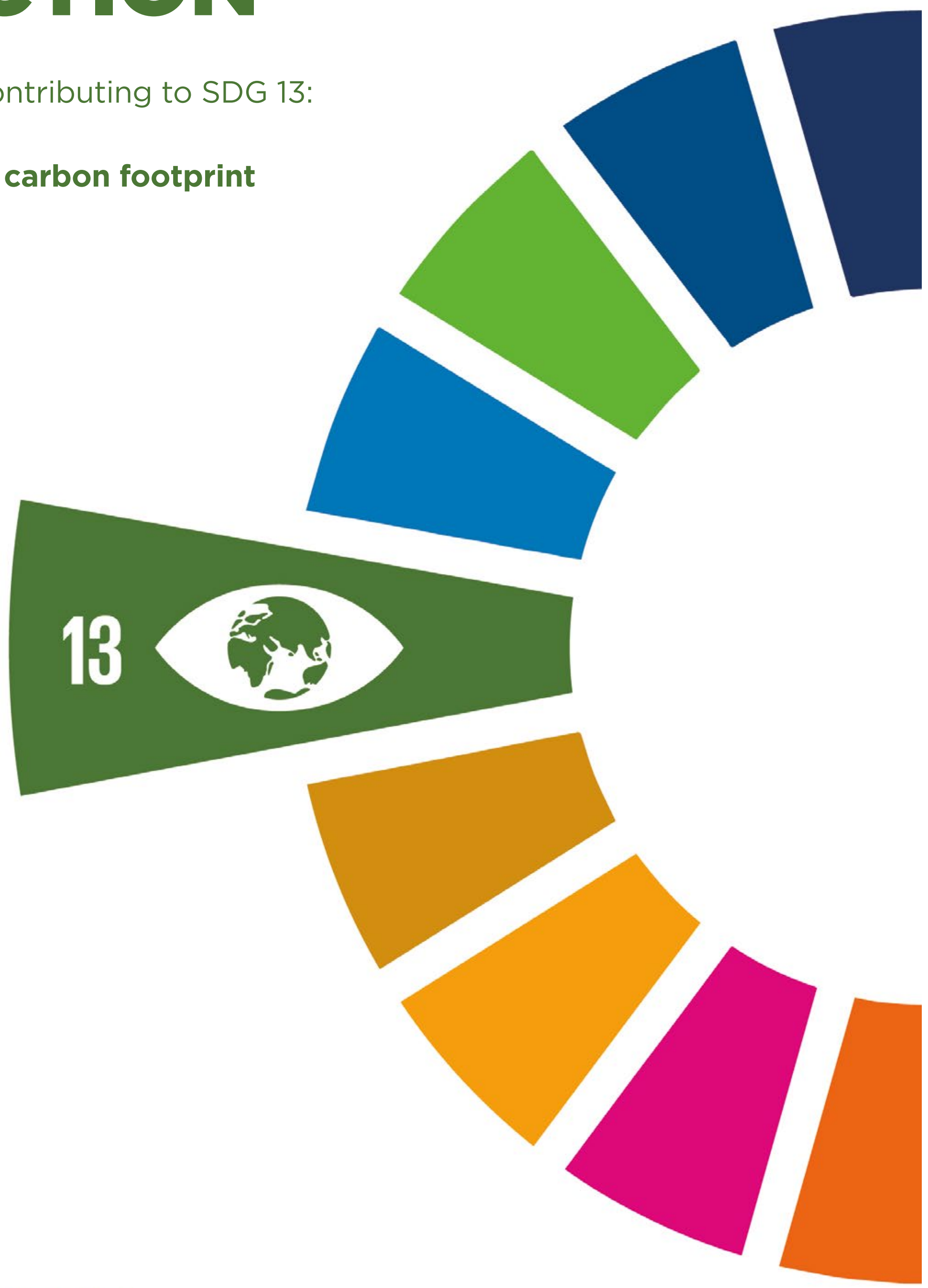
elecnor

Climate Change Strategy

CLIMATE ACTION

This is how the Elecnor Group is contributing to SDG 13:

- **Calculation and reduction of our carbon footprint**
- **Climate Change Strategy**
- **Promotion of renewable energy**
- **Environmental management**
- **Energy efficiency**
- **Investment in innovation**



THE GLOBAL COMPACT WE SUPPORT

SUSTAINABLE DEVELOPMENT GOALS

Commitment to the Sustainable Development Goals

In 2015, the United Nations Sustainable Development Goals (SDG) set out a global strategy for eradicating poverty in all its forms, reducing inequality and injustice, and combating climate change. As they look ahead to the United Nations 2030 Agenda deadline, governments, businesses, investors and civil society are all driving sustainable development.

As a leading player in infrastructure, renewable energy and new technology, the Elecnor Group strengthened its commitment to sustainability in 2017 by becoming a **Signatory Partner** of the United Nations Global Compact, the world's largest sustainability initiative.

In doing so, the company brought its business strategy further in line with the SDGs. The Group's infrastructure, energy, water and environmental projects are intertwined with some of the global challenges that the SDGs aim to address, such as climate change and reducing the energy gap.

With a presence in more than 50 countries, Elecnor has identified the following SDGs as being of particular priority:

- SDG 7. Affordable and clean energy. The Group promotes renewable energy and energy efficient services.
- SDG 9. Industry, innovation and infrastructure. Elecnor builds reliable, sustainable and high-quality infrastructure, and drives innovation.
- SDG 13. Climate action The company is addressing climate change by calculating its carbon footprint, setting targets to reduce its emissions and implementing its Climate Change Strategy.

Tied in with all this is Elecnor's firm commitment to the well-being of its people (SDG 3. Good health and well-being), contributing to the economic and social development of the countries in which it operates by providing high-quality employment (SDG 8. Decent work and economic growth), and not forgetting strict compliance with the law and the highest ethical standards (SDG 16. Peace, justice and strong institutions).

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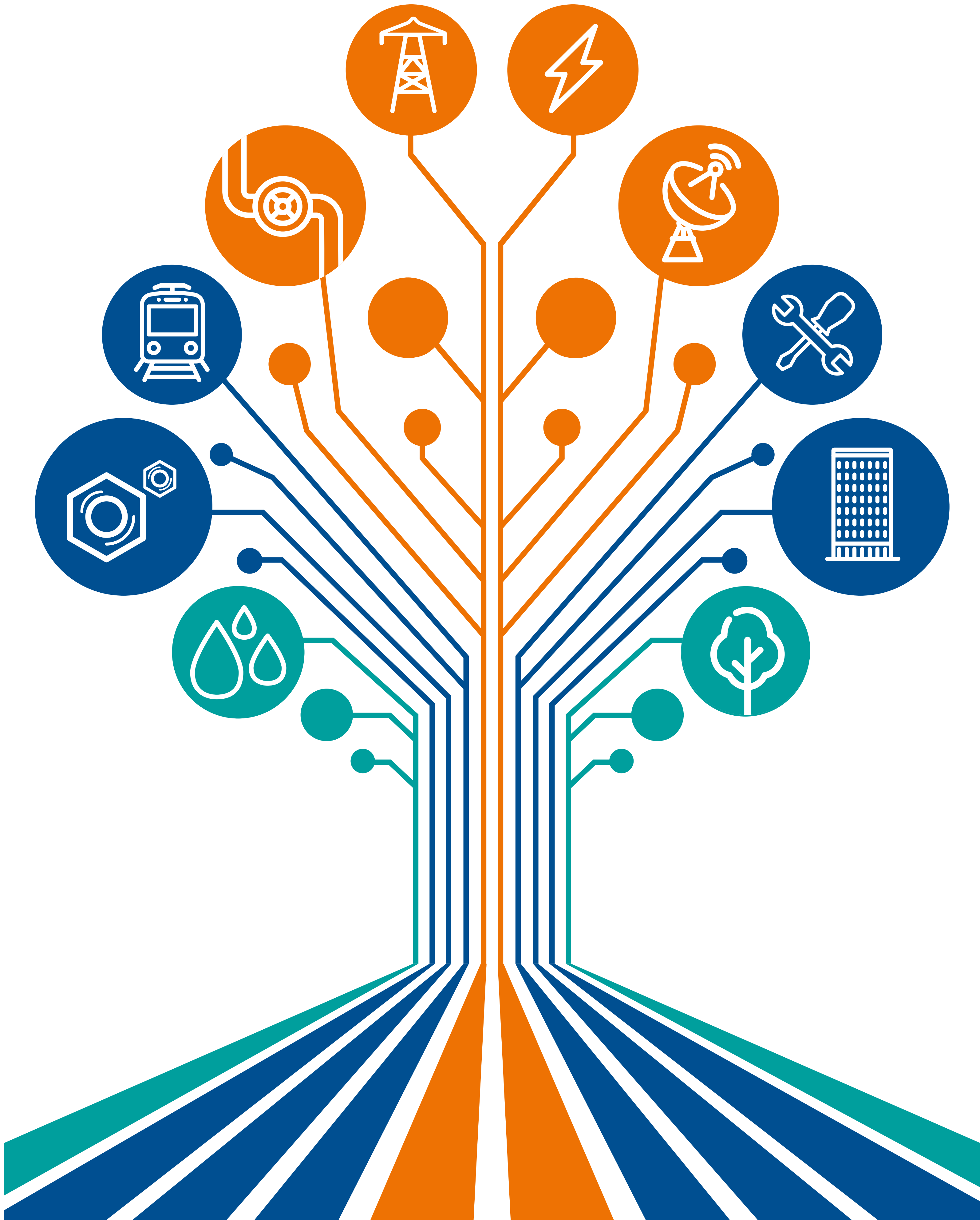
List of Acronyms

AR	Assessment Report
AC	Adaptation Capacity
CDP	Carbon Disclosure Project
DJSI	Dow Jones Sustainability Index
E	Exposure
WTP	Wastewater Treatment Plant
DWTP	Drinking Water Treatment Plant
GHG	Greenhouse Gases
GRI	Global Reporting Initiative
I	Impact
IPCC	Intergovernmental Panel on Climate Change
MAPAMA	Ministry of Agriculture and Fisheries, Food and Environment
SDG	Sustainable Development Goals
OECC	Spanish Climate change Office
R	Risk
RCP	Representative Concentration Pathways
UNFCCC	United Nations Framework Convention on Climate Change
V	Vulnerability



EXECUTIVE SUMMARY

The growing expectation of more profound changes to the climate, with rising temperatures, decreasing precipitation and more frequent and intense weather events has put climate change at the top of the political, social and business agenda.

With this in mind, and as part of its commitment to the United Nations Sustainable Development Goal 13, "Climate Action", Elecnor seeks to operate in a sustainable way that is adapted to the changing climate, whilst always ensuring the involvement and commitment of the people that make up the Group.

The latest studies conducted reveal that Elecnor's carbon footprint in 2017 totalled 63,827 tonnes of which almost 78% corresponded to scope 1 emissions, that is, those associated with fuel consumption. While this means a rise of 8.5% in emissions in absolute terms with respect to the previous year (2016), in relative terms, a clear improvement can be seen. The ratio of emissions generated per hour worked has fallen from 2.40 kgCO_2e/hour in 2016 to 2.11 kgCO_2e/hour in 2017.

Also, Elecnor has conducted a strategic diagnosis of adaptation to climate change, in order to identify the related opportunities and risks. The analysis of opportunities points to the fact that the countries that will present more business opportunities for Elecnor will be Angola, Brazil, Spain and Mexico in the power, energy generation, construction and environment, and telecommunications businesses. In the case of the risk analysis, the results point to the fact that the business lines focusing on the electricity network and wind energy concessions would be those that could be affected more, the locations on the American continents being those that would have higher levels of climate risk.

All this has led to the developed of the 2030 Elecnor Climate Change Strategy. With two main objectives and three lines of action, it creates the framework into which all the Group's actions to reduce greenhouse gas emissions, adapt to the impacts of climate change and make the most of the associated opportunities will be inserted.

The Group's Climate Change Strategy has two main objectives

Mitigation

To reduce GHG emissions by 25% by 2030 (with respect to 2014). In other words, emissions are expected to fall by approximately 1.6% a year

Adaptation

Ensure the resistance of Elecnor's Concession Business in the face of climate change and successfully position itself as the leading company in the sector, thanks to the opportunities resulting from climate change

These objectives will be achieved through a series of actions covered in three strategic lines of action

STRATEGIC LINE 1
PEOPLE
Personnel who are aware, trained and resilient to climate change

STRATEGIC LINE 2
ASSETS
Sustainable assets and services adapted to a changing climate

STRATEGIC LINE 3
KNOWLEDGE
Knowledge to act in the face of climate change, reducing emissions and impact, and making the most of the resulting opportunities

The actions deriving from these strategic lines include a total of 22 actions for mitigation and adaptation to climate change

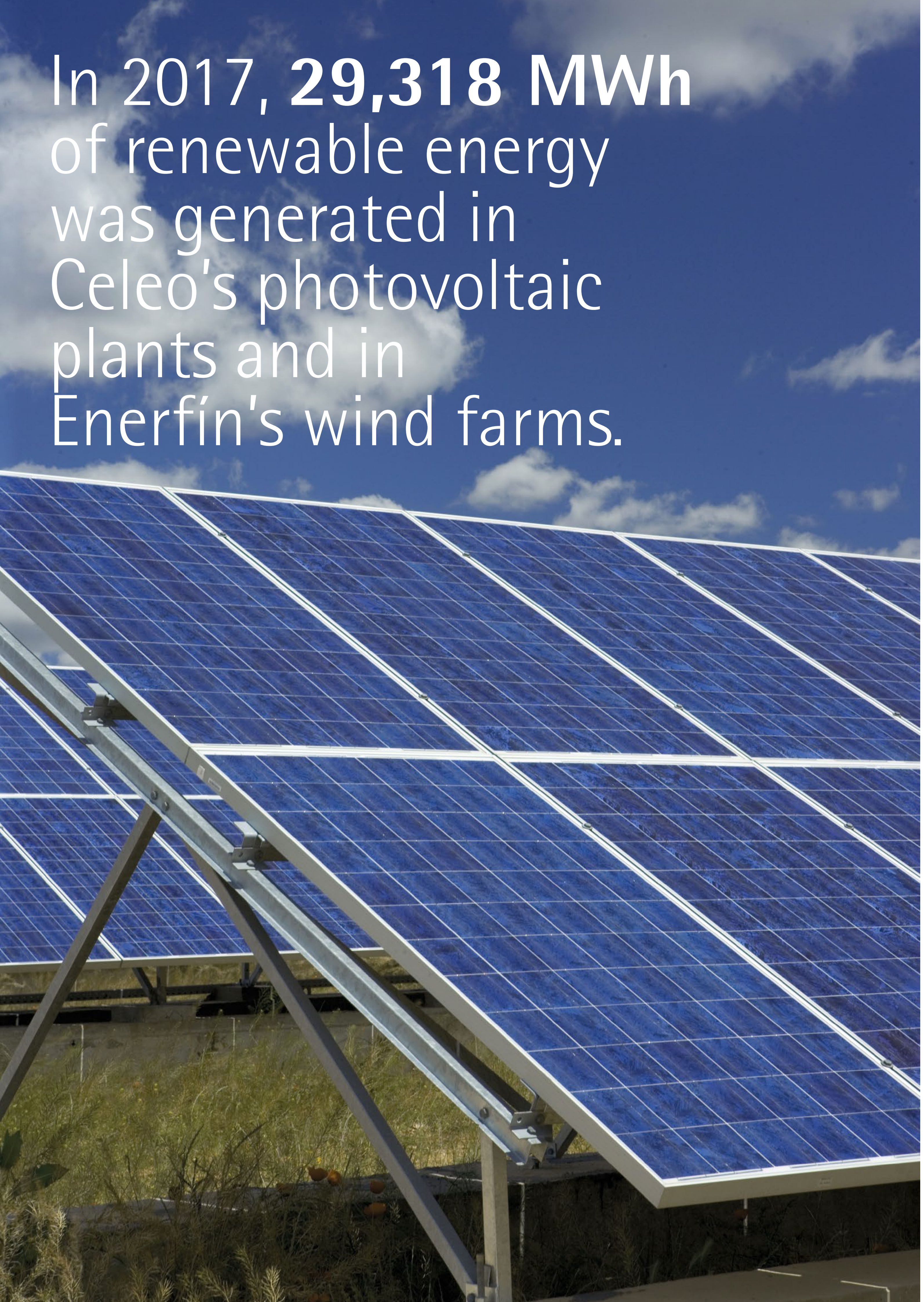
STRATEGIC LINE	ACTION
PEOPLE	1.1 Promoting teleconferences to avoid travel
	1.2 Developing courses on efficient driving
	1.3 Developing a plan to reduce paper and water consumption
	1.4 Appointing a Head of Environment per building
	1.5 Developing awareness campaigns
	1.6 Developing social actions within the Elecnor Foundation
	1.7 Adapting working hours and schedules
ASSETS	2.1 Purchasing sustainable and efficient vehicles, machinery and tools
	2.2 Optimising municipal waste collection routes and other services
	2.3 Developing preventative vehicle maintenance
	2.4 Purchasing efficient tools (computers, tablets, etc.)
	2.5 Improving renewable energies generation facilities
	2.6 Using special tools to prevent fires
	2.7 Installing timers for electronic machines and automatic light switch systems. Changing to LED lighting
	2.8 Air conditioning control
	2.9 Reutilising water for different uses (watering gardens, daily cleaning, etc.)
	2.10 Implementing efficient irrigation systems
KNOWLEDGE	3.1 Improving the recording of fuel consumption data by activity, equipment, time of year, etc.
	3.2 Adapting landscaping to new climate situations
	3.3 Developing a predictive bird route variation study linked to own facilities
	3.4 Including the climate change variable in the organisation's plans (emergencies, evacuation, planning, etc.)
	3.5 Contracting climate change insurance

This first series of measure will be evaluated on an annual basis, in order to measure their degree of progress, the investments made and the economic and environmental benefits obtained. Additionally, a review will be conducted of the strategy every five years, updating the actions pushed by the Group to achieve the long-term objectives set.

1

PROGRESSING IN A CHANGING CLIMATE

The importance of the Climate Change Strategy for Elecnor's future



In 2017, **29,318 MWh** of renewable energy was generated in Celeo's photovoltaic plants and in Enerfín's wind farms.

Given the growing expectation of more rapid rises in global temperatures and predictions of more frequent and severe extreme weather events, there is an urgent need to involve companies in efforts to successfully improve action in the face of climate change.

Climate action is one of the core pillars of the United Nations 2030 Agenda, which, through Sustainable Development Goal (SDG) 13, "Climate Action", aims to take urgent action to combat climate change and its effects.

Elecnor is firmly and decidedly committed to this cause. The Group's push towards sustainable activity and its adaptation to the changing climate must be principally driven by the involvement and commitment of every person that forms part of Elecnor and by their contribution to the achievement of SDG 13. In turn, promoting investment in technological innovation and new energy models will help to secure the low-carbon economy that Elecnor advocates, thereby facilitating more climate-conscious purchasing decisions.

Regarding adaptation, the importance of its integration into the Group's strategies and criteria to improve investment decision-making lies in a greater reduction in the business group's vulnerability. This will increase its economic interest with regard to its clients and investors and for the interests of the countries in which it operates today or in the future.

In this respect, the actions to adapt to climate change in the developing countries where the Groups is active have a greater significance for different reasons:

1 FIRSTLY, FOR ITS ECONOMIC INTEREST

Given that climate risk is growing in these countries, integrating planning and adaptation measures will make investments less exposed and, ultimately, more profitable.

2 SECONDLY, FOR ITS CLIENTS' INTERESTS

Without adaptation measures, the majority of the investments for development in countries with a less developed level of infrastructure are not equally sustainable.

3 THIRDLY, TO SUPPORT THE INTERESTS OF THE COUNTRIES IN WHICH IT OPERATES

The private sector must become an active partner in adaptation efforts in developing countries, since it can strengthen governments, help to define and complement effective public adaptation measures and generate public and international support through its influence. (Millerb, 2013).

Through the Climate Change Strategy, Elecnor seeks to study and implement measures that enable the future development of the services provided, ensuring lower costs and more effective responses to climate change. The aim is also for this strategy be the basis of a profitable and constantly growing business, making Elecnor a resilient, competitive and sustainable company.

2

GLOBAL CLIMATE CHANGE WITH LOCAL CONSEQUENCES

2.1 Climate change and its impacts

According to the latest assessment report of the Intergovernmental Panel on Climate Change (IPCC), human influence on the climate system is unequivocal, anthropogenic greenhouse gas (GHG) emissions being the highest in history. The changes observed in the climate (rising temperatures and the warming of the atmosphere and oceans, the fall in the volume of snow and ice, more frequent and intense extreme weather phenomena, etc.) cause general impacts on human and natural systems, with significant consequences depending on the location and levels of adaptation of said changes (IPCC, 2013).

The IPCC projects different future global climate change scenarios according to predictions on GHG concentration in the atmosphere. These scenarios predict a likely rise in the global average temperature of 1.5ºC from that of the period 1850-1900 to the end of the current century for all the scenarios considered (RCP)[1], except for the most optimistic (RCP2.6). The IPCC, in turn, establishes that the rise in temperature will likely exceed 2ºC for the scenarios RCP6.0 and RCP8.5, and may reach almost 5ºC, in the most pessimistic scenario of greater GHG emissions (RCP8.5) (IPCC, 2013).

Despite the fact that a rise in the average temperature and a drop in precipitation is generally predicted on a global scale, it is important to take into account the differences between regions, especially when it comes to defining policies of adaptation to climate change.

Taking into account the areas where Elecnor carries out its activity, according to the IPCC, the main impacts that are currently expected are linked to the areas of water, agriculture and sanitary management, as well as the greater occurrence of droughts, floods and fires.

1. RCP stands for Representative Concentration Pathways, characterised by their total radiative forcing for the year 2100, which ranges from 2.6–8.5 W/m², depending on the GHG emission scenario considered.

CHART 1

Change in the global mean surface temperature

Source: (IPCC, 2013)

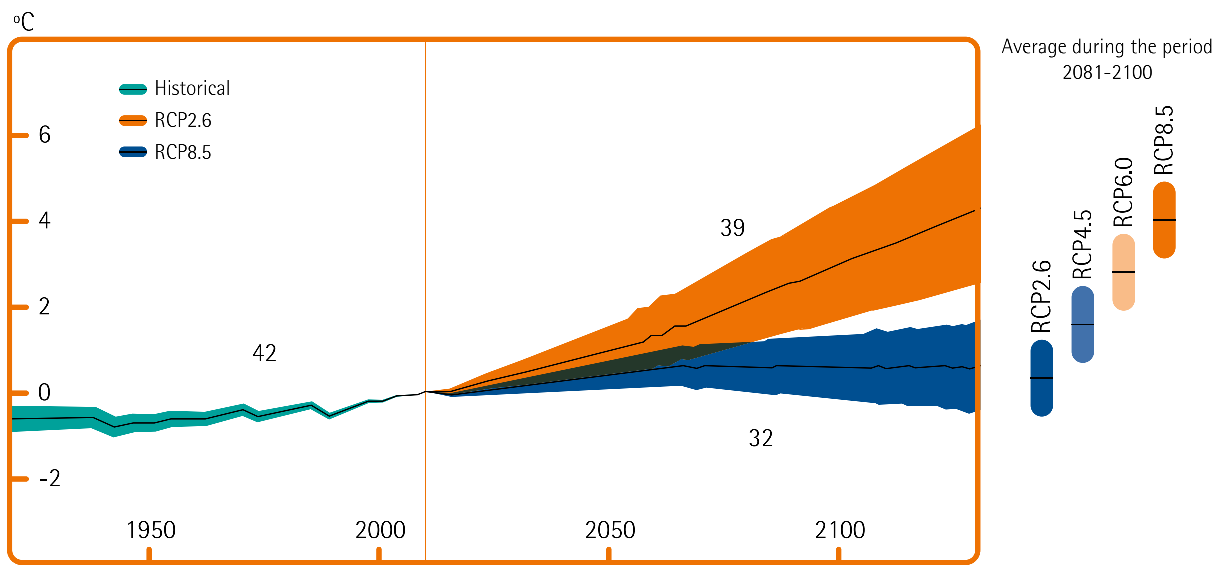
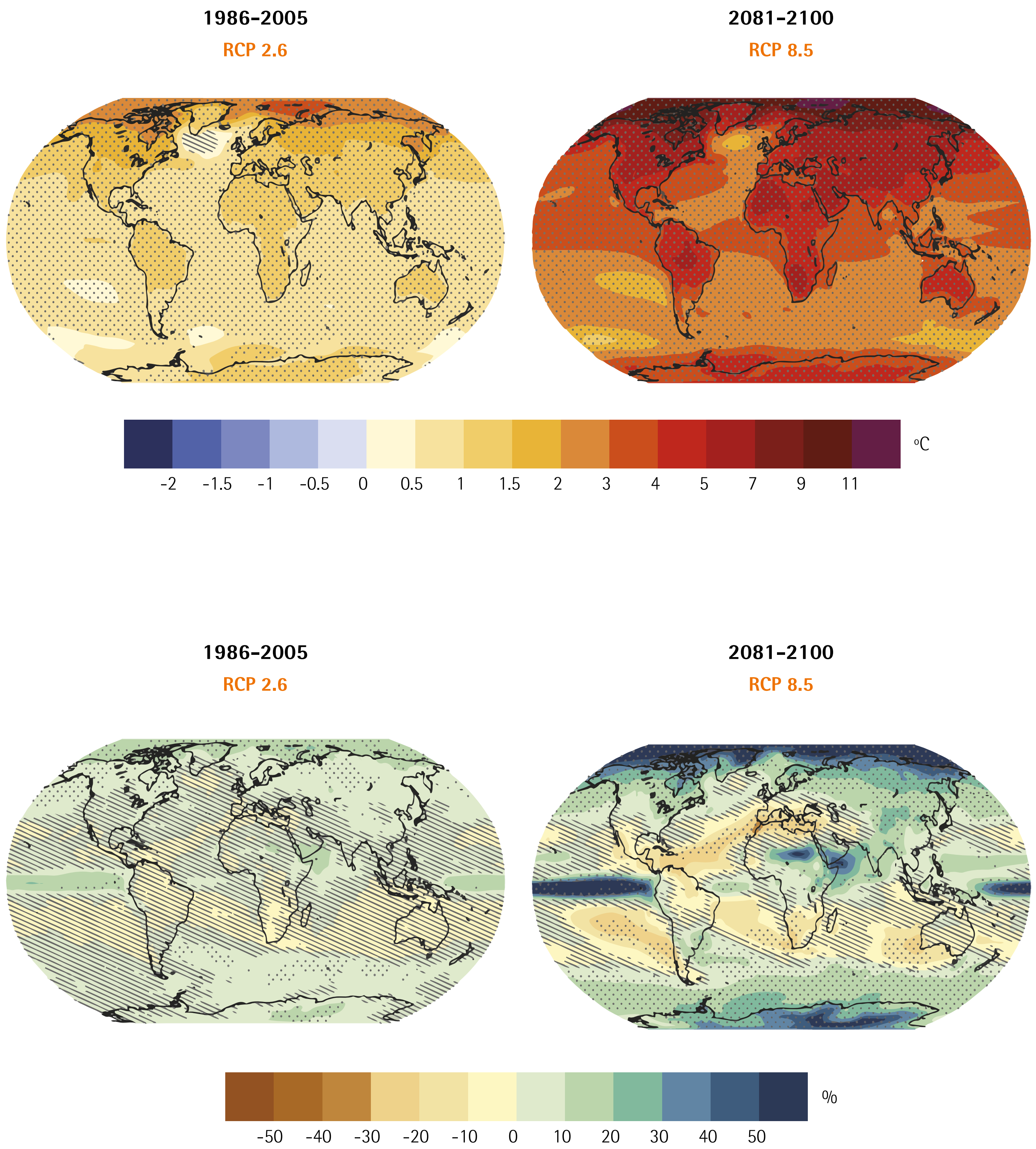


CHART 2

Change in average temperature and rainfall

Source: (IPCC, 2013)



The table inserted below summarises by region some of the main expected impacts resulting from climate change.

Elecnor has a presence in the three continents specified in Table 1, therefore, depending on the continent on which the business is located, measures will need to be focused on adaptation to a type of specific circumstances. These circumstances will intensify depending on the country where the business is located within each continent. This is why a study has been conducted of the existing bibliography with regard to future climate and the conclusions presented in Table 2 have been reached..

Depending on the country in which the affected business is located, these impacts can represent a threat or an opportunity for Elecnor's activity.

Among the countries in which Elecnor carries out its activity, four will be particularly affected by the projected weather events. These countries are Angola, Brazil, Honduras and the Dominican Republic. Any risks and opportunities that may result from climate change will be analysed throughout this document for these and other countries with Elecnor activity.

On the next page, Table 2 contains a detailed analysis of climate impacts that could have both positive and negative consequences for Elecnor's business.

As can be seen, the main climate threats that will have consequences in Elecnor's activity are rising temperatures, changing rainfall and extreme weather events.

The level of existing infrastructures in each country where different business areas are executed must also be taken into account when it comes to assessing the level of resilience of Elecnor's activity. Those countries with a high infrastructure level will have greater capacity to respond to extreme weather events resulting from climate change and the impact will be reduced to a minimum thanks to the quantity and quality of the infrastructures. On the contrary, in the countries with less and lower quality infrastructure development, extreme weather events will cause more impacts, entailing a source of risks or opportunities for the Group.

As a summary of the aforementioned consequences, the physical damage to infrastructures and the interruption of the service are the main impacts that may result from climate change in Elecnor's activity.

TABLE 1

Main consequences of climate change by region where Elecnor has activity

Source: (IPCC, 2014)

LOCATION	CONSEQUENCES
EUROPE	• Increase in economic losses and number of people affected by floods (inland and coastal). • Increased economic losses and more people affected by episodes of extreme heat which will, in turn, increase the risk of fire. • Greater restrictions on water due to reduced availability and increased demand across the board due to higher temperatures and associated extreme weather events (such as heat waves and droughts).
AMERICAS	• Increase in economic losses and number of people affected by floods and landslides, due to rising intense rainfall and cyclones. • Increased water availability (in some regions) due to mountain glaciers melting. • Reduced food production and quality for the population. • Increased spread of vector-borne diseases such as malaria, dengue fever, zika and chikungunya virus.
AFRICA	• Greater occurrence of episodes of drought and greater competition for water availability. • Loss of biodiversity. • Decline in agricultural productivity and reduced availability of food. • Low lake shores susceptible to erosion and threatened by rising sea levels, resulting in economic losses in coastal cities.

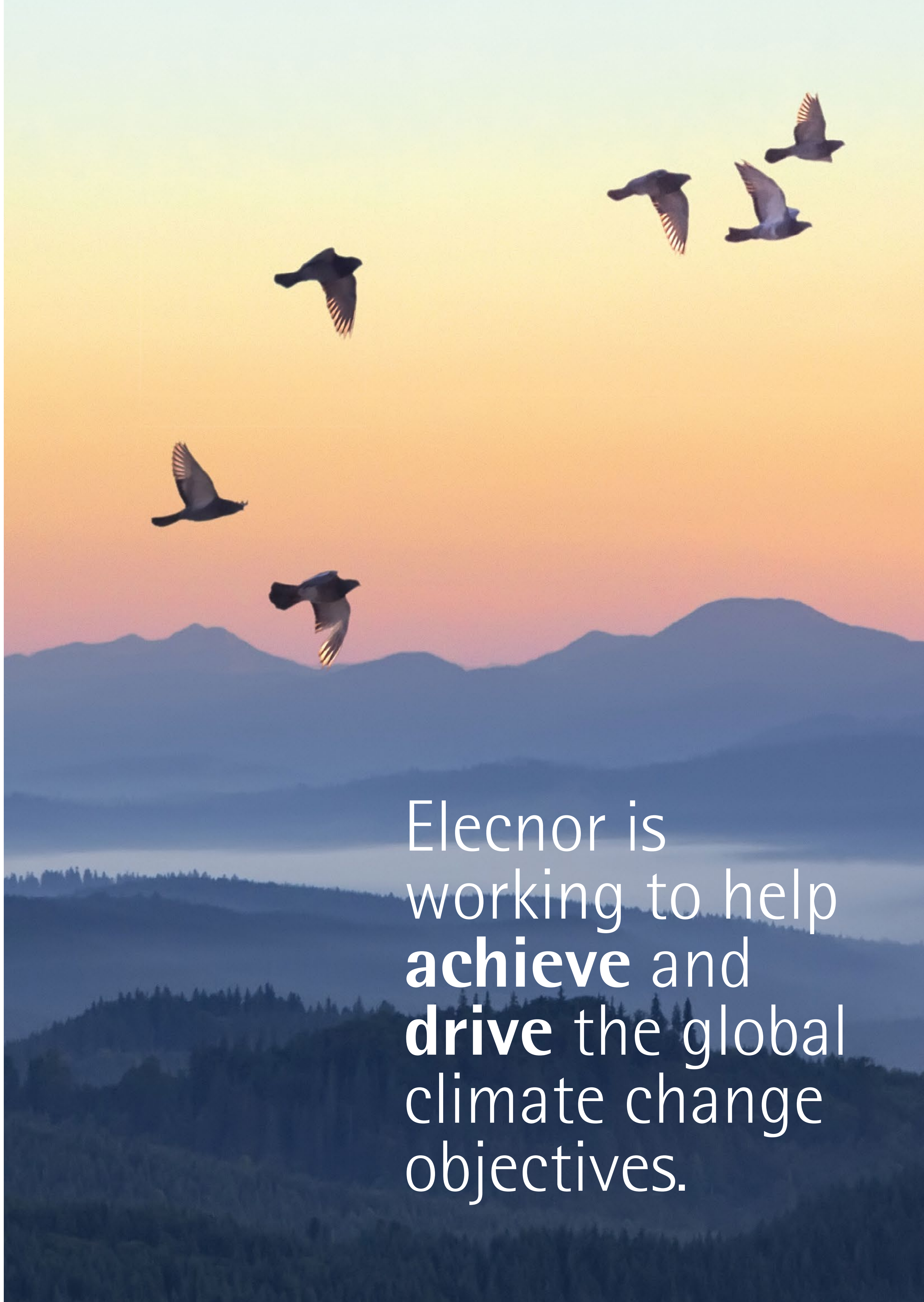


TABLE 2
Consequences of climate change on Elecnor's businesses

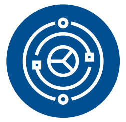
Source: Prepared in house from (Girardi, 2015), (Santos, 2015), (Riverside, 2014), (Riverside, 2014), (Ospina A., 2014), (NRT, 2012), (DEFRA, 2012), (World Bank, 2011), (Snow M., 2011), (Wong J., 2011), (Gobierno de Extremadura, 2011), (Crook, 2011), (Patt, 2010), (AEA Technology, 2010), (Murphy, 2008), (Anna Lyth, 2007), (Kirkinen J., 2005), (Jaques, 2001), (Makkonen, 2001)

RISING TEMPERATURES AND HEATWAVES	• Effects and losses in power transmission and distribution, increasing losses, reducing capacity and increasing tensions in the distribution system. • Malfunctions or early failures in equipment, if the design limits are exceeded, with a reduction in the useful life of infrastructures. • Increase in voltage in electrical components, which will have negative impacts on: a) the thermal capacity of conductors (cables) due to peak loads and b) the degradation of the Internal components of electrical substation transformers. • Greater risk of fires with resulting physical damage to infrastructures. • Greater risk of contact of vegetation with power lines due to the potential increase in the growth ratio of vegetation, which can require greater maintenance efforts. • Effects on wind output due to the increase in the density of the air produced by the changing temperature. • Reduction in the peak generation capacity of hydroelectric facilities due to changes in the structure and diversity of aquatic fauna caused by the rising air and water temperature. • Reduction in power generation due to the effects on the efficiency of photovoltaic cells caused by rising temperatures. • Effects on the performance of turbines due to lower air density, greater need for fuel and resultant reduction in the generation efficiency of thermal stations. • Faster rates of decomposition of organic matter present in waste, causing changes in composition and treatment needs. • Damage to asphalts and rails due to melting and excessive dilation. • Sinking catenaries due to thermal expansion. • Wear and tear or melting of tyres. • Greater need for air conditioning and refrigeration, with greater energy consumption as a result, as well as potential overcharges in the systems. • Cuts in power supply and effects on the provision of services, due to rising energy demand during heatwaves. Related to this, there could also be a rise in the cost of electricity as a secondary effect.
CHANGE IN RAINFALL	• Higher risk of floods. • Higher risk of effects on infrastructure and accidents due to intense rainfall. • Risk of reduction in water resource reserves, increased competition in their use and potential lower availability thereof. • Increased competition in the uses of water and less availability for refrigeration. • Effects on the radio-frequency spectrum of wireless communications due to increased humidity. • Need to adjust drinking water treatment plants and wastewater treatment plants to new water conditions. • Changes in wind energy output due to low humidity, high temperatures and changing winds in the northern hemisphere. • Reduced efficiency of wind output due to rains. • Imbalances in the rotors and increase in the loads in aerogenerators caused by ice accretion on the blades. • Reduced hydroelectric output due to effects on the courses of rivers as a result of changing rain patterns, as well as rising evaporation. • Effects on power generation due to changes in atmospheric transmissivity as a result of changes in the vapor content of water in the atmosphere.

EXTREME WEATHER EVENTS	• Physical damage to the structure of buildings and their contents (systems, equipment). • Physical damage to electric transmission towers and lines. • Destabilisation of lands, with potential effects of sinking infrastructures. • Interruptions and problems in services provided. • Economic losses due to site accessibility problems. • Risk for the useful life of devices caused by increased environmental stress (strong winds, higher temperatures, etc.). • Increased accidents during extreme events. • Effects on facility access routes, making difficult or impeding the arrival of workers and supplies required for the activity's operation, which may put the activity's continuity at risk. • The occurrence of cyclones and other windstorms can make it dangerous or impossible for employees to get to work. • Decreased water availability for refrigeration and hydroelectric output. • Damage to reservoir and generation equipment, as well as a greater need for facility and reservoir maintenance. • Damage and cuts in supply due to increased provision to dams and discharges from landslides. • Effects on the wind potential due to changes in wind intensity. • Interruption in the supply due to impacts of extreme weather events, such as hailing which can cause damage to cylindrical parabolic collectors in the solar field.
RISING SEA LEVELS	• Physical damage to coastal facilities. • Higher risk of intense waves due to storms that, in turn, increase the risk of salt corrosion of coastal infrastructures. • Higher risk of erosion or flooding at sites near the coast. • Effects on coastal access routes. • Risk of erosion, corrosion and/or flooding of coastal and underground infrastructures. • Changes in reference data for transmission calculations.

2.2
Policies and initiatives to tackle climate change

In order to reduce the influence of human activity on the climate, and to prepare for and adapt to the inherent changes, actions and strategies to mitigate and adapt to climate change have been driven in parallel for years.



MITIGATION OF CLIMATE CHANGE
seeks to put the brake on and reduce GHG emissions into the atmosphere with the purpose of tackling the causes and limiting future climate change.

ADAPTATION TO CLIMATE CHANGE
is aimed at reducing the negative consequences of climate change and making the most of any opportunities that may arise.

These policies and strategies are carried out from all levels of government (national, regional and local), as well as from corporate social responsibility business strategies.

At an international level, The Paris Agreement ratified in 2016 is the greatest commitment to date to put a brake on the global impacts of climate change. This agreement gives, for the first time, the same degree of importance to adaptation to climate change as to its mitigation, by fostering the development of strategies that Increase resilience and reduce the negative effects of climate change.

At a national level, governments need the support of private companies in order to fulfill its sustainable development agendas in the face of climate change. In this regard, in order to assess the environmental performance of the private sector, different sustainability indices (CDP, GRI or DJSI, among others) are being used as support, in which it is an essential requirement to have a business strategy to tackle climate change.

For this reason, both the mitigation diagnosis and the adaptation diagnosis serve as support in said sustainability indices and provide an added reputational value when aligned with other management systems, such as environmental management.

Climate change mitigation in the private sector

The concept of climate change mitigation refers to the policies, technologies and measures that enable GHG emissions, which are responsible for global warming, to be limited and reduced.

The main tool existing today to find out an organisation's impact on climate change is the **carbon footprint**, since its calculation enables the quantification of direct and indirect GHG emissions generated by its activity.

In this respect, it must not be understood as a mere calculation element, but rather as the first step towards putting forward improvements and the commitment to reduce GHG emissions.

Also, it should be underlined that, while the calculation of the carbon footprint by an organisation is voluntary, there are environmental, economic and corporate social responsibility (CSR) benefits associated with integrating it into a business strategy.

Adaptation to climate change in the private sector

Despite the fact that strategies to mitigate GHG emissions have been driven for years, the effects of climate change can be increasingly felt at a global level. There are now numerous governments and companies that are starting to work on adaptation to climate change strategies, with the purpose of reducing the negative consequences of climate change and making the most of any opportunities that may be generated thereby.

Adaptation to climate change is a growing area of interest in the private sector. In addition to the actual benefits of a risk and opportunities diagnosis, adaptation strategies align with other management systems, such as environmental management, serve as support in sustainability indices and provide an added reputational value that can be translated into greater trust on the part of the client and shareholder, which provides a stable and sustainable business development scenario.

3

STARTING POINT

Elecnor tackling climate change

To define a good strategy to tackle climate change, it is necessary to be familiar with the starting point both in the field of **mitigation**, through the carbon footprint, and in that of **adaptation**, through the climate risk analysis. The **main results** of both analyses are set out, which will enable the identification of priority areas of intervention, from which Elecnor's strategy to tackle **climate change** will be defined.

3.1

Climate change mitigation diagnosis

There are different methodologies available to develop the calculation of an organisation's carbon footprint and, in the case of Elecnor, ISO 14064-1 has been chosen, since it is considered the most internationally recognised standard. This methodology is based on five main principles: relevance, completeness, consistency, transparency and precision.

While the first year for which Elecnor calculated its carbon footprint was 2013, it was in 2014 when it managed to involve the Group's organisations for the first time all, so the latter is the one that is taken as the base or reference year. For this reason, the objectives to reduce GHG emissions are put forward in relation to 2014.

In this respect, Elecnor obtained the AENOR Environmental Certificate CO_2 Verified according to Standard ISO 14064-1 in 2014, 2015 and 2016. Through this verification, the Group has an independent and rigorous endorsement of the quantification of its GHG emissions in its activities, and seeks to improve its environmental and energy management.

Also, Elecnor's carbon footprint of said years (2014, 2015 and 2016) is registered at the National Registry for Carbon Footprint, Offsetting and Carbon Dioxide Absorption Projects. This Registry grants advantages to any organisations that register their carbon footprint, such as obtaining a national seal that will determine the degree and temporary framework of fulfillment, and will be taken into account in the medium term by the government when it comes to awarding contracts. The fact that Elecnor has adhered to this initiative reflects its intention to get ahead of the regulations by adding an added value for future projects.

The process for calculating the carbon footprint is as shown in Figure 1 on page 35.

The commitment to the future is embodied in effective **methodologies** for environmental management.

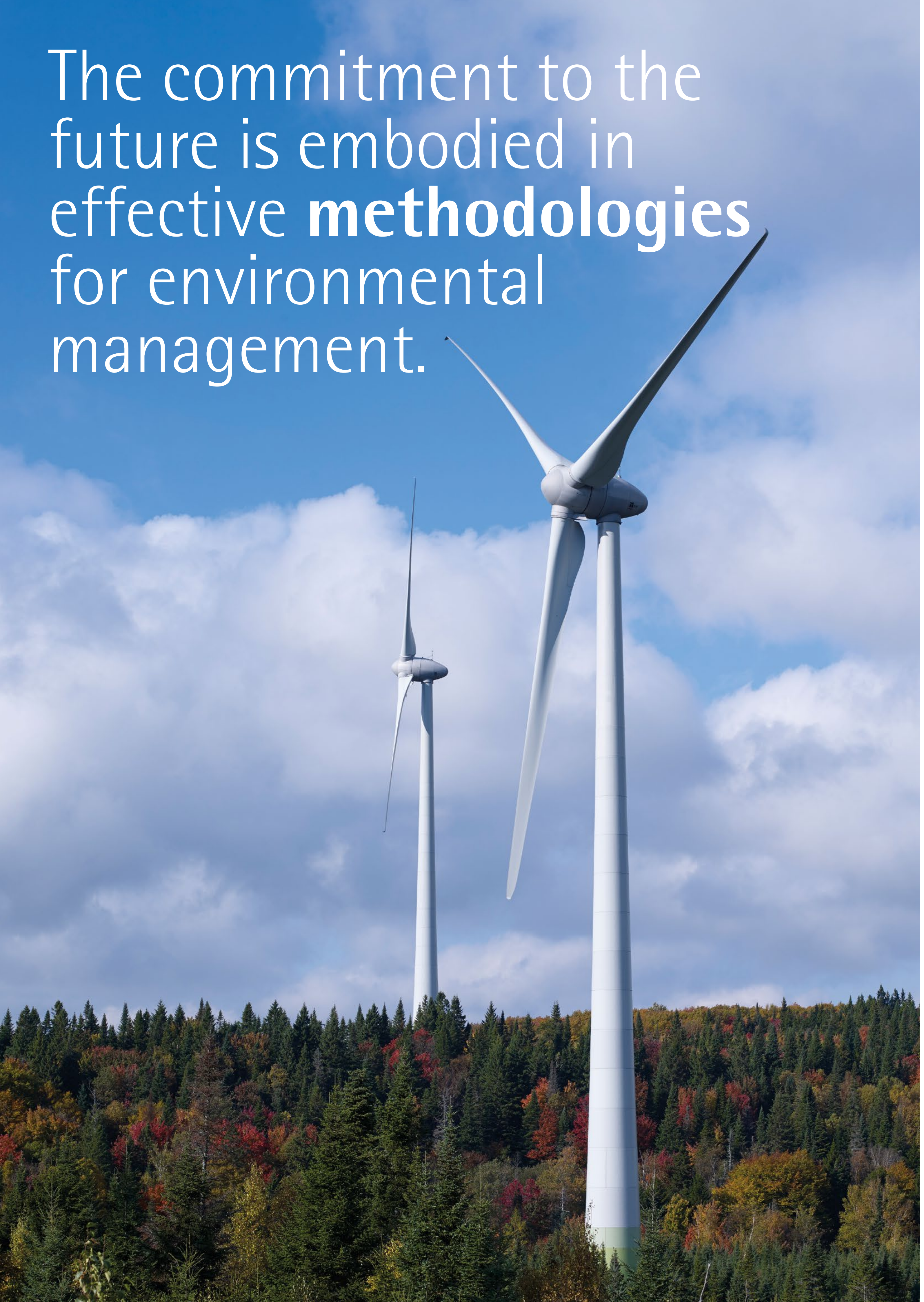


FIGURE 1

Methodological diagram of the carbon footprint calculation

Source: Prepared in house

Elecnor's 2017 carbon footprint

The organisational limits established for the calculation of Elecnor's carbon footprint have been defined under an operational control approach, in which 100% of the GHG emissions attributable to the operations over which the company exercises control are calculated.

The results derived from the application of said approach show an organisational map that includes a total of 18 organisations:

ORGANIZATIONS

- DEPUTY GENERAL MANAGEMENT LARGE NETWORKS (INCLUDES ADHORNA PREFABRICACIÓN, S.A.)
- DEPUTY GENERAL MANAGEMENT ENERGY
- MANAGEMENT CENTRE
- MANAGEMENT NORTH-EAST
- MANAGEMENT EAST
- MANAGEMENT SOUTH
- DEPUTY GENERAL MANAGEMENT INTERNATIONAL DEVELOPMENT
- APLICACIONES TÉCNICAS DE LA ENERGÍA, S.L. (ATERSA)
- ELECNOR DEIMOS
- DEPUTY GENERAL MANAGEMENT ENGINEERING
- AUDECA, S.L.U.
- EHISA CONSTRUCCIONES Y OBRAS, S.A.
- ENERFÍN SOCIEDAD DE ENERGÍA, S.L.
- HIDROAMBIENTE, S.A.
- JOMAR SEGURIDAD, S.L.
- CELEO
- CORPORATE OFFICES
- ELECNOR CHILE
- ELECNOR DO BRASIL

In turn, each of these organisations constitutes one or several delegations, which can be located in Spain or in the International arena. In addition, four different types of centers are distinguished: offices, warehouses, sites and plants. Each of these delegations can have more than one type of centre (example: offices and sites).

The operational limits of Elecnor's carbon footprint were defined from the establishment of the organisational limits. In this way, direct (scope 1) and indirect (scope 2) emissions have been quantified, including the following emission sources:

FUEL CONSUMPTION
Fixed (machinery) and mobiles (vehicle fleet) sources.

FUGITIVE EMISSIONS
Reloading of fluorinated gases in refrigeration systems.

ELECTRICITY CONSUMPTION

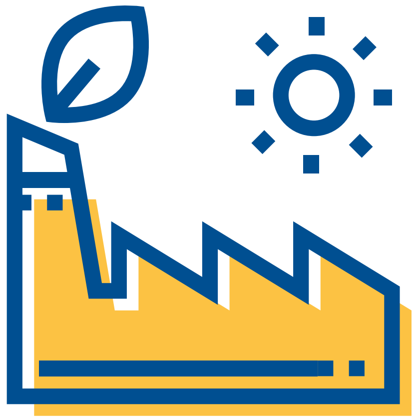


FIGURE 2
Map of processes with their emission sources
Source: Prepared in house

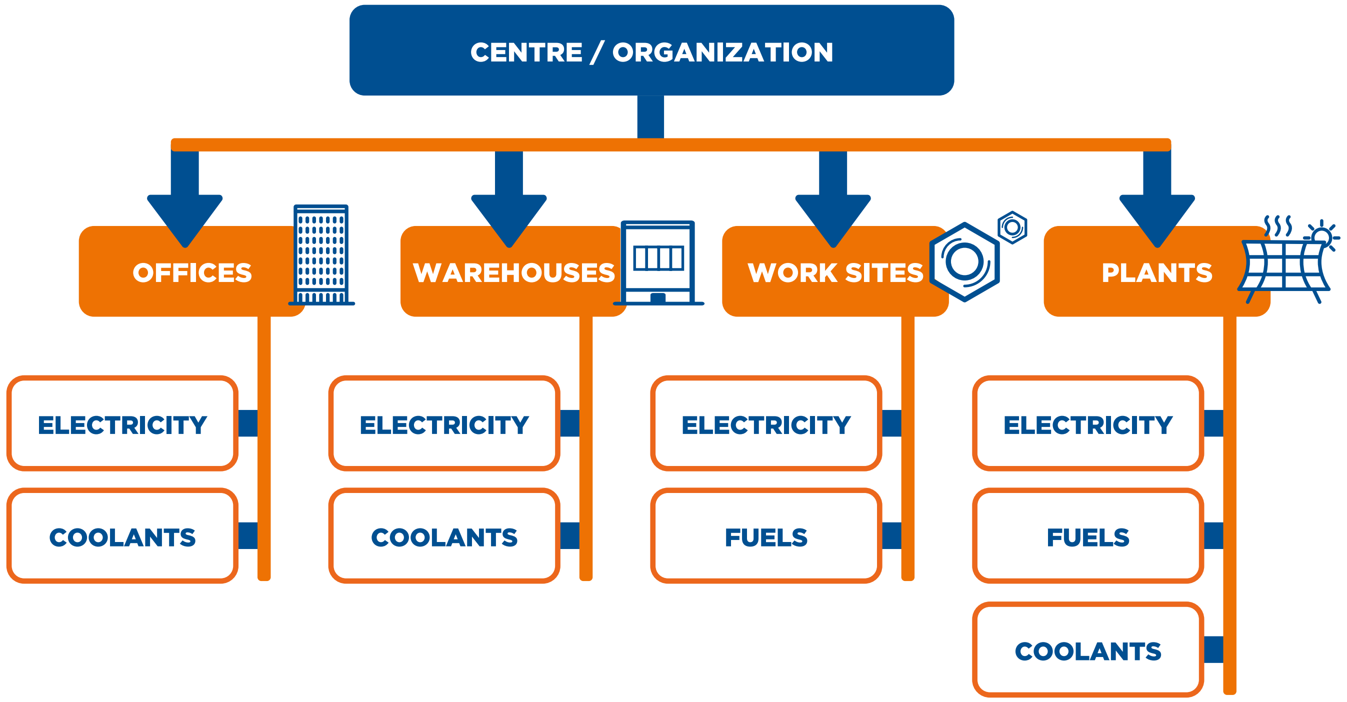


Figure 2 shows Elecnor's process map, with emission sources considered for each type of centre.

Elecnor's carbon footprint in 2017 was 63,827 tonnes of CO_2e, of which almost 78% corresponded to scope 1 emissions, that is, those associated with fuel consumption. The distribution of emissions by type of scope is included in the following table:

TABLE 3
Emissions by type of source and scope
Source: Prepared in house

SCOPE	SOURCE	EMISSIONS (tCO_2e)
SCOPE 1	Fuel	49.720,72
SCOPE 2	Electricity	14.106,40
TOTAL		**63.827,12**

The results of the analysis of emissions according to type of facility highlight the contribution of the sites, with over 74% of the total. These come after plants (factories/exploitations), which generate almost 19% of emissions. Offices have a smaller representation, with 6% and, finally, fixed warehouses with around 0.5%. This distribution is shown in Figure 3, next page.

It is also interesting to analyse the contribution of each organisation, in order to identify those that contribute to a larger extent to the carbon footprint and those that have greater potential for reduction, to be considered in the definition of Elecnor's Climate Change Strategy and, specifically, from the point of view of mitigation.

Table 4 below shows how each organisation contributes to the total emissions generated by Elecnor.

As can be seen in the image, the organisations that contribute to a greater extent to Elecnor's total emissions are Celeo, Management Centre, Deputy General Management Large Networks, Elecnor

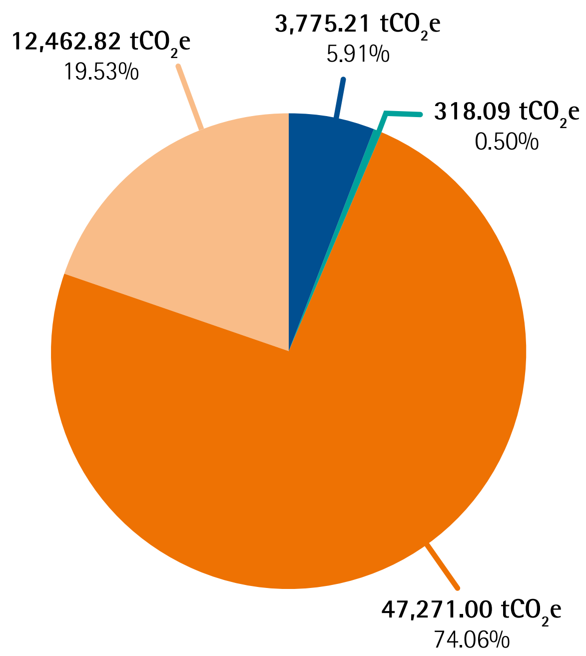
FIGURE 3

Elecnor's carbon footprint by type of facility

Source: Prepared in house

2017 emissions by type of installation

- Offices
- Warehouses
- Work sites
- Plants



Chile, Deputy General Management Energy and Management North-East. The total of the contributions of these six organisations exceeds the 72% of the total emissions.

Below is Management South, with 6.15% of the total, followed by Management East and la Deputy General Management Engineering, with 5.67% and 5.10%, respectively. The rest of the organisations contribute to a lesser extent with representations below 5%.

From the activity carried out by Grupo Elecnor, two areas have been identified that contribute to avoiding to preventing the generation of GHG emissions by the organisation from which third party organisations will benefit. Firstly, the correct management of generated waste and, secondly, renewable energy generation.

IN 2016, ELECNOR SENT 16,186 TONNES
of waste to clean points, avoiding its treatment at dumpsites.

THE RENEWABLE ENERGY GENERATED
at Celeo photovoltaic plants and at Enerfín wind farms totalled 29,318 MWh in 2017.

TABLE 4

Carbon footprint by organization

Source: Prepared in house

	Emissions tCO_2e/year	% of the total
CELEO	12,134.38	19.01
MANAGEMENT CENTRE	10,177.86	15.95
DGM LARGE NETWORKS [2]	7,720.84	12.10
ELECNOR CHILE	6,717.06	10.52
DGM ENERGY	5,119.09	8.02
MANAGEMENT NORTH-EAST	4,228.78	6.63
MANAGEMENT SOUTH	3,926.64	6.15
MANAGEMENT EAST	3,616.11	5.67
DGM ENGINEERING	3,254.30	5.10
AUDECA	2,726.13	4.27
ENERFÍN	2,000.58	3.13
ELECNOR DO BRASIL	1,299.73	2.04
ATERSA	246.14	0.39
JOMAR SEGURIDAD	193.12	0.30
ELECNOR DEIMOS	171.35	0.27
CORPORATE OFFICES	136.73	0.21
EHISA CONSTRUCCIONES Y OBRAS	76.89	0.12
HIDROAMBIENTE	57.54	0.09
DGM INTERNATIONAL DEVELOPMENT	23.84	0.04

2. Includes the footprint of Adhorna Prefabricación.

The GHG emissions avoided thanks to the two initiatives above are included in the following table:

TABLE 5
Emissions avoided in 2016
Source: Prepared in house

INITIATIVES	EMISSIONS AVOIDED (tCO_2e)
Waste management at clean points	12,102
Renewable energy generation	10,554
TOTAL	**22,656**

Elecnor has an *Internal protocol for the calculation of GHG emissions*, which defines it as a control and monitoring system for the comparison of the carbon footprint obtained in a certain year with the emissions calculated for the previous year.

Therefore, from the activity data from 2016 and 2017, the aim has been to establish a comparison of the greenhouse gas emissions generated by Elecnor in both years, in order to analyse the evolution of the organisation's carbon footprint over time.

Due to the change in organisational structure, for the purposes of the calculation of the carbon footprint and in order that the values are comparable, the analysis of the 2017 footprint is conducted with respect to the 2016 value after subtracting the emissions generated by SDG Ingeniería (3,254 tCO_2e).

Also, 2016 has been recalculated with the new configuration of operational limits, that is, excluding fugitive emissions.

Therefore, Elecnor's carbon footprint has increased by 4,746 tCO_2e between 2016 (55,827 tCO_2e generated) and 2017 (60,573 tCO_2e), representing a rise of 8.50%.

It should be underlined that the increase in Elecnor's carbon footprint is partly due to the increase in the organisation's activity, since hours worked rose from 23,227,006 in 2016 to 28,759,638 in 2017[3].

From the above, it is concluded that Elecnor's behaviour has experienced a clear improvement, since the ratio of emissions generated per hour worked fell from 2.40 $kgCO_2e$/hour in 2016 to 2.11 $kgCO_2e$/hour in 2017.

Priority intervention areas

After analysing the data obtained from the carbon footprint calculation, the following priority intervention areas have been identified:

REDUCTION OF SCOPE 1 AND 2 GHG EMISSIONS
through energy efficiency measures and other more general optimisation and awareness raising measures.

STUDY OF THE INCORPORATION
of scope 3 into the carbon footprint calculation in successive years.

3. Including the Engineering Department, activity is thought to have totalled 35,761,308 hours in 2017.

3.2

Adaptation to climate change diagnosis

Elecnor's resilience to climate change will be defined by the Group's capacity when it comes to tackling the risks and making the most of the opportunities resulting from this phenomenon. Taking into account the fact that, in the Infrastructures Business, Elecnor acts as a comprehensive projects manager, the effect of a climate impact will for the Group entail an opportunity to develop a new repair, construction or maintenance project commissioned by a third party. Conversely, if the climate impact affects the Concession Business, it will be Elecnor itself that is obliged to pay for the repair of its own facility or building, therefore, a weather event will entail a risk for its activity.

There is currently no internationally used standardized methodology that enables the definition of climate risk and the opportunities resulting from a changing climate. The analysis that is presented below derives from the qualitative application of the recommendations developed by the IPCC in its 4th Assessment Report, and analyses exposure to climate change along with the strengths and the vulnerability that will give results in relation to business opportunity and climate risk, respectively. The following figures lay out the methodology followed in this diagnosis, both for the analysis of business opportunity and of climate risk.

FIGURE 4

Methodology to analyse business opportunity applied to Elecnor

Source: Prepared in house

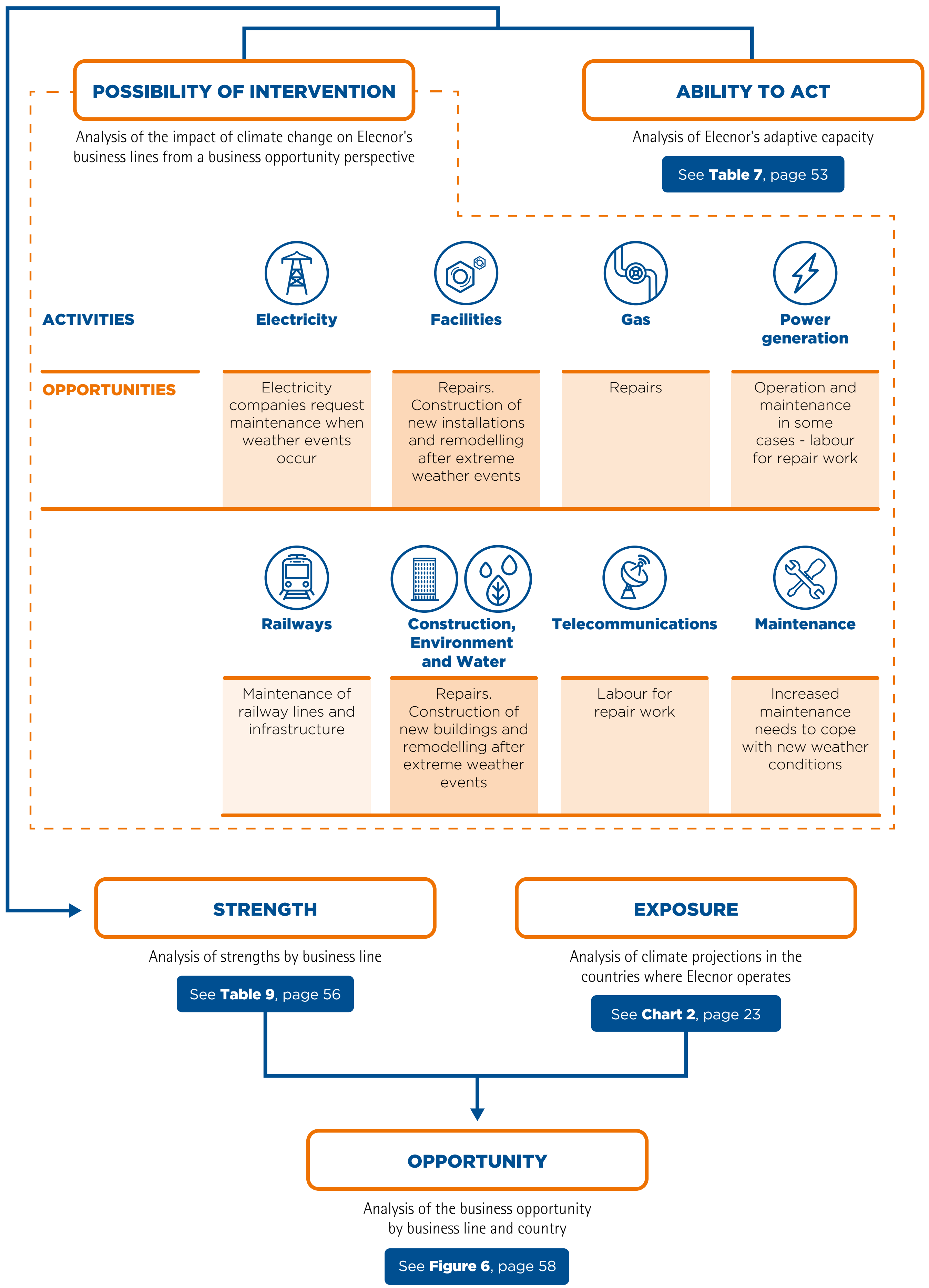
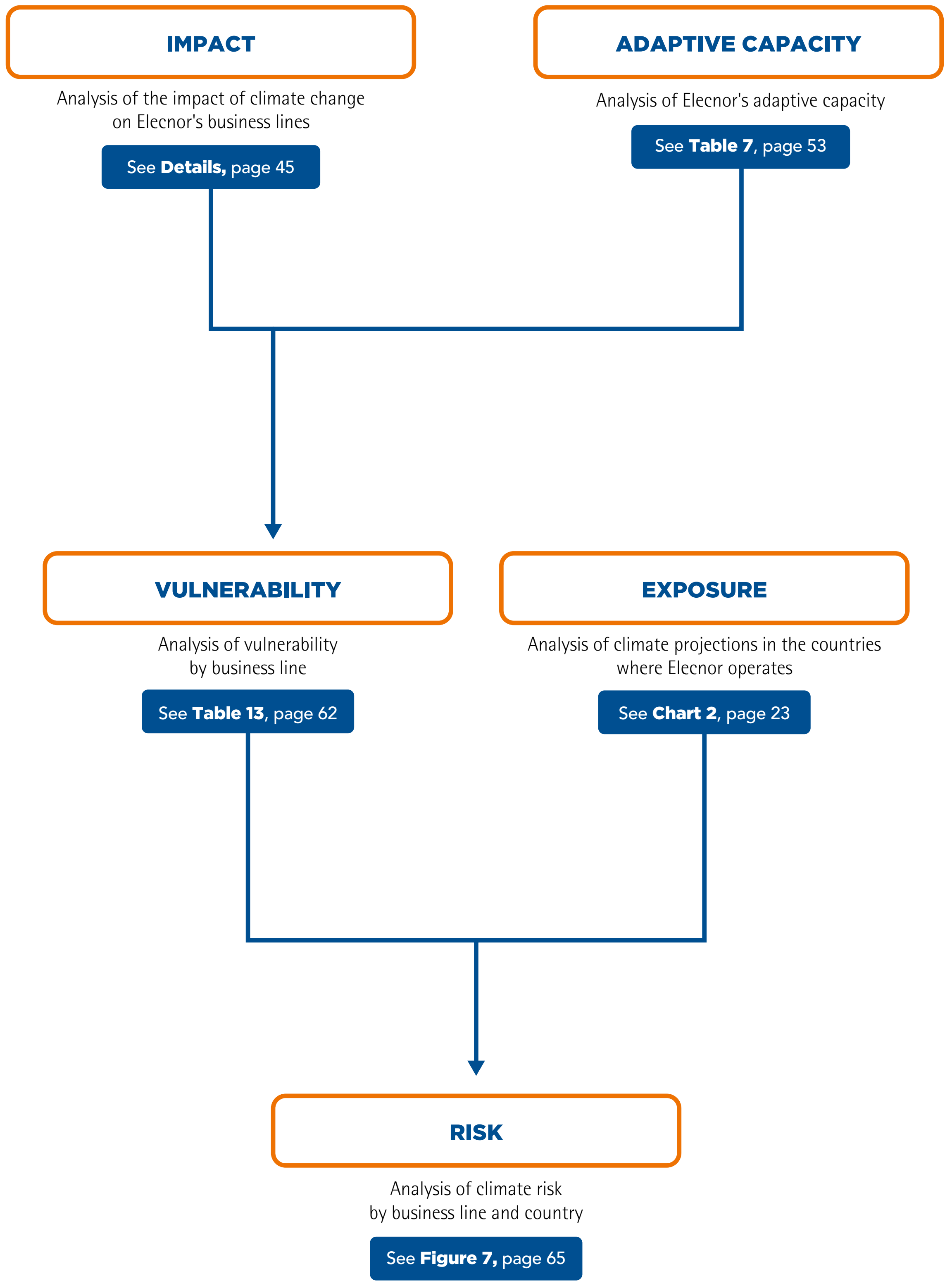


FIGURE 5

Methodology to analyse climate risk applied at Elecnor

Source: Prepared in house



Details of impacts. (CONTINUED NEXT PAGE)

Analysis of the impact of climate change on Elecnor's business lines

Source: Prepared in house

ACTIVITIES	TEMPERATURE VARIATION	RAINFALL VARIATION	EXTREME WEATHER EVENTS	SEA LEVEL RISE
ELECTRICITY	• Impact on the transmission and distribution of electrical power involving increased losses, reduced capacity and increased voltage levels in the distribution system. • Increased voltage levels in electrical installations due to the peak load being able to push the conductor to thermal capacity, while internal components in substation transformers may suffer from a higher level of deterioration due to increased load. • Losses in power transmission and distribution. • Collapse of overhead transmission lines due to thermal expansion. • Increased risk of fires with power cuts as a result. • Increased risk of contact between vegetation and power lines due to the potential increase in the vegetation growth ratio, which may require greater maintenance work.	• Greater risk of flooding. • Increased risk of infrastructure problems (masts, aerials, switch boxes, overhead cables and standard cables) due to heavy rainfall. • Risk of reduced water reserves, increased competition for their use, and potentially less availability of water for infrastructure cooling.	• Power cuts. • Physical damage to infrastructure, even causing the collapse of networks. • Land destabilisation, possibly causing infrastructures to collapse. • Greater fire risk, resulting in increased risk for electricity transmission, causing physical damage to high-voltage pylons. • Cyclones and other wind storms can make it dangerous or impossible for employees to get to work.	• Increased risk of intense storm surges, which in turn increase the risk of saline corrosion of coastal infrastructures. • Damage to networks by coastal floods and their effects on access routes.

Details of impacts. (CONTINUED NEXT PAGE)

Analysis of the impact of climate change on Elecnor's business lines

Source: Prepared in house

ACTIVITIES	TEMPERATURE VARIATION	RAINFALL VARIATION	EXTREME WEATHER EVENTS	SEA LEVEL RISE
FACILITIES	• Power cuts due to increased energy demand during heat waves. Linked to this, an increase in the cost of electricity could also arise as a side effect. • Malfunction or premature equipment failure if design limits are exceeded, with reduced infrastructure lifespans. • Greater fire risk, resulting in physical damage to infrastructure.	• Greater risk of flooding. • Increased risk of damage to infrastructure due to heavy rainfall. • Risk of reduced water reserves, increased competition for their use, and potentially less availability of water.	• Physical damage to infrastructure. • Land destabilisation, possibly causing infrastructures to collapse. • Risk to the lifespan of devices caused by increased environmental stress (including high winds, higher temperatures, etc.). • Problems with the supply of materials and delays in the progress of projects. • Damage to the structure of buildings and their contents (including systems, equipment, etc.). • Economic losses due to problems accessing work sites.	• Increased risk of erosion or flooding of coastal and underground infrastructures.
GAS	• Greater cooling requirements. • Reduction in the amount of water available to plants due to increased evaporation and transpiration. • Loss of transformer efficiency and reduction of cooling capacity. • Malfunction or premature failure of equipment, if design limits are exceeded, with a reduction in plant lifespan. • Greater fire risk, resulting in physical damage to infrastructure.	• Greater risk of flooding. • Increased risk of damage to infrastructure due to heavy rainfall. • Risk of reduced water reserves, increased competition for their use, and potentially less availability of water for infrastructure cooling.	• Physical damage to infrastructure. • Land destabilisation, potentially leading to the subsidence of transport infrastructure. • Damage to the structure of buildings and their contents (including systems, equipment, etc.).	• Increased risk of erosion or flooding of coastal gas transmission infrastructures.

ACTIVITIES	TEMPERATURE VARIATION	RAINFALL VARIATION	EXTREME WEATHER EVENTS	SEA LEVEL RISE
POWER GENERATION	• Impact on wind farm production due to the increase in air density caused by the rise in temperature. • Greater need for air conditioning and cooling. • Reduction in the amount of water available to plants due to increased evaporation and transpiration. • Reduction in the peak generation capacity of hydroelectric facilities due to changes in the structure and diversity of aquatic fauna caused by the increase in air and water temperature. • Reduction in electricity generation due to the impact on the efficiency of photovoltaic cells caused by the rise in temperatures. • Transmission losses. • Loss of transformer efficiency and reduction of cooling capacity. • Impact on turbine performance caused by lower air density, greater fuel requirements and the consequent decrease in the generation efficiency of thermal power plants.	• Changes in wind farm power capacity due to low humidity, high temperatures and wind changes affecting the northern extension. • Reduction in wind farm production efficiency due to rainfall levels. • Imbalances in the rotor and increase in the loads in the wind turbine caused by ice melting on the blades. • Increased risk of infrastructure problems (masts, aerials, switch boxes, overhead cables and standard cables) due to heavy rainfall. • Reduction in hydroelectric power production due to the impact on river courses caused by changes in rainfall patterns. • Reduction in hydroelectric power production due to increased evaporation. • Impact on electrical generation caused by the impact on atmospheric transmissivity due to changes in the water vapour content of the atmosphere, of the clouds and even in the characteristics of the clouds.	• Greater fire risk, resulting in physical damage to infrastructure. • Reduced availability of water for cooling and for hydroelectric production. • Reduction in wind turbine performance due to ice formation and extreme precipitation associated with low temperatures in northern latitudes. • Damage to dam and generation equipment, as well as increased maintenance needs of installations and reservoirs. • Damage and cuts in supply due to increased contributions to reservoirs and discharges from landslides. • Impact on wind power capacity potential due to changes in wind intensity. • Physical damage to infrastructure. • Power supply cuts. • Impact on access routes to the installations, hindering or preventing the arrival of the workers and supplies required for the activity to operate, potentially putting at risk the continuity of the activity. • Interruption of supply due to the impact of extreme weather events such as hail that can cause damage to the cylindrical parabolic collectors in the solar power facility.	• Physical damage to coastal installations. • Increased risk of erosion or flooding of coastal and underground infrastructures.

Details of impacts

Analysis of the impact of climate change on Elecnor's business lines

Source: Prepared in house

ACTIVITIES	TEMPERATURE VARIATION	RAINFALL VARIATION	EXTREME WEATHER EVENTS	SEA LEVEL RISE
RAILWAYS	• Damage to tarmac and rails due to excessive melting and dilation. • Greater cooling requirements. • Increased risk of equipment overheating, in particular diesel engines. • Collapse of catenaries due to thermal expansion. • Wear and tear or melting of tyres. • Greater fire risk.	• Greater risk of flooding. • Increased risk of accidents due to heavy rainfall.	• Physical damage to infrastructure. • Land destabilisation, with potential sinking effects of the tracks. • Problems with the supply of materials and delays in the progress of projects. • Increased accidents during extreme events. • Possible flood damage in train sheds. • Impossibility of completing journeys due to damage to the tracks. • Economic losses due to problems accessing work sites. • Loss of signals due to landslides.	• Greater risk of damage to coastal and underground infrastructures.
CONSTRUCTION, ENVIRONMENT AND WATER	• Power cuts due to increased energy demand during heat waves. Linked to this, an increase in the cost of electricity could also arise as a side effect. • Malfunction or premature equipment failure if design limits are exceeded, with reduced infrastructure lifespans. • Greater fire risk, resulting in physical damage to infrastructure. • Faster decomposition of organic matter present in waste material, causing changes in composition and treatment needs.	• Greater risk of flooding. • Increased risk of damage to infrastructure due to heavy rainfall. • Risk of reduced water reserves, increased competition for their use, and potentially less availability of water. • Need to adjust WWTPs (wastewater treatment plant) and drinking water treatment plants to new water conditions.	• Physical damage to infrastructure. • Land destabilisation, possibly causing infrastructures to collapse. • Risk to the lifespan of devices caused by increased environmental stress (including high winds, higher temperatures, etc.). • Problems with the supply of materials and delays in the progress of projects. • Damage to the structure of buildings and their contents (including systems, equipment, etc.). • Economic losses due to problems accessing work sites.	• Increased risk of erosion or flooding of coastal and underground infrastructures.

ACTIVITIES	TEMPERATURE VARIATION	RAINFALL VARIATION	EXTREME WEATHER EVENTS	SEA LEVEL RISE
TELECOMMUNI-CATIONS	• Overloads in systems due to higher cooling needs. • Higher energy consumption. • Impact of electricity cuts on the provision of services. • Physical damage to infrastructure due to increased fire hazard. • Electricity cuts.	• Impact on the radio spectrum of wireless communications due to increased humidity. • Increased competition for water use and reduced availability for cooling.	• Physical damage to infrastructure. • Interruptions and problems in the services provided. • Power cuts.	• Risk of erosion, corrosion and/or flooding of coastal infrastructure. • Changes in reference data, for transmission calculations.
MAINTENANCE	• Power cuts due to increased energy demand during heat waves. Linked to this, an increase in the cost of electricity could also arise as a side effect. • Malfunction or premature equipment failure if design limits are exceeded, with reduced infrastructure lifespans.	• Greater risk of flooding.	• Problems with the supply of materials and delays in the progress of projects. • Economic losses due to problems accessing work sites.	• Increased risk of erosion or flooding in work sites near the coast.

In 2017, **investments** of more than one million euros were made, with savings of more than EUR 200,000 and reductions of more than 120,000 tCO_2e.

Elecnor's exposure to climate change

To develop the adaptation diagnosis, the main consequences of climate change must be detected, which will affect Elecnor's business differently, depending on the country in which it is located. For this, by making use of the specialised bibliography, the main climate projections that are expected in the different countries in which Elecnor operates are included.

According to the bibliography analysed, the main climate threats that can cause impacts on Elecnor's lines of business are the following:

RISING TEMPERATURE AND HEATWAVES

CHANGING RAINFALL

GREATER FREQUENCY AND INTENSITY OF EXTREME WEATHER EVENTS
(such as droughts, torrential rains, electric storms, strong winds, cyclones and floods).

RISING SEA LEVELS

Likewise, the infrastructure level of each country where Elecnor carries out its activity is included as a key condition when it comes to tackling climate threats.

The conclusions of the analysis show that the countries of Central America and Africa, and Brazil would be the places where greater exposure to climate change could be expected due to the bigger changes predicted in different climate threats. For their part, certain countries of South America (Chile and Ecuador) and North America would have medium levels and, comparatively, European countries and those of south-west South America would have smaller changes to the climate. Table 6 below provides the results in detail.

Elecnor's capacity to act

The analysis of Elecnor's capacity to act as a whole is deemed medium. The Group has a longer pathway from the point of view of climate change mitigation than in that of adaptation.

On page 49, Table 7 shows the main conclusions that are used to assess Elecnor's capacity for action.

515,812 tCO_2

These were the emissions that Elecnor saved thanks to its work on renewable energy in 2016

TABLE 6

Assessment of exposure to climate change

Source: Prepared in house

	RISING TEMPERATURE	CHANGING RAINFALL	EXTREME WEATHER EVENTS	RISING SEA LEVELS	INFRASTRUC-TURE LEVEL	EXPOSURE
ANGOLA	High	High	Medium	Low	Medium	E3
ARGENTINA	Low	Medium	Medium	Medium	Medium	E1
BRAZIL	High	High	High	Medium	Medium	E3
CANADA	High	Medium	Medium	Medium	High	E2
CHILE	Low	Medium	High	High	Medium	E2
ECUADOR	Medium	Medium	High	Medium	Medium	E2
SPAIN	Medium	Low	Low	Medium	High	E1
US	High	Medium	Medium	Medium	High	E2
GREAT BRITAIN	Medium	High	Medium	High	High	E2
HONDURAS	High	Medium	High	High	Medium	E3
ITALY	Medium	Medium	Low	Medium	High	E1
MEXICO	Medium	High	High	Medium	Medium	E2
PORTUGAL	Low	Medium	Low	High	Medium	E1
DOMINICAN REPUBLIC	High	Medium	High	High	Medium	E3
URUGUAY	Low	Medium	Medium	Low	Medium	E1
VENEZUELA	Medium	Medium	Medium	Low	Medium	E1

TABLE 7

Qualitative analysis of Elecnor's capacity to act in the face of climate change

Source: Prepared in house

VARIABLE	JUSTIFICATION
PLANNING IN ADAPTATION TO CLIMATE CHANGE	Elecnor takes climate change into account in its planning. Within its environmental management, one of the objectives is to achieve a low-carbon company through renewable energies. Specifically, Enerfín, the Elecnor Group wind company, is aimed at avoiding emissions and with its activity in 2016, it is estimated that 515,812 tCO_2 were avoided. Likewise, in 2016, Elecnor's carbon footprint was registered in the National Registry for Carbon Footprint, Offset and Carbon Dioxide Absorption Projects of the Spanish Climate Change Office (OECC) of the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA). In this way, actions relating to climate change mitigation are being carried out, reducing CO_2 emissions and the environmental impact of the Group's operations. With regard to adaptation to climate change, Elecnor is adding efforts with the purpose of implementing measures that achieve resilience throughout the Group.
RESULTS	In 2016, Elecnor had a net attributed result of 68.5 million euros, which entailed growth of 4.3% in relation to 2015, when it obtained a net attributed result of 65.7 million euros.
AVAILABILITY OF INFORMATION	Elecnor has conducted studies and forms part of different international initiatives relating to climate change, where it has access to information on analyses, methodologies, etc. and experiences of other organisations, such as: • The United Nations Pact. • Participation at conferences organised by the Ministry for Ecological Transition. Some examples of management reports are: • Global Reporting Initiative (GRI), where it has a sustainability report. • Carbon footprint report verified in 2016 and registration in the National Carbon Footprint Registry. • AENOR Environmental Certificate CO_2 certified in accordance with Standard ISO 14064-1. • Commitment to the United Nations Sustainable Development Goals (SDG). • Recognition by the Ministry of Foreign Affairs and Cooperation of the commitment of Elecnor to SDG.

Opportunities for Elecnor resulting from climate change – Infrastructures Business

The opportunities for Elecnor resulting from climate change will derive from the Infrastructures Business, which as a result of, for example, extreme phenomena, will increase its activity to support the reconstruction of damaged structures. The areas of electricity, gas, railways, construction and telecommunications will be those that bear the greatest consequences resulting from climate risks and, therefore, greater demand for repair.

The table inserted below shows the main possibilities for intervention predicted for each business, depending on the climate threats that could be expected for each one.

As a result of the crossover of possibilities for intervention presented in the above table and the capacity of each Elecnor Infrastructures Business to act, a strength level (from 1 to 3) is obtained for the Group. Said strength is related to the consequences of extreme weather events borne by other organisations and that will represent an opportunity for Elecnor.

Therefore, the electricity, facilities, energy generation, construction and environment, and water businesses are those that have greater business opportunity and those that, in turn, generate greater revenue. In contrast, gas, railways, telecommunications and maintenance are less significant strengths for Elecnor, as can be seen in Table 9.

TABLE 8

Main climate consequences and possibilities for intervention for Elecnor Infrastructures

Source: Prepared in house

ACTIVITY	CLIMATE THREATS	POSSIBILITY FOR INTERVENTION
ELECTRICITY	• Rising temperature. • Heatwaves. • Extreme weather events (droughts, fires, landslides, cyclones, intense storms and strong winds).	• Losses in energy transmission and distribution. • Physical damage to infrastructures.
ENERGY GENERATION	• Changing rainfall. • Extreme weather events (strong winds, droughts, cyclones, landslides and floods).	• Changes in availability of resources. • Damage to infrastructures. • Interruptions to activity.
TELECOMMUNICATIONS	• Extreme weather events (rising temperatures, strong winds, landslides and cyclones).	• Damage to infrastructures. • Interruptions to and problems in the services provided. • Overcharges in systems due to greater refrigeration needs. • Effects on the provision of services caused by power cuts.
CONSTRUCTION, ENVIRONMENT AND WATER	• Extreme weather events (droughts, floods, landslides and cyclones).	• Physical damage to infrastructure of buildings and their contents. • Risk to the useful life of equipment. • Financial losses due to accessibility problems to sites and delays therein.
FACILITIES	• Extreme weather events (floods, landslides, strong winds and intense rains).	• Physical damage to infrastructures. • Physical damage to infrastructure of buildings and their contents.
MAINTENANCE	• Rising temperatures. • Heatwaves. • Extreme weather events.	• Repair and reconstruction works.
GAS	• Extreme weather events (landslides, floods and droughts).	• Destabilisation of land and sinking and damage to infrastructures. • Repair and reconstruction works.
RAILWAYS	• Extreme weather events (landslides, floods and cyclones).	• Physical damage to various infrastructures (sinking of tracks or loss of signalling, projection of light elements onto the catenary or its collapse), problems with the supply of materials and delays in the development of projects, as well as financial losses due to access problems to sites.

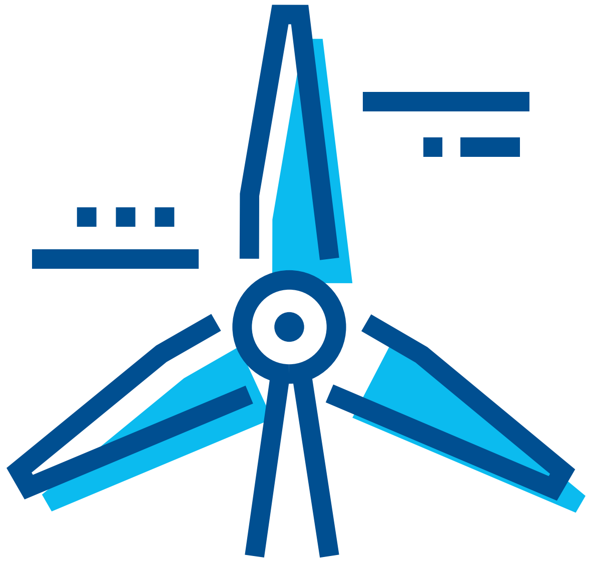


TABLE 9

Assessment of strengths in the face of climate change

Source: Prepared in house

ACTIVITY	POSSIBILITY FOR INTERVENTION	CAPACITY TO ACT	REVENUE	STRENGTHS
ELECTRICITY	PI3	CA3	€605,411.2	F3
ENERGY GENERATION	PI2	CA3	€416,220.2	F3
TELECOMMUNICATIONS	PI3	CA2	€245,948.3	F3
CONSTRUCTION, ENVIRONMENT AND WATER	PI3	CA2	€189,191.0	F3
FACILITIES	PI2	CA2	€151,352.8	F2
MAINTENANCE	PI1	CA1	€132,433.7	F1
GAS	PI3	CA1	€113,514.6	F2
RAILWAYS	PI3	CA1	€37,838.2	F2

PI1. Low possibility for intervention.

PI2. Medium possibility for intervention.

PI3. High possibility for intervention.

CA1. Low revenue and, therefore, low capacity to make the most of opportunities provided by climate change.

CA2. Medium revenue; the business has financial resources, but does not have planning to take on the opportunities provided by climate change.

CA3. High revenue; the business has financial resources, as well as planning to respond to the opportunities resulting from climate change.

F1. Low strength in the face of climate change.

F2. Medium strength in the face of climate change.

F3. High strength in the face of climate change.

Elecnor's climate opportunity is a function of the strength of the different businesses and the exposure of the countries in which it operates, as well as of the infrastructure level which each of those countries has. This is primarily due to the fact that climate change is expected to affect the different regions of the planet differently, as well as the Group´s different activities. Those countries in which the infrastructure level is lacking will, in turn, need more construction or repair services in the event of climate effects.

With regard to what has been stated thus far, the electricity, energy generation, construction and telecommunications businesses would be those that present greater strengths, and Angola, Brazil, Honduras and the Dominican Republic the territories most exposed to the effects of climate change and where a greater opportunity to develop repair activities would occur. Table 10 shows the business opportunities obtained by country and by line of action.

Taking into account the volume of Infrastructures Business in each region, the countries that will present a greater business opportunity for Elecnor will in the end be Angola, Brazil, Spain and Mexico in the electricity, energy generation, construction and environment, and telecommunications businesses.

Priority intervention areas

According to the regional climate predictions of each country where Elecnor carries out its Infrastructures Business, and the distribution of the volume of Infrastructures Business, as well as each country's characteristics, it is predicted that Angola, Brazil, Spain and Mexico offer the greatest business opportunities for the Elecnor Group. The following map geographically represents the countries in which the Infrastructures Business with greater potential to generate opportunities as a result of weather events is located: electricity, energy generation, construction and environment, and telecommunications.

FIGURE 6

Opportunities of Elecnor Infrastructures by country

Source: Prepared in house

TABLE 10

Assessment of opportunities by country and by business

Source: Prepared in house

	ELECTRICITY	ENERGY GENERATION	TELECOMMUNICATIONS	CONSTRUCTION, ENVIRONMENT AND WATER	FACILITIES	MAINTENANCE	GAS	RAILWAYS
ANGOLA	ON3	ON3		ON3		ON2		
ARGENTINA	ON2	ON2	ON2		ON1	ON1		
BRAZIL	ON3	ON3				ON2	ON3	
CANADA	ON2				ON2	ON1		
CHILE	ON3	ON3			ON2	ON1		
ECUADOR	ON3							
SPAIN	ON2	ON2	ON2	ON2	ON1	ON1	ON1	ON1
US	ON3	ON3			ON2	ON1	ON2	
GREAT BRITAIN	ON3	ON3			ON2	ON1		
HONDURAS		ON3				ON2		
ITALY	ON2		ON2			ON1		
MEXICO	ON3	ON3		ON3			ON2	
PORTUGAL	ON2	ON2	ON2		ON1	ON1	ON1	
DOMINICAN REP.	ON3					ON2		
URUGUAY	ON2	ON2	ON2		ON1	ON1	ON1	
VENEZUELA	ON2	ON2		ON2		ON1	ON1	

ON1. Low business opportunity. Climate change is not expected to have high consequences in the country's activity and, therefore, there will not be much demand for the services provided by Elecnor.

ON2. Medium business opportunity. Minor consequences of climate change are expected in the country that result in demand for Elecnor's services.

ON3. High business opportunity. Serious consequences are expected in the country that will have high demand of Elecnor's services.

Elecnor's climate opportunity is a function of the strength of the different businesses and the exposure of the countries in which it operates

The risk resulting from climate change for Elecnor – Concession Business

The climate risk analysis, as has been previously explained, will be conducted in relation to Elecnor's Concession Business.

Impacts analysis

According to the impacts analysis conducted, electricity and energy generation would be the main business lines affected by climate threats, extreme weather events being the threat that could be expected to have the greatest impacts.

While rising temperatures and changing rainfall will have effects on Elecnor's lines of business, these will be more gradual, therefore, the impacts would be expected to be fewer, enabling progressive adaptation, compared with extreme weather events.

Therefore, the most significant climate threats for Elecnor's activity would be extreme weather events, followed by rising temperatures and heatwaves. In third place is changing rainfall, with greater impacts primarily on energy generation and electricity. Finally, rising sea levels could be considered the smallest climate threat with an influence on the business.

Table 11 below shows the main risks associated with climate threats that could be encountered for each business line.

By applying the methodology, the result by activity shows that electricity networks and wind energy would be those that would experience the most serious impacts. The activities linked to solar energy and gas pipelines would be those that would experience smaller impacts and, finally, the business associated with the environment would sustain minimum impacts.

Table 12 on the next page shows the results in detail.

TABLE 11

Summary of the main causes and consequences of impacts of climate change on Elecnor's Concession Business

Source: Prepared in house

ACTIVITY	CLIMATE THREATS	RISK
ELECTRICITY NETWORKS	• Extreme weather events (floods, landslides, strong winds and extreme rains.	• Power transmission. • Physical damage to facilities.
SOLAR ENERGY	• Extreme weather events (intense rains and hailing)	• Cuts in supply. • Damage to infrastructures and equipment. • Daños en las infraestructuras y los equipos.
WIND ENERGY	• Changing rainfall. • Extreme weather events (changes in wind intensity and direction, extreme rainfall along with a reduction in temperatures that can come to form ice on the equipment)	• Cuts in supply. • Damage to infrastructures. • Drop in efficiency.
GAS PIPELINES	• Extreme weather events (floods and landslides)	• Destabilisation of lands and sinking infrastructures. • Physical damage to infrastructures.
ENVIRONMENT	• Extreme weather events (floods, droughts and strong winds)	• Physical damage to infrastructures and their contents. • Risk to useful life of equipment and systems. • Financial losses due to accessibility problems to infrastructures.

TABLE 12

Assessment of exposure to the impacts of climate change

Source: Prepared in house

	RISING TEMP	CHANGING RAINFALL	WEATHER EVENTS	RISING SEA LEVEL	IMPACT
ELECTRICITY NETWORKS	High	Medium	High	Low	I3
SOLAR ENERGY	Low	Medium	High	Low	I2
WIND ENERGY	Medium	High	High	Low	I3
GAS PIPELINES	Medium	Low	High	Low	I2
ENVIRONMENT	Low	Low	High	Low	I1

I1. Low impact for the business associated with climate threats.
I2. Medium impact for business associated with climate threats.
I3. High impact for business associated with climate threats.

Analysis of vulnerability

According to the established methodology based on the IPCC (IPCC, 2014), vulnerability is a function of the sensitivity to the impacts of climate change amidst the capacity for adaptation to tackle the same. Due to the fact that the capacity for adaptation has been assessed as medium, the resulting vulnerability levels by business would be similar to those of impacts, indicated above.

However, it is interesting to weight the analysis of vulnerability depending on the greater or lesser importance of the business for the Group, based on the existing volume of revenue in each one. Therefore, the final assessment of vulnerability to climate change by activity includes the revenue data for each case.

Given all this, the final assessment shows that the business that could be considered more vulnerable to climate change would be electricity networks and wind energy. The electricity networks business is, in turn, the one that receives the highest revenue (47%), therefore, it could be interesting to focus adaptation efforts on said business. Also, wind energy, even though it receives less revenue than solar energy, is more exposed to climate impacts, therefore, it is deemed a very vulnerable business. It would be followed by solar energy and, finally, environment and gas pipelines would be those that could be deemed less vulnerable to the effects of climate change. The following table shows the results obtained from the analysis.

TABLE 13

Assessment of vulnerability to climate change

Source: Prepare in house

ACTIVITY	IMPACT	CAPACITY FOR ADAPTATION	ASSETS MANAGED	VULNERABILITY
ELECTRICITY NETWORKS	I3	CA3	€1,795,400,000	V3
SOLAR ENERGY	I2	CA2	€840,400,000	V2
WIND ENERGY	I3	CA2	€764,000,000	V3
GAS PIPELINES	I2	CA1	€343,800,000	V1
ENVIRONMENT	I1	CA1	€76,400,000	V1

CA1. The business has a low level of managed assets and, therefore, a weather event would not entail a great threat for the Group.

CA2. The business has a medium level of managed assets and, therefore, a weather event would not entail a threat for the Group.

CA3. The business has a high level of managed assets and, therefore, a weather event would entail a critical threat for the Group.

V1. Low vulnerability to climate change.

V2. Medium vulnerability to climate change.

V3. High vulnerability to climate change.

Risk analysis

Elecnor's climate risk is a function of the vulnerability of the different Concession Businesses and the exposure and the level of infrastructure of the countries in which it operates. This is due to the fact that climate change is expected to affect in a different way depending on the region of the planet, as well as the different activities according to their specifications. Likewise, the effects on countries with less competitive infrastructures would increase their level of vulnerability.

According to what has been stated thus far, the electricity networks and wind energy businesses would be the most vulnerable, and Brazil would be the territory most exposed to the effects of climate change where these two activities are carried out. Extreme weather events would, in turn, be the threat that could be expected to have more serious impacts on the Group's global activity.

Elecnor's climate risk analysis shows that the wind energy and electricity networks businesses in Brazil, in addition to wind energy in Canada and electricity networks in Chile have the greatest risk. This is due to the fact that the impacts that could be caused by the climate on those activities, as well as the climate predictions of those countries, are expected to be more severe. Also, the environmental and solar energy businesses in Spain and gas pipelines in Mexico would be those that would have a lower climate risk.

Table 14 on the next page shows the risk analysis conclusions.

TABLE 14
Assessment of climate risk
Source: Prepare in house

	ELECTRICITY NETWORKS	SOLAR ENERGY	WIND ENERGY	GAS PIPELINES	ENVIRONMENT
BRAZIL	R3		R3		
CANADA			R3		
CHILE	R3				
SPAIN	R2	R1	R2		R1
MEXICO				R1	

R1. Low climate risk. Climate change is not expected to have high consequences on the country's activity.

R2. Medium climate risk. Manageable consequences are expected in the country's activity.

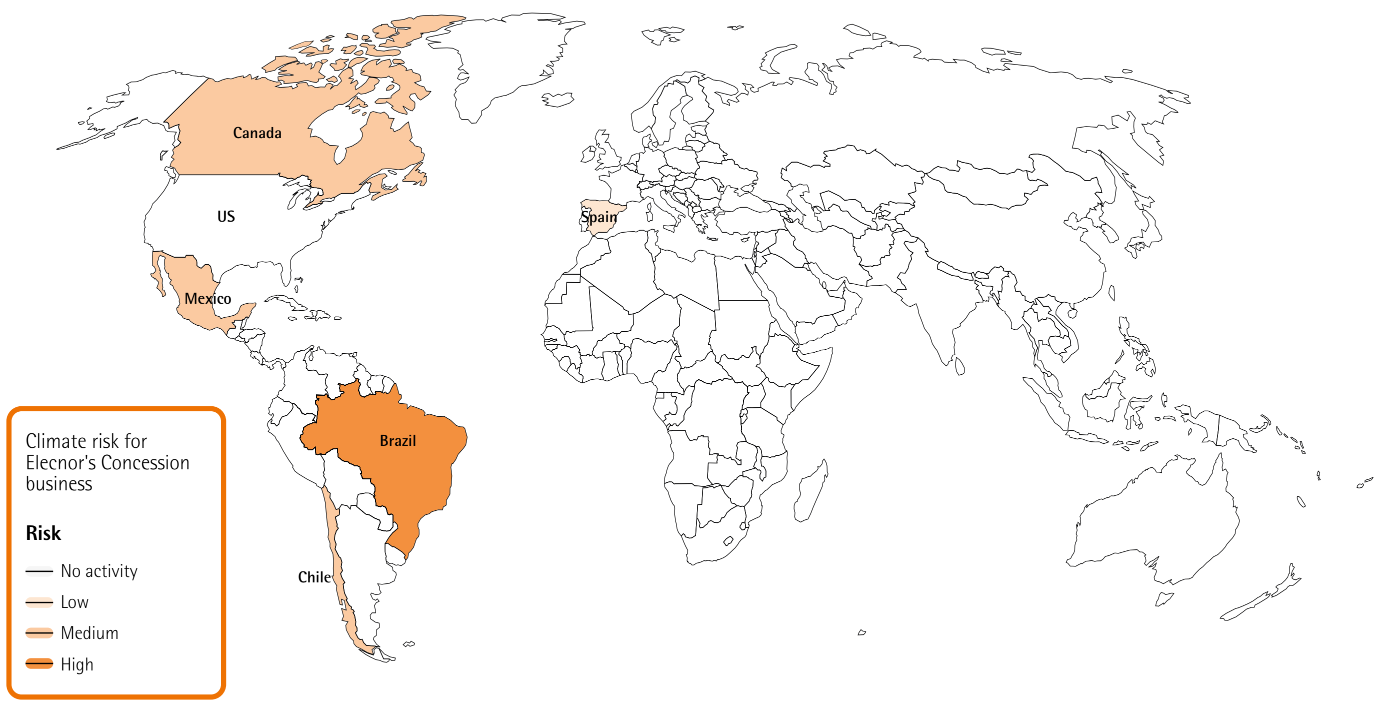
R3. High climate risk. High consequences are expected in the country's activity.

Conclusions

According to the analysis, along with the climate projections and distribution of the business volume, within the Concession Business, Elecnor's climate risk will be higher in the electricity networks and wind energy concessions, especially in Brazil.

The following map represents the geographic composition of Elecnor's Concession Business, with the purpose of geographically locating the areas of greater importance for Elecnor's adaptation to climate change. Both electricity networks and wind energy are present in Brazil, Canada and/or Chile, countries that present more variable future climate projections. Due to the businesses it develops and its climate predictions, Elecnor must focus efforts on Brazil to tackle future environmental circumstances.

FIGURE 7
Climate risk of Elecnor's Concession Business by country
Source: Prepared in house



4

ELECNOR'S STRATEGY TO TACKLE CLIMATE CHANGE

Elecnor, in its **effort** to contribute to meeting global climate change goals and progressing towards business leadership in this regard, is assuming commitments to **reduce** greenhouse gas emissions and developing a programme with **adaptation** to climate change measures, with the purpose of minimising the environmental impact of is actions and making the most of future business **opportunities**.

Said commitments are reflected in this climate change strategy, which also includes the **vision**, **objectives** and the **main lines of action** with regard to coming decades.

4.1 Vision and objectives for 2030

Elecnor defines the vision of the 2030 strategy, as stipulated below:

Elecnor will be strengthened in the face of climate change, by making use of the opportunities offered by a changing climate for its business. All this based on sustainable development low in emissions

To focus the strategic lines that will guide the specific objectives and mitigation and adaptation actions defined in this strategy, the Group's two strategic objectives are specified:

OBJECTIVE 1

Mitigation

To reduce GHG emissions by 25% by 2030 (with respect to 2014). That is, emissions are expected to be reduced by approximately 1.6% a year

OBJECTIVE 2

Adaptation

To guarantee the resistence of Elecnor's Concession Business in the face of climate change and to successfully position itself as a leading company in the sector thanks to the opportunities resulting from climate change

4.2
Strategic lines and actions

Elecnor carries out very different activities through the different organisations that make up the Group, however, there are some components that are shared by all the organisations and that are those that truly give them value: **people**, **assets** and **knowledge**. Therefore, Elecnor's strategy to tackle climate change focuses on these three concepts, its strategic lines:

STRATEGIC LINE 1
PEOPLE
Personnel who are aware, trained and resilient to climate change

STRATEGIC LINE 2
ASSETS
Sustainable assets and services adapted to a changing climate

STRATEGIC LINE 3
KNOWLEDGE
Knowledge for action to tackle climate change, by reducing emissions and impacts, and making the most of the resulting opportunities

4.2.1

STRATEGIC LINE 1

PEOPLE

Personnel who are aware, trained and resilient to climate change

People are a very valuable resource in any organisation, as in the case of Elecnor, since it is the personnel who make all the gears work. Therefore, each worker's behaviour can be more or less sustainable, and the sum of many small efforts will form Elecnor's image outside the company because the business model is a reflection of the people it comprises. Therefore, this strategic line proposes the need to raise awareness of sustainability among Elecnor employees, in order to reduce to a minimum its impact on climate change, and to educate them so that the Group successfully adapts to a changing climate.

In order to successfully reduce Elecnor's impact on climate change, it is necessary to reduce electricity, fossil fuels, water, paper, etc. consumption. Furthermore, using measures linked to the purchase of more efficient tools or facilities, these must be used correctly and the responsibility of this action falls onto people. So, within the framework of this strategic line, **promoting energy and other resource saving among Elecnor personnel** is proposed as the first objective. There are different ways to successfully achieve a reduction in consumption, including proposing holding meetings by videoconference in order to avoid unnecessary travel, developing efficient driving courses or proposing measures to reduce water and paper consumption. As a second objective, it is proposed **raising awareness among and educating workers in order to reduce Elecnor's impact on the climate**, for which awareness campaigns are proposed, or appointing a head of environment per building. Finally, as a third objective, it is proposed **having a staff resilient to climate change**. The latter objective is driven through the adaptation of working works and calendars. Elecnor currently carries out some of these actions, the most important being described below.

ACTION 1.1

Promoting teleconferences to avoid travel

ORGANISATIONS INVOLVED	Elecnor Group.
OBJECTIVE	To reduce the greenhouse gas emissions related to business trips made.
DESCRIPTION	Through the promotion of the use of technological tools that enable long-distance meetings to be held, contributing to reducing greenhouse gas emissions related to travel avoided. Meetings between workers that are held at different locations, belonging to the same or to different organisations, are very common. Therefore, Elecnor has installed a system to facilitate videocalls with the purpose of promoting them and increasingly reducing emissions resulting from trips made by its workers. A total of 33 Chromeboxes have been installed at different offices internationally to facilitate the holding of teleconferences. Each Chromebox has an initial investment cost of €1,000 and a maintenance cost of €250. Therefore, the initial cost is €33,000 and €8,250 is invested annually in maintenance. The use of videoconferences is currently broadly expanded in the organisation, though there is a desire to make their use even more common. The possibility to calculate this system's time of use is being reviewed, which would provide a good monitoring indicator.
IMPACT OF THE MEASURE	Economic saving due to a reduction in trips made and a reduction in environmental impact in GHG and contaminating gas emissions.
POTENTIAL BARRIERS	Internet connection failures, lack of technology required to hold the videoconference, cultural intolerance in relation to the need to hold meetings in person.

REDUCTIONS AND ECONOMIC ANALYSIS		
	Estimated annual savings of CO_2 (tCO_2e)	164.27
	Annual economic saving (€)	75,586.46
	Investment required (€)	41,250
	Investment recovery period (years)	< 1
	Scope relating to the carbon footprint	3

ACTION 1.2

Developing courses on efficient driving

ORGANISATIONS INVOLVED

Elecnor.

OBJECTIVE

To increase efficiency in driving, in order to reduce emissions of both employees' private vehicles and Elecnor's fleet (vans and heavy vehicles).

DESCRIPTION

The human factor is an important part in driving motor vehicles. Specifically, rough driving generates more GHG emissions than efficient driving. Therefore, Elecnor is organising efficient driving courses in order to implement efficient behaviour at the wheel among its employees. These courses are primarily aimed at drivers of vans, site vehicles and lorries (which can be very effective when it comes to reducing these emissions).

Efficient vehicle driving has the following advantages:

- Average fuel saving of 15% without reducing average speed.
- Reduction of CO and CO_2 emissions, and of acoustic pollution.
- Reduction in the risk of accidents by 10 to 25%.
- Reduction in vehicle maintenance expense: brakes, clutch, gearbox and engine.
- Increased driver comfort and reduced stress.

The courses are given by professionals in the sector and consist of detailed, practical and continuous training on driving the vehicle and mastering its technology. The training has an estimated duration of four hours. The practical parts of the course are taught with a saloon car for every three persons or in a lorry for every five. Furthermore, attendees receive a manual that develops concepts relating to efficient driving.

In order to conduct as precise a follow-up as possible, information on each driver's driving style is collected through telemetry (recording of the number of brakings, number of accelerations, time idle) so that the instructor can analyse each person's driving style and, therefore, help them reduce their consumption, improve safety and, in general, make their driving more professional. This information is recorded in reports that qualify each person according to their driver energy category and will serve to award those who have obtained the highest category with regard to efficient driving.

IMPACT OF THE MEASURE

Average fuel savings in the order of 15% and a reduction in CO_2 emissions of the same proportion. Additionally, vehicle repair and maintenance costs are reduced when the person drives less roughly and aggressively. Finally, worker stress is reduced and road safety is increased.

POTENTIAL BARRIERS

Lack of commitment on the part of drivers.

Poor understanding of efficient driving techniques.

Old and/or damaged vehicles that, due to their technology, make it hard to reduce fuel consumption.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	194.57
Annual economic saving (€)	76,286.18
Investment required (€)	1,280[4]
Investment recovery period (years)	< 1
Scope relating to the carbon footprint	1

4. In addtion, a €35,000 investment is going to be made, corresponding to the consulting that will be conducted in 2019 with RACE.

ACTION 1.3

Developing a plan to reduce paper and water consumption

ORGANISATIONS INVOLVED

Deputy General Management Large Networks, Deputy General Management Energy, Management East, Management South, Enerfín, Atersa, Audeca, Railway Delegation.

OBJECTIVE

To reduce paper and water consumption in offices.

DESCRIPTION

The action plan implemented by Elecnor follows the following lines:

Reduction of paper consumption.

- Issuance of good practice standards and awareness campaigns.
- Use of recycled or reused paper. Purchase of paper with FSC certificate or ecological and chlorine-free paper.
- Avoid printing or photocopying unnecessary documents. Proposal for printing with personnel code and implementation of double screens.
- Use of file exchange platforms like Google Drive, Dropbox...
- Digitisation of processes.
- Activation of toner saving, printing of "several pages per sheet" and "double-sided printing."

Reduction of water consumption.

- Installation of timers or smart taps with hand detectors.
- Installation of double flush or flush interruption systems in toilets.
- Control of sprinkler clocks/programmers in those centres that have a landscaped area.
- Supervision of potential small leaks in toilet mechanisms, taps not turned off properly, etc.

IMPACT OF THE MEASURE

The abusive use of water and the consumption of paper in large amounts involves the using up of resources and can lead to water scarcity or deforestation. Therefore, it is so important to apply reduction measures in this area, that contribute to the rational use of resources and to sustainable development, in addition to entailing an economic benefit. Therefore, the carbon footprint associated with paper consumption is also reduced, and avoiding bleaching also avoids water contamination.

POTENTIAL BARRIERS

The greatest barrier to implementing the paper consumption reduction measure is probably personnel resistance to changing their printing habits. In many cases, the difficulty of implementing the electronic signature also has an influence. However, the technologies that must be implemented to reduce both water and paper consumption are not excessively expensive and bring about a long-term economic saving, and changing personnel habits can be gradually achieved through raising awareness.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	0.17
Annual economic saving (€)	0
Investment required (€)	0
Investment recovery period (years)	< 1
Scope relating to the carbon footprint	3

ACTION 1.4
Appointing a Head of Environment per building

ORGANISATIONS INVOLVED	Management East.
OBJECTIVE	To harmonise the implementation of environmental measures at the organisation and to achieve more effective compliance.
DESCRIPTION	In 2018, five Heads of Environment were appointed at the Valencia offices. Their duties include raising awareness among the rest of the staff of the performance of good environmental practices, ensuring that they are carried out and informing those involved when any of these measures is not complied with. Furthermore, they are responsible for monitoring and reporting on the environmental behaviour of the building and of the employees who work in it. In order to reinforce the task of the Heads of Environment, posters were put up in each area, informing of their appointment and asking for everyone's cooperation, in order to achieve greater personnel involvement. Before the implementation of this measure, there was no Head of Environment figure with the duties of raising awareness, monitoring and related reports. The figure most similar to this one was Head of Quality and Environment, who is not located at all the buildings. Therefore, it is hoped that the measure will be effective and it is being monitored. If the measure proves to be effective, the possibility of appointing Heads of Environment at the rest of the offices will be studied.
IMPACT OF THE MEASURE	Reduction in the carbon footprint in relation to electricity, paper and water consumption related to the application of good environmental practices.
POTENTIAL BARRIERS	No economic barrier is considered, since the implemented measure does not involve any cost. However, there may be resistance on the part of personnel in that they may resist accepting new duties. Therefore, a way of "compensating" them could be sought.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	Not estimated
Annual economic saving (€)	Not estimated
Investment required (€)	0
Investment recovery period (years)	< 1
Scope relating to the carbon footprint	1, 2 y 3

ACTION 1.5
Developing awareness campaigns

ORGANISATIONS INVOLVED	Elecnor Group.
OBJECTIVE	To raise awareness among personnel of the environmental impacts that their daily activities have, in order to contribute to a better environmental performance.
DESCRIPTION	Placement of informative materials at offices with messages regarding water, energy and paper saving and the proper separation of waste. A video is made on an annual basis for World Environment Day, conveying Elecnor's commitment to protecting and respecting the environment, and efficiency in energy resource consumption. Additionally, it is proposed that each business unit carry out annual awareness campaigns, such as that carried out by SDG. Grandes Redes. This consists of sending informative emails to staff and developing awareness workshops at several work centres, and encouraging the participation and involvement of employees by sending suggestions for environmental improvements. Before the dissemination of these campaigns, personnel were not aware of some of the environmental impacts their daily activity entailed, therefore, resource management at the company was less efficient.
IMPACT OF THE MEASURE	Raising awareness of personnel. Reduction of waste, optimisation of the use of paper and toner, reduction in energy and water consumption.
POTENTIAL BARRIERS	The main obstacle to raising awareness is the lack of visibility of environmental impacts, due to the fact that these generally occur in the long term. Because of this and the lack of prior education, these matters are often not considered important.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	Not estimated
Annual economic saving (€)	Not estimated
Investment required (€)	7,214[5]
Investment recovery period (years)	< 1
Scope relating to the carbon footprint	1, 2 y 3

5. Includes the cost of the World Environmental Day video (€6,774.39) and the cost of the posters (€440).

ACTION 1.6
Developing social actions within the Elecnor Foundation

ORGANISATIONS INVOLVED	Elecnor Group.
OBJECTIVE	To raise awareness among personnel and the company of the need to tackle climate change and poverty, by fostering training and research. To help the most deprived communities.
DESCRIPTION	From the Elecnor Foundation, numerous actions are being developed with regard to social infrastructure, training and research, and driving volunteering among its employees, in order to improve awareness, increase resilience and tackle climate change. Since 2008, the Elecnor Foundation has participated and co-financed social and training projects with a value of over 6 million euros. One example of the good practices that are being carried out from the Foundation are projects such as: The Laboratory of ideas on renewable energies (Elecnor Foundation Lecture on Renewable Energies and Energy Efficiency in cooperation with the Higher Technical School of Industrial Engineers of the Polytechnic University of Madrid); the Specialist Post-Cycle Course at Medium and Low Voltage Electrical Installations (Colegio Salesianos de Deusto (Bilbao)); the driving of energy efficiency research projects (ETSII of the Polytechnic University of Madrid); or forums and training actions in the field of sustainability, CSR and social innovation (Deusto Business School). In addition to national projects, from the Elecnor Foundation, numerous projects focusing on improving infrastructures in the most deprived communities in Latin America and Africa have been developed. In the case of H_2OMe, an innovative response to the scarcity of drinking water in Angola, the Ilumina Project, which has brought photovoltaic solar energy to several communities of the municipality of Cantarranas in the Francisco Morazán Department in Honduras, or the Sinergia Project in the locality of Totoral (Atacama Desert), among many others.
IMPACT OF THE MEASURE	The environmental training actions undertaken will improve waste management and reduce paper, energy and water consumption among workers. The research and technological dissemination work carried out facilitates the fight against climate change and the reduction of emissions. Likewise, the living conditions of the people who are the beneficiaries of the projects undertaken improve.
POTENTIAL BARRIERS	There is a potential economic barrier to the financing of projects in this area. However, the Elecnor Foundation obtains its financing through the revenue generated by the company, which is solvent and shows great willingness and commitment to making a positive change, therefore, a true barrier to its financing has never been found.

REDUCTIONS AND ECONOMIC ANALYSIS		
	Estimated annual savings of CO_2 (tCO_2e)	Not estimated
	Annual economic saving (€)	Not applicable
	Investment required (€)	600,000
	Investment recovery period (years)	Not applicable
	Scope relating to the carbon footprint	Not applicable

ACTION 1.7
Adapting working hours and schedules

ORGANISATIONS INVOLVED	Elecnor Group.
OBJECTIVE	To adapt the working hours and calendars to potential changes in the climate in relation to extreme weather, reduce staff vulnerability and prevent an increase in resource consumption.
DESCRIPTION	Adjustments are made to working hours, depending on geographic zone, in order to achieve a better adaptation to potential changing temperatures caused by climate change. For this, the time ranges are identified in which workers can perform their activities safely and the hours are adapted to the requirements of each country's meteorology and climate. For example, for those constructions done in Management South, the working day hours will change so that activities are carried out during hours with less impact from the heat. A similar approach is also being worked on at the facilities located in Norway.
IMPACT OF THE MEASURE	Reduction of safety risks for employees due to climate impacts and prevention of a rise in resource consumption.
POTENTIAL BARRIERS	There may be a cultural barrier in relation to changes in working day hours. Furthermore, it will be necessary to conduct an analysis of temperature changes during different activities.

REDUCTIONS AND ECONOMIC ANALYSIS		
	Estimated annual savings of CO_2 (tCO_2e)	Not applicable
	Annual economic saving (€)	0
	Investment required (€)	0
	Investment recovery period (years)	Not applicable
	Scope relating to the carbon footprint	Not applicable

4.2.2

STRATEGIC LINE 2

ASSETS

Goods and services that are sustainable and adapted to a changing climate

The assets of any organisation are exposed to a changing climate. Therefore, climate risk analysis can be very important in some cases with regard to preventing future consequences. Additionally, buildings, vehicles and equipment that are renovated and efficient will have a lesser impact on the environment and on the climate, in addition to increasing employees comfort and having repercussions on their performance. Given all this, synergies can be observed in this strategic line between mitigation and adaptation to climate change, since the reduction in the use of resources based on better efficiency will be beneficial to improve, on the one hand, climate resilience and, on the other, the mitigation of climate change.

The objectives that are put forward in this action line focus on **reducing energy consumption derived from vehicles and equipment**, implemented through the purchase of sustainable and efficient vehicles, machinery and tools, as well as optimising routes, among others. Likewise, as a second objective, it is proposed **improving the energy efficiency of buildings**, for which work is done both in the area of lighting and air conditioning. Finally, as a third objective, Elecnor is focusing on **reducing water consumption** through the implementation of efficient watering systems. Elecnor currently carries out some of these actions, the most significant being described below.

ACTION 2.1

Purchasing sustainable and efficient vehicles, machinery and tools

ORGANISATIONS INVOLVED	Elecnor Group.
OBJECTIVE	To study the use of vehicles, machinery or tools with technology that encourages lower fuel consumption and the generation of fewer GHG emissions, or any that work with alternative energies when they need to be renovated due to use, failure or renovation. Likewise, it is proposed establishing sustainability criteria for vehicle or equipment hire.
DESCRIPTION	Elecnor has to date had a fleet of vehicles that is constantly being renovated and updated, that ranges from heavy goods vehicles needed to carry out activities on site, waste collection service, etc. to vans and lighter cars for the rest of the Group's activities. To date, excessive attention has not been paid to the environmental criteria for the selection of vehicles. To analyse the impact that this measure generates on the Group, the vehicle fleets of Audeca and Management East have been analysed. Average consumption has been studied per vehicle, as well as the average distances covered, with the purpose of estimating the greenhouse gas emissions attributable to the fleet prior to the implementation of the measure. Therefore, the baseline is defined at 201 tCO_2e associated to the vehicles being studied. Both for the purchase of vehicles and for the contracting of leased vehicles, a previous study will be conducted on the energy and environmental impact of existing vehicles on the market, with the purpose of selecting the most environmentally friendly option. The methodology followed when assessing greenhouse gas emissions per vehicle will take into account the following issues: a) Energy consumption: fuel consumption for vehicles with diesel or gasoline engines (l/100 km) or electricity consumption (kWh/100 km) for vehicles with an electric engine. b) Emission factors: CO_2 emissions are calculated based on the emission factors established for fuel (2,52 $kgCO_2e$/l of gasoil; 2,18 $kgCO_2e$/l of gasoline. For electricity, the emission factor of the energy mix 0,36 $kgCO_2e$/kWh is used; c) The emissions generated at 100 km will be estimated, this unit serving as a comparison to select the most efficient vehicles. Each of the vehicles and tools purchased or leased will have the most efficient and environmentally friendly technologies available on the market. Any tools that operate with alternative energies (for example, solar energy) or that have a lower than average power consumption, along with hybrid or electric vehicles, will take precedence.
IMPACT OF THE MEASURE	Through the purchase of any vehicles, machinery and tools that operate with electric energy or with alternative fuels, the GHG emissions associated with their use are considerably reduced. Specifically, according to the analyses conducted, it is estimated that on average, each heavy goods vehicle replaced will entail a fuel saving of 14%, while each car/van replaced will enable a fuel saving of 25%. Furthermore, maintaining a fleet of vehicles for the Group, updated with technology available on the market, entails an improvement in its productive structure.
POTENTIAL BARRIERS	Higher purchase / leasing price than that of current or less efficient vehicles. Cultural barrier to using new technologies.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	36
Annual economic saving (€)	10,426.43
Investment required (€)	0[6]
Investment recovery period (years)	< 1
Scope relating to the carbon footprint	1

6. When conducting the economic analysis of the cost of the action, the differences in annual leasing cost of the old vehicles and the new more efficient vehicles is taken into account. In some cases, new vehicles are cheaper, therefore, the required investment is 0, since the balance is profit. €7,102.43 will be saved in fuel and €6,060 in leasing of vehicles. Also, the leasing cost of some vehicles will be higher, entailing an extra cost of €2,736.

ACTION 2.2

Optimising municipal waste collection routes and other services

ORGANISATIONS INVOLVED	Audeca.
OBJECTIVE	To optimise the waste collection routes and other services of Audeca.
DESCRIPTION	There are currently technologies on the market that enable us to know how full rubbish containers are and to share information on incidents or other container-related topics. Some of these technologies are the following: • Fill sensors (hardware and communication elements) that are installed in the containers to monitor how full they are. • A platform for waste managers that enables each container's fullness to be displayed in real time and that generates reports for route optimisation. • An infrastructure in the cloud that offers services both to waste managers and to citizens (for example, checking how full the containers are in real time). Thanks to this technology, Audeca's services can propose its daily routes according to how full the containers are, thereby avoiding going to any destinations where they have not reached the minimum level of fullness for collection. Furthermore, another use of the sensors that also contributes to reducing the number of miles to be travelled by Audeca's vehicles is the implementation of said sensors in chlorine deposits at drinking water treatment plants, so that the frequency and the route to be taken is adjusted according to the information provided by these devices. For any deposits that have remote control, it may be possible to reduce the frequency in order to be controlled fortnightly instead of weekly.
IMPACT OF THE MEASURE	Reduction of around 9% in the number of miles travelled by vehicles. Reduction in the greenhouse gas emissions associated with the reduction of fuel consumption.
POTENTIAL BARRIERS	Failure of the implemented sensors.

REDUCTIONS AND ECONOMIC ANALYSIS

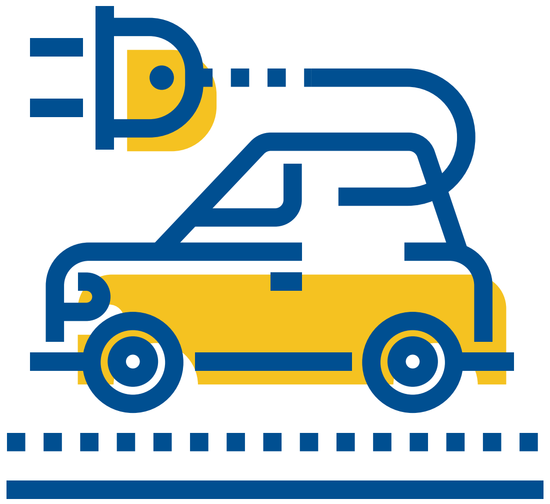
Estimated annual savings of CO_2 (tCO_2e)	0.64
Annual economic saving (€)	252.21
Investment required (€)	1,280
Investment recovery period (years)	< 1
Scope relating to the carbon footprint	1

ACTION 2.3

Developing preventative vehicle maintenance

ORGANISATIONS INVOLVED	Railway Delegation and Deputy General Management Large Networks.	
OBJECTIVE	To reduce corrective maintenance and prevent environmental accidents (spills, fires, etc.).	
DESCRIPTION	Vehicles have been receiving exhaustive preventative maintenance for years, which is an established procedure where all equipment has a maintenance dossier and data sheet. Furthermore, at Railway Delegation, each time a new person joins and takes up a post relating to preventative maintenance, they receive exhaustive training, which is reinforced with periodical revisions. Deputy General Management Large Networks has 43[7] pieces of equipment that undergo preventative maintenance, and this number is steadily increasingly.	
IMPACT OF THE MEASURE	Saving in corrective maintenance due to the execution of preventative maintenance. Reduction in environmental accidents (spills, fires, etc.), with the consequent reduction in contamination and the contaminant emissions caused thereby.	
POTENTIAL BARRIERS	There is a perception barrier, since one may sometimes think that preventative maintenance is not necessary and waits until a failure occurs.	
REDUCTIONS AND ECONOMIC ANALYSIS	Estimated annual savings of CO_2 (tCO_2e)	Not estimated
	Annual economic saving (€)	Not estimated
	Investment required (€)	70,676
	Investment recovery period (years)	Not estimated
	Scope relating to the carbon footprint	Not applicable

7. 8 trucks, 3 diggers, 4 tractors, 23 stringing machines (brakes + winches + brake-winches), 5 pickers.



ACTION 2.4

Purchasing efficient tools (computers, tablets, etc.)

ORGANISATIONS INVOLVED	Elecnor Group.	
OBJECTIVE	To reduce electricity consumption and, therefore, greenhouse gas emissions associated with the organisation's activity, thanks to the purchase of more efficient work tools.	
DESCRIPTION	The increasingly use of mainly electrical machines entails an increase in energy consumption. In this respect, the measure seeks to replace electricity-consuming equipment with other more efficient equipment. Through the implementation of this measure, the objective is proposed to continue replacing any computers and office tools that are in a more obsolete condition with new equipment that is more energy efficient. A series of requirements that must be met by newly purchased equipment is set out below: • Computers or monitors with the "EnergyStar"[8] logo or similar[9], which implies that the computer, with the correct settings, reduces consumption during periods of inactivity. • Prioritise the purchase of laptops over desktop computers, since they are more energy efficient. • In the case of the purchase of monitors, opt for those with a flat screen, since they consume less energy and emit less radiation. In 2017, a total of 484 computers were replaced with more energy efficient equipment. In all the replacements, laptops were purchased, since they consume less energy and are easy to transport. The screens of the replaced desktop computers were given a new lease of life and are currently used as auxiliary monitors at those workstations where the amount of information managed requires it, thereby contributing to the reduction in waste under the principles of circular economy.	
IMPACT OF THE MEASURE	Reduction in electricity consumption of the office buildings of the Elecnor Group and reduction in greenhouse gas emissions derived from energy generation.	
POTENTIAL BARRIERS	Adaptation of staff to new equipment and the higher cost of new equipment.	
REDUCTIONS AND ECONOMIC ANALYSIS	Estimated annual savings of CO_2 (tCO_2e)	14.6
	Annual economic saving (€)	4,124.33
	Investment required (€)	162,816
	Investment recovery period (years)	< 25
	Scope relating to the carbon footprint	2 (based on location)

8. https://www.energystar.gov/about

9. The EU ENERGY STAR programme is based on the agreement signed with the US Government to coordinate energy labelling of office equipment. This agreement was in force from 2003 and expired in February 2018.

ACTION 2.5
Improving renewable energy generation facilities

ORGANISATIONS INVOLVED

Enerfín and Atersa.

OBJECTIVE

To improve wind farm and photovoltaic panel design, with the purpose of optimising energy generation.

DESCRIPTION

For the implementation of this measure, a previous study is required of the Group's different wind farms in order to detect those points to be optimised.

One of these measures can be the modification of wind farms through the replacement of obsolete aerogenerators with others with the latest technology available on the market and, therefore, more efficient in energy generation. Further, those dismantled aerogenerators can be managed in such a way that many of their components can be subsequently used, including the reuse of aerogenerators on other less developed markets. These actions are already being carried out.

Furthermore, in relation to photovoltaic parks, the technological development of materials has achieved a reduction in the amount of glass for each photovoltaic panel. This reduction has been achieved thanks to a reduction in the thickness of the glass that is used in the manufacture of the photovoltaic module, from 4 mm to 3.2 mm.

IMPACT OF THE MEASURE

Increase in the production of energy from renewable sources, contributing to a reduction in the national energy mix.

Reduction in the use of resources for the manufacture of photovoltaic structures.

POTENTIAL BARRIERS

High cost according to the amortization of the previous installations.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	11,880*
Annual economic saving (€)	Not estimated
Investment required (€)	Not estimated
Investment recovery period (years)	Not estimated
Scope relating to the carbon footprint	Not applicable

*Relating to the modification by Enerfín of the project in Galicia of 16.5 MW (Malpica)

ACTION 2.6
Using special tools to prevent fires

ORGANISATIONS INVOLVED

Management East and Audeca.

OBJECTIVE

To reduce the likelihood of fires resulting from the use of power sawing tools.

DESCRIPTION

Before implementing this measure, Management East had 10 saws without a spark extinguishing system. These saws involved a greater risk of accidental fire than the purchased Hilti saws with spark arrester and the Bosch sabre saws.

In 2017, all the saws associated with works for the electric company Iberdrola were replaced. For their replacement, three Hilti saws with spark arrester were purchased, which have the main advantage of reducing the likelihood of causing an accidental fire. The budget dedicated to this measure totalled 2,841 euros. Bosch sabre saws were also purchased, enabling metal to be cut with barely any sparks being generated and with a related budget of 3,210 euros.

By 2018 and thereafter, the purchase of similar "spark-free" tools is planned when required by the activity's needs.

Audeca also purchased a Hilti saw with spark arrester at a cost of €849.65.

IMPACT OF THE MEASURE

The new purchased tools enable metal to be cut quickly, precisely and practically without generating sparks. The measure implemented will not only entail an increase in personnel safety, but will also reduce the risk of fire and its associated greenhouse gas emissions, in addition to other environmental impacts, such as the destruction of flora and fauna, the reduction in water and air quality or desertification, as well as economic and health impacts.

POTENTIAL BARRIERS

No apparent technical barriers are considered, since the purchased tools have the same functionalities and efficacy of those replaced. Nor is an economic barrier considered, since the costs associated with the new saws are not very high.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	Not estimated
Annual economic saving (€)	Not estimated
Investment required (€)	6,901
Investment recovery period (years)	Not estimated
Scope relating to the carbon footprint	1

ACTION 2.7

Installing timers for electronic machines and automatic light switching systems. Changing to LED lighting

ORGANISATIONS INVOLVED

Deputy General Management Energy, Management East, Management Centre, Audeca, Railway Delegation.

OBJECTIVE

To reduce the consumption of energy associated with lighting and, therefore, the respective reduction in emissions.

DESCRIPTION

Work is done to install timers for electrical machines, automatic light systems and LED technology throughout facilities.

For example, before implementing this measure, Management East had 64 switches in bathrooms and changing rooms that had no timer. Also, the lighting was based on the use of halogen and fluorescent light bulbs, which are much less efficient in energy terms than LED technology.

Conventional light switches are being progressively replaced in bathrooms and changing rooms with switches with timers; of the 64 switches existing in bathrooms and changing rooms in 2017, 27 have been replaced with switches with timers, at a related cost of 918 euros. In 2018, the replacement of a further 24 switches with a timer is planned, in addition to the installation of a motion detector.

Furthermore, the lighting (halogen and fluorescent light bulbs) is being replaced with LED technology at several facilities, which could reduce power consumption by 5% with respect to that achieved in 2017.

Another example are the actions carried out at Management Centre, with the application of Standard ISO 50001 on Energy Management Systems, where a 10% reduction in electricity consumption is expected to be achieved in 2018 with respect to that achieved in 2017.

IMPACT OF THE MEASURE

When the switching on time of the lighting is adjusted to occupation time, an electricity consumption reduction of over 80% can be achieved. Furthermore, LED technology represents energy consumption of 30% to 60%, compared with the equivalent traditional fluorescent light bulbs, since they have fewer thermal losses, therefore, a significant energy saving is produced in air conditioning too. The lower energy consumption that is achieved with the application of these measures also reduces associated greenhouse gas emissions.

POTENTIAL BARRIERS

A potential barrier to replacing switches and light bulbs is people's perception, since the implementation requires an initial investment. However, due to the lower use and the energy efficiency of new LED light bulbs, the effect that is achieved is the contrary and very positive, since a long-term saving is produced.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	21.6
Annual economic saving (€)	36,000*
Investment required (€)	52,700*
Investment recovery period (years)	1-2
Scope relating to the carbon footprint	2

* The economic data presented corresponds to the report relating to the Maestro Alonso building, since there is not sufficient data to quantify that relating to Management East.

ACTION 2.8

Air conditioning control

ORGANISATIONS INVOLVED

Management East and Management Centre.

OBJECTIVE

To reduce the consumption of energy deriving from air conditioning equipment, with the relative reduction of associated emissions.

DESCRIPTION

To reduce the energy consumption of electrical air conditioning equipment. In 2018 programmable clocks were installed in the electrical switchboards that control the switching on and off the said equipment.

Of the existing 102 pieces of air conditioning equipment in the offices of Management East, 34 are controlled by a programmable clock. Of these, five have been installed this year, with a total investment of €1,710. The operating hours of the clocks are adjusted to the working day.

Furthermore, in the case of Management Centre, with the application of Standard ISO 50001 on Energy Management Systems, in 2018 a 15% reduction in electricity consumption is expected to be achieved with respect to 2017.

IMPACT OF THE MEASURE

Programmable clocks enable air conditioning equipment to be automatically switched on and off. In addition to the advantages that this entails, an energy saving is achieved due to the adjustment of the equipment's operating hours to occupation hours.

POTENTIAL BARRIERS

The main barrier is people's perception, since even if an economic barrier could be considered to exist due to the price of the programmable clocks and the price of the installation, the reduction in expenses associated with air conditioning energy entails a long-term saving.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	Not estimated
Annual economic saving (€)	Not estimated
Investment required (€)	1,710 (€11,628 in total)
Investment recovery period (years)	Not estimated
Scope relating to the carbon footprint	2

ACTION 2.9

Reutilising water for different uses (watering gardens, daily cleaning, etc.)

ORGANISATIONS INVOLVED	Audeca.
OBJECTIVE	To reduce water consumption through its reutilisation.
DESCRIPTION	Hort Lo Torrent Park has been constructed in different phases, its execution starting in 1995. However, it has to date lacked a regenerated water irrigation network, so a large amount of very good quality water was being consumed by irrigation when regenerated water is perfectly suitable for said uses and does not require the use of more natural resources. A regenerated water irrigation network has been implemented at Hort Lo Torrent Park in San Vicente del Raspeig. This water comes from city of Alicante's plant and is used in the city's main green spaces.
IMPACT OF THE MEASURE	Due to factors such as geographic distribution, the scarcity of water resources in areas with arid or semi-arid climates and the ever growing demand for water by the population has made this a limited resource. The use of regenerated water meets needs such as the maintenance of municipal spaces without wasting water that could be needed for other uses.
POTENTIAL BARRIERS	The main barrier to this measure is economic, due to the cost of the tertiary treatments to be applied. However, the commitment to these types of treatments is no longer an option and is now a necessity, due to the increasing scarcity of water resources, particularly in some zones and at some times of the year.

REDUCTIONS AND ECONOMIC ANALYSIS		
	Estimated annual savings of CO_2 (tCO_2e)	Not estimated
	Annual economic saving (€)	Not estimated
	Investment required (€)	Not estimated
	Investment recovery period (years)	Not estimated
	Scope relating to the carbon footprint	3

ACTION 2.10

Implementing efficient irrigation systems

ORGANISATIONS INVOLVED	Audeca.
OBJECTIVE	To reduce water consumption when watering gardens.
DESCRIPTION	In recent years, the facilities have been analyzed and opportunities for improvement have been detected with regard to the comprehensive cycle of water in several municipalities to which Elecnor provides a gardening service. An optimised irrigation system can achieve a reduction of up to 50% in water consumption. The selection of the irrigation system is important in order to achieve the objectives related to low water consumption gardening. The most used irrigation systems are: • Sprinkler irrigation: the water is distributed like rain in small drops and it is advisable for lawns or similar areas. Depending on the surface area of the land to be watered, sprinklers (rotating and with greater reach) or diffusors (fixed) can be used. • Drip irrigation: this consists of a plastic pipe that has an inner part with holes approximately every 40 cm, therefore, the water exits drop by drop. There are no losses due to evaporation and the spreading of weeds is reduced. It requires very little pressure and is easy to assemble. • Exudation irrigation: this is like the drip technique, but in this case the hose is provided with endless pores. When the hose is full of water, the liquid inside it starts to sweat. This is the technique that enables greater water savings. An important example of the implementation of efficient irrigation systems at Elecnor is the project to improve hydraulic infrastructures at Hort lo Torrent Park developed at San Vicente Raspeig, where the park's irrigation network was adapted for the optimal safe use of regenerated water.
IMPACT OF THE MEASURE	The drip and exudation irrigation system enables between 90 and 95% application efficiency to be achieved, while the sprinkler irrigation system enables 80% - 85%. Furthermore, this measure contributes to adaptation for lower water consumption.
POTENTIAL BARRIERS	Cultural barrier due to the system not being known. Barrier due to costs related to implementation and maintenance.

REDUCTIONS AND ECONOMIC ANALYSIS		
	Estimated annual savings of CO_2 (tCO_2e)	Not estimated
	Annual economic saving (€)	Not estimated
	Investment required (€)	Not estimated
	Investment recovery period (years)	Not estimated
	Scope relating to the carbon footprint	3

4.2.3

STRATEGIC LINE 3

KNOWLEDGE

Knowledge for action to tackle climate change by reducing emissions and impacts, making the most of the resulting opportunities

Knowledge is the basis for a development aimed at adaptation to climate change while reducing the impact in terms of the organisation's GHG emissions. Climate predictions in the different countries in which Elecnor carries out its activity must be taken into account to plan the organisation's actions and, in this way, adapt in advance by making the Group resilient and able to make the most of the opportunities offered by climate change.

The objectives that are proposed in this action line focus on **improving data collection** and **generating knowledge to encourage action to tackle climate change and develop preventative actions.** The following tables define the most representative measures put into motion in this regard.

ACTION 3.1

Improving the recording of fuel consumption data, by activity, equipment, time of year, etc.

ORGANISATIONS INVOLVED	Elecnor Group.	
OBJECTIVE	To optimise the use of vehicles, control and re-education on fuel consumption, the improvement of work planning through the optimisation of vehicle routes, saving in vehicle maintenance costs through predictive maintenance and improvement in the quality of the service and driver safety.	
DESCRIPTION	Elecnor has a geolocated data collection system from the vehicle fleet, in which, through a GPS system, the movements of 400 vehicles are controlled at all times. Thanks to the implementation of the Kyros tool developed by Deimos, the Elecnor Group's Technology Division, the Group is able to record all data relating to the use of its vehicles. The main variables collected by the application are: • Working hours. • Movements during working hours. • Fuel consumption. Thanks to the recording of this information, the application can offer the following services: • Calculate and following the optimal route according to the visits or work orders to be carried out. • Delete unauthorised or unnecessary movements. • Reduction in fuel consumption.	
IMPACT OF THE MEASURE	Identify and follow up on driving styles: speed alerts, recording of idle time, recording of inactivity time. Correct vehicle maintenance: recording and notification of maintenance actions on the vehicle. Establishment of a fuel consumption control system for each vehicle in the fleet. Set consumption reference standards for fleet vehicles. Identify and assign drivers to vehicles: informing the driver of average and instant consumption can encourage interest in low consumption, maintaining lower averages and placing more attention on continuous driving. This also contributes to increasing safety and reducing the risk of accidents. Use of the vehicle in working hours and calendars, and optimisation of routes: by proximity and vehicle availability, route selection and increased vehicle occupancy rate.	
POTENTIAL BARRIERS	Failure of the data collection system. Investment for the implementation of devices in the vehicles.	
REDUCTIONS AND ECONOMIC ANALYSIS	Estimated annual savings of CO_2 (tCO_2e)	Not estimated
	Annual economic saving (€)	Not estimated
	Investment required (€)	Not estimated
	Investment recovery period (years)	Not estimated
	Scope relating to the carbon footprint	1

ACTION 3.2

Adapting landscaping to new climate situations

ORGANISATIONS INVOLVED

Audeca.

OBJECTIVE

To increase the resilience of gardens to the impacts of climate change.

DESCRIPTION

Impacts of climate change, such as rising temperatures and the scarcity of water resources require action lines for adaptation in garden design, with the purpose of increasing their resilience.

Elecnor manages large landscaped areas with high irrigation water consumption, therefore, it is assessing the option to replace them with species that require less water.

In order to achieve the adaptation of gardens to the surrounding environmental conditions, it may be necessary to change the type of species that are used in said gardens with species that require less water and surface area. This could be achieved with the introduction of xerophilous plants that can bear big droughts and are adapted to water scarcity.

Furthermore, implementing the conservation or introduction of native plants of the zone will be sought out for a greater guarantee of resilience in the face of climate impacts.

IMPACT OF THE MEASURE

Improvement of biodiversity due to the conservation or introduction of native species that are more resilient to climate change.

Reduction in water consumption, the planting of xerophilous species can represent a saving of up to 75% of water used in irrigation.

Reduction in maintenance costs and increased resilience of gardens in the face of climate impacts.

POTENTIAL BARRIERS

Cultural barrier because citizens are not used to the system.

Availability of suitable examples in the zone.

Implementation and maintenance costs budget.

Barrier to potential changes in garden design or structure.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	Not estimated
Annual economic saving (€)	Not estimated
Investment required (€)	Not estimated
Investment recovery period (years)	Not estimated
Scope relating to the carbon footprint	3

ACTION 3.3

Developing a predictive bird route variation study linked to own facilities

ORGANISATIONS INVOLVED

Enerfín.

OBJECTIVE

To develop a predictive study on variation in bird routes linked to Enerfín's own facilities.

DESCRIPTION

Despite its undisputed importance as an energy generator through renewable sources, wind installations represent a threat to bird and bat populations that collide with these structures in different ways depending on the zone, species and time of year, by following patterns not known at all.

The high number of installed aerogenerators, their geographic dispersal and the structure of companies involved make it enormously difficult to monitor their environmental impact in a standardised manner.

Therefore, different Environmental Supervision Programmes are currently being conducted to reduce these impacts, however, the figures on collisions are very high, therefore, efforts must be optimised.

The environmental supervision plans are different in each region and even in each farm within the same region.

An important example of Enerfín with respect to the implementation of environmental monitoring through bird migratory routes is the Environmental Supervision Programme conducted in Tarifa, this being the most significant because the birds migrate to/from Africa and pass through an actual farm.

Enerfín's Environmental Supervision Programmes consist of an analysis covering the following phases:

- Search for and recording of fauna that has sustained an accident.
- Supervision work on risk situations (presence of carrions, migratory passage, etc.)

The methodology for environmental monitoring and supervision work considers the following processes:

1. Control of species sustaining accidents.
2. Prevention of risk situations.
3. Monitoring of the use of the space by birds.

IMPACT OF THE MEASURE

Reduction in impacts on the migration of birds that pass through the Elecnor Group's wind installations.

Improvement of reputational image due to beneficial and preventative environmental actions.

POTENTIAL BARRIERS

Increase in costs due to the implementation of Environmental Monitoring Programmes.

Increase in personnel training costs in Environmental Monitoring Programmes.

REDUCTIONS AND ECONOMIC ANALYSIS

Estimated annual savings of CO_2 (tCO_2e)	Not applicable
Annual economic saving (€)	Not estimated
Investment required (€)	Not estimated
Investment recovery period (years)	Not applicable
Scope relating to the carbon footprint	Not applicable

ACTION 3.4

Including the climate change variable in the organisation's plans (emergencies, evacuation, planning, etc.)

ORGANISATIONS INVOLVED	Elecnor Group.
OBJECTIVE	To include the climate change variable as a cross variable in the Elecnor Group's plans.
DESCRIPTION	Both the positive impacts (new opportunities) and the negative ones (risks) will be included in Elecnor's Strategic Plan. Furthermore, sustainable adaptation measures will be applied in the short, medium and long term, which will bring with them a series of environmental, economic and Corporate Social Responsibility (CSR) benefits.
IMPACT OF THE MEASURE	A Climate Change Strategy is developed for the Elecnor Group that covers a diagnosis of the current state of the organisation and of vulnerability to potential weather events, and general criteria are established to include climate change in the organisation's plans. Greater resilience to climate change.
POTENTIAL BARRIERS	Acceptance on the part of Management and the agents involved in the development of the organisation's plans. Cultural barrier due to the fact that people are not used to taking these variables into account.

REDUCTIONS AND ECONOMIC ANALYSIS		
	Estimated annual savings of CO_2 (tCO_2e)	Not applicable
	Annual economic saving (€)	Not applicable
	Investment required (€)	Not applicable
	Investment recovery period (years)	Not applicable
	Scope relating to the carbon footprint	Not applicable

ACTION 3.5

Contracting climate change insurance

ORGANISATIONS INVOLVED	Elecnor Group.
OBJECTIVE	To contract an insurance policy that deals with the potential consequences resulting from climate change.
DESCRIPTION	The Elecnor Group has an environmental liability policy and a policy to cover accidental contamination. These policies cover measures to prevent environmental consequences and prevention and emergency costs. For example, in the concession activity of treatment plants, there could be a discharge due to increasing rains. If, due to this increase, a rise in the water level of the plant is caused and it is necessary to open the gate to prevent damage to the facilities and to carry out a discharge, the insurance policy would cover the cost of recovering the discharge and the improvements required to prevent another similar discharge.
IMPACT OF THE MEASURE	Reduction in the economic consequences related to extreme weather events.
POTENTIAL BARRIERS	No inclusion of consequences in the policy.

REDUCTIONS AND ECONOMIC ANALYSIS		
	Estimated annual savings of CO_2 (tCO_2e)	Not applicable
	Annual economic saving (€)	Not applicable
	Investment required (€)	136,718.89
	Investment recovery period (years)	Not applicable
	Scope relating to the carbon footprint	Not applicable

4.3
Follow up, assessment and review of Elecnor's Climate Change Strategy

To ensure that the implementation of the strategy is achieving the expected results, it becomes essential to conduct a systematic and periodical follow-up of the implemented measures, as well as of the GHG emissions associated with the organisation's carbon footprint, which is expected to fall each year.

The dashboard below is proposed, in order to conduct the follow-up on Elecnor's climate change strategy. Through this dashboard, it will be possible to identify the measures that are maintained over time each year and it will be possible to include any new measures that the Group starts to develop.

STRATEGIC LINE	ACTIONS 2018-2025
PEOPLE	1.1 Promoting teleconferences to avoid travel 1.2 Developing courses on efficient driving 1.3 Developing a plan to reduce paper and water consumption 1.4 Appointing a Head of Environment per building 1.5 Developing awareness campaigns 1.6 Developing social actions within the Elecnor Foundation 1.7 Adapting working hours and schedules News actions
ASSETS	2.1 Purchasing sustainable and efficient vehicles, machinery and tools 2.2 Optimising municipal waste collection routes and other services 2.3 Developing preventative vehicle maintenance 2.4 Purchasing efficient tools (computers, tablets, etc.) 2.5 Improving renewable energies generation facilities 2.6 Using special tools to prevent fires 2.7 Installing timer for electronic machines and automatic light switch systems. Changing to LED lighting 2.8 Air conditioning control 2.9 Reutilising water for different uses (watering gardens, daily cleaning, etc.) 2.10 Implementing efficient irrigation systems News actions
KNOWLEDGE	3.1 Improving the recording of fuel consumption data by activity, equipment, time of year, etc 3.2 Adapting landscaping to new climate situations 3.3 Developing a predictive bird route variation study linked to own facilities 3.4 Including the climate change variable in the organisation's plans (emergencies, evacuation, planning, etc.) 3.5 Contracting climate change insurance News actions
Carbon footprint	Tonnes of CO_2

Steps to follow in the follow-up and assessment process

It is proposed conducting an annual follow-up on the progress of the implementation of the actions proposed in this document, along with the measurement of the results through the calculation of the carbon footprint and its reduction.

The operations to be carried out during the follow-up and assessment process are the following:

1 DATA COLLECTION

This will be done by fostering Internal participation between the agents in charge of the implementation of the actions. During this process, the quantitative and qualitative results achieved will be assessed, as well as the unexpected results.

The data will be collected twice a year:

JANUARY

Taking advantage of the request for data for the calculation of the carbon footprint, information will be collected on economic investments made and the degree of fulfillment of the planned objectives with each measure relating to the previous year. This will be done in order to have a "complete picture" of the consequences of implementation of the strategy.

JUNE

A request for partial information will be made on the progress of the current year, in order to facilitate the annual work. This information will enable the degree of annual progress of each measure to be known and, if applicable, to take corrective measures in this regard.

2 ASSESSMENT OF THE DEGREE OF EXECUTION OF ELECNOR'S CLIMATE CHANGE STRATEGY

Thanks to the information obtained in the above phase, the state of development of the strategy will be known, along with the degree of implementation of each specific action. There will be information, in turn, on new initiatives that will be aligned in order to extend it in the review phase of the strategy.

3 COMMUNICATION OF RESULTS

Once the above stages have been concluded, the results obtained will need to be communicated to the group of agents linked to the strategy, both internal (Group personnel) and external (interested parties). Through internal communication, the internalisation of the strategy is fostered, and through external communication, periodical communication is facilitated to interested parties on Elecnor's actions to tackle climate change. Additionally, the inclusion of the results is planned in the Group's Sustainability Report.

Steps to follow in the review process

It is proposed conducting a review of the strategy every five years. The operations to be carried out during the review process are the following:

1 SCHEDULING OF ACTIONS FOR THE NEXT CYCLE

in addition to collecting data in relation to the mitigation and adaptation actions undertaken, work groups will be conducted with the purpose of defining new actions to be included in the strategy.

2 REVIEW AND UPDATING OF THE STRATEGY

taking as a basis the results of the work groups developed to schedule the actions of the next cycle, the strategy will be reviewed and updated, with a new version published.

Head of the follow-up and assessment process

The General Services department will be in charge of conducting the annual follow-up of the Climate Change Strategy. For this, it will have the support of the agents involved in the undertaking of the actions determined in the strategy, that is, technical personnel and the heads of the different businesses within the Elecnor Group.

For each of the businesses, the TRQA will be in charge of reporting the necessary information to the General Services department for the proper follow-up on any actions that fall under its activity. These persons will carry out the identification and assessment of the actions undertaken from their business, will provide evidence of the results obtained and cooperate in decision-making on the next steps.

The General Services department will issue an annual report on the follow-up on and assessment of the Climate Change Strategy, the most relevant information being included in the Group's annual report. Likewise, said department will develop, on a fortnightly basis, the report on the review and updating of the strategy.

5

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6

TECHNICAL ANNEXES

6.1 Glossary

Mitigation of climate change from the point of view of the private sector

Prepared in house from (IPCC, 2014)

EMISSION OF CO_2-EQUIVALENT

Extent of carbon dioxide (CO_2) emissions that could cause the same integrated radiative forcing in a certain timeline as a certain quantity issued of a greenhouse gas (GHG) or of a GHG mix. The emission of CO_2-equivalent is calculated by multiplying the emission of a GHG by its global warming potential (GWP) in a certain timeline. In the case of GHG mixes, the emissions of CO_2-equivalent corresponding to each gas are added. The emission of CO_2-equivalent constitutes a common scale to compare emissions of different GHG, though it does not imply an exact equivalence of the respective responses in relation to climate change. In general, there is no relationship between emissions of CO_2-equivalent and resulting concentrations of CO_2-equivalent. {GTI, III}

INDIRECT EMISSIONS

Emissions that are the consequence of the activities that are undertaken within well-defined limits, for example, a region, an economic sector, a company or a process, but that occur outside specified limits. For example, emissions are qualified as indirect if they derive from the use of heat, but physically take place outside the limits of the user of heat, or derive from electricity production, but physically take place outside the limits of the energy supply sector. {GTIII}

MITIGATION SCENARIO

Plausible description of the future, that describes the response of the (studied) system to the execution of mitigation policies and measures.

MITIGATION (OF CLIMATE CHANGE)

Human intervention aimed at reducing sources or encouraging greenhouse gas pits. This report also analyses the human interventions aimed at reducing sources of other substances that can contribute directly or indirectly to limiting climate change, including, for example, the reduction of suspended particle emissions that can directly alter the radiation balance (e.g. black carbon) or measures to control emissions from carbon monoxide, nitrogen oxide, volatile organic compounds and other contaminants that can alter tropospheric ozone concentration, which has an indirect effect on the climate.

Adaptation to climate change from the point of view of the private sector

Prepared in house by adapting different sources (IPCC , 2001), (DEFRA, 2010), (UNFCCC, 2013) (IPCC, 2014)

CLIMATE THREAT

Event derived from climate change that can impact a sector in one way or another. Some examples are rising temperatures, heatwaves, falling precipitation, droughts, floods, or rising sea levels, among others.

ADAPTATION TO CLIMATE CHANGE

Process, either spontaneous of as a result of planning, where a company improves its conditions to tackle future foreseeable climate changes, by reducing its negative effects and make the most of the positives effects.

ADAPTATION CAPACITY

Ability of an organisation's that is affected by a climate threat to adapt to its consequences, amortise the potential damage and make the most of the potential resulting opportunities through the use of available resources and technologies.

EXPOSURE TO CLIMATE CHANGE

Assessment of the climate projections of the countries in which the organisation has activity.

IMPACTS OF CLIMATE CHANGE

Assessment of the consequences that climate change can have on different lines of business. These impacts can result in threats or opportunities for the organisation.

CLIMATE RISK

Potential of the consequences of climate change. It is understood in accordance with the likelihood of a climate threat occurring (determined by climate projections) and the related consequences for the organisation.

VULNERABILITY TO CLIMATE CHANGE

Level of sensitivity of a line of business to the adverse effects of climate change.

OPPORTUNITY RESULTING FROM CLIMATE CHANGE

Potential business resulting from climate effects on the lines of business.

For any additional information or queries
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