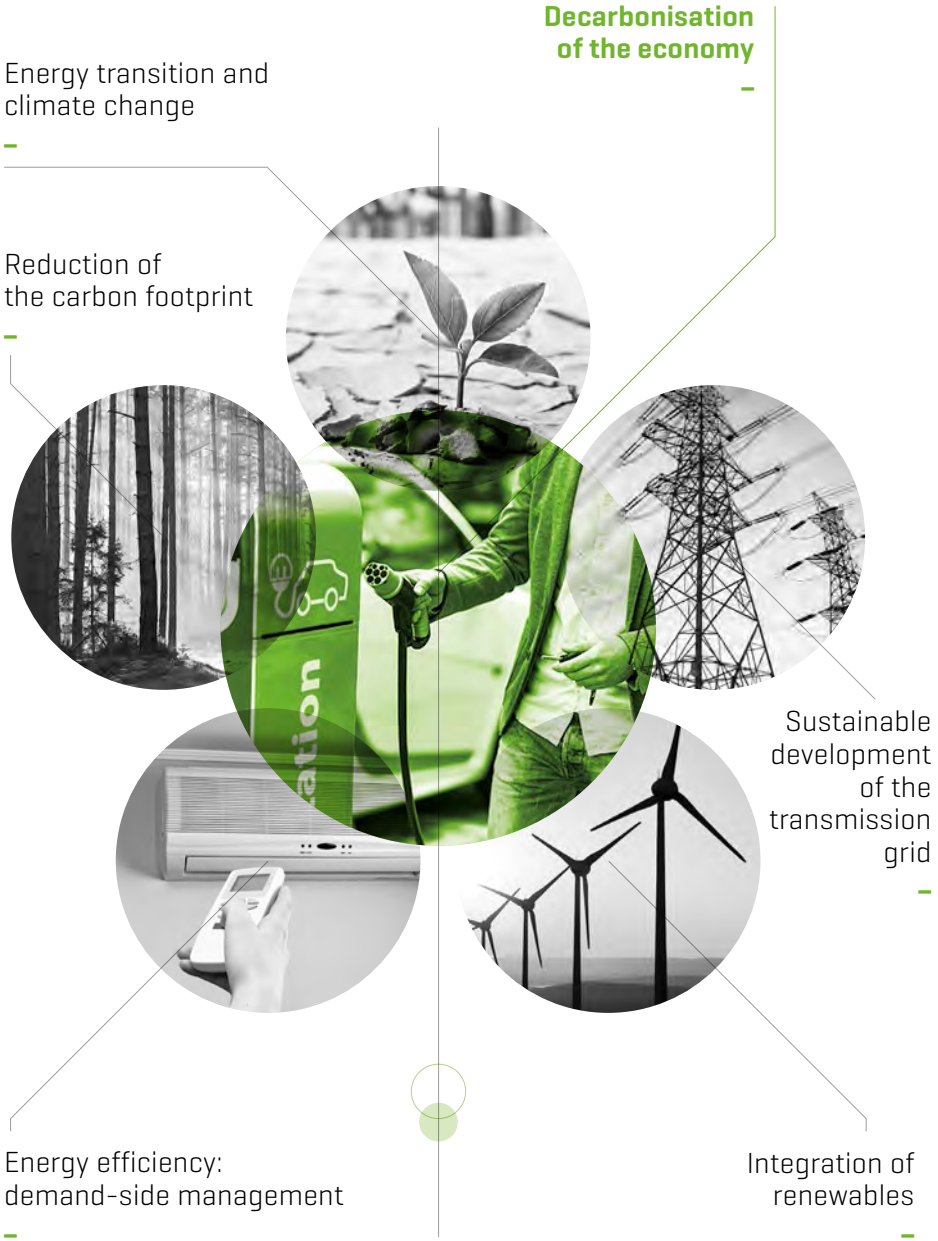
05

DECARBONISATION OF THE ECONOMY



Climate change is a global challenge that occupies a high priority on the international agenda. The objective is to limit the increase in temperature below the limit of two degrees centigrade, for which a transition towards a less carbon-intensive economic model is necessary.

In this regard, the Red Eléctrica Group takes on the following commitment as a sustainability priority:

Be a **proactive agent** in the energy transition towards a **zero-emission model**, advocating for the **electrification of the economy** and the **efficient** integration of **renewable energies**, through a **robust and better interconnected grid** and the development and operation of **energy storage systems**.

ENERGY TRANSITION AND CLIMATE CHANGE

Energy transition and climate change / 103-1 / 103-2 / 103-3

The Paris Agreement, reached in December 2015 at the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change, was a historic milestone in the global fight against climate change. The main element was the commitment of the signatory parties to contain the increase in the Earth's temperature 'well below 2°C' with respect to the pre-industrial level, striving to limit it to 1.5°C, as well as reaching the neutrality of emissions between 2050 and 2100.

Already long before the Paris Agreement, the EU had shown its desire to make economic growth compatible with the reduction of greenhouse gases (GHG), in the medium and long term, and the targets that have been set are proof of this.

To achieve these targets, a change in the energy model is essential and in this regard, the European Commission in November 2016 presented the **'Clean Energy for All Europeans'** package, whose proposals and measures aim to accelerate the transition to clean energy in line with the fulfilment of the targets established in the Paris Agreement, maintaining at the same time a secure and competitive energy system that allows the delivery of energy to the consumer at affordable prices, promoting growth and the creation of employment.

European energy targets

TARGETS 2020

- 20% reduction of GHG emissions compared to 1990 levels
- 20% of renewable energies in the EU
- 20% improvement in energy efficiency

TARGETS 2030

- 40% reduction of GHG emissions compared to 1990 levels
- 27% of renewable energies in the EU
- 30% improvement in energy efficiency
- 15% Electricity inter-connection capacity

TARGETS 2050

- 85-90% reduction of GHG emissions compared to 1990 levels

COURSES OF ACTION

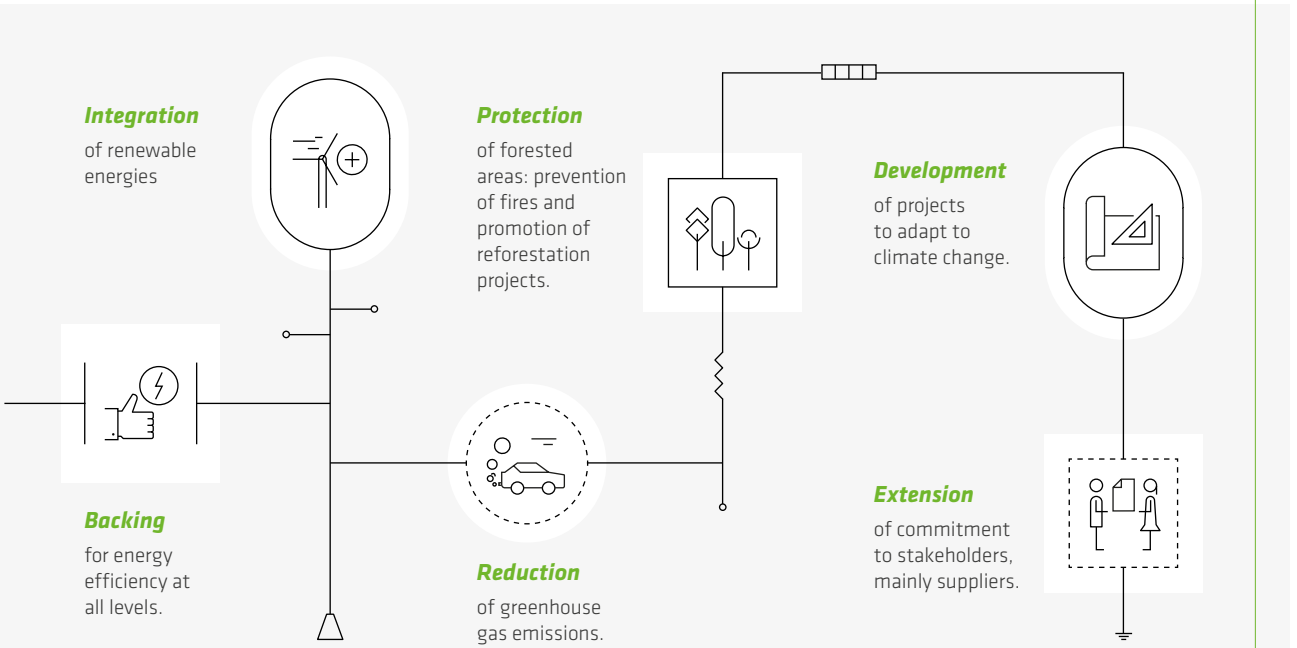
Red Eléctrica, as the transmission agent and operator of the Spanish electricity system, is a key player in the transition to the new energy model, whose key elements must be the electrification of the economy, the maximum integration of renewables in the energy mix and efficiency, while always guaranteeing security of supply.

Aware of its important role and the need for companies to have a clear position on climate change, the Company has declared a voluntary commitment in the fight against **climate change,** reviewed and approved by the CEO.

The commitment is set out in a **Climate Change Action Plan** (whose latest version was validated in 2017) that includes the targets to be achieved in the 2020 and 2030 horizons, as well as the main measures to be undertaken in order to achieve them.

Red Eléctrica has been included in the CDP Leadership Index (A list) for the second year running, in recognition of its effort and the actions undertaken to combat and tackle climate change.

CORNERSTONES OF THE CLIMATE CHANGE COMMITMENT



RED ELÉCTRICA

is a member of the **Spanish Green Growth Group,** an association that aims to promote public-private collaboration to jointly advance in the decarbonisation of the economy.

CLIMATE CHANGE ACTION PLAN: COURSES OF ACTION / 103-2

Contribution to a sustainable energy model

Actions related to the activity of Red Eléctrica as transmission agent and electricity system operator:

Development of infrastructure to facilitate the electrification of the economy, connect new renewable generation and provide the power to feed the railway network.

Integration of renewable energy into the electricity system through the optimisation of system operation and the operation of the CECRE, the improvement of generation prediction tools, the participation in regulatory proposals and the integration of energy storage systems.

Contribute to a greater efficiency of the electricity system by improving knowledge of the electricity demand and the development of measures for its management.

Prepare the operation of the system for the efficient presence of the **electric vehicle.**

Develop measures and studies to **reduce transmission grid losses** and increase grid efficiency.

Reducing the carbon footprint

During 2017, the reduction targets were reviewed and redefined using the criteria of the Science Based Targets Initiative (SBTi):

2020: 10 % reduction in total emissions of scope 1 and 2 per MWh transported compared to 2015.

2030: Reduction of 60 % of the total emissions of scope 1 and 2 per MWh transported compared to 2015.

The actions focus on:

The improvement of the calculation of the carbon footprint.

The **reduction** of SF_6 gas emissions.

The **decrease** in emissions derived from electricity consumption.

The **improvement** of efficiency in mobility.

The **implication** of the supply chain.

The **offsetting** of emissions.

Positioning and disclosure

The main objective is the **dissemination of knowledge regarding the electricity system and demand-side management measures,** as well as the promotion of other **energy efficiency** measures.

Red Eléctrica participates as a global partner in the 'Community for Climate' initiative promoted by several social entities, the Ministry of Agriculture and Fisheries, Food and Environment, the Spanish Green Growth Group and several NGOs, whose objective is to promote actions for climate change within Spanish society.

Adaptation to climate change

In addition to working on mitigation actions, Red Eléctrica is aware of the need to work in the field of adaptation to climate change.

For this reason, the Company **has identified and assessed both risks and opportunities** derived from climate change and has begun to develop some actions arising from said analysis.

SUSTAINABLE GRID DEVELOPMENT

Sustainable grid development / 103-1 / 103-2 / 103-3

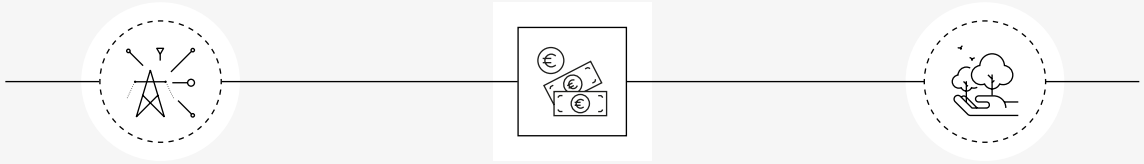
ELECTRICITY INFRASTRUCTURE PLANNING / EU10

The current infrastructure planning, approved by the Council of Ministers in October 2015, covers a period of six years and is binding in nature for Red Eléctrica.

This planning includes the projects of new infrastructure of the transmission grid necessary to guarantee the electricity supply nationwide, considering the aspects of economic efficiency and sustainability of the electricity system. In addition, physical, technological and environmental viability have been taken into account in the analyses carried out, prioritising those projects that allow a better use of the existing grid. As a new aspect, the planning also includes an annex, non-binding, for those facilities considered necessary with a post-2020 horizon, so that the administrative permitting processing can begin.

The 2015-2020 planning estimates a total investment of 4,554 million euros in the development of new electricity infrastructure.

CORNERSTONES OF THE 2015-2020 ELECTRICITY TRANSMISSION GRID PLANNING



Security of supply *Economic efficiency* *Environmental sustainability*

The actions through which the transmission grid is improved can be classified in two types: structural and connection. The actions related to each type are set out in the following table:

Actions for transmission grid improvement

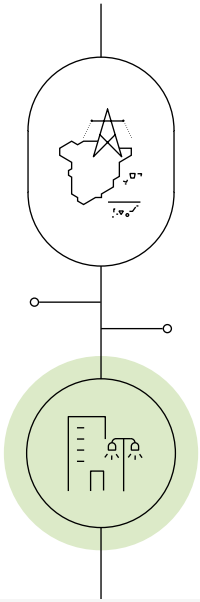
STRUCTURAL ACTIONS

- Resolution of technical constraints.
- Security of supply.
- Reliability
- International connections, interconnections between islands, and connections between the Spanish Peninsula and non-peninsular systems.

CONNECTION ACTIONS

- Development of the grid associated with the programme for the high-speed railway network.
- Support for the distribution and new demand of large consumers, mainly industrial.
- Evacuation of conventional and renewable generation.
- Connection of energy storage facilities.

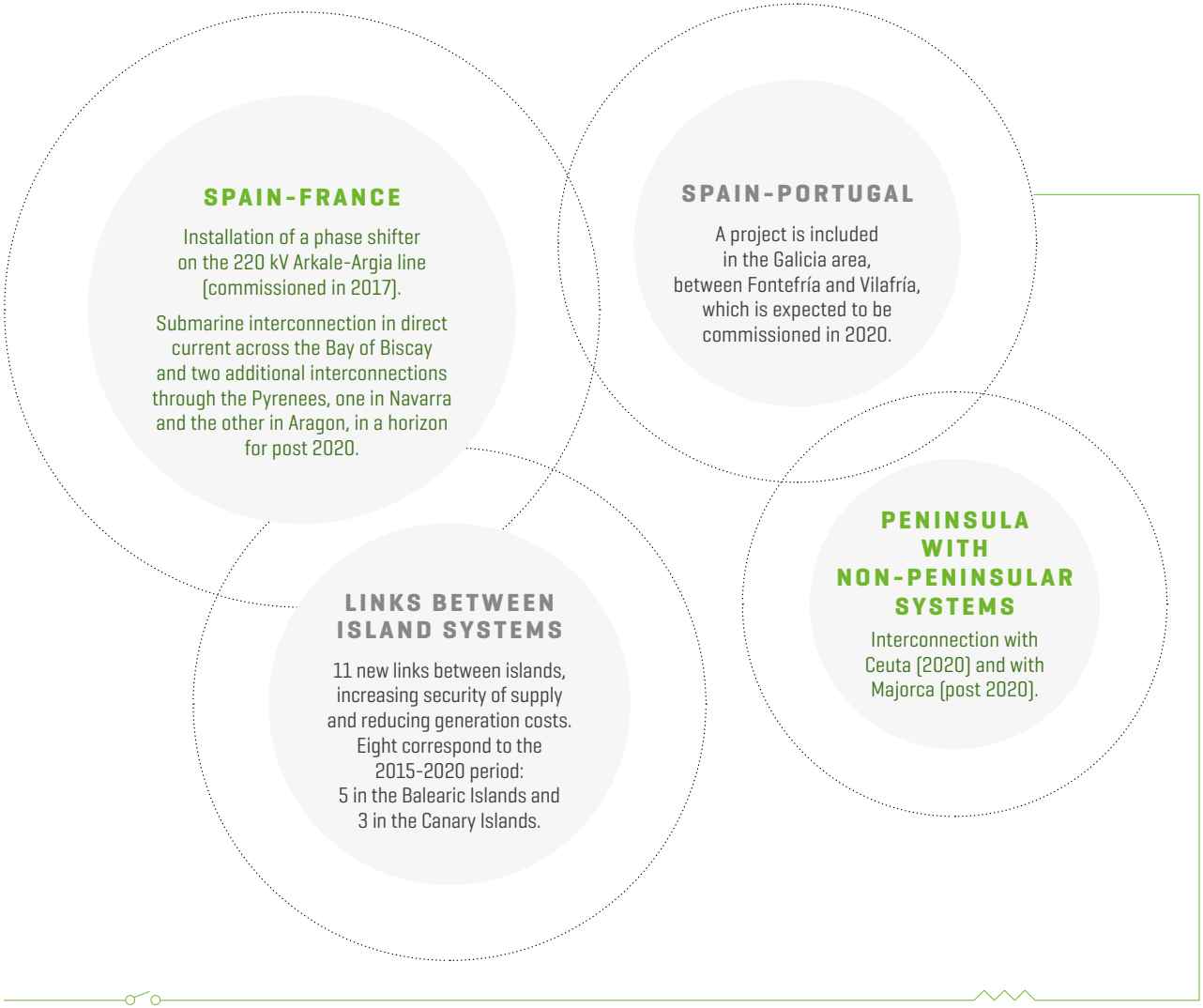
Infrastructure
PLANNING



OBJECTIVE:
to guarantee the electricity supply nationwide

-
Taking into account the economic efficiency and sustainability of the electricity system

A fundamental aspect of this planning, due to its great influence on improving the **quality and security of the electricity system** and the **integration of renewable energy,** is the development of **interconnections between electricity systems:** international interconnections, links between island systems and connections between the Spanish Peninsula and the non-peninsular electricity systems.



On the other hand, this planning includes, in an indicative manner, both the forecast of electricity consumption in the 2015-2020 planning period and the **analysis of the demand coverage.** This analysis assesses if the anticipated generation allows the demand forecasted to be covered.

In order to ensure the ability to cover the peninsular demand forecast, a minimum coverage index of 1.1 is used (calculated as the quotient between the net power available in the system and the forecasted average hourly peak demand) as a figure that adequately guarantees the coverage of the demand of the system in an extreme situation, considering the main uncertainties such as the variability of renewable generation. Under these hypotheses, the planning does not foresee the need for additional power to cover the demand peaks in the 2015-2020 horizon.

TRANSMISSION GRID CONSTRUCTION EU4

In 2017, investment in the transmission grid has basically been allocated to security of supply, the resolution of technical constraints, the development of interconnections between electricity systems and providing electricity to power the high-speed train.

Throughout 2017, 147 km of new line and 110 new substation bays were commissioned, and the transformer capacity was increased by 1,210 MVA, with an overall investment in the transmission grid of 411.8 million euros.

During 2017, the most significant actions carried out for the development of the transmission grid, by major axes, were the following:

- **Lanzarote-Fuerteventura axis:** this axis aims to carry out the necessary actions to build grid meshing on both islands, allow the evacuation of the energy generated and to strengthen the connection between the two islands. In 2017, the first facilities belonging to this axis were commissioned, which along with the rest of the facilities, will be completed in the coming years.

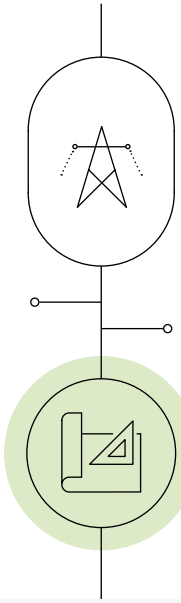
- **Olmedo-Zamora axis:** this axis aims to provide the electricity to power the Madrid-Galicia high-speed train in the Olmedo-Orense section. The scope of this project consists of the construction of the Tábara and Arbillera substations and their associated incoming and outgoing feeder lines. The Tábara substation was commissioned at the end of 2017 and the Arbillera substation is scheduled for mid-2018.

- **Providing power to North Gerona:** this axis is related to the international interconnection with France. Part of it was commissioned in 2014, specifically the Santa Llogaia substation and the Bescanó-La Farga-Santa Llogaia line. The pending scope consists of the construction of the La Farga substation and its associated incoming and outgoing feeder lines and its commissioning forecasted by the end of 2018.

- **Venta de Baños-Burgos-Vitoria:** the facilities included in this axis are motivated by the need to provide electricity to power the Burgos-Vitoria high-speed rail axis. The scope of the project consists of the construction of the Buniel and Briviesca substations and their associated incoming and outgoing feeder lines. The Buniel substation was commissioned at the end of 2017 and the Briviesca substation is scheduled for 2023.

- **Campanario-Ayora-Cofrentes:** the purpose of this axis is to increase the meshing of the transmission grid between the communities of Castilla-La Mancha and Valencia, as well as to strengthen the electricity supply needed to power the Madrid-Levante high-speed train. Part of the axis, which includes the Peñarrubia, Pinilla and Ayora substations, and the Pinilla-Campanario line, was commissioned between 2012-2015. The rest of the actions, which consist of the enlargement of the Cofrentes substation and the Campanario - Ayora line, were commissioned in mid-2017, and the Ayora-Cofrentes line, together with its associated incoming and outgoing feeder lines, is scheduled to be commissioned for 2022.

Grid
CONSTRUCTION



New lines

147 km of new line

-

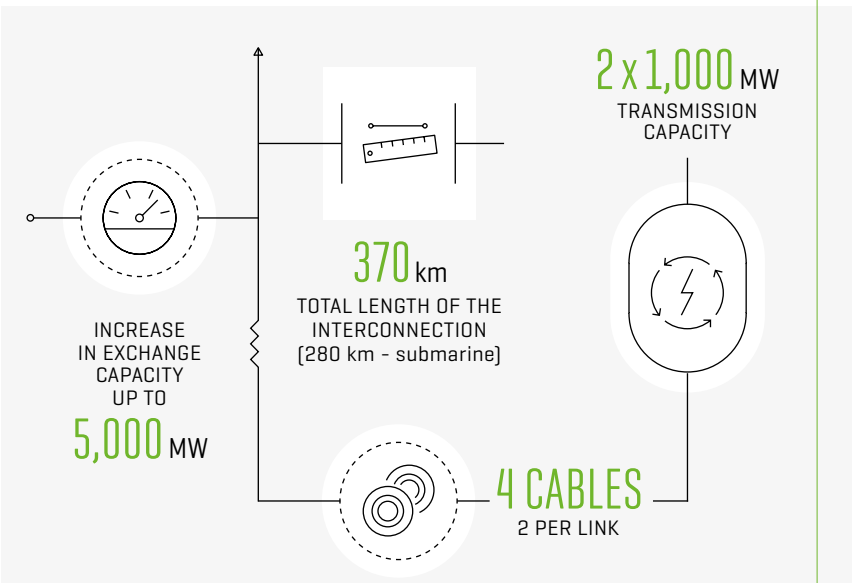
110 new substation bays

Additionally, in relation to the interconnection with France, the following actions have been carried out:

- **Arkale phase shifter:** This project, which aims to increase security of supply and strengthen international electricity exchanges, was commissioned in mid-2017.
- **Interconnection with France across the Bay of Biscay:** The purpose of this new interconnection with France (which is currently in the public information and consultation period) responds to the need to continue increasing the interconnection capacity with Europe, in order to achieve the European energy targets that allow access to a clean, competitive and safe energy for all citizens. The project consists of a submarine double link in direct current which is 370 km in length, of which 280 km are submarine, and which has a power capacity of 2,000 MW.

With this project, whose commissioning is scheduled for 2024, the electricity exchange capacity with the European electricity system will be raised to 5,000 MW.

INTERCONNECTION WITH FRANCE ACROSS THE BAY OF BISCAY / KEY DATA



Peninsular and non-peninsular transmission grid

	2015	2016	2017(1)
km of 400 kV line	21,184	21,619	21,728
km of 220 kV line	19,386	19,479	19,507
km of 150-132-110 kV line	398	523	523
km of <110 kV line	2,022	2,025	2,034
Total km of line	**42,989**	**43,646**	**43,793**
400 kV Substation bays	1,441	1,458	1,484
220 kV Substation bays	3,124	3,152	3,180
150-132-110 kV Substation bays	84	84	110
<110 kV Substation bays	779	797	827
Total substation bays	**5,428**	**5,491**	**5,601**
Transformer capacity (MVA)	**84,544**	**85,444**	**86,654**

(1) Provisional data pending audit - in progress.
Cumulative data as at 31 December of each year.

Kilometres of line

Data as at 31 December 2017 (1)

	Peninsula	Balearic Islands	Canary Islands	Total
Overhead lines (km)	39,870	1,061	1,080	42,011
Submarine cable (km)	265	540	30	835
Underground cable (km)	523	179	245	947
Total	**40,657**	**1,780**	**1,355**	**43,793**

(1) Provisional data pending audit - in progress.

TRANSMISSION GRID MAINTENANCE

Red Eléctrica's mission is to guarantee that the facilities of the transmission grid are always in optimum condition, in terms of availability and reliability, through the application of sustainable, efficient and safe maintenance policies.

To do this, a maintenance programme is established annually, which includes all the activities and resources necessary to guarantee the continuity of the electricity supply.

Among the activities carried out in 2017, it is worth highlighting the use of remote controlled drones for the inspection of lines, the design of special solutions for corrosion protection of the towers in critical areas and the development of a comprehensive monitoring system (SIMON - Intelligent Monitoring System) with the objective of integrating monitoring, data processing and real-time visualisation of the status and condition of substation equipment, allowing for the timely detection of potential breakdowns/faults.

SERVICE QUALITY
EU28 / EU29 / 103-1 / 103-2 / 103-3

The service quality indicators highlight for yet another year the high level of security and quality of supply provided by Red Eléctrica's facilities, being well within the benchmark established in the current legislation.

Quality of service indicators

	2015	2016	2017(1)
PENINSULAR TRANSMISSION GRID			
Grid availability (%)	97.92	98.31	98.28
Energy Not Supplied (ENS) (MWh)	53	67	63
Average Interruption Time (AIT) (minutes)	0.112	0.141	0.131
BALEARIC ISLANDS TRANSMISSION GRID			
Grid availability (%)	96.86	96.93	97.84
Energy Not Supplied (ENS) (MWh)	29	0	33
Average Interruption Time (AIT) (minutes)	2.662	0.027	2.881
CANARY ISLANDS TRANSMISSION GRID			
Grid availability (%)	96.74	98.06	98.12
Energy Not Supplied (ENS) (MWh)	150	457	47
Average Interruption Time (AIT) (minutes)	9.078	27.447	2.751

(1) The values for 2017 are pending external audit.
The continuity of supply indicator includes the valuation of the impact of incidents that are subject to administrative proceedings currently underway.

INTEGRATION OF RENEWABLES

Integration of renewables / 103-1 / 103-2 / 103-3

The core mission of the operation of the electricity system is **to guarantee the security and quality of the electricity supply, maximising the integration of renewable energy,** with the aim of contributing to the provision of a safe, efficient and sustainable electricity supply to citizens.

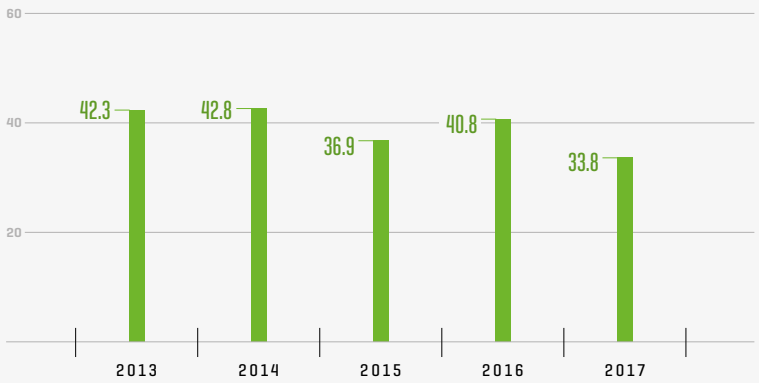
INTEGRATION OF RENEWABLE ENERGY

Peninsular electricity system

During 2017, in the peninsular electricity system, the production of energy from renewable sources represented 33.8% with respect to the total energy production generated. In line with previous years, it is worth noting the important contribution of wind generation, whose contribution to total energy production has reached 19.3%, this ranks wind in second place, behind nuclear energy. Similarly, in the months of February and December, wind generation was the technology with the greatest contribution to the total energy production of the peninsular electricity system, reaching around 25% in both months.

To make the operation of the electricity system possible, under safe conditions, with such a high penetration of renewable energy, the control and supervision work carried out from the Control Centre of Renewable Energies (CECRE) is key.

Renewable energy generation on the peninsula [1]
%



[1] Includes hydro, wind, solar photovoltaic, solar thermal, other renewable and 50% of urban solid waste. Does not include pumped-storage generation.

The main mission of Red Eléctrica as operator of the electricity system is to guarantee the security and quality of the electricity supply, maximising the integration of renewable energy.

Balearic Islands electricity system

The energy transferred from the Spanish Peninsula covered 19.6% of the Balearic Islands demand, reaching peaks that exceeded 35% of hourly consumption, which has meant a saving of 29% in the coverage costs of the Balearic Islands system and has avoided the emission into the atmosphere of approximately 350,000 tonnes of CO_2 eq. in the territory of the Balearic Islands.

Canary Islands electricity system

In Gran Canaria, security of supply has been improved with the actions carried out in the first quarter of 2017 in the north of the island, following the commissioning of the Sabinal substation at the end of 2016, as well as with the commissioning of the Santa Águeda substation and the reconfiguration of the grid, in the second half of the year, in the south zone of the island.

The generation of renewable origin has represented 7.9% of the total generation, reaching levels of 34% in Gran Canaria and 35% in La Palma, particularly challenging values in small isolated electricity systems.

The purpose of energy storage projects is to improve the guarantee of supply, the security of the system and the integration of renewable energy.

Similarly, the Gorona del Viento hydro-wind power station has been operating on a regular basis throughout 2017, increasing the integration of renewable energy into the El Hierro electricity system. In this regard, in the month of July, the monthly renewable integration into this system reached almost 80%, achieving 46.5% for the whole year.

ENERGY STORAGE PROJECTS

In order to improve the guarantee of supply, the security of the system and the integration of renewable energy, Red Eléctrica is developing several projects aimed at energy storage conceived as operating tools to optimise the efficiency of electricity systems.

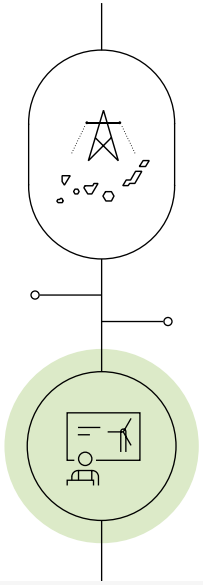
Soria-Chira pumped-storage hydroelectric power station (Gran Canaria)

The construction of this power station between the reservoirs of Soria and Chira will be an essential tool to advance towards the sustainability of the new energy model in the Canary Islands, as, in addition to improving the security of supply, it will enable a greater development of renewable energy on the island of Gran Canaria.

SORIA-CHIRA POWER STATION

This pumped-storage hydroelectric power station will have a turbine power capacity of 200 MW and a pumping capacity of 220 MW.

EL HIERRO ELECTRICITY system



In 2017, the integration of renewables reached

46.5 %

-

Thanks to the correct functioning of the Gorona del Viento hydro-wind power station

In addition, this facility will be a key element to reduce the vulnerability of electrically isolated and small systems, such as that of the island of Gran Canaria, when faced with high-levels of demand or when faced with situations where there is a lack of generation.

Almacena project

The *Almacena* project consists of the field installation and subsequent operation of an energy storage system, specifically a prismatic lithium-ion battery with a power output of 1 MW and a storage capacity of at least 3 MWh, which has the objective of evaluating the technical capabilities and characteristics that this type of facility currently presents as a tool that seeks to improve the efficiency of electricity system operation.

In 2014, the energy storage system was installed in Carmona (Seville) and during this period it has been going through a testing phase of its functionalities aimed at facilitating the integration of renewables and the improvement of the operation services.

ENERGY EFFICIENCY: DEMAND-SIDE MANAGEMENT

Energy efficiency: demand-side management / 103-1 / 103-2 / 103-3

Red Eléctrica continues to actively work on the promotion, development and dissemination of initiatives that allow the current electricity grid to evolve towards a more intelligent network characterised by greater flexibility of demand and by the integration into the electricity system of elements of the new model energy such as the electric vehicle, energy storage or self-consumption.

SINCE 2015

Work has been carried out on 23 projects, of which 10 have resulted in new processes or tools that are already incorporated into the operation of the system.

MAIN ACTIONS

Initiatives in the field of Smart Grids

Faced with the challenge of maintaining security of supply in a decarbonised electricity system, Red Eléctrica is promoting Smart Grid initiatives in order to anticipate solutions in the field of new energy storage technologies, the dynamic capabilities of the grid, the monitoring of grid elements, self-consumption, the electric vehicle and the new options for the consumers, that are already shaping the electricity grid of the future.

In 2017, five projects have obtained specific results that are already being used in the operation of the current system:

INCORPORATION OF PHASE MEASUREMENT IN THE OPERATION SYSTEMS. Improvement in the decision-making processes of the operators thanks to the integration of the information coming from the phase measurement units deployed in the electricity system.

SYSTEM FOR THE DETECTION OF FAULTS IN CABLES IN MIXED LINES. Development of a system based on optical sensors and advanced protection equipment that is capable of accurately detecting faults in sections of underground cable in mixed lines.

INCREASING THE MONITORING OF TEMPERATURE in underground cable II. Temperature monitoring in already existing insulated cable installations.

CECOVEL. Development of the Electric Vehicle Control Centre.

NEW DEMAND FORECASTER (Balearic Islands). Development of new tools to improve the electricity demand forecast for various horizons, from one hour to a week.

Future participation of the demand in the balancing services

Another challenge that Red Eléctrica is already addressing is the participation of the demand in the balancing services, as a consequence of the European harmonisation process regarding ancillary services.

During 2017, Red Eléctrica held a **Seminar to exchange international experiences on the aggregation of demand and its participation in balancing services** in which the key players in the electricity sector (more than 40 organisations) were able to discover first-hand how this challenge is being addressed in other countries around us (France, Belgium, Holland and Germany).

Active citizen

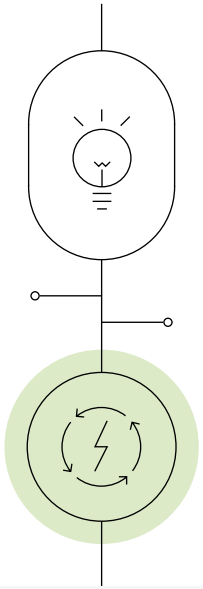
The electricity system finds itself in a transition towards a new, more dynamic energy model where the role of citizens as key protagonists in system operation is becoming increasingly prominent. Therefore, Red Eléctrica promotes demand-side management initiatives as well as making information about the situation of the system available to citizens, or to disseminate recommendations on best practices for efficient consumption.

Noteworthy is the participation of Red Eléctrica in an ENTSO-E Working Group dedicated to demand-side response.

NOTEWORTHY IS THE PARTICIPATION

of Red Eléctrica in the European Technology and Innovation Platform Smart Networks for Energy Transition (ETIP SNET).

Interruptible DEMAND



Awarding of

2,600 MW

of interruptible resource

-

Managed by Red Eléctrica as auction administrator

Interruptibility service

This service is an industrial demand-side management tool provided by large consumers that provides a fast and efficient response to the needs of the electricity system. In this regard, the industrial consumers who provide this service reduce, at the request of the system operator, their consumption down to certain predetermined values.

Order IET/2013/2013 of 31 October 2013, introduced a new allocation mechanism for the demand-side management interruptibility service based on a competitive auction procedure. For the **period between 1 January 2018 and 31 May 2018,** Red Eléctrica, in its capacity as auction administrator, has managed the holding of auctions in which the large industry of the country has competed for the allocation of the interruptible resource and that have resulted in **the awarding of 2,600 MW of interruptible resource.**

The PERFILA project analyses the hourly information coming from a panel of consumers that already have smart meters.

Profiling Service

Due to the fact that in the electricity market all energy is settled on an hourly basis, it is necessary to make an estimate of the hourly behaviour of those consumers that do not have smart meters installed. Said forecast is carried out through the so-called 'consumption profiles', which Red Eléctrica drafts and which assign to each consumer a typical demand behaviour according to their contracted power and the voltage levels (access tariffs).

With the aim of improving the current profiling service, since 2013 Red Eléctrica has led the **PERFILA project,** which has the participation of the most important distribution companies, and which is based on the analysis of the hourly information coming from a panel of consumers that already have smart meters.

The information that has been collected since January 2014 from approximately 25,000 members of the panel has been used in the proposals of initial profiles prepared by Red Eléctrica for 2015, 2016 and 2017. In 2017, in which the profile proposal for 2018 has been defined, in addition to the information of the Perfila Project panel, information from power measurements, received by telematic means by SIMEL (Power Measurement System) has been incorporated for the first time.

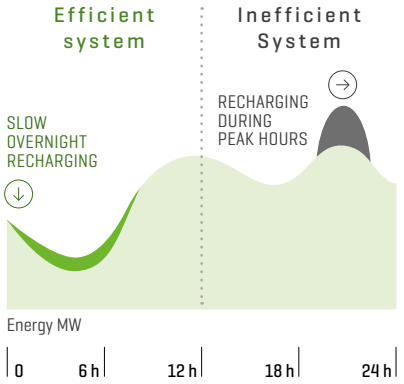
Electric vehicle

Electric mobility represents an opportunity to improve the efficiency of the energy system as a whole, as it allows the incorporation of electricity as an energy vector of the transport sector.

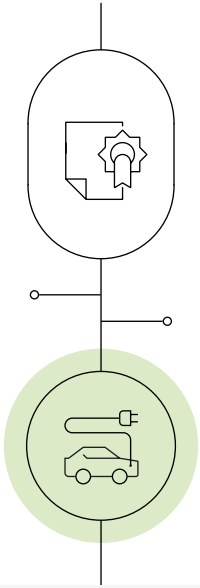
The **CECOVEL project** (Electric Vehicle Control Centre) is an initiative of Red Eléctrica to support electric mobility in the current scenario of energy transition.

Operational since January 2017, CECOVEL allows us to track the electricity demand for the recharging of electric vehicles, making these new electricity consumers visible. It is a collaborative project with the participation of the main recharging managers in Spain. In addition, it currently monitors the measurements of more than 900 recharging points.

Recharging schedule of the electric vehicle



CECOVEL
PROJECT



Has received recognition from **enerTIC AWARDS** in the Smart Vehicle category

-

Operational since 2017, has the participation of the main recharging managers in Spain

REDUCTION OF THE CARBON FOOTPRINT

Reduction of the carbon footprint / 103-1 / 103-2 / 103-3

The Company has decided to adopt a firm commitment to reduce the carbon footprint despite not being subject to any regulations that require it to disclose or reduce (or offset) the emissions associated with its activities.

During 2017, a revision of the existing reduction targets was carried out in order to align them with the commitment made in Paris by the governments to limit the increase in temperature to 2 degrees. The general objectives have been redefined using the criteria of the Science Based Targets initiative (SBTi), an organisation with which we will continue working during the next year to adjust and formalise the objectives. It should be noted that objectives have been defined for two horizons, a short term (2020 horizon) and a medium term (2030 horizon), as set out at the beginning of this chapter.

On this and the following pages, the new objectives defined are described, as well as the main actions carried out to achieve them.

CALCULATING THE CARBON FOOTPRINT

Red Eléctrica prepares its emissions inventory based on the GHG Protocol methodology. This inventory is subject, since 2013, to independent review in accordance with ISAE 3410. The Independent Assurance Report is included in the annex to this report.

Red Eléctrica works constantly to improve the calculation of emissions associated with its activities. Thus, since 2015, **the methodology for calculating the carbon footprint associated with the life cycle of the various electricity facilities is being developed,** having already been completed for the overhead lines and cables. The designed tool allows the footprint of the mentioned facilities to be calculated based on the project data and subsequently adjusted with the data collected during its construction.

SINCE 2015

Red Eléctrica has registered its emissions inventory in the Carbon Footprint Registry, offsetting and absorption projects of the Spanish Office of Climate Change (OECC - MAPAMA).

In addition, during 2017 the **review and adjustment of the methodology for the calculation of indirect emissions (scope 3) was carried out,** reviewing the application of each of the categories indicated in the GHG Protocol guide for the calculation of emissions associated with the value chain and defining the criteria for its calculation.

CONTROL OF SF_6 EMISSIONS

The main direct emissions derived from the activities of Red Eléctrica are those of sulfur hexafluoride (SF_6). This gas, despite its high global warming potential, has enormous technical advantages. It is a non-toxic gas that allows a high reduction of the distances to be respected between different elements of the facilities, which makes it possible to reduce the size of the facilities and, therefore, their better integration into the environment.

SF_6 emissions are associated with small leaks in the equipment, leaks during gas handling and accidents that may eventually occur, which makes it very difficult to establish reduction measures and targets.

However, for Red Eléctrica it is a priority issue and it has different lines of work in progress aimed at gaining a better knowledge and control of the gas and the reduction of leaks. The most important are the following:

Climate change action plan objective

Target 2016 - 2020: total SF_6 emissions ≤ 210,000 tCO_2eq.

Progress 2017: Total emissions 54,994 tCO_2eq. (2016 - 2017).

1. Improvement in the SF_6 management and inventory as well as the procedures for the control and identification of leaks.
2. Provision of more efficient equipment for the localisation of leaks, handling and measuring of SF_6.
3. Training of people involved in the management of the gas. Red Eléctrica has two legally recognised training centres equipped with a classroom for theoretical training and a workshop for the conducting of hands-on practice in which 468 employees have received training since 2013.
4. Replacement of old equipment for equipment with lower leakage rates. In 2017, the objective of avoiding emissions through the substitution of equipment was broadened.
5. R&D+i projects related to the improvement of gas management: 'Development of a methodology for the repair of leaks of SF_6 in GIS facilities'. Alternatives to SF_6 gas in high-voltage switchgear' and 'systems for the capture of escaped gases in enclosed GIS substations'.

Climate change action plan objective

OBJECTIVE 2015 - 2020

Exceed 2,300 $tCO_2eq.$ per year in the category of emissions avoided. **(1)**

PROGRESS 2017

302 $tCO_2eq.$ per year avoided thanks to the actions of 2017.
1,655 $tCO_2eq.$ per year avoided in the period 2015-2017.

(1) The calculation of emissions avoided is carried out taking into account the theoretical leakage rates of the equipment, depending on its age.

Additionally, Red Eléctrica continues working in collaboration with the public administration and other entities in the search for solutions aimed at controlling and reducing these emissions within the framework of the Voluntary Agreement signed in May 2015 between the Ministry of Agriculture, Food and Environment, the manufacturers and suppliers of electrical equipment that use SF_6, the electricity transmission and distribution companies and the waste managers of this gas and the equipment that contains it, for a comprehensive management of the use of SF_6 in the electricity industry that is more environmentally friendly.

Evolution of SF_6 installed gas in Red Eléctrica

kg

2017	434,566
2016	421,666
2015	373,806

Note: The growth in installed gas in 2017 is due mainly to the commissioning of new facilities and the replacement of old equipment for equipment insulated with SF_6. However, it is also associated with the updating of the inventory of SF_6 gas-insulated substations, which has made it possible to determine the amount of gas contained in them (until 2015 this was estimated).

SF_6 Emission rate (% of emissions over installed gas)

%

2017	0.26
2016	0.30
2015	0.37

The reference rate is 0.5 %, which is the maximum leakage rate for equipment in service established in the Voluntary Agreement for SF_6 management signed in 2015. This rate is set for the equipment commissioned from the date the agreement was signed, therefore allowing for greater leakage rates in previous equipment.

EFFICIENCY IN ELECTRICITY CONSUMPTION

One of the pillars of the Company's climate change strategy is the commitment to energy efficiency at all levels. In order to make it visible, and to encourage employees to identify and drive projects that promote the efficient use of natural resources, the internal efficiency brand Red Eléctrica Eficiente has been created, which identifies all these projects. Each year some of them are awarded for their contribution to the achievement of the different efficiency targets, through the Red Eléctrica Eficiente Awards.

Red Eléctrica
EFICIENTE

Recognition granted to projects that promote the EFFICIENT USE of natural resources

-

In 2017, it celebrated its fifth edition

Noteworthy projects of the 5th Edition of the Red Eléctrica Eficiente Awards

ELECTRIC VEHICLE CONTROL CENTRE (CECOVEL)
Solution to manage the electricity demand that the massive implementation of this type of vehicle would represent, adapting the electricity system to the recharging habits of the citizens and reducing the impact on the system.

RECICL-ART
Traditional Christmas party that Red Eléctrica celebrates for the children of employees, whose central theme has been recycling, with the objective of transmitting to youngsters the importance of the 3R Model (Reduce, Reuse, Recycle).

STUDY FOR THE USE OF GEOTHERMAL VENTILATION FOR GAS-INSULATED FACILITIES AND CABLE GALLERIES
Improvement of the cooling system of indoor facilities of Red Eléctrica by harnessing the geothermal energy from the ground.

BEST INNOVATIVE IDEA
Pisa con Energía!: Consists of the recovery of energy from footsteps in busy thoroughfares, which can then be stored in batteries and supplied for lighting the Company's offices.

On the other hand, the following energy efficiency measures have been carried out, with special attention to the implementation of energy efficiency measures in existing buildings. The implementation of these measures has been considered as a priority objective for the Company (managerial) in 2017, having achieved a fulfilment of 100%.

Of the HVAC measures implemented during the 2017, noteworthy are the climate control systems based on the use of geothermal energy that have been commissioned in two buildings: San Sebastián de los Reyes work centre and the Tres Cantos Campus. These systems will significantly reduce the consumption of electricity.

The implementation of energy efficiency measures in existing buildings has been considered a priority objective in 2017, having achieved a fulfilment of 100%.

Energy efficiency measures implemented by Red Eléctrica

BUILDINGS

Head offices
Energy management system certified under ISO 50001.

New buildings
In 2017, the renovation of the building for the Tres Cantos Campus (ECRE) was completed. One of the main objectives was to get as close as possible to the levels of almost zero consumption in buildings. The consumption will be up to five times less than that of a conventional building of the same characteristics.

Existing buildings
Improvements in HVAC, lighting and insulation systems in 9 work centres, which will mean an estimated saving of 172,085 kWh per year.

IT SYSTEMS

Renewal of equipment and systems
The renewal of equipment in 2017 (laptops, desktop computers and monitors) implies an estimated reduction in electricity consumption of 51,966 kWh per year.

Application of efficient use policies
More than 90% of the equipment has measures such as automatic screen shutdown or sleep mode. This represents an approximate saving of 20% in the energy consumption of the equipment.

SUBSTATIONS

Selection of equipment and components and the establishment of guidelines for their efficient use
During 2017, a pilot project was carried out to replace the lighting of a substation with LED technology. The result of this measure has led to average consumption that is nine times lower when the lights are in use.

Rationalisation in the use of lighting
Thanks to the improvements implemented in the remote lighting control systems, the total or partial shutdown of the night lighting in 37 substations has been carried out which represents an estimated saving of 985,500 kWh per year.

AWARENESS

Awareness campaigns
Awareness campaigns for employees and collaborators who work at the Company's facilities.

Red Eléctrica has introduced HVAC systems based on the use of geothermal energy and has an R&D+i project in place to evaluate the operation of a cooling system using geothermal ventilation.

Work is also being done on maximising the use of ground energy in the case of some electricity facilities, such as gas-insulated substations and cable galleries. In 2016, a R&D+i project was initiated with this objective in mind; and in 2017, a cooling system using geothermal ventilation was installed in the 220 kV Fuencarral gas-insulated substation and the necessary data is being collated to be able to assess its performance.

Reduction targets

TARGET

Reduction of emissions associated with electricity consumption: 85% in 2020 and 90% in 2030.

Reduction of electricity consumption in work centres: 3% in 2020 and 10% in 2030.

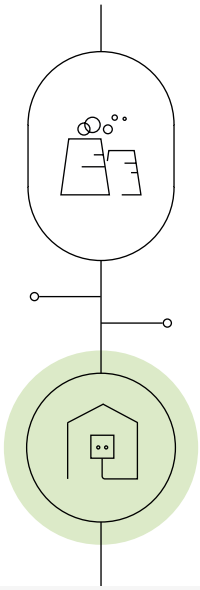
PROGRESS 2017

Reduction of 82.6% of the emissions associated with energy consumption in 2017 vs. 2015.

Reduction of 6.6% of electricity consumption in work centres in 2017 vs. 2015.

Note: The targets are set using 2015 as the base year.

Progress **MADE REGARDING THE TARGETS**



82.6 %

Reduction in emissions associated to energy consumption

SUSTAINABLE MOBILITY

For several years, Red Eléctrica has been working on optimising work-related travel and reducing the emissions associated with it.

In 2014, it has a Sustainable Mobility Plan, with the goal of incorporating a new culture of mobility within the Company.

Efficient management of fleet vehicles

Progressive improvement of the energy rating of the vehicles used and the optimisation of their use through the application of CARs (Agile, Responsible and Safe Driving System). In addition, the Company has joined the 'Sustainable Professional Mobility' Project promoted by the CONAMA Foundation, which includes various actions such as training in efficient driving.

Since 2015, Red Eléctrica has maintained the 'Green Fleet' accreditation in its 'Master' modality (the most demanding one) of AEGFA (Association of Fleet Managers) and IDAE (Institute for Energy Diversification and Saving).

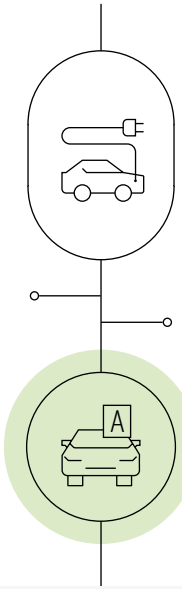
Reduction of emissions associated with business trips

Launch of a corporate fleet of 12 electric vehicles for trips during the working day; prioritisation of the use of efficient taxis and improvements in communication tools, in order to reduce the number of trips (video conferences and remote accessibility platforms).

Rationalisation of the use of private vehicles in the commute to workplaces

Improvements in the Company bus service and shuttle services connecting the offices with different locations; redesigning routes and lengthening hours so as to provide a better service; inclusion of the transport pass in the employee options for benefits in kind (19% of employees have benefited from this measure, 3% more than in 2016) and the promotion of car-sharing (8% of employees are using this measure on a regular basis compared to 6% in 2016).

Vehicle FLEET



73 %

of Red Eléctrica's fleet have an energy rating of A or are electric vehicles

-

compared to 68% in 2016

Additionally, Red Eléctrica participates in initiatives promoted by external organisations regarding the promotion of sustainable mobility. Thus, in 2017, it took part in:

- the Advisory board of the sustainable mobility observatory (Club de Excelencia de Sostenibilidad).
- the European Mobility Week, in which it has registered two initiatives: the Sustainable Mobility Plan and the CECOVEL project.

Climate change action plan objective

OBJECTIVE
Reduction of emissions associated with the use of Red Eléctrica vehicles: 15% in 2020 and 30% in 2030 vs. 2015.
PROGRESS 2017: 27%.

OBJECTIVE
Reduction of emissions associated with business trips made in vehicles: 20% in 2020 and 40% in 2030 vs. 2015.
PROGRESS 2017: 42%.

Red Eléctrica has received recognition for its involvement in the promotion of sustainable mobility, issued by the Sub-Directorate of Air Quality and Environment of the Ministry of Agriculture and Fisheries, Food and Environment.

In 2017, work was completed on planting the Firgas forest (Gran Canaria), which is estimated to offset 1,288 t of CO_2, equivalent to 4.5% of the direct emissions in the same year.

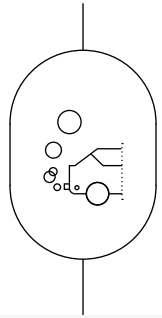
OFFSETTING OF EMISSIONS

Red Eléctrica has put into effect different alternatives for the reduction of its emissions. However, given the nature of the emissions (the main direct emissions are unclear) and the characteristics of the Company´s activities, in order to achieve greater progress in reducing the Company's carbon footprint, it is important to work on actions to offset emissions. The main method of offsetting emissions is the execution of the Red Eléctrica Forest programme, described in the 'Contribution to social, economic and environmental development' chapter.

In addition, for the fourth consecutive year, the Company has offset part of its emissions derived from the daily commutes of its employees by **purchasing 2,200 VCUs (Verified Carbon Unit)** under the VCS (Verified Carbon Standard), which correspond to the emissions generated by all those workers who have answered the 2017 mobility survey.

The offsetting has been made by supporting a project selected by the participants in the survey: Madre de Dios Amazon REDD Project, a deforestation project which was halted in the Amazon jungle (Peru) that contributes to the conservation of biodiversity in the area and the development of indigenous communities.

VCU
VERIFIED CARBON UNIT



The Company has offset

56 %

of the emissions generated by the workforce in their daily commute

-

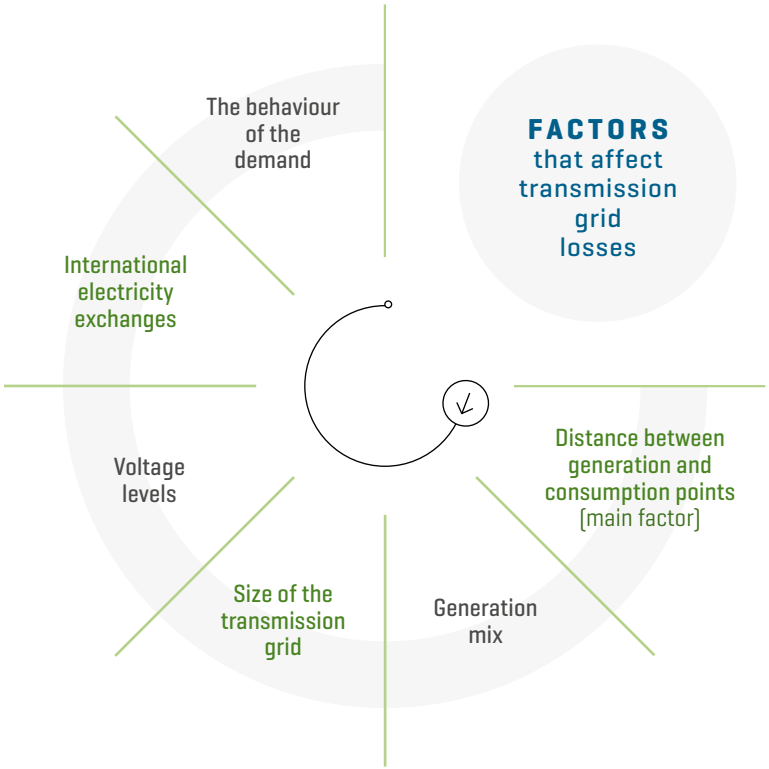
For this, they have purchased 2,200 VCUs

Transmission grid losses are the difference between the energy generated and the energy demanded for its distribution.

TRANSMISSION GRID LOSSES
103-1 / 103-2 / 103-3 / EU12

The energy losses in the transmission grid are accounted for within the emissions of scope 2, as indicated by the GHG Protocol. The emissions associated with them are calculated taking into account the energy lost in the grid (transmission grid losses) and the emission factor of the energy mix ($tCO_2eq./MWh$) (calculated by Red Eléctrica according to the amount of energy generated by different technologies). None of these factors is controllable by the Company.

The transmission of electricity inevitably leads to energy losses in the grid. This means that a somewhat higher generation is required to satisfy a certain final consumption. There are several factors that generate losses: the Joule effect, the corona effect and the self-consumption of the electricity substations necessary for them to function correctly.
Of all of them, the most relevant is undoubtedly the Joule [1] effect, associated with the current flow through the conductors.



Red Eléctrica works to improve the aspects that depend on its management and that can have an influence on the reduction of these losses. Among them, the following actions are noteworthy:

Development and meshing of the transmission grid

Increase in the number of conductors per circuit

Use of technologies and systems with the higher performance

Maintaining facilities in the best conditions possible to ensure their good operation.

*[1] **Joule effect:** the effect whereby, when an electrical current flows through a conductor, part of the kinetic energy of electrons is transformed into heat which thereby raises the temperature of the conductor. Joule effect losses are proportional to the intensity flowing through the conductor and the resistance thereof, the greater the length of the line the greater this resistance is. In view of this, it can be understood that the losses are mainly related to the distance between points of generation and consumption.*

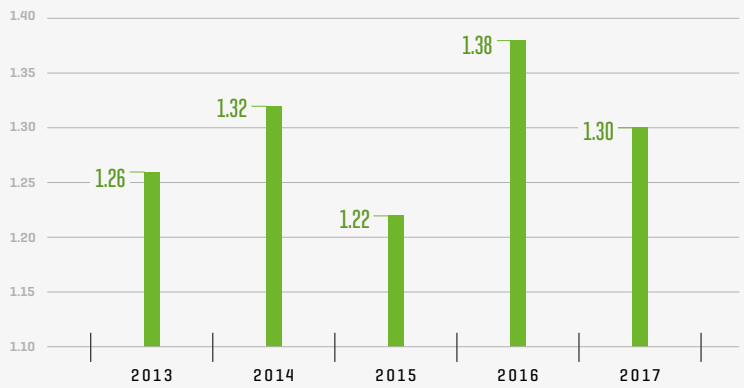
The first two of the aforementioned measures seek the creation of parallel paths to circulate the same intensity, which reduces the resistance and with it the losses. However, all these improvements have a very limited impact on the evolution of energy losses as other aspects, not controlled by Red Eléctrica, are the ones which have the greatest influence.

The losses increase mainly with the increase of distances between the points of generation and consumption. The structure of electricity generation depends on the rules of the electricity market, which are regulated by an independent body. The function of Red Eléctrica as operator of the electricity system must be carried out in accordance with specific and mandatory operating procedures.

In accordance with these procedures, it is not possible to operate the electricity system according to loss reduction criteria, therefore the Company has little capacity to act in relation to said reduction.

On the other hand, it is important to note that, **in the case of the Spanish electricity system, the increase in losses is closely related to the share of renewable energies in the generation mix.** Normally, the increases in hydro and wind generation are related to an increase in transmission distances as this type of generation is usually a long distance away from the consumption points.

Transmission grid energy losses with respect to the peninsular demand
%



Note: The reduction of the percentage of losses in 2017 is mainly associated with electricity generation mix. In 2017, the share of hydro generation was reduced (47%), which is generally a long distance away from the consumption points.

Indicators

Fuel consumption

302-1

(Litres)

	2015	2016	2017
Diesel	450,752	712,853	567,942
Petrol	23,799	49,768	52,124
Biodiesel	121	0	0
LPG Autogas	33	0	0
Diesel generator sets (1)	5,061	3,452	1,212

(1) Corresponds to diesel refilled in the fuel tanks in the year indicated.

Note: *2015 data has been recalculated to include shared leasing vehicles and managerial vehicles, according to the methodology applied since 2016.*

Electricity consumption

302-1

(kWh)

	2015	2016	2017
Total	16,169,682	15,540,936	15,177,175

Note 1: *Includes the consumption of the Head office, the electricity control centres (centres that operate 24/7 and have a special energy consumption) and work centres (regional offices and maintenance centres). As of 2016, the consumption of electric vehicles is also included.*

Note 2: *2015 (base year) has been recalculated applying the same criteria considered for 2016 and 2017.*

Note 3: 84.4% of the energy consumed comes from renewable sources (green energy or with guarantees of origin).

Summary of energy consumption (1)

302-1

(Joules)

	2015	2016	2017
Fuel consumption	$1.70 \cdot 10^{13}$	$2.82 \cdot 10^{13}$	$2.28 \cdot 10^{13}$
Electricity consumption	$5.82 \cdot 10^{13}$	$5.59 \cdot 10^{13}$	$5.46 \cdot 10^{13}$

1 kWh= $36 \cdot 10^5$ joules; 1 litre of diesel fuel= $37 \cdot 10^6$ joules; 1 litre of gasoline= $34 \cdot 10^6$,1 litre of gas oil= $37 \cdot 10^6$ joules; 1 litre of biodiesel= $32.79 \cdot 10^6$ joules; 1 litre of LPG= $25.7 \cdot 10^6$ joules

(1) Overall consumption data (joules) following GRI criteria.

Indirect energy consumption. Electricity

302-1

	2015	2016	2017
Transmission grid losses (MWh) (1)	3,167,238	3,587,687	3,409,173
Transmission grid losses (joules)	$1.14 \cdot 10^{16}$	$1.29 \cdot 10^{16}$	$1.23 \cdot 10^{16}$

(1) Losses in the electricity transmission grid are related to the location of generation points in relation to the consumption points the greater the distance, the greater the losses), the amount of energy demanded during the year, the generation mix of the year (percentage of each generation technology in the total energy generated), international exchanges and the shape of the demand curve. Practically none of these factors are manageable by Red Eléctrica, making it very difficult to reduce losses. However, Red Eléctrica works to identify and improve those factors it can have an influence on.
During 2017, the value of losses in the transmission grid has been reduced compared to the previous year, mainly due to the different distribution of generation in the Spanish peninsular system (lower share of renewable generation, which is mostly furthest from the consumption areas).

Note: *The data reflected in this table includes the losses of the peninsular system and those of the Balearic Islands and Canary Islands systems.*

External energy consumption. Internal logistics
302-2

	2015	2016	2017
Fuel consumption (litres)	238,240	196,973	210,870
Fuel consumption (joules)	$8.82{\cdot}10^{12}$	$7.29{\cdot}10^{12}$	$7.80{\cdot}10^{12}$

This fuel consumption corresponds to the transfer of materials between the Company's different facilities (internal logistics). Does not include other types of transfers of materials or people.

1 litre of gas oil = $37{\cdot}10^{6}$ joules.

Energy intensity
302-3

	2015	2016	2017
Electricity consumption per employee in Head office (kWh/employee) (1)	7,126	6,763	6,421
Transmission grid losses – peninsular system (MWh/MWh transported) (%) (2)	1.219	1.376	1.289
Transmission grid losses – peninsular and non-peninsular systems (MWh/MWh transported) (%) (2)	1.206	1.355	1.273
Average consumption of vehicles for logistical use (external) (litres/100 km)	26.6	26.4	24.6

(1) The calculation takes into account all staff working at the Head office work centres (employees of the Group, interns, employees from temporary staffing agencies and collaborators).

(2) The percentage indicated corresponds to the energy dissipated in losses with respect to the total demand. The losses of the transmission grid are related to different factors, of which practically none of them is controllable by REE, which makes it very difficult to reduce them. The decrease in the percentage of losses in 2017 is associated with a decrease in total losses, mainly related to the distribution of generation in 2017 (lower share of renewables that is usually farthest from the consumption areas). In addition, there has been a slight increase in the demand for electricity, which also contributes to the reduction of the % of losses. For more information about transmission grid losses, see the section of this chapter: Transmission grid losses.

Reductions in electricity consumption
302-4

	kWh/annually	joules/annually
Efficiency measures in work centres: improvements to insulation, HVAC and lighting (1)	172,085	$4.08{\cdot}10^{11}$
Efficiency measures in electricity substations: night lighting being switched off (1)	985,500	$3.55{\cdot}10^{12}$
IT efficiency measures: Renewal of desktop equipment, laptops and monitors (1)	51,966	$1.87{\cdot}10^{11}$

(1) Includes estimated annual reductions resulting from the measures carried out in 2017 (estimations obtained from equipment specifications and information based on energy audits regarding the implementation of measures).

Reduction of fuel consumption
302-4

	litres	joules
Incorporation of electric and hybrid vehicles into the vehicle fleet (owned and shared leasing) (1)	56,740	$2.1{\cdot}10^{12}$

(1) Fuel savings of 2017 have been included in relation to 2016. The savings derived from the reduction of km made have not been taken into account, only the savings associated with the improvement in the efficiency of the vehicles.

Direct greenhouse gas emissions (Scope 1) (1)

305-1

(tCO_2 equivalent)

Direct (Scope 1)	2015	2016	2017
SF_6 (2)	31,650.83	28,769.66	26,223.98
Air conditioning	840.45	610.00	708.96
Fleet vehicles	2,124.00	1,897.61	1,556.47
Diesel generator sets	182.00	221.87	275.38
Total direct emissions	**34,796.81**	**31,500.00**	**28,764.78**

(1) The calculation of emissions is performed from an operational control perspective. The information on the inventory scope and methodology is available on the REE website (http://www.ree.es/en/sustainability/sustainable-energy/energy-and-climate-change/our-carbon-footprint).
The inventory was submitted to independent review in accordance with ISAE 3410.

(2) Taking GWP (Global Warming Potential) at 100 years: 22,800 (Source IPCC, Intergovernmental Panel on Climate Change: 4th assessment report).

***Note:** Red Eléctrica has established 2015 as the base year to establish its reduction objectives. The emissions of the base year have been recalculated according to the current criteria: the emissions of fleet vehicles include the emissions of management vehicles and shared leasing.*

Indirect greenhouse gas emissions from the generation of energy (Scope 2) (1)

305-2

(tCO_2 equivalent)

Indirect (Scope 2)	2015	2016	2017
Associated with electricity consumption (2)	5,440.69	1,663.82	946.50
Derived from transmission grid losses (3)	911,310.09	847,129.25	956,020.79
Total indirect emissions	**916,750.78**	**848,793.06**	**956,967.29**

(1) The calculation of emissions is performed from an operational control perspective. The information on the inventory scope and methodology is available on the REE website (http://www.ree.es/en/sustainability/sustainable-energy/energy-and-climate-change/our-carbon-footprint).

(2) The emissions are calculated under the 'market based' approach, applying the emission factors associated with the market agents that supply the electricity.

(3) The emissions associated with the losses in the transmission grid, in the same way as for the emissions associated with the consumption of electricity, do not occur during the REE activities as they take place at the various electricity generation points. For the calculation of these emissions, the emission factors corresponding to each system (peninsular, Balearic Islands or Canary Islands) calculated by REE are used from the annual generation balances. The increase of these emissions has been considerable in 2017, mainly due to the increase in the emission factor of the peninsular system. Emission factor in tCO_2/MWh: 0.214 in 2016 and 0.258 in 2017, which reflects the decrease in hydro generation (associated with the scarce availability of water due to weather conditions), which has been replaced by generation from non-renewable and more carbon-intensive sources.

***Note:** Red Eléctrica has established 2015 as the base year to establish its reduction objectives. The emissions of the base year have been recalculated according to the current calculation criteria: in the case of emissions associated with the consumption of electricity, they are recalculated under the 'market based' approach, which has already begun to be applied in the calculation of the inventory of 2016. On the other hand, emissions related to transmission grid losses for island systems (Balearic Islands and Canary Islands) are incorporated. This update also affects the 2016 data.*

Other indirect emissions (Scope 3)

305-3

(tCO_2 equivalent)

	2015	2016	2017
Purchase of goods and services (1)	304,596.37	249,583.89	295,786.84
Capital goods	312,797.44	195,804.21	111,618.72
Energy production (not included in scope 1 and 2)	1,091.66	674.04	516.71
Waste	95.91	90.89	134.09
Transport and distribution (2)	1,416.02	1,594.10	2,287.51
Business travel (3)	1,421.48	1,398.71	1,487.00
Commuting	2,894.32	2,925.85	3,917.57
Leased assets	116.58	81.78	0.00
Total indirect emissions (scope 3)	**624,429.78**	**452,153.46**	**415,748.45**

Note: *During 2017, the methodology and the extension of the categories considered in the calculation of scope 3 emissions were reviewed. The emissions corresponding to the years 2015 and 2016 have been recalculated according to the new criteria.*

(1) For the correct interpretation of the data, it is also interesting to consider the carbon intensity of the goods and services purchased (2015: 461 $tCO_2eq./million$ euros; 2016: 514 $tCO_2eq./million$ euros; ***2017: 504 $tCO_2eq./million$ euros).*** *This intensity is a function of the type of orders placed in the year and for this reason it is very difficult to establish comparisons between the different fiscal years.*

(2) Corresponds to the emissions associated with internal logistics (which were already calculated until 2016) and other emissions associated with the transfer of materials.

(3) Included are trips made by train, plane, own vehicle, rental vehicle and taxi.

Greenhouse gas emissions intensity

305-4

	2015	2016	2017
Emission of SF_6/SF_6 installed (%) (1)	0.37	0.30	0.26
Emissions from fleet vehicles (kg of CO_2/km) (2)	0.27	0.16	0.14
Emission (scope 1 and 2) /revenue (tCO_2/million euros) (3)	541	488	540
Emissions /revenue (tCO_2/million euros) (4)	22.1	18.4	16.3
Emissions/energy transported (tCO_2/GWh) (5)	3.8	3.3	3.7

(1) The emission rate is calculated based on emissions data calculated according to actual data regarding leakage.

(2) All types of vehicles are included. In 2015, only vehicles owned by Red Eléctrica were considered. As of 2016, the vehicles for shared leasing are also considered (without including management vehicles or fleet of electric vehicles)

(3) Emissions of scope 1 and 2 (including transmission grid losses). The indicator has been recalculated for all years, taking into account the emission data of scope 1 and 2 recalculated according to the new criteria.

(4) Emissions of scope 1 + emissions of electricity consumption. REE considers it relevant to monitor this indicator, without including the transmission grid losses (as it is not possible to act on them, as explained before). The recalculated data have been included according to the recalculated emissions according to the new criteria.

(5) Emissions of scope 1 and 2 (including transmission grid losses). The total energy transported corresponds to the annual demand measured at power station busbars. The indicator has been recalculated for all years, including the emissions recalculated according to the current criteria and considering the annual demand in the peninsular, Balearic Islands and Canary Islands systems.

Reduction of greenhouse gas emissions

305-5

Net savings (1)	**tCO_2 eq.**
Savings in emissions due to the incorporation of electric and hybrid vehicles into the fleet (owned and shared leasing)	144
Savings in emissions due to contracting an electricity supply with a Guarantee of Origin (2)	3,732

Annual savings (3)	**tCO_2 eq./year**
Efficiency measures in work centres: improved insulation, HVAC and lighting	11
Efficiency measures in electricity substations: night lighting being switched off	255
IT efficiency measures: Renewal of desktop equipment, laptops and monitors	3
Reduction in SF_6 emissions due to the replacement of old equipment for new ones with a lower leakage rates	302

(1) Net savings compared to 2016 (measured or estimated). (2) Electricity with guarantees of origin: 0 tCO_2/kWh. (3) Reductions associated with the measures implemented in 2016.