9

Commitment to the environment

- Growth in a green economy
- Circular economy and recycling
- Energy and climate change
- Managing electromagnetic fields
- EcoSmart services

Growth in a green economy_

We want to promote an economy that contributes to the environmental sustainability of our operations, customers and cities.

HOW DO WE MANAGE THE ENVIRONMENT?

We have a global environmental strategy through which we want to contribute to growth in a green economy, by separating business development from our impact on the environment. In addition, we create digital services to help our customers reduce their environmental footprint and increase resilience to environmental challenges

MANAGEMENT FOCUS:

WHY IS IT A KEY ISSUE?

Like other companies and society as a whole, we are facing major environmental challenges. Among these is climate change, which has been identified as one of the biggest risk factors worldwide. This is therefore a major issue for both our main stakeholders and the economic sustainability of the Company, but one for which we believe we can offer solutions through digitisation, Big Data services and the Internet of Things.

WHERE IS THE IMPACT?

Our work on environmental influence within and outside the Company affects not only our operation, costs and revenue, but also our customers and the societies and environments in which we operate.

TELEFÓNICA'S OBJECTIVE

We want our Company to be among the leading champions of green growth, with a vision of sustainability in the medium and long term, and supported by our objectives in Energy and Climate Change, environmental management, as well as the expansion of our EcoSmart services, in order to help reduce the negative impacts caused by climate change and other environmental challenges.

Indicators	2015	2016	% Variation
% of Revenue with ISO 14.001 Certification	65%	90%	+38%
Energy consumption of traffic (MWh/PB)	400	262	-34%
GHG emissions (Scopes 1+2) (tCO_2)	1,866,070	1,372,145	-26%
% of Renewable Energy Consumption	20	44	+113%

SUSTAINABLE DEVELOPMENT GOALS

The services that we offer are subject to a continuously growing demand, not only in connectivity, but also in data traffic which is increasing exponentially. This poses the challenge of further developing our networks and equipment, while reducing our environmental footprint and separating the business growth from greenhouse gas emissions (GHG) by decarbonisng our activity.

Besides this, we offer products and services that help our customers reduce their impact on the environment, thus adding value to connectivity, the Internet of Things, the Cloud or Big Data. In a digital world there are more opportunities for eco-efficiency and a descarbonised and circular economy.

To achieve this, we work at different levels:

- Risk management: focused on compliance and environmental management;
- Efficiency and Productivity: by taking advantage of the use of internal eco-efficient methods, the promotion of the circular economy and the decarbonisation of our activity;
- Development of products and services that reduce the consumption of resources, greenhouse gas emissions (GHG), or which help our customers in the area of adaptation to climate change.

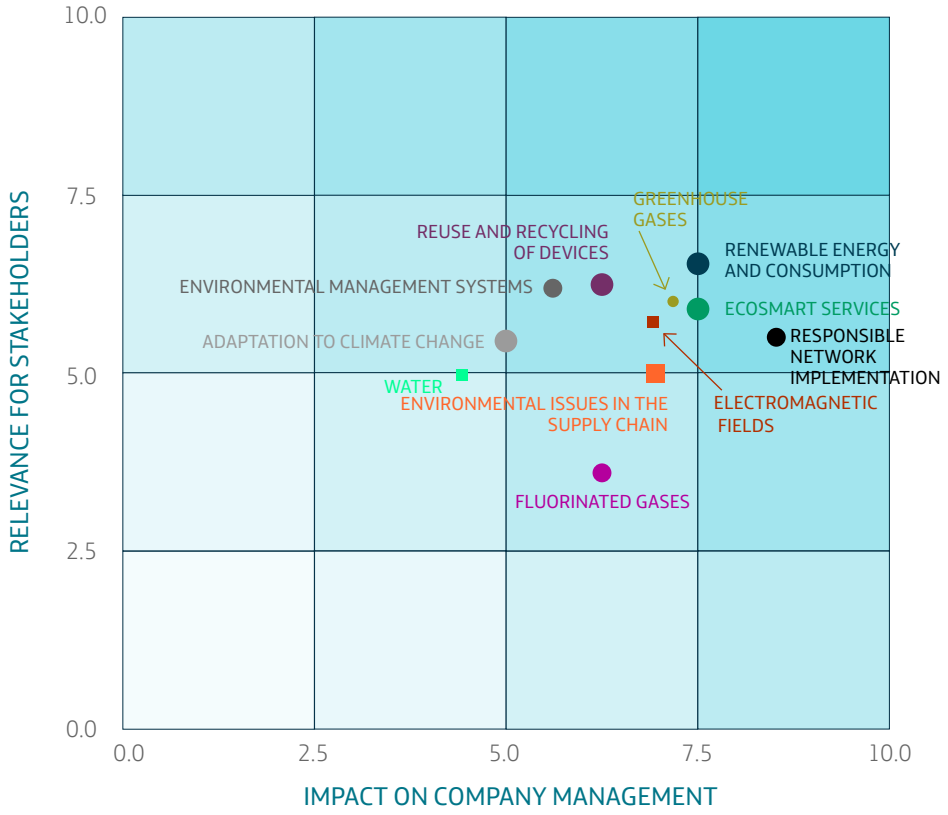
We have a global environmental strategy which is implemented through the Global Environment and Energy Policies. These policies are common to all companies that make up the Group.

ENVIRONMENTAL GOVERNANCE

The environmental strategy falls under the responsibility of the Board of Directors, within the framework of the Company's Global Responsible Business Plan. The most relevant environmental objectives are defined globally by the top managers for operations and sustainability. We have a multidisciplinary team, both overall and within the different countries, which supervises implementation of the strategy at the different levels of responsibility.

ENVIRONMENTAL MATERIALITY

We analyse and define our most significant environmental issues annually, on the basis of the business strategy, the regulatory requirements and the demands of our stakeholders.



MILESTONES IN 2016

New targets for reducing energy and GHG emissions, in which we committed ourselves to using 100% renewable sources for our electricity consumption by 2030 and to reducing GHG emissions, in accordance with a science-based methodology, in line with the Paris Agreement.	100% Achieved
We reached a renewable energy consumption equivalent to 44% of our electricity consumption.	100% Achieved
We reduced our energy consumption by 2.17% despite an increase in traffic of more than 50%.	100% Achieved
We reduced our total carbon footprint by 22%.	100% Achieved
90% of Telefónica's Environmental Management Systems are certified to ISO 14001 standard.	100% Achieved
New Smart Energy and Smart Transport services accounted for 51.5 million euros of revenue.	100% Achieved
We launched the Environmental Eco-Rating for our customers in Brazil, Spain and Chile.	100% Achieved
We adopted a Global Energy Management Policy and certified our operations in Spain and Germany under the ISO 50001 standard.	100% Achieved
Our work was externally acknowledged with the Green Mobile Award 2016 in the GSMA Mobile World Congress.	100% Achieved
For the third year in a row, we were included on the "A-List" for the Carbon Disclosure Project (CDP).	100% Achieved

CHALLENGES FOR 2017

- 100% of our operators to be certified to ISO 14001 standard.
- To comply with the energy and greenhouse gas emissions (GHG) objectives.
- To move forward with our Renewable Energies Plan.
- To maintain external recognition of our strategy in the area of climate change and energy by the CDP.
- To digitise waste management processes, GReTel, and reduce the amount of waste generated by reusing equipment.
- To extend the Eco-Rating initiative to more countries in which we operate, and launch the OpenEcoRating website.
- To increase the environmental value of our IoT and Big Data services, and thereby have a greater positive impact on the environment.

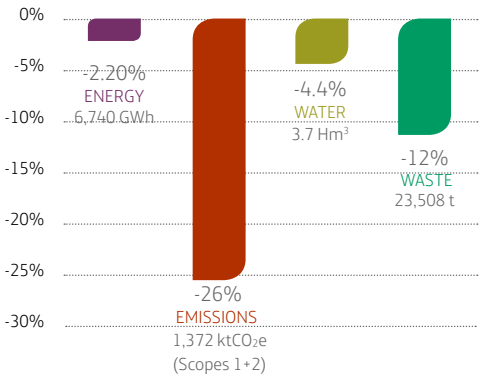
MANAGEMENT SYSTEMS

Within the framework of a clear commitment to continuous improvement and prevention of pollution, we now have an Environmental Management System certified to ISO 14001 standard, which covers around 90% of Company operations, with the goal of reaching 100% in 2017. In addition, in Spain and Germany, which account for 40% of our revenue, we have an Energy Management System certified to ISO 50001 standard.

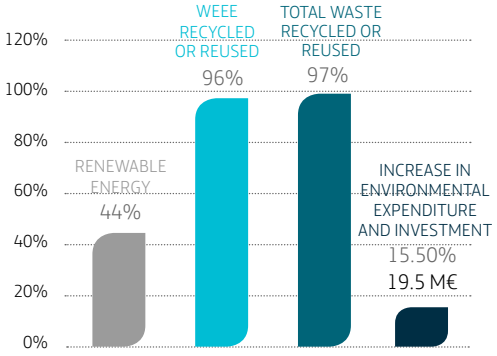
Thanks to both systems, we can ensure the adequate control of risks and environmental impacts along the entire value chain, from deployment of the Network to dismantling of obsolete facilities, through efficient operation of networks and the reuse of equipment (both ours and that of the customer). This allows us to provide the highest quality service without compromising care for the environment and, for example, continuing to reduce energy consumption.

Besides this, and based on the principle of precaution, under the global risks model we analyse the environmental and climate change risks across all our operations, with the aim of reducing these risks and further identifying opportunities to manage them. The possible risks are associated with the regulatory aspects of environmental legislation, the vulnerability of our Network to climatic disasters and energy costs. The Management Systems and specific plans such as the Global Energy Efficiency Plan contribute to controlling these risks and taking advantage of the opportunities that they provide. In 2016 we were not subjected to any significant sanction in environmental matters.

We reduced our negative impact (2015 vs. 2016)



We increased our positive impact (in 2016)



ENVIRONMENTAL MANAGEMENT SYSTEMS

ISO**14001** CERTIFIED

2016

OBJECTIVE % CERTIFIED REVENUES

A RESPONSIBLE NETWORK

The greatest environmental impact we generate comes from our Network, which is mainly due to the energy consumption required for its operation, the visual impact that it generates and the waste resulting from maintenance work.

For the responsible management of our Network infrastructure we apply the best practices available and manage all the resulting environmental aspects and impacts, from design to dismantling, through operation and maintenance in compliance with the environmental legislation in areas such as waste management, efficient use of resources, management of the landscape (visual impact) and biodiversity.

When deploying the Network, one of the criteria that we take into account is the sharing of infrastructure. Whenever possible, we place our facilities with other operators or communication tower managers. This results in lower visual impact and energy consumption, and a reduction in generation of waste. This practice is increasingly widespread throughout the Group, as was seen during 2016, when 41,085 of our base stations were shared.

For further information, see the chapters on 'Network deployment' and 'Environmental Impact'.

RESPONSIBLE MANAGEMENT OF NETWORK INFRASTRUCTURE

PLANNING AND CONSTRUCTION		OPERATION AND MAINTENANCE		DISMANTLING	
5,136 Environmental licenes and permissions	1,320 K€ Environmental impact studies	56,867 Ud Electromagnetic field measures	1 M€ Environmental compliance	1.4 Kt WEEE Recycled operations	29.6 M€ Waste operations sold
213 Measures to reduce visual impact	4,201 Remote base stations using renewable energy	41,085 Shared base stations	130 Energy efficiency projects	159 Tonnes Reused devices	
1.2 M€ Reduction of visual impact		5,017 K€ Acoustic impact actions	2,991 Tonnes Dangerous waste managed		

1ST DEPLOYMENT OF A SUBMARINE CABLE

Telxius, one of the business units, is responsible for deploying and operating the submarine cable and mooring stations in the various countries.

As the aquatic environment is an ecosystem which is highly sensitive to any interventions, we perform environmental impact studies and establish appropriate preventive measures to ensure minimal impact.

In 2016 we acheived ISO 14001 standard certification for our submarine cable.

2ND PREVENTION OF THE IMPACT ON BIODIVERSITY

Within the scope of the Environmental Management System the potential impact of our infrastructure on biodiversity is evaluated. To do this, sustainability criteria (preventive measures during construction; location of the base stations in protected areas; waste management operation/dismantling, etc.) are taken into account, with the aim of preventing the impact on biodiversity.

One example is the case of Galeras, in southern Colombia: In 2016 we presented the National Parks Unit with a Geomorphological Recovery and Ecosystem Repair Programme, as the final stage in the dismantling of the disused infrastructure. When developing the Programme, the conditions of the area before intervention were taken into account: soil samples were taken, patterns for the flora were designed and monitoring activities were included in the reforestation process.

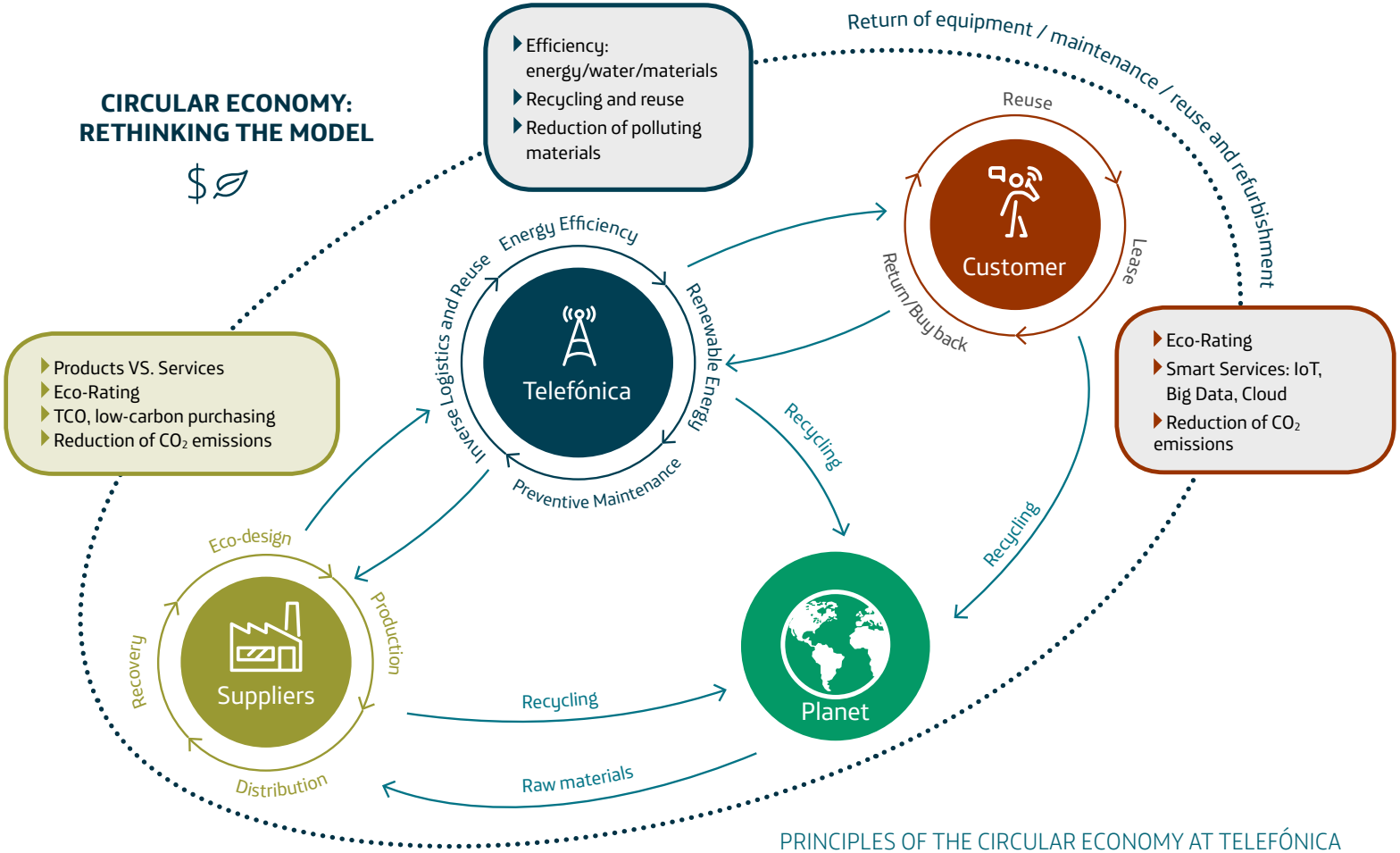
Circular economy_

RETHINKING THE MODEL

The Circular Economy proposes creating flows of materials and energy in which there is no waste, and the balance and sustainability of the system are based on the relationships of the different players, simulating natural biological cycles. This model offers numerous opportunities to companies, which is why we have been integrating this philosophy into our activities for several years. We promote reuse and recycling, low-carbon purchasing, the buying of increasingly efficient equipment, the leasing of terminals, Eco-Rating and new business models such as ESaaS (Energy Savings as a Service).

One of the main pillars of this Circular Economy consists of the extension of the useful life of products, in order to integrate their environmental aspects from the design stage onwards. The approach to the product life cycle takes into account, among other factors, the resources used for their manufacture (e.g. energy), the selection of materials, the emissions generated and the management of the end of their useful life.

We are working on different strategies to optimise the consumption of our resources throughout the whole value chain and to promote the return of used goods to the production cycle. These initiatives are chiefly based on Network and customer processes, which are the greatest consumers of materials and resources. Furthermore, we focus on the development of digital services in which there are possibilities for the Circular Economy, such as Smart Waste.



PRINCIPLES OF THE CIRCULAR ECONOMY AT TELEFÓNICA

- Renewable and eco-efficient materials and resources
- Sharing and reusing
- Eco-efficiency and eco-design, less waste
- Closing the circle, recycling
- Virtualisation, dematerialisation
- Innovation
- New business/ service models

RESPONSIBLE PURCHASING

Aware of the importance that the acquisition of goods and services can have for the environment, we are gradually incorporating environmental selection criteria into our purchasing processes, choosing those goods and services with fewer polluting materials, a lower impact on the climate, or that incorporate eco-design criteria.

One example of the above is the use of the Total Cost of Ownership (TCO) concept when purchasing products that have a significant impact on our energy consumption; we integrate the impact of the consumption during the useful life of the product into the calculation of its cost, which allows us to choose those with the greatest efficiency and, therefore, the lowest carbon emissions.

In addition, we establish sustainability criteria associated with the replacement of refrigerant gases, limiting the recharging of CFC and HCFC gases which deplete the ozone layer, anticipating the deadlines stipulated by International Agreements and prioritising other gases in accordance with their global warming potential.

In terms of energy management, we have begun to implement long-term renewable energy purchasing strategies (Power Purchase Agreements - PPAs), with the aim of progressively increasing the amount of renewable energy used in our operations by

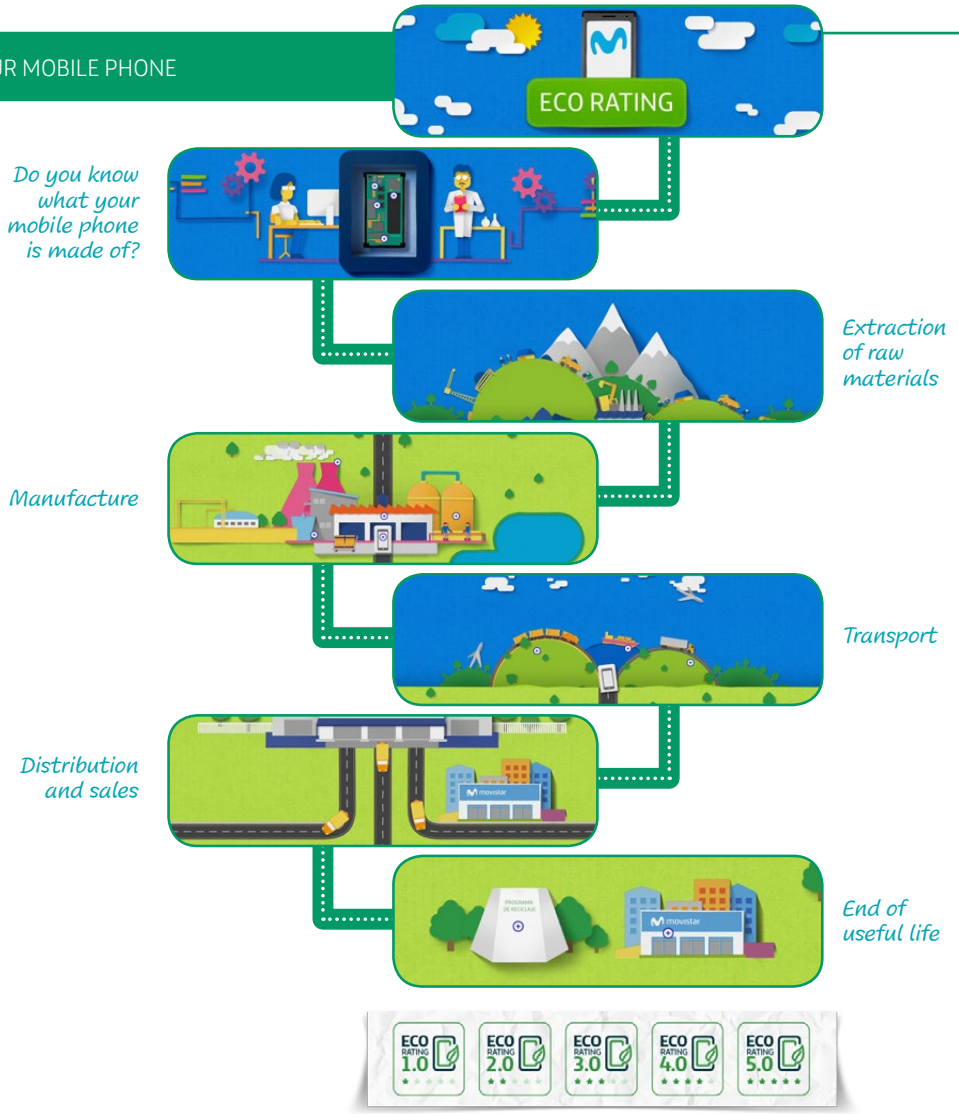
ECO-RATING: A SMART WAY OF THINKING WITH YOUR MOBILE PHONE

Eco-Rating is a seal which evaluates the environmental impact of the entire production, use and disposal process of mobile phones. In order to provide more sustainable options, classification is given on the basis of 100 criteria which analyse social and environmental aspects, resulting in a final score on a scale of 1 to 5 (1 being the lowest score and 5 being the highest).

The methodology applied by this seal, which we developed internationally in collaboration with the British NGO Forum for the Future, considers established criteria, such as analysis of the device's useful life and indicators such as global warming and the depletion of raw materials. The evaluation also includes scores for the corporate policies and the environmental care criteria followed by the manufacturer.

Since its launch, other operators have joined up, and our goal is to turn the Eco-Rating into a global standard. To date we have reported on the Eco-Rating of our terminals fabricated in Spain, Brazil, Germany, United Kingdom and Chile, and we intend to cover the rest of our operations between 2017 and 2018.

FURTHER INFORMATION Brazil Spain Chile



decoupling our growth from carbon emissions, in keeping with the energy and emission targets established by the Group. In addition, we work with technological partners to conduct projects on energy efficiency and the self-generation of renewable energy, which subsitute products with services and thereby achieve greater efficiencies.

Other examples are the purchasing of FSC-certified paper, Eco-Rating and the initiative dedicated to reducing the greenhouse gas emissions of our supply chain. For further information, see the chapter on 'Managing the supply chain'.

INTERNAL ECO-EFFICIENCY

Eco-efficiency entails the efficient use of the materials and resources we consume for the provision of our services. In this regard, eco-efficient practices allow us to provide more services to a greater number of customers while reducing our environmental footprint. Resource consumption is reduced thanks to practices such as appropriate infrastructure maintenance and the reuse of equipment on an internal basis.

Given its relevance, energy consumption is the subject of a separate chapter titled 'Energy and climate change'.

Our water consumption is chiefly the result of sanitation use and, to a lesser extent, its use in air conditioning. Every year, each of our operations takes specific measures to achieve more efficient consumption, especially in places where hydric stress is greater, such as Mexico City and São Paulo, and in countries like Spain. In these cases, we carry out specific plans for sustainable water management.

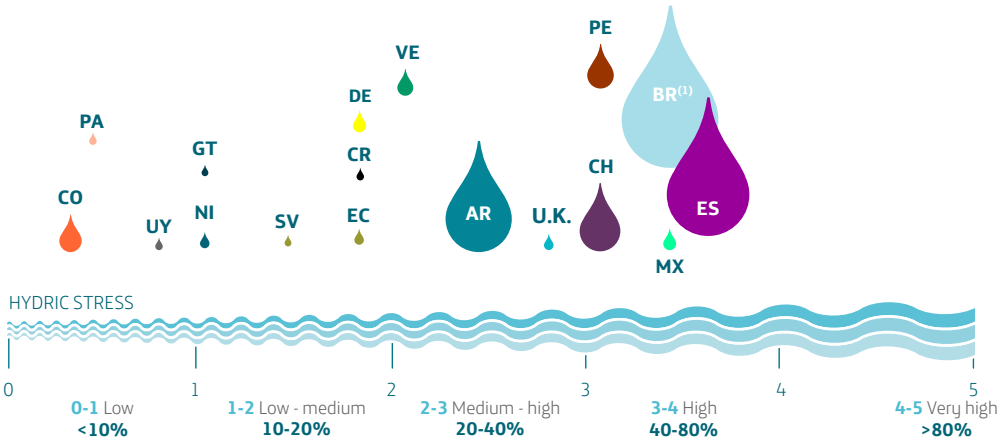
As a result of the different efforts made during 2016, we reduced our global water consumption by 4.4% in comparison with 2015.

We *reduced water consumption* by *4.4%* in comparison with 2015

Water

TELEFÓNICA'S WATER CONSUMPTION VS. HYDRIC STRESS

WATER CONSUMPTION



Source: World Resources Institute.
(1) Brazilian Cities

OUR HEAD OFFICES, SUSTAINABLE BUILDINGS: COLOMBIA ECO-OFFICES

With the purpose of converting Telefónica Colombia's main building, which houses more than 3,000 employees, into environment-friendly offices, different initiatives were launched for the efficient management of resources such as water and energy. 100% of the building now has LED lights, leading to savings of 166,000 kWh. Solar panels also generate energy for several meeting rooms.

With regard to the water resources, measures were taken to use rain water for the irrigation of the large grassed areas. In addition, eco-sustainable bathrooms were built over a space covering 50 m^2, with systems to save water and recycle soapy and rain water, and decorated with vertical gardening with a drip irrigation system that takes the water once it has been treated.

Finally, a daily inspection of water consumption was introduced, based on meters, in order to identify imperceptible leaks. The above has led to a reduction in water consumption of 8.7 m^3/month.

Paper

As for paper consumption, we have common guidelines to reduce the impact of this material, promoting efficient use through the digitisation of processes, and as a result we reduced our consumption by 27% in 2016. In addition, we promote the use of recycled paper over virgin fibre paper, resulting in a 12.3% use of recycled paper, and we attempt to ensure that virgin fibre paper always comes from sustainable sources and, therefore, has FSC or PEFC seals. 84% of the white paper used in our offices is currently certified with this guarantee.

Another example of eco-efficiency applied to the consumption of this material is the digitisation of our customer invoices, thanks to new technologies. In 2016, 61.8 million customers chose to receive paperless invoices. Therefore we generated more than 700 million electronic invoices, representing 3,500 fewer tonnes of paper used, which is equivalent to about 60,000 trees.

84% of the virgin fibre paper we use *is FSC certified*

WASTE AND DISUSED EQUIPMENT

Waste generation is present in all our activities. The maintenance of Network infrastructure is a chief generator of waste, but so are the administrative activities we carry out in our offices and buildings and, to a lesser extent, the commercial activities linked to our customers. Within the framework of our Circular Economy, it is important to address all the sources of waste and the activities that generate them, which in our case are largely conducted by suppliers. This is the reason why we carry out inspections of the management of both hazardous and non-hazardous waste, with the aim of guaranteeing their satisfactory handling and increasing the potential for their recycling or reuse.

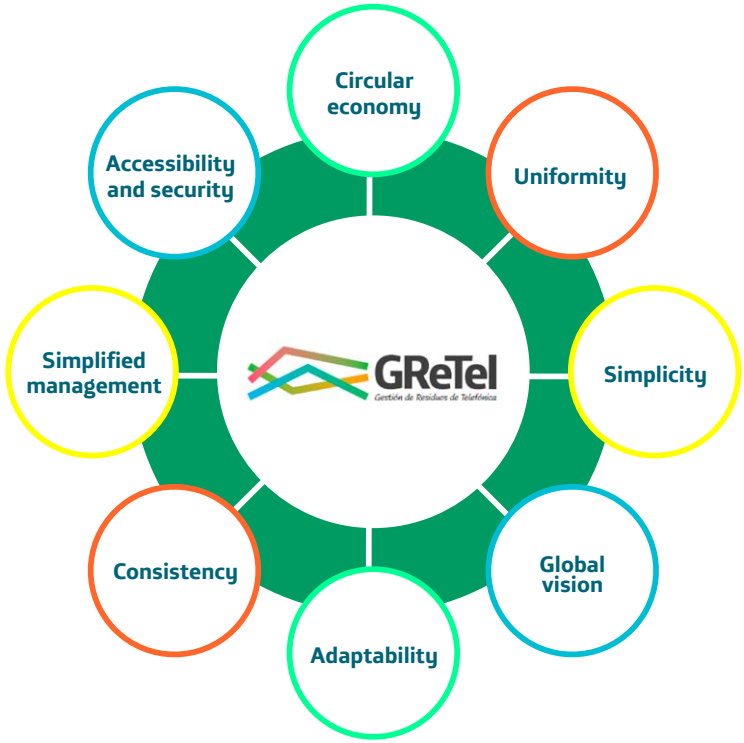
Our main objective is to reduce waste generation and to promote a Circular Economy which supports reuse and recycling. To achieve this, we encourage practices which promote the reuse of equipment, both internally and among our customers, whenever possible. In 2016 we facilitated the reuse of 1,235 tonnes of our customers' equipment (mobiles, routers, etc.).

When reuse is not an option, recycling is the best alternative for dealing with waste. Thus, in 2016, we generated 23,507 tonnes of waste (12% less than in 2015), of which 97% was recycled.

About 66% of our waste consists of cables which come from our Network transformation process. Reuse of these cables is not possible but we can recycle them. 98% are recycled by specialist companies.

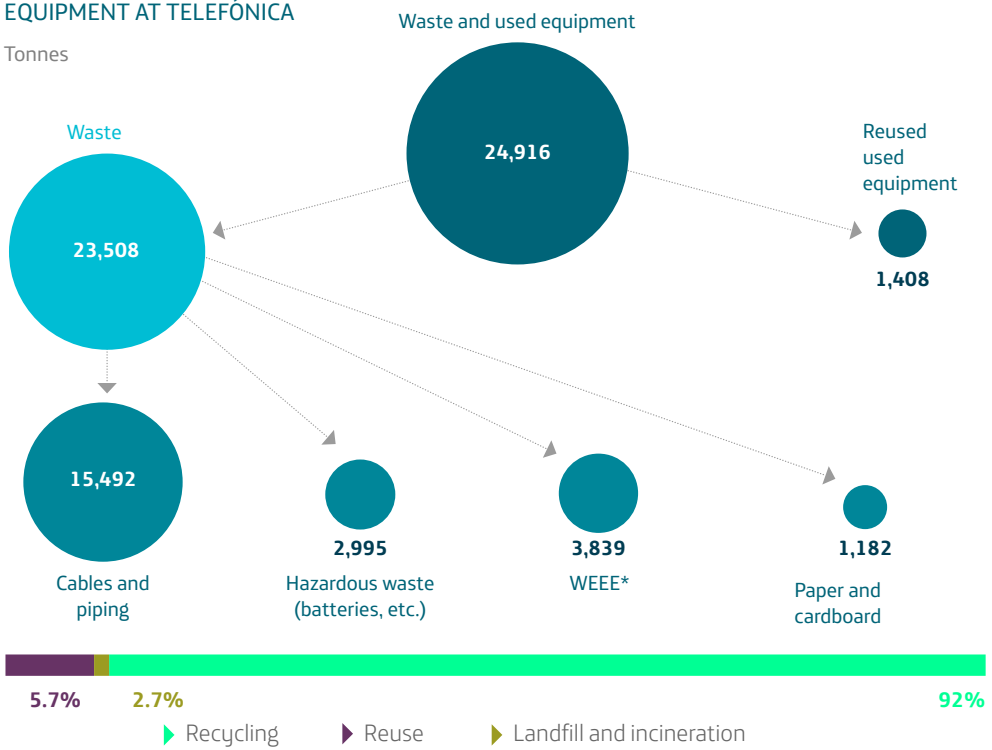
GReTel (WASTE MANAGEMENT AT TELEFÓNICA)

In 2016, implementation of GReTel, a common digital system for the management of waste generated by all the Group companies, was launched in order to establish a continuous improvement plan and capitalise on all the opportunities related to the Circular Economy.



WASTE AND USED EQUIPMENT AT TELEFÓNICA

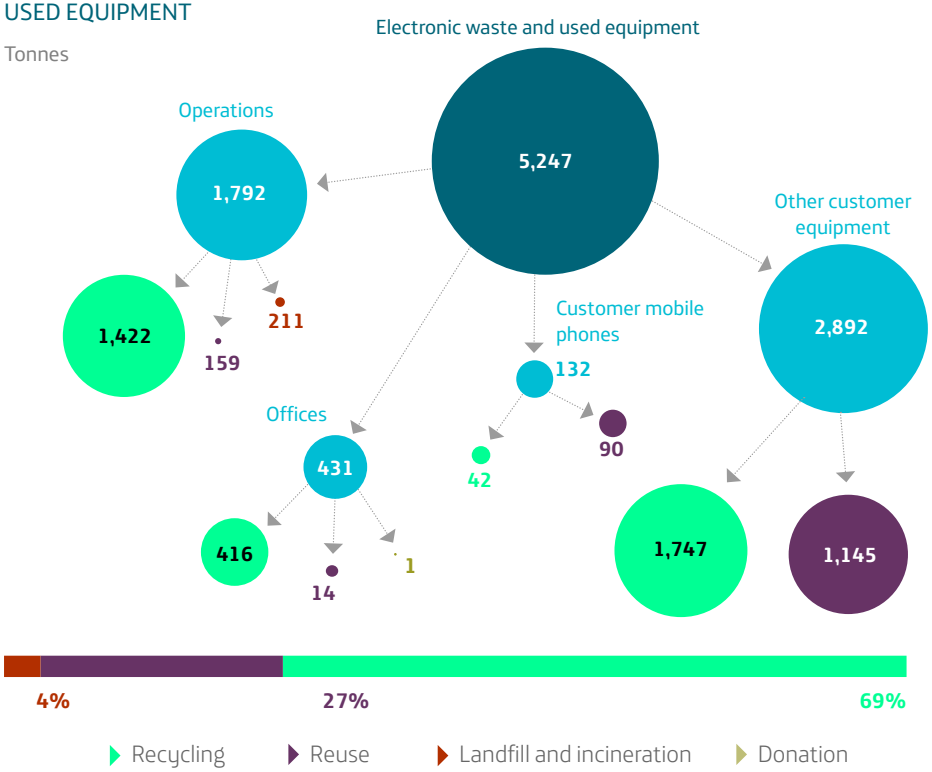
Tonnes



* WEEE: Waste Electrical and Electronic Equipment.

ELECTRONIC WASTE AND USED EQUIPMENT

Tonnes



Electronic waste

According to the United Nations, only 12% of the 42 million tonnes of electronic waste or e-waste generated each year is recycled, and this is the fastest growing type of waste in recent years. Consequently, we consider that the solution to this problem has to share the responsibility among all the actors involved. Our contribution to the change is based on the following principles:

- Carrying out reuse and recycling.
- Encouraging the development of a regulatory framework for reuse and recycling.
- Guaranteeing adequate treatment by monitoring our supply chain.
- Providing our customers with environmental information at the time of purchase (Eco-Rating) and alternatives for disposing of their used phones.
- Promoting the best eco-design with the manufacturers, in line with international standards.

As a result of these principles, 69% of the devices used in our operations and by our customers in 2016 were recycled and almost 27% reused. Promotion of the Circular Economy will bring an increase in reuse over the coming years.

CUSTOMERS AND THE CIRCULAR ECONOMY

Our customers are at the centre of all our processes, and therefore we would like to help them to join the Circular Economy and thus reduce their environmental impact.

In the countries in which we operate, we offer our customers the option of bringing their disused mobile phones for later reuse. By means of buy-back programmes we facilitate the recycling of the components. Fixed operations equipment, such as routers, modems and decoders recovered from customers' homes, are reconditioned and reused again in our operations.

For this purpose, we collaborate with specialised companies which guarantee proper compliance with environmental legislation. During 2016 we collected about 3,000 tonnes of disused equipment, of which 41% were assigned to reuse (thereby generating an extension of their useful life), and 59% to recycling.

With the purpose of helping our customers to join the Circular Economy and reduce their environmental impact, we facilitate the reuse of terminals through the leasing or sale of second-hand terminals in some of our markets, such as the United Kingdom, via the O2 Refresh programme.

In addition, as mentioned above, we offer environmental information on the terminals through Eco-Rating, which allows customers to choose the most eco-efficient terminal.

We also encourage the Circular Economy through our services. For example, virtualisation reduces the consumption of raw materials and resources. Furthermore, we offer IoT services like Smart Waste, with which we help to improve the management of municipal waste (85% recycled, 60% incidents, 18% maintenance costs).

The Circular Economy brings many opportunities. We are in a position to make the most of them and provide solutions by means of sustainable innovation.

The extension of the *useful life of products* is one of the main pillars of the Circular Economy

The case of Panama - Electronic recycling programme

At every Movistar store we have an electronic recycling box for disused devices and, through our strategic partners, we guarantee that each device has a suitable end. In addition, for each recycled mobile phone, we plant a tree in the country's priority basins and equip community-based organisations with the skills and knowledge needed to recover the basins. With this programme we have planted about 60,000 seedlings in Panama.

FURTHER INFORMATION

Energy and climate change_

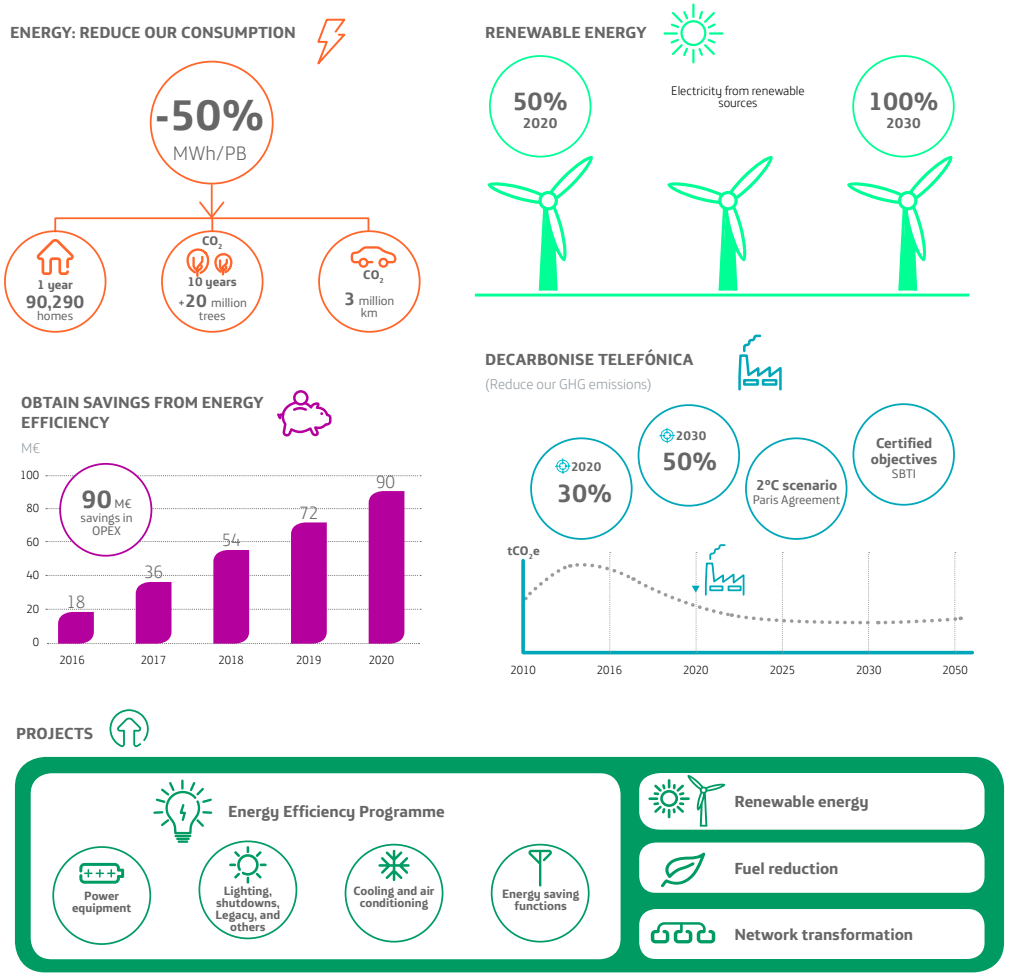
We are working towards a more energy and carbon efficient Network.

Currently, climate change is one of the most important challenges that we face, since it not only effects quality of life, but the planet as a whole. So much so, that in 2016 it was identified by the World Economic Forum as one of the greatest risk factors worldwide. Additionally, the United Nations has marked it as one of its main Sustainable Development Goals. Therefore, progressing with decarbonisation has become an urgent issue, breaking the link between economic growth and greenhouse gas emissions.

We are aware of the role that our services can play in the search for solutions, but we are also aware that we must accept the responsibility of reducing our carbon footprint.

With this aim, 9 years ago we created a Global Climate Change Office, and defined our first energy and emissions reduction goals. In 2016, coinciding with the signing of the new Paris Agreement, we announced our new Energy and Climate Change goals for 2020 and 2030. The objective is to align efforts with the level of decarbonisation required to keep global warming below 2°C.

ENERGY AND CLIMATE CHANGE GOALS 2015 – 2020/2030



Our goals for 2015-2020 are not only compatible with the expansion of the Network and quality of service, but will also help us to be more competitive. They are all inter-related and both complement and strengthen each other:

- Reduce energy consumption by 50% per unit of traffic in 2020.
- Separate our business growth from GHG emissions. Reducing our Scope 1 and 2 emissions by 30% in absolute terms by 2020, and achieving a 50% reduction by 2030.
- Save 90 million euros through energy efficiency projects over the next 5 years.
- Commit to renewable energies as a sustainable source for our business, achieving 50% of electricity consumption from renewable sources by 2020 and 100% by 2030.

We are committed to being *100% renewable* by 2030

Likewise, during 2016 we approved our Energy Management corporate policy with the goal of providing a common reference framework for establishing objectives and actions based on our commitment to consume energy in an efficient manner and to reduce greenhouse gas emissions.

The leverage to making progress towards achieving our energy and climate change goals are the following plans: the Renewable Energy Plan, the Energy Efficiency Plan and Network transformation.

Winner of the Green Mobile Award

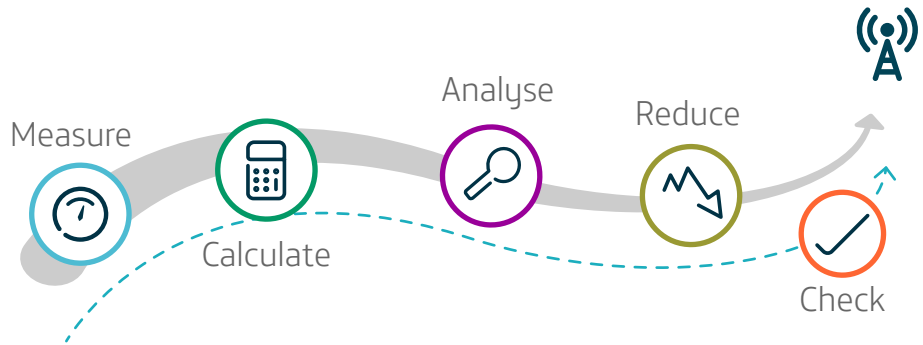
We were recognised and awarded the GSMA Glomo 2016 at the MWC for our global energy efficiency programme. The panel of judges recognised it as a noteworthy example of everything that an operator should strive for: improved energy efficiency, reduced carbon footprint and environmental conservation.

GSMA GLOMO AWARDS THE GLOBAL MOBILE AWARDS WINNER

CDP A List Award

For the third consecutive year Telefónica was awarded with the maximum classification of "A" in the CDP Climate Change 2016, thus renewing its presence on the "Climate A List". This list is made up of companies that meet the maximum criteria as defined by the Carbon Disclosure Project, which measures companies' performance levels in strategy, goals and actions related to mitigating climate change risks.

HOW DO WE MANAGE OUR ENERGY AND GHG EMISSIONS?



We measure our energy consumption and **calculate** our carbon footprint. **We analyse** and identify new opportunities for energy and green house gas emissions (GHG) reduction and we implement energy efficiency and renewable energy projects in each of our operations. As a result of this, **we are reducing** the operational energy consumption and the environmental impact of our activities.

RE100 INITIATIVE

Telefónica is part of the RE100 initiative, which brings together companies that have committed to using 100% renewable energy, providing a leading example in the fight against climate change and the development of a low carbon economy.

FURTHER INFORMATION

ADAPTATION TO CLIMATE CHANGE

We have analysed our vulnerability to climate change risks, which are mainly concentrated at a geographic level in Latin America (particularly in Brazil and Peru, followed by Colombia, Chile and Central America), and also at a business level in our Network.

The most significant risks are related to extreme weather events and, in the mid-term, temperature increase. This will affect the energy consumption of our infrastructures, or a potential increase in the cost of energy dependent on the hydroelectric sector in some countries.

Our Climate Change adaptation strategy is made up of different plans, from business continuity in the face of weather disasters, as recently occurred in Peru, to energy efficiency projects and our Renewable Energy Plan.

We also recognise the key role we can play in the face of natural disasters. Connectivity can be a life-saver, either by means of an early alert or by contacting emergency services. For further information, see the chapter on 'Digital Inclusion'.

MEASURING

We measure our energy consumption and monitor the Network by installing smart meters in our facilities. Thanks to these, we can record our consumption more precisely, identify faults in the Network and optimise operational energy costs.

SUSI PLATFORM

The SUSI platform (Spanish acronym for 'Unified System of Infrastructure Supervision') is a BAS (Building Automation System) that enables automatic and centralised control of different sub-systems of critical infrastructure, providing effective, real-time management of equipment, such as generators, rectifiers, UPS (Uninterrupted Power Supply), and air conditioning units, which are essential to providing services to our customers. It also allows us to achieve significant power savings, owing to the automation of air conditioning units, for example.

In 2016 our *energy use* decreased by 2.2%

DISTRIBUTION OF OUR ELECTRICITY CONSUMPTION

Thanks to our Energy Efficiency Plan, energy consumption in 2016 was 6,740 Gwh, 2.2% less than the previous year. The consumption of our operations corresponds to 93% electricity consumption and 7% fuel consumption.

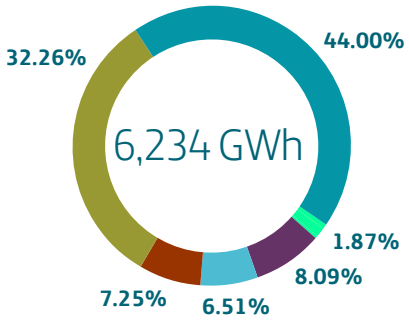
The graphics below show the distribution of energy consumption between electricity and fuel. The distribution of electricity consumption by infrastructure shows that the largest usage is concentrated at base stations and central fixed line telephony offices.

Regarding fuel consumption, 49% comes from our operations and 51% is associated with the fuel consumption of our vehicle fleet.

The countries with the greatest energy consumption are Spain and Brazil, given that this is where our largest revenues are concentrated.

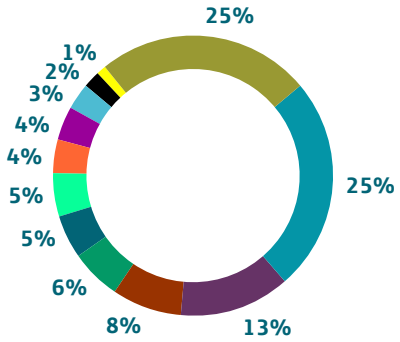
In 2016 we implemented *130 Energy Efficiency projects,* achieving savings of *€22M*

ELECTRICITY CONSUMPTION BY FACILITY



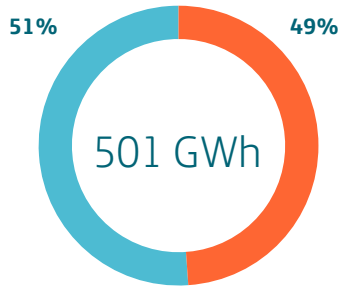
- Base Stations
- Central Fixed Line Telephony Offices
- Central Mobile Telephony Offices
- Data Centers
- Offices
- Other

ELECTRICITY CONSUMPTION BY COUNTRY



- Brazil
- Spain
- Germany
- United Kingdom
- Argentina
- Colombia
- Mexico
- Chile
- Peru
- Venezuela
- CAM
- Ecuador

FUEL CONSUMPTION

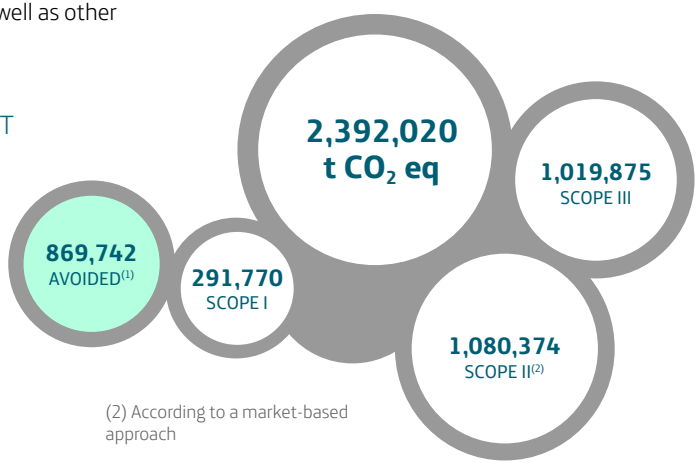


- Vehicle consumption
- Operational consumption

CALCULATE

We calculate our carbon footprint based on our energy consumption. This inventory encompasses both direct emissions (Scope 1), mainly derived from fuel consumption and refrigerant gas leaks in our operations, and indirect emissions from electricity consumption (Scope 2), as well as other indirect emissions related to our value chain that, though not controlled by us, are a consequence of the activity we perform (Scope 3). Our method of calculation is based on the GHG protocol, the ISO 14064 standard and the ITU-T L.1420 recommendation.

OUR CARBON FOOTPRINT



(1) Emissions avoided due to the purchasing and self-generation of renewable energy.

(2) According to a market-based approach

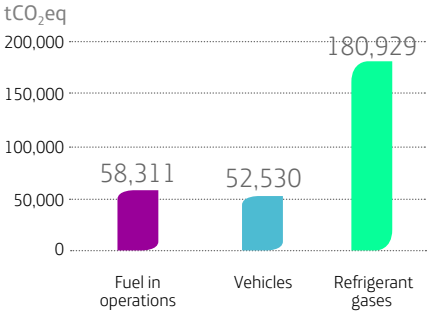
As can be seen in the graphic, our largest emissions correspond to Scope 2, and mainly come from the Network's electricity consumption. The actions we undertake to reduce this consumption are based on implementing numerous energy efficiency projects and transitioning to increased consumption of renewable energy.

We also take action with regard to Scope 1 emissions by trying to reduce fuel consumption through renewable self-generation projects and by purchasing refrigeration units that contain refrigerant gases with a lower potential to affect global warming.

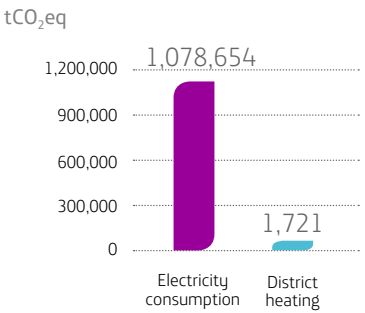
We have calculated seven categories of Scope 3 indirect emissions that are most relevant to our business. The largest amount of emissions comes from the use of products by our customers and the purchase of goods and services. We take on various initiatives that aim to reduce these emissions, as described throughout this Report, such as Eco-Rating, which enables our customers to choose more efficient devices, and which promotes eco-innovation among our device providers.

For further details on Scope 1 and 2 emissions, see the chapters on 'Managing the supply chain' and 'Circular Economy'.

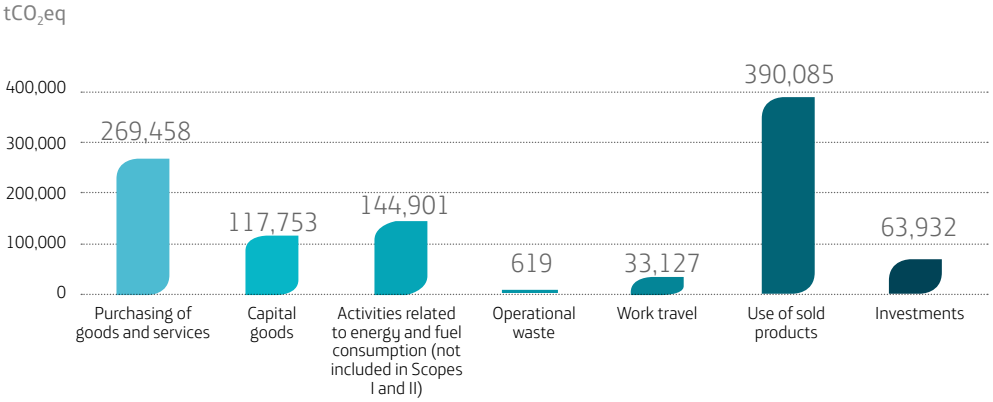
SCOPE 1 EMISSIONS DETAILS



SCOPE 2 EMISSIONS DETAILS



OTHER INDIRECT EMISSIONS IN SCOPE 3



ANALYSIS

As a result of the analysis of our energy consumption and the inventory of greenhouse gases, we were able to identify the most energy and emission intensive processes, thus allowing us to prioritise our actions. Thanks to the integrated analysis of energy consumption and GHG emissions, we can add the carbon component into the decision-making process.

In 2016, we cross-referenced this information with our corporate strategy and we defined new Energy and Climate Change goals for 2020 and 2030, including emissions goals in absolute terms that, based on science, contribute to the global goal of limiting the Earth's temperature rise to 2°C. These goals affect the entire energy and climate change paradigm: energy consumption, OPEX, GHG emissions and renewable energy.

We have reduced our *energy intensity*, energy consumption by traffic, by 34%

GLOBAL ENERGY AND EMISSIONS GOALS

KPI	Unit	Base year	Target year	Base year value	Value 2016	Target reduction	Current
Energy consumption by traffic	MWh/PB	2015	2020	400	262	50%	34%
Reduction of GHG emissions (Scopes 1+2)	tCO_2	2015	2020	1,866,070	1,372,145	30%	26%
Savings in energy OPEX	M€	2016	2020	-	22	90 M€	25%
% consumption of renewable energy	%	2015	2020	20	44	50%	44%

7TH GLOBAL ENERGY AND CLIMATE CHANGE WORKSHOP

The Global Energy and Climate Change workshop is a yearly meeting between Telefónica's leaders in energy transformation and other principal companies collaborating in this field.

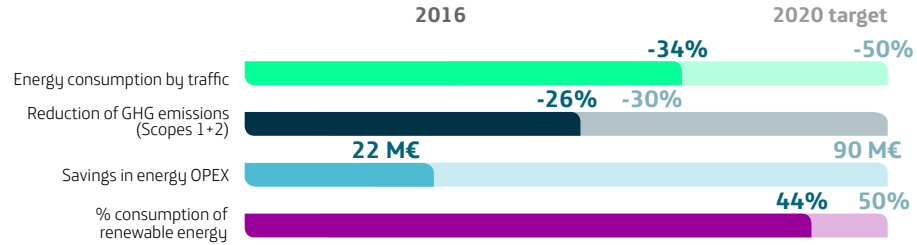
In 2016 we celebrated the 7th edition in Montevideo, uniting more than 190 representatives from teams in the operations, sustainability and environment, purchasing, finance, and technology and IoT departments, with more than 23 key technology partners.

The objectives of the workshop were to share our energy efficiency strategy at a global level, evaluate the degree of compliance with the energy consumption

and greenhouse gas emissions (GHG) reduction goals, and to review and define future strategic actions within the 2020 efficiency plan.

FURTHER INFORMATION Visit the "2020 efficiency plan" section of our corporate website.

DEGREE OF ACHIEVEMENT OF OUR GOALS:



REDUCE

Under the Energy Efficiency Plan, during 2016 we undertook 130 initiatives in our offices and networks. As a result of these, we reduced energy consumption by 211 GWh and avoided more than 68,229 tonnes of CO_2eq emissions.

Additionally, as a result of the various strategies set out in our Renewable Energy Plan, 43.6% of our electricity consumption is now renewably sourced. This has allowed us to reduce our Scope 2 emissions by 480,302 tonnes of CO_2 equivalent. This in turn shows that renewable energies are key to achieving the decarbonisation of our activities and to reducing our carbon footprint in absolute terms.

These efforts are reflected in the 34% improvement of our energy intensive ratios (Mwh/PB), which shows improved efficiency of our operations.

TELEFÓNICA RENEWABLE ENERGY PLAN

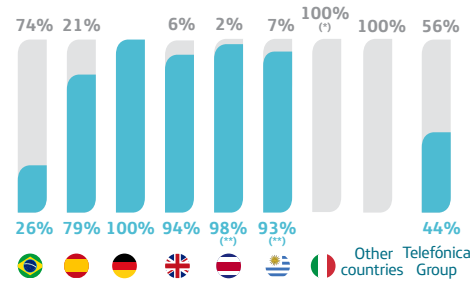
Reducing the energy costs of our operations through energy efficiency is a necessary step, but it is not sufficient. It is estimated that potential savings from energy efficiency could be neutralised by the expected increase in electricity prices in coming years.

For this reason, the shift towards clean energy will reduce our operational costs and make us less dependent on the energy supply. Therefore, in 2016 we established the goal of consuming 50% of electric energy from renewable sources by 2020 and 100% by 2030.

To achieve this, we have considered all kinds of solutions: self-generation, purchasing renewable energy with guarantees of origin, and long-term purchasing agreements (Power Purchase Agreement – PPA).

Our Renewable Energy plan projects potential OPEX savings of 6% for 2020, with the possibility to reach 26% by 2030.

DEGREE OF PLAN IMPLEMENTATION

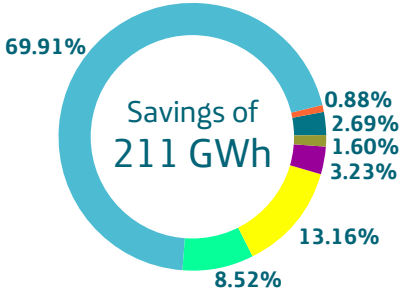


(*) Photovoltaic solar plant pending start-up, which will provide 50% of energy for Mexico.

(**) Based on the country's mixed generation.

In 2016 our percentage of *renewable consumption was 44%* and our total emissions *decreased by 22%* in comparison to 2015

ENERGY EFFICIENCY PROJECTS



- **Lighting:** Replacement of fluorescent lights with LED technologies and installation of presence sensors.
- **PSF (Power Saving Features):** Activation of energy saving functions during periods of low traffic.
- **Cooling:** Technology update for cooling units and installation of free cooling.
- **Power:** Technology update for power units and substitution of poor efficiency rectifiers.
- **Network transformation:** Legacy unit shutdowns, Network upgrades and location optimisation.
- **Renewable self-generation:** Implementation of renewable systems for auto-consumption and reduction of fuel consumption.
- **Other:** Setpoint settings for cooling units, power factor correction, etc.

SELF-GENERATION PROJECTS

TELEFÓNICA HAS 4,201 OPERATIONAL SITES POWERED BY RENEWABLE ENERGY

We are gradually increasing the number of locations that operate on self-generated renewable energy, with the aim of reducing dependency on fossil fuels in isolated areas where there is no access to electrical systems.

In this respect, in 2016 we took on a project to substitute seven diesel generation groups with photovoltaic panels in five nodes of the mobile Network located in the rural area of Meta in Colombia.

This project represents an estimated annual reduction of 200,567 litres of diesel and, therefore, a reduction of 537 tonnes of CO_2.

CHECKS

Additionally, at Telefónica we carry out an annual independent energy and emissions data checking process that allows us to identify areas for improvement in our processes and manage energy and carbon in a transparent manner.

We have managed to reduce our *Scope 1 and 2 emissions by 26%* compared to 2015

ENERGY AND GHG EMISSIONS INVENTORY

Energy	**Units**	**2015**	**2016**	**% variation**
Total energy consumption	MWh	6,891,114	6,740,541	-2.2%
Electricity	MWh	6,459,172	6,239,880	-3.4%
Fuel and District heating	MWh	431,942	500,662	16%
Energy from renewable sources	%	20.49	43.64	113%
GHG emissions	**Units**	**2015**	**2016**	**% variation**
Scope 1 emissions	tCO_2eq	305,393	291,770	-4.46%
Scope 2 emissions (location-based approach)	tCO_2eq	2,011,870	1,855,167	-7.79%
Scope 2 emissions (market-based approach)	tCO_2eq	1,560,677	1,080,374	-30.78%
Scope 3 emissions	tCO_2eq	1,198,701	1,019,875	-14.92%
Emissions avoided(*)	tCO_2eq	514,429	869,742	69.07%
Intensity of emissions (Scopes 1 and 2/Revenue)	tCO_2eq/M€	40	26	-33.28%

(*) Emissions avoided due to the purchasing and self-generation of renewable energy.

In the table to the left, it is possible to see that our total energy consumption has diminished by 2.2% as a result of the energy efficiency projects we are implementing in our networks. Additionally, our renewable energy consumption has increased by 47% compared to the previous year, and now accounts for 44% of our electric energy usage.

This has enabled our total Scope 1 and 2 emissions (according to a market-based approach) in 2016 to become 26.47% lower compared with 2015.

The most significant emissions are those in Scope 2, due to the energy consumption produced by our networks, which has been reduced by 30.78% as a result of energy efficiency projects and increased consumption of renewable energy.

Scope 1 emissions come from two main sources: the fuel consumption in our lines of business and fugitive emissions from refrigerant gases used in air-conditioning units. These emissions decreased by 4.46% in 2016, mainly due to the 11% reduction in HFC emissions.

Managing electromagnetic fields_

We have been the protagonists of an astounding development in mobile telephony in recent years. The science in this field, guided by this technological progress, has been researching the possible effects of emissions over peoples' health for the past four decades. For this reason, we actively collaborate with institutions, citizens, companies, public administrations and with society in general to promote the maximum guarantee of safety and the most scientific and objective perception possible of knowledge regarding electromagnetic fields.

WE COMPLY WITH INTERNATIONALLY RECOGNISED LIMITS

During 2016, all the measurements we recorded at our base stations were always below those levels recognised by the world's leading standardisation normalisation organisations such as the ITU (International Telecommunication Union) and the ICNIRP (International Commission on Non-Ionizing Radiation Protection), among others. In the majority of countries in which we operate, these measurements are audited and are available to the public.

Additionally, all the devices and computers that offer our service meet the international standards established by in the SAR measure (*Specific Absorption Rate*); a parameter established by regulatory bodies and various health agencies duly empowered for this purpose.

In this sense, we highlight the conclusions of the compliance report of the voluntary agreement that Telefónica Germany and the remaining mobile network operators have upheld since 2001 with the Federal Government. This document covers several commitments, including more transparency in the development of mobile communication infrastructure, local government participation in Network expansion and the strengthening of information provided to consumers. Expert opinion concludes that the participation of local governments in Network expansion works well, and that the high quality in the information measures and coordination processes has been maintained.

The measurements from our *base stations* have always been *below* the recognised levels

WE COOPERATE WITH RESEARCH: INCREASING OUR KNOWLEDGE

For the World Health Organisation, scientific research in this field is a priority in its research schedule. Similarly, the European Union research programme covers various projects in this field with the goal of responding to the potential effects of electromagnetic fields on people's health. We closely follow these projects and we work directly with some of them:

GERoNiMO
Generalized EMF research using novel methods. An integrated approach: from research to risk assessment and support to risk management

COSMOS
Research into mobile phone use and health

SCAMP
Study of Cognition, Adolescents and Mobile Phones

Arimmora

COLLABORATING WITH INSTITUTIONS

We cooperate with different institutions with the aim of creating synergies to respond to all concerns, not only those of our customers, but also the general population.

We promote a responsible deployment of our infrastructure. For example, in Colombia we form part of an initiative of the Colombian Mobile Industry Association (Asomóvil) and the GSMA called "Nos Importa Colombia" (Colombia Is Important To Us). Its purpose is to work in an articulated manner with the government and its bodies to empower users with more tools that allow them to enjoy mobile services within a secure environment.

Along this line, in collaboration with institutions and with the commitment we always assume, we place an emphasis on the work done in Venezuela, which in 2016 rose to the role of Vice-Chairman of the Sub-Committee for Electromagnetic Compatibility and Human Health, an interdisciplinary group that includes academia, public and private institutions, and various governmental bodies. All topics related to electromagnetic fields are discussed regularly, and an awareness programme is in the works for those communities that live near the base stations.

BEST PRACTICES

PRO-ANTENAS PROGRAMME

Standing out in 2016 is the *Pro-Antenas* program with Ciudadanos por Respeto (Citizens for Respect), carried out in Peru. It is a collaboration project with villages that require coverage and improved institutional relations, with both members of civil society (Contributors for Respect), and in the arena of international cooperation (Atlas Foundation) and operator companies (AFIN). It seeks to promote the development of an institutional vehicle with greater legitimacy and communicational, institutional and coordinated legal actions. Training is also developed for aerial installation service providers, civil servants and local governments.

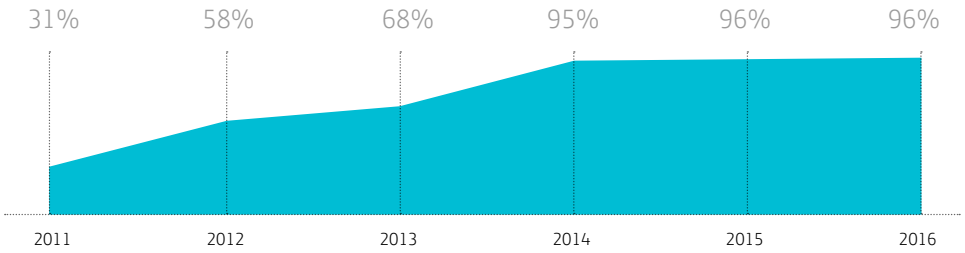
COMMUNITY DIALOGUE

One of our greatest concerns is establishing adequate communication with the communities in all the countries where we operate. We've been able to verify that the manner of approaching this dialogue, though it should be adapted to the characteristics of each country, is a procedure that can be reproduced with multiple communities. Therefore, we've decided to create a Best Practices Manual that covers all these successful actions. The cornerstone of the manual is the procedure we implemented in Ecuador, which is fundamentally based on providing society with information, with the goal of strengthening citizen participation processes.

Thanks to this methodology, we can manage the social component in the roll-out of the Network and improve our relationships with communities. We have consequently seen a reduction in community

EFFECTIVENESS IN THE SOLUTION OF COMMUNITY CONFLICTS

Rolling out the Network - Ecuador



conflicts associated with the subject of health, achieving a successful Network roll-out, as shown in the graphic (previous page). This project has served as a guide to other operations in Telefónica Mexico. This operator has developed and implemented an internal procedure that establishes the various steps to be followed for the ideal coordination of community responses.

Also in Ecuador, we continue to work in association with the Telefónica Foundation on the 'Alfabetización Digital' project. This project has allowed us to reduce the digital gap in rural and marginal areas, and to bring communities the benefits of technology in their daily activities. This has been definitive for the roll-out of the Network in these areas, where before there was absolute rejection of the construction of base stations due to the lack of knowledge of their operations and importance to local development.

Furthermore, together with local institutions in Colombia, we are very committed to the initiative 'Antenas para el Progreso', with the aim of improving the public perception of telecommunications infrastructure, generating confidence and promoting a favourable environment for the roll-out, quality and stability of the Network.

RAISING EMPLOYEE AWARENESS

We are committed to training and raising awareness among employees, and have held two workshops at a global level:

"Understanding science to resolve doubt: Electromagnetic Fields and Health": All the operators from the various countries participated in this event and were given the opportunity to have their questions answered by experts from the ICNIRP (International Commission on Non-Ionizing Radiation Protection) and the SCENHIR (Scientific Committee on Emerging and Newly Identified Health Risks).

"Telefónica shares best practices": A workshop in which, with the help of scientists, we were able to understand the key processes of communicating with the communities and come to know the various research projects that are under way. This activity is in response to the work plan designed to define and share the practical improvements in the group as set out in the Manual of Best Practices.

Also during 2016, the "Mobile Telecommunications and Society" course was launched and made available to all the Spanish-speaking Group employees. The training course is made up of four modules that explain the technical basics of mobile telephony, how exposure limits are established, and how we meet the various regulations. We explain the scientific studies and advances regarding electromagnetic fields, while emphasising the benefits of the information society. Our goal is to reach our German and Portuguese-speaking employees throughout 2017.

COMMITTED TO OTHER COLLECTIVES

In 2016 we continued with the campaign "En la Onda con las Antenas" (On the Waves with the Antennas), developed in Colombia. The aim of the campaign is to communicate and define scenarios which share and circulate solid arguments that will help us disprove the myths that have been created about telecommunications infrastructure and health.

MILESTONES 2016

- Internal Training Course: "Mobile Telecommunications and Society" for Spanish-speaking countries. — 100% Achieved
- Holding of 2 workshops "Sharing Best Practices at Telefónica" and "Understanding science to resolve doubt: electromagnetic fields and health". — 100% Achieved
- Improved internal procedure "Community Dialogue" in Ecuador. — 100% Achieved

WE COMMUNICATE

We believe that information is fundamental for society to overcome myths related to electromagnetic fields and to understand telecommunications operations. Therefore, we provide relevant links, expert information on the subject and frequently asked questions, which are updated regularly.

CHALLENGES 2017

- Publication of the Telefónica Best Practices Manual "Community Dialogue".
- Holding the workshop: "Understanding science to resolve doubt".
- Implementing the "Community Dialogue" procedure in other operations.
- Launching the "Mobile Telecommunications and Society" course for our German and Portuguese-speaking employees.

EcoSmart Services_

Digitisation will be essential to addressing the environmental challenges affecting society as a whole. For this reason, we are developing services based on the Internet of Things (IoT), the Cloud and Big Data, which have a very positive environmental impact.

These services enable our clients to more efficiently use resources such as energy and water to improve traffic planning, air quality and urban planning in cities, to reduce greenhouse gas emissions and to improve their response to a climate catastrophe.

We are aligning our business and environmental strategies so as to seize opportunities related to the search for solutions to environmental issues. We want to position ourselves as a key actor in the green economy, for which sustainable innovation is essential. For further information, see the chapter on 'Innovation'.

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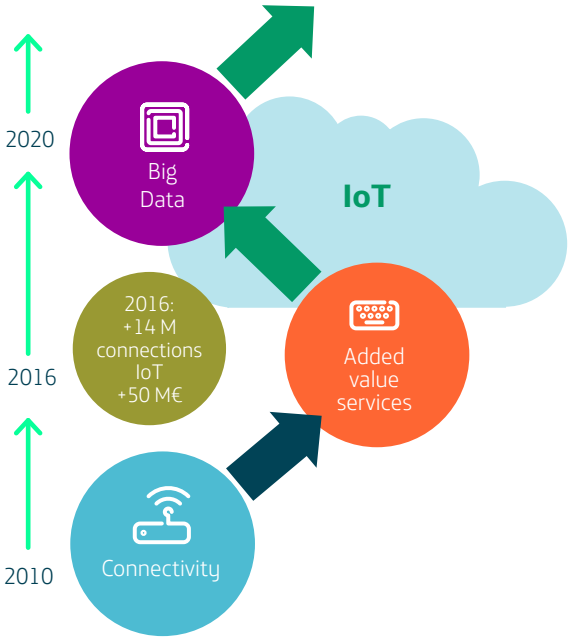
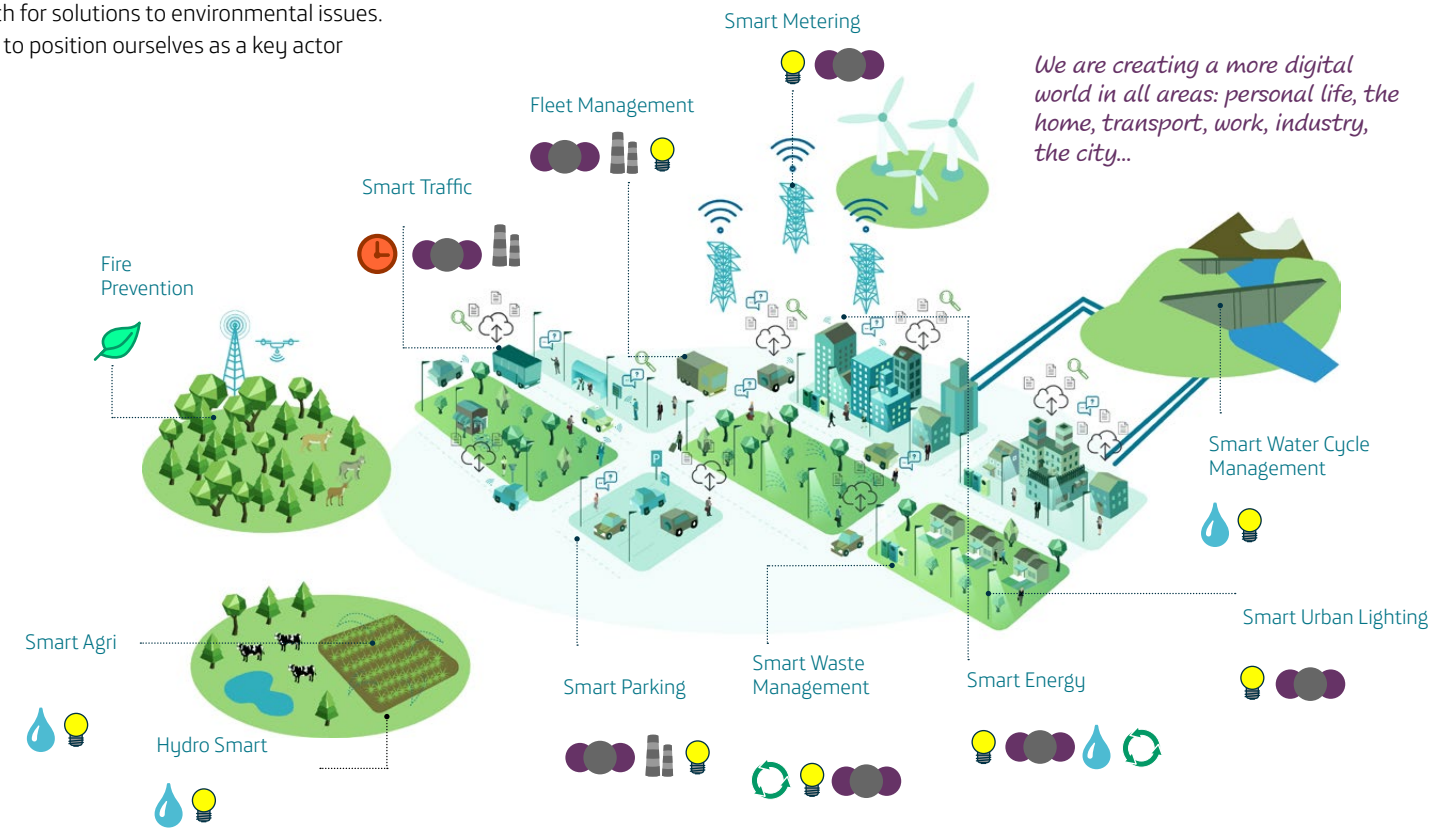
Emissions avoided in 2016 thanks to our *fleet management service*



Note: The IoT connections support more services than the green services.

We are creating a more digital world in all areas: personal life, the home, transport, work, industry, the city...



INTERNET OF THINGS

The IoT is leading us to a world of total connectivity in which, thanks to Big Data, information is acquiring a new dimension. There are still barriers to be overcome but we are on the right path. As a platformed company, we are committed to integrating connectivity, equipment and services so as to facilitate digitisation. 2016 ended with 14 million IoT lines, which undoubtedly offers enormous potential for a circular and decarbonised economy. Innovation in this field is constant; to support this, we work alongside the leading companies in the sector and we have innovation centres in Chile, Rio, Madrid, Munich and London. We currently have highly specialised services for certain sectors, such as retail, logistics and cities.

GOOD IoT PRACTICES

TELEFÓNICA IS LAUNCHING AN IoT PROJECT FOR EFFICIENT WATER MANAGEMENT IN CHILE

Telefónica, in partnership with Huawei and Kamstrup, has deployed the first NB-IoT technology project in Latin America using real user data. One of the leading water companies in Chile has successfully tried out this telemetry solution for residential water meters.

According to the World Resource Institute, in the coming decades Chile will be the country with the greatest water shortages in America, therefore this IoT solution will facilitate the efficient management of the resource, thereby reducing losses and leaks from the system.

The telemetry will enable customers to monitor their daily use, facilitate real invoicing by avoiding estimated use and detect leaks and abnormal situations in the home, as well as non-invoiced water flows. The sensors will also supply information to the water network management company with regard to water supply to end customers.

BIG DATA

Analysis of data with patterns of social behaviour and movement flows can have important applications in environmental matters, such as adaptation to climate change, transport management, efficient use of resources and so on.

These data come from internal sources, such as our Network and IoT sensors, and from Open Data sources - information which is made available to society, public administrations and other bodies, including censuses, climatology and pollution levels, in order to provide our services in a more comprehensive manner.

In 2016 we introduced LUCA, a new Big Data unit with specialised services for corporate customers. Our aim is to help our customers in their decision-making and in more efficient management of their resources, as well as, ultimately, investing the benefits of this wealth of information in society as a whole.

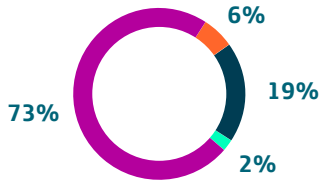
The new unit offer includes four main lines of products and services:

- The first line is based on the value of the anonymised and aggregated data of our networks. This category includes the Smart Steps service, focused on mobility management solutions, with current success cases in the enhancement of traffic planning and caring for the population in the face of a climate catastrophe.

Our Energy Efficiency in Buildings service *saved 103 GWh* for our customers

INCOME FROM ECOSMART SERVICES

%



- IoT connectivity
- Smart energy
- Smart cities
- Smart mobility

IoT SERVICES

15% reduction of fuel consumption with our *fleet management services*

15% *reduction* of water irrigation with Smart Water

10% of *fuel savings* and an 85% improvement in black spots where there exists poor waste separation, thanks to Smart Waste

A reduction of **30%** in the consumption of *public street lighting* with Smart Lighting

Smart Parking allows *a reduction* of **43%** of the average time *looking for regulated parking* in large cities

23% *reduction in energy consumption* with our Energy Efficiency in Buildings service

- The second line focuses on the analytical and external consultancy services for national and international customers already offered by Synergic Partners, the company specialising in Big Data and Data Science which we incorporated in late 2015.
- Chiefly through BDaaS (Big Data as a Service), helping our customers to manage and get the most out of their data, using our infrastructure in the cloud.
- Finally, Big Data for Social Good, designed to use data to help with the development of society, providing value and thereby contributing to the Sustainable Development Objectives (7 of the 17 objectives are linked to the environment). In this area, for example, initiatives have been launched to reduce pollution levels caused by traffic in the cities of Nuremberg and Stuttgart.

BIG DATA BEST PRACTICES

ADAPTATION TO CLIMATE CHANGE AND IMPROVING MOBILITY BY MEANS OF BIG DATA

- **Analysis of transport demand in Zaragoza**
  As innovative leaders of urban planning and public transport analysis in Spain, the Zaragoza transport consortium decided to use data from Smart Steps to create matrices to help them to determine the demand for transport in the city, as well as demographic trends.

FURTHER INFORMATION

- **Information System on journeys for Highways England**
  Highways England manages, maintains and upgrades roads in England. We worked with them to transform their data strategy, switching from traditional (and often lengthy and costly) data collection to using mobile data from our Smart Steps platform, converting the Network with 4 billion events created each day by O2 customers into valuable insights into infrastructure planning.

FURTHER INFORMATION

- **Adaptation to climate change, Colombia**
  We collaborated with UNICEF by means of the Magic Box initiative, a Big Data social platform, to optimise its response to natural disasters.

  A pilot scheme was carried out using data from Telefónica Colombia with a view to responding to three potential emergencies: an earthquake, an avalanche and floods.

  By means of this UNICEF-Telefónica partnership, the technology, data and cross-sectoral articulation are proactively and innovatively integrated to enhance or emergency response capacity, demonstrating that the telecommunications sector is crucial for risk management, given that the availability and accuracy of information can save lives.

FURTHER INFORMATION

HOSTING AND THE CLOUD

Thanks to our hosting services in Data Centers, we are achieving the dematerialisation of contents and services, thereby reducing energy consumption and maximising space usage. All of this significantly reduces our customers' carbon footprint. We regard virtualisation as the first step towards cloud computing.

We currently have 11 strategic Data Centers or satellites enabling us to cover our needs in the most effective manner possible. The main ones are located in Spain, Brazil, Miami, Chile, Peru and Mexico. They all comply with the international Green IT principles of eco-efficiency and sustainability and have electrical and conditioning equipment that allows us to reduce our energy consumption to about 75% of that typical of this kind of infrastructure. The average EUP of our main Data Centers is 1.85.

For further information, see the chapter on 'Environmental Impact'.