventory 2016

**Scope 1**

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> e
Global Brazil	678	115,238	10	-	-	115,926
Gas distribution	28	115,220	0	-	-	115,247
Offices	651	18	9	-	-	678
% Gas Natural Fenosa:	0.00%	8.25%	0.04%	-	-	0.59%

**Scope 2**

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> e
Global Brazil	648	0	2	-	-	650
Offices	648	0	2	-	-	650
% Gas Natural Fenosa:	0.04%	0.05%	0.04%	-	-	0.04%

**Scope 3**

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> e
Global Brazil	14,529,195	754,039	11,370	-	-	15,294,605
Gas distribution	14,418,896	748,228	11,149	-	-	15,178,273
Gas	109,473	5,685	85	-	-	115,242
Offices	827	127	136	-	-	1,090
% Gas Natural Fenosa:	11.08%	11.05%	8.90%	-	-	11.08%

## Chile. Carbon Inventory 2016

**Scope 1**

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> e
Global Chile	218,385	85,849	191	790	-	305,214
Electricity distribution	-	-	-	790	-	790
Gas distribution	612	85,737	5	-	-	86,354
Generation	215,087	108	144	-	-	215,339
Offices	2,686	4	42	-	-	2,731
% Gas Natural Fenosa:	1.20%	6.14%	0.77%	3.17%	0.00%	1.56%

**Scope 2**

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> e
Global Chile	513,580	186	1,947	-	-	515,712
Electricity distribution	512,305	185	1,942	-	-	514,432
Gas distribution	1,272	0	5	-	-	1,278
Offices	2	0	0	-	-	2
% Gas Natural Fenosa:	35.34%	28.98%	45.02%	-	-	35.37%

**Scope 3**

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> e
Global Chile	16,117,904	517,507	27,395	-	-	16,662,806
Electricity distribution	5,528,205	1,933	20,260	-	-	5,550,398
Gas distribution	10,129,340	480,562	6,800	-	-	10,616,702
Gas	397,158	18,889	261	-	-	416,309
Generation	58,543	15,435	73	-	-	74,051
Offices	4,657	688	1	-	-	5,346
% Gas Natural Fenosa:	12.29%	7.58%	21.45%	-	-	12.07%

## Colombia. Carbon Inventory 2016

**Scope 1**

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> e
Global Colombia	251	158,952	4	4,454	-	163,661
Electricity distribution	-	-	-	4,454	-	4,454
Gas distribution	-	158,943	-	-	-	158,943
Offices	251	9	4	-	-	264
% Gas Natural Fenosa:	0.00%	11.38%	0.02%	17.88%	-	0.83%

**Scope 2**

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> e
Global Colombia	390,735	138	1,050	-	-	391,923
Electricity distribution	387,742	137	1,042	-	-	388,921
Gas distribution	2,624	1	7	-	-	2,632
Offices	369	0	1	-	-	370
% Gas Natural Fenosa:	26.89%	21.50%	24.28%	-	-	26.88%

**Scope 3**

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> e
Global Colombia	7,337,444	288,712	8,824	-	-	7,634,980
Electricity distribution	1,944,915	687	5,228	-	-	1,950,830
Gas distribution	5,391,780	287,928	3,595	-	-	5,683,303
Offices	749	97	1	-	-	847
% Gas Natural Fenosa:	5.60%	4.23%	6.91%	-	-	5.53%

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 Costa Rica. Carbon Inventory 2016
 

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**Scope 3**

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> e
Global Costa Rica	16	0	0	-	-	16
Generation	16	0	0	-	-	16
% Gas Natural Fenosa:	0.00%	0.00%	0.00%	-	-	0.00%

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 Egypt. Carbon Inventory 2016
 

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**Scope 3**

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> e
Global Egypt	2,629,672	183,693	1,845	-	-	2,815,209
Gas	2,629,672	183,693	1,845	-	-	2,815,209
% Gas Natural Fenosa:	2.01%	2.69%	1.44%	-	-	2.04%

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 United Arab Emirates. Carbon Inventory 2016
 

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**Scope 3**

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> e
Global United Arab Emirates	414,865	28,835	286	-	-	443,986
Gas	414,865	28,835	286	-	-	443,986
% Gas Natural Fenosa:	0.32%	0.42%	0.22%	-	-	0.32%

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## Spain. Carbon Inventory 2016

**Scope 1**

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> e
Global Spain	10,558,500	432,363	16,973	19,098	874	11,027,808
Electricity distribution	-	-	-	18,856	-	18,856
Gas distribution	1,100	424,778	1	-	-	425,879
Gas	8,427	209	5	-	-	8,640
Generation	10,540,327	7,347	16,842	243	874	10,565,633
Others	57	0	0	-	-	57
Offices	8,589	30	125	-	-	8,744
% Gas Natural Fenosa:	58.10%	30.95%	68.73%	76.67%	19.29%	56.19%

**Scope 2**

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> e
Global Spain	100,339	41	332	-	-	100,711
Electricity distribution	98,537	40	326	-	-	98,903
Gas distribution	90	0	0	-	-	91
Gas	1,711	1	6	-	-	1,718
% Gas Natural Fenosa:	6.90%	6.37%	7.67%	-	-	6.91%

**Scope 3**

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> e
Global Spain	33,615,788	1,772,523	25,945	-	-	35,414,257
Electricity distribution	1,116,289	419	3,393	-	-	1,120,102
Gas distribution	1,013,237	34,376	674	-	-	1,048,287
Gas	30,364,694	1,120,120	19,191	-	-	31,504,004
Generation	830,220	615,551	2,640	-	-	1,448,410
Mining	8	15	0	-	-	24
Offices	291,340	2,043	48	-	-	293,430
% Gas Natural Fenosa:	25.63%	25.97%	20.32%	-	-	25.64%

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 France. Carbon Inventory 2016
 

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**Scope 3**

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> e
Global France	11,415,460	472,408	8,081	-	-	11,895,948
Gas	11,415,404	472,408	8,081	-	-	11,895,893
Offices	56	-	-	-	-	56
% Gas Natural Fenosa:	8.70%	6.92%	6.33%	-	-	8.61%

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 Holland. Carbon Inventory 2016
 

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**Scope 3**

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> e
Global Holland	1,036,336	37,988	577	-	-	1,074,901
Gas	1,036,336	37,988	577	-	-	1,074,901
% Gas Natural Fenosa:	0.79%	0.56%	0.45%	-	-	0.78%

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 India. Carbon Inventory 2016
 

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**Scope 3**

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> e
Global India	2,558,126	145,928	1,325	-	-	2,705,378
Gas	2,558,126	145,928	1,325	-	-	2,705,378
% Gas Natural Fenosa:	1.95%	2.14%	1.04%	-	-	1.96%

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## Ireland. Carbon Inventory 2016

**Scope 3**

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> e
Global Ireland	121,421	4,485	79	-	-	125,984
Gas	121,421	4,485	79	-	-	125,984
% Gas Natural Fenosa:	0.09%	0.07%	0.06%	-	-	0.09%

## Italy. Carbon Inventory 2016

**Scope 1**

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> e
Global Italy	2,929	103,130	13	-	-	106,073
Gas distribution	2,103	103,118	1	-	-	105,222
Offices	826	12	12	-	-	851
% Gas Natural Fenosa:	0.02%	7.38%	0.05%	-	-	0.54%

**Scope 2**

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> e
Global Italy	565	0	2	-	-	567
Gas distribution	374	0	1	-	-	375
Offices	191	0	1	-	-	191
% Gas Natural Fenosa:	0.04%	0.04%	0.04%	-	-	0.04%

**Scope 3**

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> e
Global Italy	1,531,128	58,620	1,053	-	-	1,590,801
Gas distribution	181,766	96	1	-	-	181,863
Gas	1,348,631	58,361	1,049	-	-	1,408,041
Offices	731	162	3	-	-	897
% Gas Natural Fenosa:	1.17%	0.86%	0.82%	-	-	1.15%

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 Jordan. Carbon Inventory 2016
 

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**Scope 3**

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> e
Global Jordan	462,427	32,072	327	-	-	494,826
Gas	462,427	32,072	327	-	-	494,826
% Gas Natural Fenosa:	0.35%	0.47%	0.26%	-	-	0.36%

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 Kenya. Carbon Inventory 2016
 

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**Scope 1**

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> e
Global Kenya	131,997	128	305	-	-	132,429
Generation	131,997	128	305	-	-	132,429
% Gas Natural Fenosa:	0.73%	0.01%	1.24%	-	-	0.67%

**Scope 3**

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> e
Global Kenya	20,631	24,337	36	-	-	45,004
Generation	20,631	24,337	36	-	-	45,004
% Gas Natural Fenosa:	0.02%	0.36%	0.03%	-	-	0.03%

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## Kuwait. Carbon Inventory 2016

**Scope 3**

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> e
Global Kuwait	225,182	15,629	158	-	-	240,969
Gas	225,182	15,629	158	-	-	240,969
% Gas Natural Fenosa:	0.17%	0.23%	0.12%	-	-	0.17%

## Morocco. Carbon Inventory 2016

**Scope 1**

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> e
Global Morocco	231,652	1,793	127	-	-	233,572
Gas	231,365	1,793	123	-	-	233,281
Offices	287	0	4	-	-	291
% Gas Natural Fenosa:	1.27%	0.13%	0.51%	-	-	1.19%

**Scope 2**

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> e
Global Morocco	1,685	1	7	-	-	1,693
Gas	1,593	1	6	-	-	1,600
Offices	92	0	0	-	-	92
% Gas Natural Fenosa:	0.12%	0.09%	0.15%	-	-	0.12%

**Scope 3**

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> e
Global Morocco	2,995,729	855,411	2,590	-	-	3,853,729
Gas	2,995,556	855,357	2,589	-	-	3,853,502
Offices	173	54	0	-	-	227
% Gas Natural Fenosa:	2.28%	12.53%	2.03%	-	-	2.79%

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Mexico. Carbon Inventory 2016

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**Scope 1**

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> e
Global Mexico	5,965,893	182,310	3,159	-	-	6,151,362
Gas distribution	-	179,661	-	-	-	179,661
Generation	5,965,812	2,649	3,157	-	-	5,971,618
Offices	82	0	1	-	-	83
% Gas Natural Fenosa:	32.83%	13.05%	12.79%	-	-	31.35%

**Scope 2**

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> e
Global Mexico	7,978	4	15	-	-	7,997
Gas distribution	6,522	3	12	-	-	6,537
Offices	1,456	1	3	-	-	1,460
% Gas Natural Fenosa:	0.55%	0.64%	0.35%	-	-	0.55%

**Scope 3**

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> e
Global Mexico	4,094,672	445,517	3,833	-	-	4,544,023
Gas distribution	3,685,836	164,841	2,770	-	-	3,853,447
Generation	406,954	280,106	1,059	-	-	688,119
Offices	1,883	571	4	-	-	2,458
% Gas Natural Fenosa:	3.12%	6.53%	3.00%	-	-	3.29%

## Moldova. Carbon Inventory 2016

**Scope 1**

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> e
Global Moldova	949	3	11	-	-	963
Offices	949	3	11	-	-	963
% Gas Natural Fenosa:	0.01%	0.00%	0.05%	-	-	0.00%

**Scope 2**

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> e
Global Moldova	110,583	49	59	-	-	110,691
Electricity distribution	109,114	49	58	-	-	109,221
Offices	1,469	1	1	-	-	1,471
% Gas Natural Fenosa:	761%	7.70%	1.37%	-	-	7.59%

**Scope 3**

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> e
Global Moldova	1,226,588	875	653	-	-	1,228,116
Electricity distribution	1,225,285	546	652	-	-	1,226,483
Offices	1,303	329	1	-	-	1,633
% Gas Natural Fenosa:	0.94%	0.01%	0.51%	-	-	0.89%

## Oman. Carbon Inventory 2016

**Scope 3**

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> e
Global Oman	45,944	13,616	35	-	-	59,595
Gas	45,944	13,616	35	-	-	59,595
% Gas Natural Fenosa	0.04%	0.20%	0.03%	-	-	0.04%

## Pakistan. Carbon Inventory 2016

**Scope 3**

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> e
Global Pakistan	436,817	15,066	312	-	-	452,195
Gas	436,817	15,066	312	-	-	452,195
% Gas Natural Fenosa:	0.33%	0.22%	0.24%	-	-	0.33%

## Panama. Carbon Inventory 2016

**Scope 1**

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> e
Global Panama	972	1	15	568	3,508	5,064
Electricity distribution	-	-	-	568	-	568
Offices	972	1	15	-	3,508	4,497
% Gas Natural Fenosa:	0.01%	0.00%	0.06%	2.28%	77.44%	0.03%

**Scope 2**

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> e
Global Panama	208,360	168	609	-	-	209,137
Electricity distribution	208,360	168	609	-	-	209,137
% Gas Natural Fenosa:	14.34%	26.20%	14.08%	-	-	14.34%

**Scope 3**

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> e
Global Panama	1,633,720	1,557	4,638	-	-	1,639,915
Electricity distribution	1,633,215	1,281	4,637	-	-	1,639,133
Generation	2	0	0	-	-	2
Offices	503	277	1	-	-	780
% Gas Natural Fenosa	1.25%	0.02%	3.63%	-	-	1.19%

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Portugal. Carbon Inventory 2016

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**Scope 3**

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> e
Global Portugal	5,278,210	73,693	3,337	-	-	5,355,240
Gas	5,278,210	73,693	3,337	-	-	5,355,240
% Gas Natural Fenosa	4.02%	1.08%	2.61%	-	-	3.88%

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Puerto Rico. Carbon Inventory 2016

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**Scope 3**

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> e
Global Puerto Rico	2,465,303	118,207	1,412	-	-	2,584,922
Gas	2,103,641	106,511	1,210	-	-	2,211,362
Generation	361,663	11,696	202	-	-	373,561
% Gas Natural Fenosa	1.88%	1.73%	1.11%	-	-	1.87%

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Dominican Republic. Carbon Inventory 2016

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**Scope 1**

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> e
Global Dominican Republic	634,289	618	1,473	-	-	636,379
Generation	634,289	618	1,473	-	-	636,379
% Gas Natural Fenosa	3.49%	0.04%	5.96%	-	-	3.24%

**Scope 3**

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> e
Global Dominican Republic	88,947	152,677	104	-	-	241,728
Generation	88,947	152,677	104	-	-	241,728
Offices	5	0	0	-	-	5
% Gas Natural Fenosa	0.07%	2.24%	0.08%	-	-	0.18%

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 South Africa. Carbon Inventory 2016
 

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**Scope 1**

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> e
Global South Africa	2,343	22,236	5	-	-	24,584
Others	2,343	22,236	5	-	-	24,584
% Gas Natural Fenosa	0.01%	1.59%	0.02%	-	-	0.13%

**Scope 2**

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> e
Global South Africa	43,793	11	201	-	-	44,005
Others	43,793	11	201	-	-	44,005
% Gas Natural Fenosa	3.01%	1.76%	4.65%	-	-	3.02%

**Scope 3**

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> e
Global South Africa	4,161,212	1,329	10,488	-	-	4,173,029
Mining	4,161,212	1,329	10,488	-	-	4,173,029
% Gas Natural Fenosa	3.17%	0.02%	8.42%	-	-	3.02%

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 Taiwan. Carbon Inventory 2016
 

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**Scope 3**

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> e
Global Taiwan	231,885	10,945	154	-	-	242,984
Gas	231,885	10,945	154	-	-	242,984
% Gas Natural Fenosa	0.18%	0.16%	0.12%	-	-	0.18%

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 International Maritime Transport. Carbon Inventory 2016
 

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**Scope 1**

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> e
Global International	418,673	775	2,402	-	-	421,851
Gas	418,673	775	2,402	-	-	421,851
% Gas Natural Fenosa	2.30%	0.06%	9.73%	-	-	2.15%

**Scope 3**

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> e
Global International	371,060	47,586	1,613	-	-	420,259
Gas	371,060	47,586	1,613	-	-	420,259
% Gas Natural Fenosa	0.28%	0.70%	1.26%	-	-	0.30%

## Calculation method of GHG emissions: Gas Natural Fenosa inventory

To quantify Gas Natural Fenosa's greenhouse gas (GHG) emissions, we have developed an application and calculation method, based on the following guidelines and methodologies:

- Includes scopes 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).
- It includes the emissions of the 6 Greenhouse Gases defined in the 2006 IPCC guidelines on national GHG inventories (hereinafter GHG IPCC 2006).
- UNE-ISO 14064-1 Standard. Greenhouse Gases Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.
- UNE-ISO 14064-2 Standard. Greenhouse Gases Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.
- UNE-ISO 14064-3 Standard. Greenhouse Gases Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.
- 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

Gas Natural Fenosa's Carbon Footprint inventory includes GHG emissions from the following activities of the group:

- > Recovery, road transportation, liquefaction, maritime transportation, distribution and marketing of natural gas.
- > Carbon-fired, fuel-fired and combined cycle thermal generation, combined generation, generation in wind power plants and hydroelectric plants.

- > Mining.
- > Electricity distribution.
- > Offices.

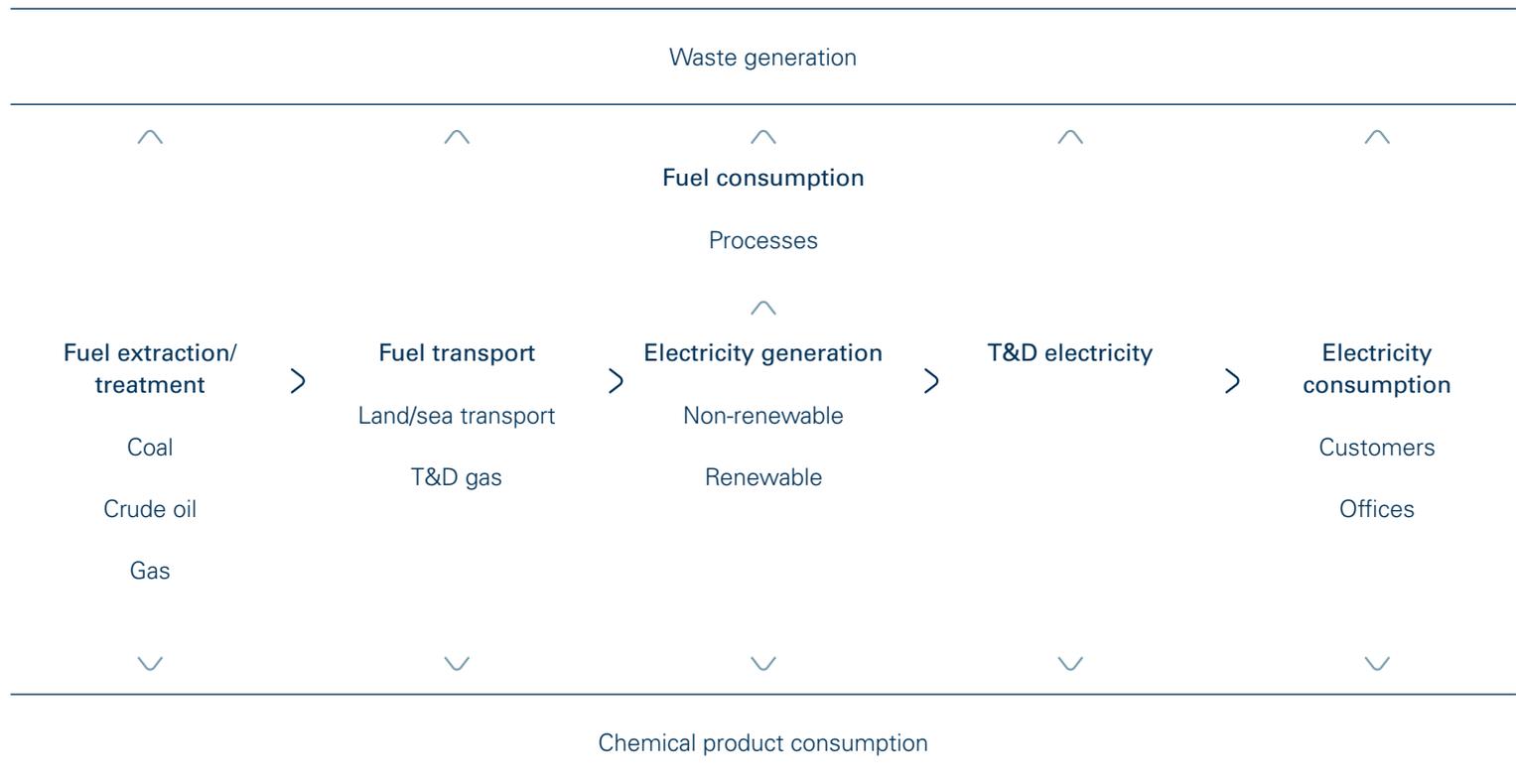
## Systems included in the footprint

Different units of calculations have been included in all the aforementioned activities. In other words, all the facilities of each activity. The businesses and activities

considered to determine the calculation units are treated according to the criteria of global consolidation, according to the shareholding percentages defined by the Economic-Financial Management.

The calculation units include energy consumption (fuels, electricity), waste production and consumption of other raw materials or chemical products. This energy consumption produces emissions along its life cycle:

## Fuel life cycle analysis



Life cycle systems of the main fuels (ethanol is not included)

Mining and treatment	>	Transport	>	Transformation	>	Transport	>	Transformation	>	Transport	>	Consumption
Coal		Land transportation										Fixed sources
Petroleum		Oil pipeline				Maritime transportation		Refining		Land transportation		
Natural Gas		Gas pipeline		Liquefaction				Regasification		Gas pipeline		Fixed and mobile sources
						Gas pipeline						

### Life cycle of fuels used

Fuels used in both stationary combustion (power plants, offices, gas transportation and distribution, liquefaction and regasification) and in mobile sources have been considered.

This report includes the value of the CO<sub>2</sub>e emissions associated with the LCA of the gas marketed in Spain by Gas Natural Fenosa for the year of the report in the RCI sector.

### Energy

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

- > Electricity consumption purchased from external suppliers.
- > Losses derived from transportation and distribution of distributed energy 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.

### Chemical products

Chemical products with a consumption over 85% of the total consumption have been considered. Two systems have been considered for each chemical product, the System called "Manufacturing" and the "Transportation" System.

### Waste

Wastes with over 85% of total generation have been considered. The following common systems have been taken into account for each waste considered:

- Transportation system. The most common transportation system is by road, with trucks (10T and 27T diesel). However, ashes and dross generated in some of the coal-fired power plants are transported by conveyor belts.
- Individualised management of each type of waste: recycling or regeneration and energy valuation or incineration.
- Final destination. Usually land-fill site and/or tip (for dross and ashes from coal-fired power plants).

## Geographical limits

Geographical limits have been defined taking into account the location by country of the activity performed and the source of the fuels, as well as management of generated waste and the manufacture and transportation of the chemical products consumed.

For the annual inventory, it is necessary to conduct a series of preliminary studies to define the structure of starting data, such as the update of gas, coal and crude oil supply routes. (There are over 500 routes that communicate 165 recovery points in 30 countries):

Thus, 3 types of data are updated each year:

- Characteristics of the recovery points (specific factors based on the country, technology, type of well or mine...).

- Definition of the routes themselves (distance for each country and specific factors).
- Evaluation of fuels in destination countries.

## Definition of emissions by scope

- 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, derived from the group's value chain, including upstream and downstream emissions, which are not directly controlled or managed by the group. The following categories defined by GHG Protocol have been calculated as part of the group's scope 3:
  - Acquired products and services: emissions derived from "manufacture" of purchased products and services. This category includes chemical products used in each calculation unit of each activity of the group.
  - Equipment goods: emissions resulting from construction of equipment goods in the analysed year. There are four infrastructures

included in capital goods: electricity lines, transformers associated with transformer stations, gas pipelines and wind power plants.

- Life cycles of fuels: emissions from life cycle of fuels. This category includes the following sub-categories:

- A.1: Emissions from recovery, treatment and transportation of coal.

- A.2: Emissions from recovery, treatment (liquefaction and gasification) and transportation (via gas pipeline and/or LNG carrier not owned by the company) of natural gas.

- A.3: Emissions from recovery, treatment (refining) and transportation (via oil pipeline and/or oil tanker) from oil derivatives.

- B: Emissions from life cycles of the fuels used for electricity generation of the energy mix of each country.

- C: Emissions due to electricity losses in transportation and distribution of electricity consumed but not generated.

- D: Emissions from the energy that has been consumed by the group but it is unclear whether it was generated and/or distributed by the group.

- **Upstream Transportation:** Emissions derived from the “transportation” system of purchased products and services. In this case, it is the transportation of chemical products consumed in each calculation unit of the group.
- **Waste:** Emissions from transportation and management systems of generated waste (both hazardous and non-hazardous).
- **Business trips:** Emissions derived from movements of workers by plane, train or any means other than the vehicle fleet owned by the group. It is divided into two sub-categories:
  - A: Company staff train travel.
  - B: Company staff flights.
- **Movements of workers:** Emissions derived from movement of workers from their homes to the work centre.
- **Upstream leasing:** This category covers the methane emissions from leased concession dams.



- **Use of sold products:** This category includes emissions from combustion/burning of sold products. There are two sub-categories:
  - A: Emissions from burning natural gas sold by the group to the customer, minus the gas consumed.
  - B: Emissions from the coal extracted from Kangra. All the coal extracted in Kangra has been sold to third parties.
- **Concessions:** This category includes emissions from the concession of the Touro dam.
- **Investments:** This category includes emissions from handling coal at the Richards Bay coal terminal in South Africa, as well as direct and indirect emissions from activities not included in the consolidation perimeter (Ecoeléctrica, Unión Fenosa Gas, Nueva Generadora del Sur...).





*Free translation from the original in Spanish, in the event of a discrepancy, the Spanish language version prevails.*

## **INDEPENDENT LIMITED ASSURANCE REPORT ON GREENHOUSE GAS (GHG) STATEMENT 2016**

To the Management Committee of Gas Natural SDG, S.A.:

### **Scope of work**

We have undertaken a limited assurance engagement of the GHG statement of Gas Natural SDG S.A. and its subsidiaries (hereinafter referred to as Gas Natural Fenosa) for the financial year ended December 31, 2016 included in the Appendix of this report. The GHG statement includes the GHG emissions and offsetting figure. A team of sustainability and climate change assurance practitioners conducted this engagement.

### **Responsibility of Gas Natural Fenosa management**

Gas Natural Fenosa management is responsible for the preparation of the 2016 GHG Statement in accordance with their internal procedure, "GHG Emission Calculation Methodology", available in the pages 63 to 67 of the 2016 Carbon Footprint Report. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of a GHG statement that is free from material misstatement, whether due to fraud or error.

GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

### **Our responsibility**

Our responsibility is to express a limited assurance conclusion on the GHG Statement based on the procedures we have performed and the evidence obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements 3410 (ISAE 3410), "Assurance Engagements on Greenhouse Gas Statements" issued by the International Auditing and Assurance Standards Board (IAASB) of the International Federation of Accountants (IFAC). That standard requires that we plan and perform this engagement to obtain limited assurance about whether Gas Natural Fenosa's 2016 GHG Statement is free from material misstatement.

A limited assurance engagement undertaken in accordance with ISAE 3410 involves assessing the suitability in the circumstances of Gas Natural Fenosa's use of applicable criteria as the basis for the preparation of the GHG statement, assessing the risks of material misstatement of the GHG statement whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the GHG statement. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

.....  
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Tel.: +34 932 532 700 / +34 902 021 111, Fax: +34 934 059 032, [www.pwc.es](http://www.pwc.es)

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The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records.

Given the circumstances of the engagement, in performing the procedures listed above we:

- Through inquiries and meetings with personnel of Gas Natural Fenosa's various departments who have been involved in the preparation of the GHG Statement, obtained an understanding of Gas Natural Fenosa's control environment and information systems relevant to emissions quantification and reporting, but did not evaluate the design of particular control activities, obtain evidence about their implementation or test their operating effectiveness.
- Evaluated whether Gas Natural Fenosa's methods for developing estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or separately developing our own estimates against which to evaluate Gas Natural Fenosa's estimates.
- Verification, through analytical and substantive tests based on the selection of a sample and internal control tests, of the information (activity data, calculations and information generated) used to determine Gas Natural Fenosa's 2016 GHG Statement and the correct compilation of information based on the internal procedure applied by Gas Natural Fenosa.
- Assessment of whether the compensations detailed in the table included in the GHG Statement constitutes a reasonable detail of the contracts and documentation examined. In the event that such compensation comes from acquisitions of rights made to external suppliers, our work has not included any procedure on the facts that gave rise to such rights in the suppliers, so we do not conclude on whether the compensations shown have generated or will generate the emission reduction quantified in the GHG Statement.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained if we had performed a reasonable assurance.

#### **Independence and Quality Control**

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants (IESBA), which includes independence and other ethical requirements founded on fundamental principles of integrity, objectivity, professional competence and diligence, confidentiality and professional behaviour.

The firm applies the International Standard on Quality Control 1 (ISQC 1) and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

**Limited Assurance Conclusion**

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention, which may lead us to believe that Gas Natural Fenosa's GHG Statement for the financial year ending 31<sup>st</sup> December 2016 is not prepared, in all material aspects, in accordance with the internal procedure "GHG Emission Calculation Methodology".

**Use and distribution**

Our report is only issued to the Management of Gas Natural Fenosa, in accordance with the terms and conditions of our engagement letter. We do not assume any liability to third parties other than Gas Natural Fenosa Management.

PricewaterhouseCoopers Auditores, S.L.

A handwritten signature in blue ink, appearing to read 'M. Luz Castilla', written over a horizontal line.

M<sup>a</sup> Luz Castilla  
29 June 2017



### Appendix

#### GREENHOUSE GAS (GHG) STATEMENT OF GAS NATURAL FENOSA S.A. CORRESPONDING TO THE YEAR ENDED DECEMBER 31, 2016

##### *Gas Natural Fenosa 2016 GHG Statement*

	tCO <sub>2</sub> -eq
<b>Scope 1</b>	<b>19.624.525</b>
<b>Scope 2</b>	<b>1.458.120</b>
<b>Scope 3</b>	<b>138.095.082</b>
1. Purchased and good services	<b>281.415</b>
2. Capital goods	<b>655.658</b>
3. Fuel and energy related activities	<b>30.747.027</b>
4. Upstream transportation and distribution	<b>122</b>
5. Waste generated in operations	<b>19.580</b>
6. Business travel	<b>5.923</b>
7. Employees commuting	<b>14.176</b>
8. Upstream leased assets	<b>273.316</b>
9. Downstream transportation and distribution	-
10. Processing of sold products	-
11. Use of sold products	<b>104.895.053</b>
12. End-of-life treatment of sold products	-
13. Downstream leased assets	<b>20</b>
14. Franchises	-
15. Investments	<b>1.202.792</b>



#### **Gas Natural Fenosa 2016 GHG Emissions Compensation**

Offset emissions*	tCO <sub>2</sub> -eq
<b>Work centres</b>	<b>28.442</b>
<b>Business travel</b>	<b>5.876</b>
<b>Own fleet (vehicles)</b>	<b>17.822</b>
<b>Events</b>	<b>129</b>

*\* Regarding GHG offsets, the 2016 GHG Inventory of Gas Natural Fenosa, according to what stated in page 41 of the 2016 Carbon Footprint Report, shows total amount of 52,269 CO<sub>2</sub> tonnes offset. From this total figure, 39,403 CO<sub>2</sub> tonnes were offset through Certified Emissions Reductions (CER) while 12,866 CO<sub>2</sub> tonnes were offset through Origin Guarantees for the electricity consumed.*

#### **Criterion of quantification**

The description of the criterion of quantification of the GHG emissions (internal procedure "GHG Emissions Calculation Methodology") is included within the 2016 Carbon Footprint Report contents, from page 63 to 67.

#### **Scope**

The calculation perimeter and type of emissions considered in the GHG Inventory are described in pages 24 to 25, and from 63 to 67 of the 2016 Carbon Footprint Report.

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**Accessibility pdf:**

Addicta Corporate Design





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