



ENERGY  
WITH  
INTELLIGENCE

**SPAIN  
SUSTAINABILITY REPORT  
2015**



*edp*

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EDP has set the strategic priority of ensuring transparent and open dialogue with its stakeholders in order to construct and strengthen the relations of trust, share relevant information and knowledge, anticipate challenges and identify new cooperation opportunities.

In this spirit, a Segmentation Model was established in **2013** to classify the stakeholders according to their characteristics and interests, thus optimising the detection of their expectations and needs. Thanks to this model, four categories have been defined which are: Market, Democracy, Value Chain and Territorial & Social Environment.

Subsequently, in **2014**, EDP approved the Relationship with Stakeholders Policy, based on four commitments: trust, collaborate, communicate and understand. Its goal is to facilitate the effective involvement of the stakeholders, thus allowing value to be created for the different interested parties.

During **2015**, the Methodological Guide to Manage the Relationship with EDP Group Stakeholders was prepared and approved. It establishes in a specific and practical way how the EDP Group relates to its stakeholders in any of its activities and projects and in all the geographical areas in which it operates, thus providing a structured vision of this relationship that ensures its capacity to create value in the long term.

# ENERGY WITH INTELLIGENCE

## MARKET

Shareholders and investors  
Financial institutions  
Competitors

## VALUE CHAIN

Customers  
Employees  
Suppliers  
Scientific community

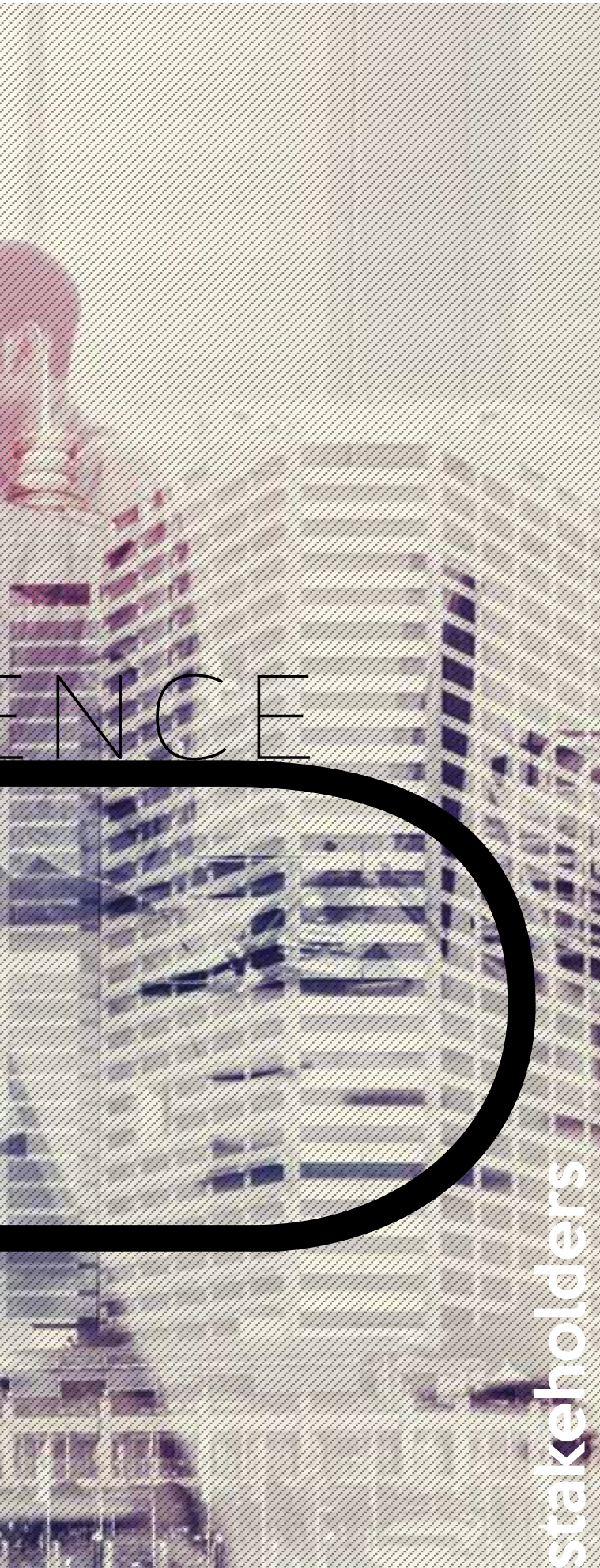
## DEMOCRACY

Government, public  
entities and regulators  
International  
institutions

## TERRITORIAL AND SOCIAL ENVIRONMENT

Local communities  
Local councils  
NGO  
Media

The Sustainability Report, which has been published annually since 2003, is structured according to the aforementioned segmentation: Market, Value Chain, Democracy and Territorial & Social Environment. It covers the aspects that have been relevant in the materiality analysis, a study that is performed annually to assess and prioritise the importance of the aspects for EDP and their stakeholders.



The importance that EDP gives to any aspect is from the internal vision of the company regarding how it recognises and internalises that aspect in its management. On the other hand, the relevance of an aspect for the Stakeholders is deduced from its importance from an external perspective to the company.

In 2015, this materiality analysis was conducted according to the EDP Group's Materiality Guide, which harmonises concepts between the different companies of the Group and defines a common application methodology.

**The aspects that have proven to be most relevant are addressed in the different chapters of this report:**

**EDP SPAIN AND ITS ACTIVITY**

Energy efficiency at the facilities

**MARKET**

Financial performance and financial sustainability  
Risk management and control  
Ethical behaviour

P. 14

**VALUE CHAIN**

Quality and reliability of the supply  
Labour conditions  
Health and safety of the employees  
New business and market opportunities for the suppliers  
Fostering innovation and business opportunities with the scientific community  
Supply quality and reliability  
Products and services that foster energy efficiency and savings  
Customer management  
Employee satisfaction

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**DEMOCRACY**

Regulation, taxes and subsidies  
Distributed generation and self-consumption  
Climate changes  
Sustainable mobility

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**TERRITORIAL AND SOCIAL ENVIRONMENT**

Environmental performance  
Emissions of air pollutants  
Support for vulnerable customers  
Citizenship and philanthropy

P. 56



Energy transforming the world



# ENERGY WITH INTELLIGENCE

SUSTAINABILITY  
REPORT  
2015

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**MANUEL  
MENÉNDEZ MENÉNDEZ**  
CHAIRMAN

2015 has overall been a watershed year with two globally important milestones.

On the one hand, the UN Sustainable Development Summit in New York in September approved the Sustainable Development Goals (SDGs), 17 ambitious core areas that seek to improve the life of people and protect the planet.

And on the other hand, the UN Climate Conference in December in Paris reached a new Climate Agreement, the first universal one, which sets the path to be followed to keep the global warming of the Earth under 2°C.

**MIGUEL  
STILWELL D'ANDRADE**

CHIEF EXECUTIVE OFFICER

Yet again this year, EDP Spain has published, for the thirteenth year running, the Sustainability Report, which reflects the environment, social and economic performance of the Group, and which focuses on those contents that are most relevant for our different stakeholders.

In 2015, EDP Spain posted an EBITDA EUR 429 million from its operations and a net profit of EUR 100 million. The net profit is 9% down on 2014 once the extraordinary results from the sale of gas assets and EDP Renewables shares had been discounted.

The economic climate has yet again been complex, with demand, even though it was slightly up on the previous year, continuing to be far from the peaks in 2007 and 2008, together with new tax charges and adjustments for the sector and great commercial competition. In this context, the strategic decisions adopted and the company's focus on efficiency and cost control have led to results that now account for 19% of the EBITDA of the EDP Group.

The operating of the coal-fired power plants increased slightly on the previous year, while the gas combined cycle plants have continued with an annual average use of just 1000 hours. However, on the days of maximum demand, and given the intermittency of the renewable sources, the fundamental role of the thermal technologies in the coverage of the Spanish electricity system has become clear.

And this is all without forgoing excellence, with a supply quality in the electricity distribution networks that has yet again been the best of the sector with availability over 97% in the coal-fired plants and nearly 100% in the combined cycles. Special mention should be made of the closure of the Soto de Ribera coal-fired Unit No. 2 on 31 December, after 48 years operating and production over 56,000 GWh.



As regards natural gas distribution, we have consolidated our position as the second national distributor, and we have sought to continue growing with the signing, in 2016, of an agreement with Repsol to purchase over 85,000 liquefied petroleum gas supply points in our current areas of operation (Asturias, Cantabria and the Basque Country).

Energy marketing reached the figure of over 2.2 million contracts, with nearly half of them based on a joint gas and electricity package, in a single contract together with the value added services, which is the hallmark of



Both initiatives set a post-2015 global agenda for the States aimed at changing the world through a new inclusive strategy for companies and, for the first time, the necessary contribution of the private sector is highlighted and recognised.

EDP has taken up the challenge and was at both summits to unveil its commitments to combat climate change and to contribute to the SDGs, by cutting our specific CO<sub>2</sub> emission, increasing the renewable installed power, developing efficient products and services, defining an ambitious R&D&i programme and extending smart grids. They are commitments that this Chair and, by extension, the whole of EDP Spain share, and thus form part of the strategy of each business unit and corporate divisions, driven by the conviction that it is the sum of the contribution of everyone.

Yet EDP Spain's responsibility towards sustainability also embraces other actions with impact on its three dimensions - environmental, social and economic -, and this Sustainability Report reflects this. Special mention should be made of the environmental investments in our

power plants, the supply quality indexes, gas and electricity sectoral leaders, Pola de Siero as the first smartcity of the EDP in Spain group, the digitalisation of our customers, our commitment to stable and decent jobs, or supporting social initiatives through our EDP Spain Foundation.

I invite all our stakeholders to discover more about us and to share our objectives. On behalf of the Board of Directors that I chair, I wish to single out and thank the over 1,500 people who work, in EDP Spain for their input, and also thank the General Supervisory Board and the Executive Management Board of the EDP Group for their trust and support to the development of the company in Spain that allows value creation in the communities in which it is present.



Manuel Menéndez Menéndez  
CHAIRMAN

EDP Spain. EDP was also awarded the Gold CRC Prize to the best customer hotline with the B2C telephone channel.

The economic performance is completed with a continuous improvement Lean programme, which has generated over 300 new initiatives in all business areas and with an R&D&i activity that manages, in conjunction with universities and technology centres, a portfolio of projects that develop the strategic innovation lines of the group (cleaner energies, more efficient networks, solutions for the customer) and which have enjoyed the economic support both of the Spanish Government and the governments of Asturias and the Basque Country.

The environmental performance was controlled, as in the previous year, with the renewal of the certificates of the environmental management systems implemented in the gas and electricity distribution and generation activities and in the central offices. The main new feature in 2015 was the embarking on the environmental adaptation of the coal-fired power plant required by the Industrial Emissions Directive to cut nitrogen oxides at the Aboño power plant (Unit 2) and at Soto de Ribera (Unit 3). These plants will use the most advanced system (selective catalytic de-nitrification) with an investment in both units that stood at €100 million. The Aboño 2 plant will be the first of the Spanish thermal power plants (November 2016) to undertake the environmental adaptations required by the Directive.

The social performance reflects a commitment to job stability, with the hiring of 39 people throughout 2014, and the Family Responsible Company certificate was also renewed. (EFR). As regards the local communities where we are operating, agreements have been signed with the public authorities that ensure supply to people in situations of vulnerability and social emergency. These agreements complement the activity of the EDP Spain Foundation that works in coordination with the ordinary activity in social projects such as EDP Solidaria [EDP Solidarity] or Energía Solidaria [Energy Solidarity].

Our priority challenges in 2016 will be to maintain the operating flexibility and the high availability of production power station, with the challenge of bringing into service the


Aboño 2 de-nitrification plant and completion of the work at Soto 3, for its start up in early 2017.

We are also working to maintain leadership in service quality of our electricity distribution grids, by adding the smartness of the new counters (currently over 400,000) and as regards gas distribution, we will optimise the return on our investments with the acquisition of Repsol assets.

As regards trading, we are facing the challenge of increasingly more demanding customers, on a very competitive market where technology is evolving rapidly in a way accessible to everyone, and with the appearance of new business models where the traditional role of the marketers is questioned; it is therefore necessary to work on optimising the commercial activity and to develop new services, while maintaining organic growth of the portfolio.

In short, EDP Spain has an attractive portfolio of complementary assets, with a sound and profitable base in electricity and gas distribution, and flexible thermal generation, with growth potential in the commercial activity which we manage with a clear focus on efficiency and cost control, by means of transparent and open dialogue with our stakeholders.

I would like to end by thanking the whole human and professional team for their hard work, rigor and dedication in the performance of their duties, without whom these results would not have been possible and with whose backing we can achieve our goals, and my thanks also go to the NG and HC Board of Directors for its support during the year.



Miguel Stilwell d'Andrade  
CHIEF EXECUTIVE OFFICER

# **EDP SPAIN AND ITS ACTIVITY**

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**EDP Spain is a business group whose main activity is the production and transport of electricity and the distribution and marketing of electricity and gas.**



+5,300  
gross MW  
of power

## PRODUCTION

To generate electricity, EDP Spain has over 5,300 gross MW of installed power between thermal power plants, hydraulic and cogeneration plants (plants that, apart from electricity, generate steam or heat that need a partner in its process, such as iArcelor Mittal, Tudela Veguín, Nestlé...), along with a stake in the Trillo nuclear power station (15.5%) and, until December 2015, a stake in EDP Renewables (15.5%).

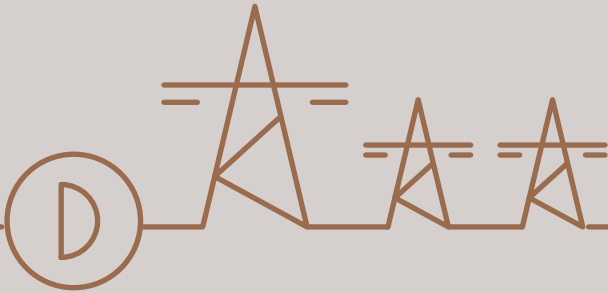
### **MIGUEL MATEOS** Generation Director

*During 2015, the generation activity at EDP Spain has been noted for greater operating of the coal-fired thermal power stations, driven by the drop in wind and hydraulic production in mainland Spain and Portugal. And this is despite a general service of Aboño 1 being programmed, which had to be prolonged due to a failure in the turbine lubrication system. Unit 2 of the Soto de Ribera Thermal Power Station played a key role in this greater operating and as of 30 December, it was forever decoupled from the grid, 48 years after that occurred for the first time.*

*In 2016, the generation activity will be noted for long shut downs that will be carried out in the Aboño Unit 2 and Soto de Ribera Unit 3, which is necessary to install the denitrification systems. Furthermore, the auxiliary fuel of the boiler, which is currently diesel and fuel oil, will be replaced by natural gas.*

In 2015, the high availability of the thermal generators (97.3% in coal-fired and 99.7% in cycles) has yet again this year been noteworthy, along with its pivotal role in the Spanish electricity sector, with over 300 start-ups by combined cycles and over 60 by the coal-fired generators.

All the generating facilities freely sell their electricity on the market and the energy is transported to the consumption points using the mains grids.



+20,400 km  
of electricity  
lines

## ELECTRICITY DISTRIBUTION

EDP Spain has over 20,400 km of overhead and underground electricity lines, along which 9,168 GWh circulated in 2015 and 660,143 supplies are connected to them.

**The distribution area is tasked with projecting, constructing, operating and maintaining these grids, in order to guarantee the service quality to the customers connected to them.**

### **LUIS ÁLVAREZ ARIAS DE VELASCO** **EDP HC ENERGÍA Grids Director**

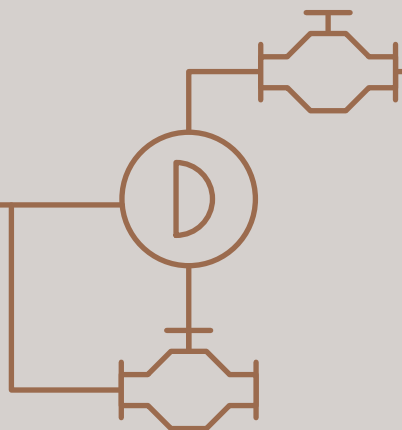
*During 2015, over €37 million were invested in improvements to the grid, including the underground supply at 132 kV to the Gijón North Substation (nearly €8 million) and the expansion of the Pravia and Cudillero electricity facilities (€4.5 million). The number of installed electronic meters reached 400,000 (62% of our stock), 340,000 of which are actively remotely managed. From the perspective of supply quality, we continue to be sector leaders with a TIEPI (equivalent time interruption of installed power) of 34 minutes, which could be cut to 29 minutes if the Ministry authorises the CNMC proposal to consider the storms of January and February as an exceptional event. As challenges for 2016, we plan to continue to invest in improving the facilities, bringing its cost in line with the standards recognised in the new regulation, continue with the campaign to replace meters and carry on developing applications for the smart management of the LV grid, with the overall aim is to improve the supply quality to our customers.*

**The customers connected to the EDP distribution grid can already consult their hourly consumption on the distributor's website, thanks to the network of electronic meters and hubs that the company has installed.**

### **JOSÉ NEGUERUELA** **Information Technologies Director**

*In 2015, the systems have evolved in all divisions and business units; from a cross-cutting perspective, particularly noteworthy is the IMS (Integrated Multigeographical System), whose aim is to standardise the economic-financial processes within the Group. As regards electricity distribution, the Field Operation and Maintenance Incidences Management System and GIS mobility has come into production and the interface with the electric SCADA has come into service, with new development for Inovgrid. In the Gas Distribution area, the integration of Gas Assets across the Iberian peninsula in the SCADA WINCC OA has been completed.*

*The projects identified in the sphere of the PVPC Programme have been implemented in the Commercial Distribution and Commercial Systems divisions. A new online channel for B2C customers has been launched. It incorporates important new features in the area of the user experiences and self-service capacities for the customers. As regards managing smart networks, the SITEL platform has continued to be developed. With respect to logical security, the focus has been on security coverage in the critical infrastructure of the Corredoria Central Office, by drawing up the Security Plan of the Operator documents, which is already approved, and Specific Protection Plan, in the pipeline for adoption. Training and awareness-raising sessions on Internet security are underway.*



**+7,700 km  
of gas networks**

## GAS DISTRIBUTION

**EDP transports the natural gas from the delivery points of Enagás, the common carrier for the high pressure gas network in Spain, to the consumption point in the best safety and quality conditions.**

Therefore, the distribution plans, constructs, operates and maintains the more than 7,700 km of gas networks that EDP has in Spain, thus guaranteeing the supply quality to the customers connected to the gas network.

**JUAN RAMÓN ARRAIBI DAÑOBEITIA**  
**EDP NATURGAS ENERGÍA Director of Regulated Business**

*I would highlight the following milestones in 2015:*

*The sales agreement reached with Redexis Gas to sell the gas regulated assets outside our incumbency zones and the capital gains generated as a consequence.*

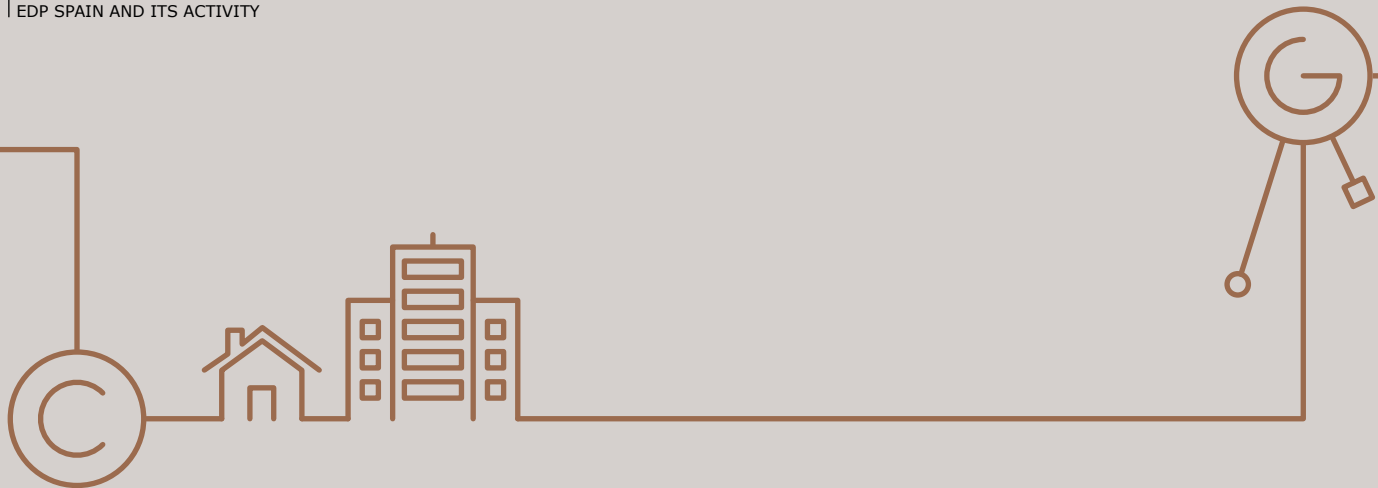
*The agreement with Repsol to purchase over 80,000 liquefied petroleum gas (LPG) supply points in our incumbency zones (Asturias, Cantabria and the Basque Country), which, after their transformation, will be equivalent to growth of 9% and to the consolidation of EDP Naturgas Energía as the second natural gas distributor in Spain.*

*The organic growth of the business in line with the sector, the upholding of the levels of excellence regarding security of supply, and making important investments to reinforce existing facilities (completion and commissioning the new entry point in Gijón; completion of the first phase of improving the Santander network, and continuing with replacing the San Sebastián gas network, in Guipúzcoa).*

*Liberalisation of the Periodic Inspections activity and application of the New Grid Code pursuant to the European directive.*

*The most iconic goal for 2016 is an agreement being reached with Repsol and the ensuing acquisition of assets and management of the LPG supply, in tandem with the coming into force of the Natural Gas Transformation Plan.*

**EDP Spain is the second natural gas national distributor, with a market share of 9%.**



## MARKETING ELECTRICITY AND GAS

**After the liberalisation of the gas and electricity sectors, the energy generation, distribution and marketing operations must be legally separate, so that the customers can freely contract the supply, irrespective of which company owns the distribution network of their zone.**

Therefore, marketing companies were set up which negotiate the economic terms and conditions of the supply with the customer, along with other value added services (upkeep of the customer's installations, household appliances, etc.). They also work with the zone's distributor to manage the relevant tolls (regulated tariffs for access to the network) and the claims associated to the quality of the service and to the supply continuity.

### **RICARDO GONZÁLEZ SANTANDER** *Marketing and B2C Sales Director*

*EDP was the company with the most competitive electricity and gas deals in 2015, according to the comparator of the National Markets and Competition Commission (CNMC). We are the leading markets in dual customers, and we also offer the best deal with additional services, "FUNCIONA", which 483,000 customers have already signed up to.*

*Particularly noteworthy is the success of the systematic customer recovery campaigns in 2015, and it is the marketer with the greatest loyalty rate (90%), and of the successful customer acquisition in expansion areas, which has seen an increase in the portfolio outside our distribution areas, where we now have 20% of the total customers. Special mention should also be made of the progress in digital transformation, with 32% of customers registered in our private area of the EDPonline website and 23% of users signed up to electronic billing.*

EDP Spain has segmented its customers according to the volume of their consumption. They are broken down into two main groups: B2C customers (households and businesses) and B2B customers (companies and major accounts) In 2015, it reached over 1 million electricity customers (1.4 million counting CHC Energía) and over 15,500 GWh marketed (16,700 GWh counting CHC Energía), which means a market share of 9%. As regards gas, over 26,600 GWh was marketed and the number of customers exceeded 800,000.

In 2015, the strategy in the B2B segment focused on efficiently covering generation and optimising the customer portfolio; in the B2C segment, the work has been on attracting profitable customers and their loyalty.

**+1,800,000 CUSTOMERS**  
**GAS AND ELECTRICITY**

## ENERGY MANAGEMENT

**The economic margin obtained in the liberalised activities of the Group, electricity generation and the marketing of gas and electricity, is subject to the permanent risk of fluctuations both in the purchase-sale prices and in the energy volumes traded.**

The Energy Management Business Unit (UNGE) was thus set up and its main mission is to control and minimise this risk. Given the similarity of the markets, this activity is conducted jointly in Spain and Portugal, thus building on the synergies between the two geographies.

### How can the risk of price fluctuations be minimised?

In the case of gas, its price is linked to variables such as the price of Brent, the exchange rate, etc., and the UNGE uses operations known as financial trading to hedge the variations of those parameters to thus control the fluctuation of the gas price.

In the case of electricity, the risk in the potential variations of the price of the kWh (both generated and marketed) is controlled by means of trading the fuel purchase prices (coal and gas) and the price of selling to end customers, along with trading on electricity market both in the short term (known as the spot market) and in the long term.

### How can the risk of volume fluctuations be minimised?

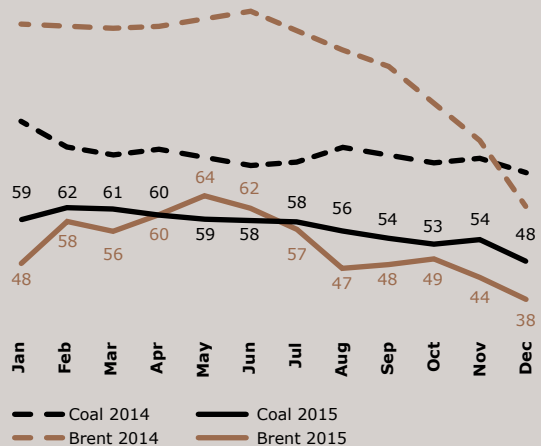
The fluctuations in the initially envisaged gas volume to be marketed are managed by means of decisions regarding supply logistics (decisions regarding purchasing LPG vessels or gas by pipeline,

regarding storage of the supplies received or injection in the network...).

In the case of electricity, the tools are the electricity trading markets.

**The greatest challenge for the UNGE in 2015 was to manage the great fluctuations in the price of oil, which, dropped from 101 USD/bbl to 38 USD/bbl over 18 months, with the ensuing direct impact on gas prices and indirect on coal prices. One milestone to be mentioned was the start-up, in December 2015, of the organised gas market (Gas Hub).**

MONTHLY EVOLUTION OF BRENT PRICE AND COAL-API#2 (USD/BBL, USD/TON)



bbl = oil barrel (approximately 159 litres)

## MAIN CAUSES OF THE SLUMP IN OIL PRICES

**The price of oil has fluctuated from 101 USD/bbl to 38 USD/bbl in 18 months. What were the reasons for this slump?**

First of all, fracking or hydraulic fracturing as a new supply source (fracking is the fracturing of underground rocks to extract hydrocarbons). The market, dominated by OPEC countries so far, has been flooded by shale oil from fracking in the USA. Thus, in barely five years, this country has gone from being a major net importer from the world to become the first world producer, ahead of Saudi Arabia.

OPEC, unwilling to lose its market share, continued production, thus generating an excess of supply and so sacrificing the price of crude. This strategy was aimed at pushing prices to a level that would be unsustainable from fracking producers (it was thought that USD 50 was the limit for fracking to be profitable, compared to USD 10 that it costs OPEC to produce a barrel). However, even though many companies have had to

close, technological learning has allowed others to move forward. Meanwhile, production outside the OPEC continues and the market continues to be saturated.

Additionally, a new player has appeared and which will soon have a strong role on the oil market: Iran. It has the fourth largest oil producer and the second in gas and it is now free of Western sanctions after the end of its nuclear aspirations. Prior to the blockage, Asian and European countries were the main customers of Iranian crude.

Given this surplus supply scenario, demand has not recovered, and Chinese growth has slowed down. Temperatures have also been higher than normal, which has impacted on the price of oil. A warmer planet implies a lower need for hydrocarbons for heating because diesel, which is the most common heating fuel, is refined from oil. Hence, for example, the drop of the price of diesel will be greater than that of petrol on the fuel markets.

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SUSTAINABILITY  
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2015

01

Reflecting intelligence





# ENERGY WITH INTELLIGENCE

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## MARKET

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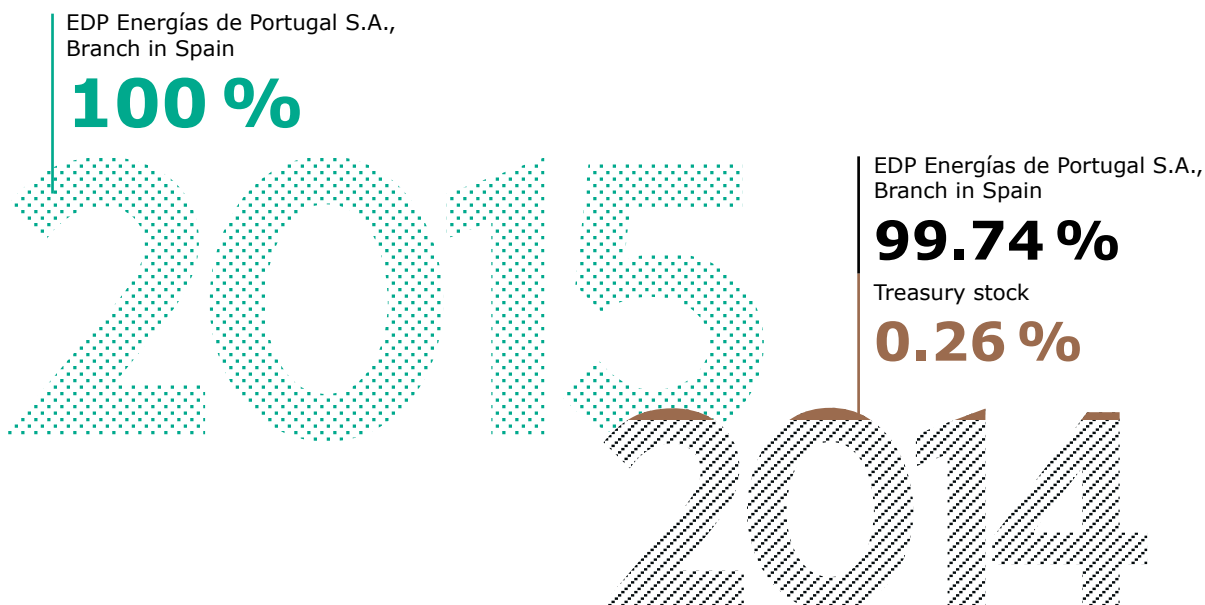
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## 01 MARKET

THIS CATEGORY INCLUDES STAKEHOLDERS, SHAREHOLDERS AND INVESTORS, FINANCIAL ENTITIES AND COMPETITORS. THEY ALL CONDITION THE DIVERSIFICATION AND INVESTMENT STRATEGIES OF THE EDP SPAIN GROUP'S ACTIVITIES.

### 1.1. SHAREHOLDERS AND INVESTORS

During 2015, the treasury shares making up 0.2% of the share capital were sold to the majority shareholder, EDP-Energías de Portugal, S.A. Branch, which now holds a 100% stake.



**JOSÉ LUIS MARTÍNEZ MOHEDANO**  
General Secretary and to the Board of Directors

*In 2015, special mention should be made of the measures adopted to adapt to the new requirements of Act 1/2015, of 30 March, amending the Criminal Code - the Model to Prevent Criminal Legal Risks (MPRJP) -, with the Compliance function being allocated to the Internal Audit Department for the purposes envisaged in Article 31 bis of the Criminal Code and the ensuing amendment of the Manual for that Model.*

*Special mention should also be made of the running of ethics training processes, such as the "Tone at the Top" workshop for executives and the online course for all employees during September and October 2015.*

*During 2016, a system is going to be implemented to record, disseminate and apply the Service Orders (SOs) issued by the EDP Executive Board of Directors (EBD), to bring them to the attention of the Organization and guarantee their compliance.*

## WHISTLEBLOWING CHANNEL

Since 2006, EDP Spain has a whistleblowing channel in place, which employees can use to communicate possible financial and accounting irregularities and those related to the economic documents of the companies of the Group.

Subsequently, since criminal responsibility of legal entities was introduced in Spain by means of reforming the Criminal Code, which came into force in December 2010, this whistleblowing channel has been integrated, as a further control, in the Model to Prevent Criminal Legal Risks. It can be used to file complaints about facts that could incur the criminal responsibility of the Company.

## 1.2. FINANCIAL INSTITUTIONS

In 2015, EDP Spain posted an EBITDA EUR 429 million from its operations and a net profit of 100 million. The net profit was 9 % down on 2014 once the extraordinary results from the sale of gas assets and EDP Renewables shares had been discounted.

Given the positive effect from the sale of gas distribution assets and EDP Renewables assets, the EBITDA was up 2 % and reached EUR 518 million and the BDI fell to EUR 598 million.

### **AZUCENA VIÑUELA HERNÁNDEZ** *Internal Audit Director*

*As regards 2015, particularly noteworthy was the renewal of the Internal Audit's "Quality Assessment" certification with the highest applicable rating according to IIA Global (American Institute of Internal Auditors) standards, the International Standards for Professional International Auditing and a benchmark worldwide.*

*Furthermore, an Integral Compliance Management System was developed in 2015 as the outcome of the Group's commitment regarding ensuring compliance of the legislation and regulations to which we are subject, and to complement the compliance management systems of different subjects already implemented in the group. The design of this Integral Compliance System is a step forward and highly innovative in terms of compliance management models, as it combines a global management model while at the same time providing a specialised response to specific regulatory areas. The implementation of this System will be one of the major targets for 2016.*

## 1.2.1. CONSOLIDATED PROFIT AND LOSS ACCOUNTS

EUR thousands	2014	2015
Net turnover	4,086,382	3,874,860
Electricity acquisition costs	-1,764,311	-1,728,606
Gas acquisition costs	-1,041,718	-829,790
Changes in stock, raw materials and consumables	-387,140	-462,010
<b>GROSS MARGIN</b>	<b>893,213</b>	<b>854,454</b>
Other operating revenue	53,114	120,598
Supplies and services	-146,433	-147,993
Cost of employee remunerations	-98,543	-92,643
Costs of employees benefits	-12,164	-6,749
Other operating costs	-182,445	-209,969
<b>EBITDA</b>	<b>506,743</b>	<b>517,698</b>
Provisions	-25,129	-3,031
Depreciation costs	-213,808	-189,407
Costs of impairment provisions	-1,402	-2,379
Depreciation of deferred revenue / Official subsidies	3,741	2,978
<b>EBIT</b>	<b>270,145</b>	<b>325,860</b>
Financial Revenue	45,376	453,585
Financial costs	-166,892	-150,278
Share in profits /(losses) for the year of companies accounted for using the equity method	2,362	2,592
<b>Pre-tax earnings</b>	<b>150,992</b>	<b>631,758</b>
Tax on capital gains	-40,891	-29,683
<b>Profit or loss after tax</b>	<b>110,101</b>	<b>602,076</b>
<b>Net results for the financial year</b>	<b>110,101</b>	<b>602,076</b>
HC Energía net equity holders	110,363	597,879
Minority interests	-262	4,196
<b>RESULTS FOR THE FINANCIAL YEAR</b>	<b>110,101</b>	<b>602,076</b>

In 2015, Gas Murcia assets and those beyond the Cantabrian seaboard were sold and raised EUR 89 million.

The EBITDA in 2015 stood at EUR 518 million, which was 2% up on the previous years. The market conditioning factors were mitigated by the emphasis on cost cutting and continuing with the policy to obtain synergies with the EDP Group, and by appropriate strategic decisions regarding hedging the marketing and generation businesses and the efficiency and availability of the Group's current generation capacity.

The profit after provisions and depreciation stood at EUR 326 million, 21% up on 2014, and included a drop in the depreciation charge from the sale in 2015 of the gas assets and changes in the useful lives of certain facilities. Provisions were also cut considerably in 2015.

The pre-tax result came to EUR 632 million. The high increase observed with respect to 2014 was mainly down to the positive impact of the sale of EDPR shares, which stood at EUR 409 million.

## 1.2.2. CONSOLIDATED BALANCE SHEET

EUR thousands	2014	2015
Tangible fixed assets	2,760,273	2,686,132
Intangible fixed assets	113,004	106,240
Goodwill	1,615,103	1,615,103
Financial investments in affiliates	337,175	369,115
Investments in associate companies	4,974	4,925
Financial assets available for sale	733,450	2,516
Deferred tax assets	112,498	101,671
Trade and other receivables	13,643	82,855
Other debtors and other assets	90,985	126,666
<b>Total non-current assets</b>	<b>5,781,105</b>	<b>5,095,223</b>
Stock	141,873	79,147
Short-term customers	449,212	412,492
Debtors and other assets	102,620	90,569
Debtors and other assets	584,614	513,856
Taxes to be collected	4,989	3,683
Cash and other liquidity	1,807	2,259
Assets held for sale	164,402	0
<b>Total current assets</b>	<b>1,449,518</b>	<b>1,102,006</b>
<b>TOTAL ASSETS</b>	<b>7,230,623</b>	<b>6,197,229</b>
<b>NET EQUITY</b>		
CAPITAL	421,740	421,740
OWN SHARES	-4,809	0
ISSUE PREMIUM	657,680	657,680
Fair value reserves - Cash flow hedges	-9,311	-3,942
Fair value reserves - Financial assets available for sale	224,738	0
Reserves and accumulated gains	1,635,229	1,451,306
Consolidated net profit attributable to net equity holders of the parent company	110,363	597,879
Total net equity attributable to net equity holders of the parent company	3,035,630	3,124,662
Minority interests	65,211	67,252
<b>TOTAL NET EQUITY</b>	<b>3,100,841</b>	<b>3,191,914</b>
<b>LIABILITIES</b>		
Long-term financial debt	2,016,903	796,852
Costs of employees benefits	86,992	83,774
Risk and cost provisions	152,016	137,222
Deferred tax liabilities	238,746	261,794
Trade creditors and other outstanding accounts	185,802	208,147
Other creditors and other liabilities	45,339	16,836
<b>Total non-current liabilities</b>	<b>2,725,797</b>	<b>1,504,624</b>
Short-term financial debt	619,919	552,711
Short-term employees benefits	16,087	8,423
Short-term risk and cost provisions	1,709	1,986
Trade creditors and other outstanding accounts	546,795	625,153
Other creditors and other liabilities	87,706	194,699
Taxes to be paid	120,442	117,718
Liabilities linked to assets held for sale	11,328	0
<b>Total current liabilities</b>	<b>1,403,985</b>	<b>1,500,691</b>
<b>TOTAL LIABILITIES</b>	<b>4,129,782</b>	<b>3,005,315</b>
<b>TOTAL NET EQUITY AND LIABILITIES</b>	<b>7,230,623</b>	<b>6,197,229</b>

The volume of assets fell by 14%. Special mention should be made of the following facts that impact on this fluctuation:

On 30 January 2015, the transaction agreements were finally completed in the part relating to the Gas Energía Distribución Murcia, S.A. shares, with the price being set at 99.98% of the shares owned by Naturgas Energía Distribución, S.A.U., including debt, for the sum of EUR 190 million.

As regards the sale of the tangible gas distribution assets located outside the autonomous regions of Asturias, Cantabria and the Basque Country, the transaction was completed in June 2015 for the sum of EUR 51 million.

The overall capital gains obtained in the operation came to EUR 89 million.

In 2015, the 15.5% stake in EDP Renovaveis, S.A., included as Financial Assets Available to Sell, was sold resulting in capital gains of EUR 408.7 million, which had been valued at EUR 731 million in December 2014.

Net equity increased by EUR 91 million. In addition to the impact of the 2015 result, an interim dividend of EUR 300 million was distributed and the overall result was cut by EUR 224 million as the result of selling the EDP Renovaveis, S.A. shares, classified as Financial Assets Available to Sell.

The fluctuations observed in the liabilities are fundamentally related to cutting the Group's debt as the result of the cash inflows from the sales operations described above.

**PELAYO ECHEVARRÍA YBARRA**  
 Legal Affairs Director

In 2015, the EDP Spain Legal Department, once its integration had been consolidated, defined the Division's scorecard with the main management indicators and introduced a budgetary structure to control and monitor spending. At corporate level, it oversaw operations to buy and sell gas assets of great importance for the Group and carried out the merger of the different subsidiaries in the cogeneration area. As regards litigation, apart from B2C and B2B debt judicial management and solvency activity, it has been highly successful in complex legal disputes, including, network access denial by third parties, or with respect to occupancy rates imposed by different local councils, with an important economic impact for the electricity distribution business. Finally, as regards the management and consolidation of the reporting of disputes to the EDP General Secretary, joint work has been carried out to develop a corporate contingency and litigation tool with harmonized criteria and processes, which, when it comes into service in 2016, will allow updated information to be available in real time and global reports to be issued from that tool on the risks associated to disputes and other contingencies for their better monitoring.

### 1.2.3. CONSOLIDATED CASH FLOW STATEMENT

EUR thousands	2014	2015	
<b>Gross Operating Result</b>	<b>507</b>	<b>518</b>	
Tax on capital gains	-27	7	
Net Interest Cost	-142	-114	
Net gain or loss from stakes in associated companies using the equity method	8	8	
<b>CASH FLOW FROM THE OPERATING ACTIVITIES</b>	<b>345</b>	<b>419</b>	◆
Net Interest Cost	142	114	
N/A			
Other non-cash adjustments	2	-7	
Working capital (decreases) / increases	358	-44	
<b>CASH FLOWS FROM THE OPERATIONS</b>	<b>848</b>	<b>482</b>	◆
Investment in fixed assets	-96	-121	
Financial investments / (divestitures)	-337	1.156	◆
Working capital increases / (decreases) related to the purchase of intangible fixed assets	-4	9	
Subsidies	11	8	
Dividends received	6	8	
<b>NET CASH FLOWS FROM OPERATING ACTIVITIES</b>	<b>427</b>	<b>1.543</b>	
Net Interest Cost	-137	-113	◆
Capital dividends and distribution	-93	-303	
Exchange rate differences and others	0	26	
<b>NET DEBT NET INCREASE / (DECREASE)</b>	<b>197</b>	<b>1.152</b>	

**EDP Spain generated an operating cash flow of EUR 482 million, significantly down on the one generated in 2014 (848). The main milestones that justify this evolution are:**

- The cash flows resulting from operating activities, which came from the EBITDA after discounting the net interest costs and taxes, stood at EUR 419 million, nearly EUR 74 million up on those in 2014.
- The operational cash flows, that is, the flows from operations prior to the net interest costs and adjusted by the fluctuation in the working capital (WC), stood at EUR 482 million, 366 million down on 2014, which is down to changes in working capital.
- In 2015, there was a very important cash inflow of financial divestments fundamentally from the sale of Gas Murcia assets and those beyond the Cantabrian seaboard, as well as from the sale of EDPR shares.
- The net interest cost was down in 2015 on 2014 due to the new financing conditions agreed and the lower leverage.

## 1.3. COMPETITORS

Achieving a certain competitive advantage in the energy sector involves comparison with competitors, establishing their practices and the company positioning itself on the market in a differentiated, innovative and sustainable way.

### EDP - WORLD LEADER IN COMBATTING CLIMATE CHANGE

Achieving a certain competitive advantage in the energy sector involves comparison with competitors, establishing their practices and the company positioning itself on the market in a differentiated, innovative and sustainable way.

Carbon Disclosure Project  
EDP was awarded the  
highest score

# 100

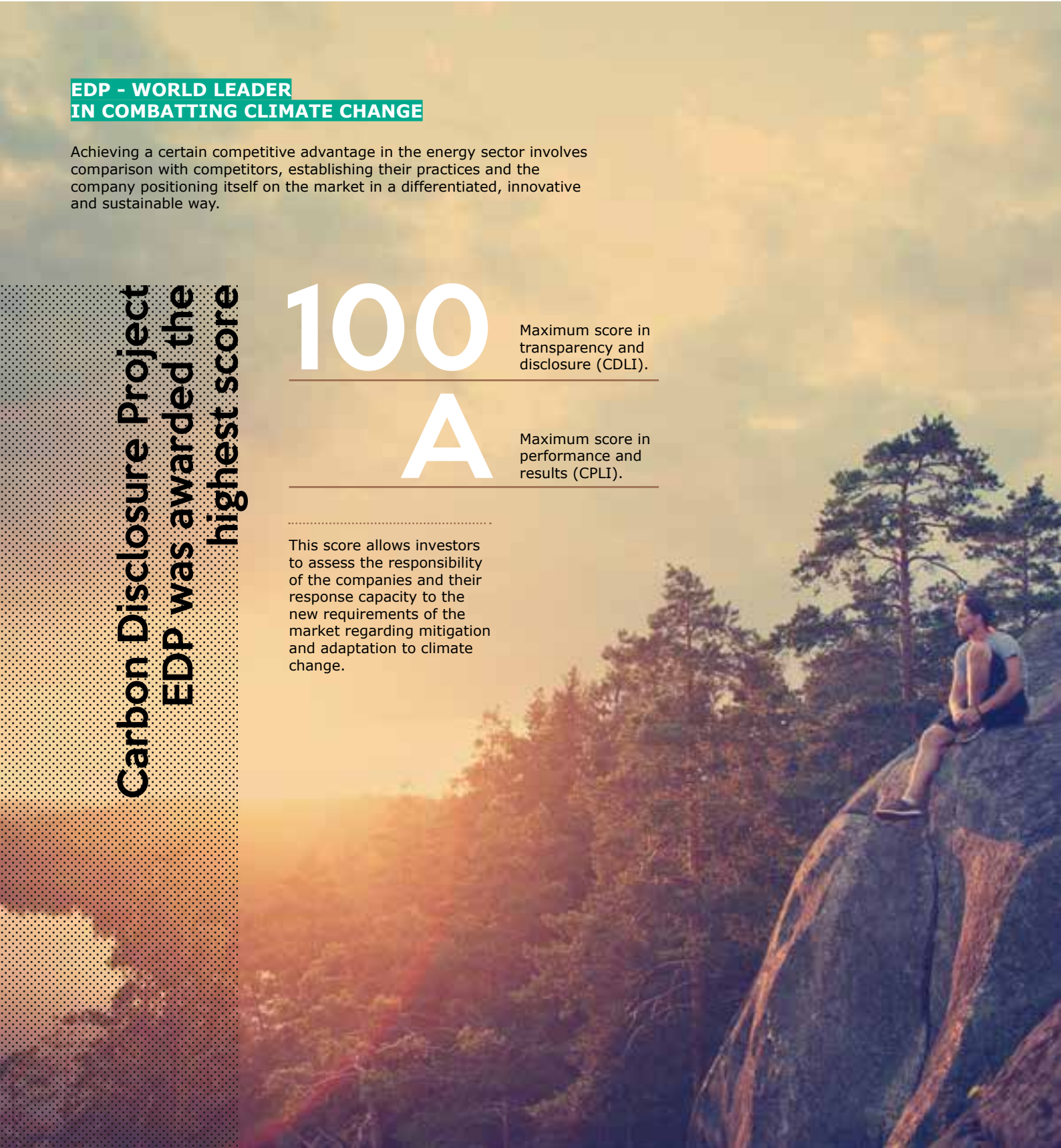
Maximum score in transparency and disclosure (CDLI).

# A

Maximum score in performance and results (CPLI).

.....

This score allows investors to assess the responsibility of the companies and their response capacity to the new requirements of the market regarding mitigation and adaptation to climate change.





**WHAT MAKES EDP SPAIN STAND OUT FROM ITS COMPETITORS?**



**PRODUCTION**

EDP Spain has a net total capacity, excluding wind power, of 3,787 MW with a diversified mix of technologies. Net production in 2015 was up 30% to 12,178 GWh.

**MARKETING ELECTRICITY AND GAS**

EDP has the largest percentage of dual gas and electricity customers in Spain, with over 2.2 million contracts, and 89% of its global electricity portfolio on the free market.

SHARE  
**7.7%**

ELECTRICITY SHARE  
**8.1%**



**GAS DISTRIBUTION**

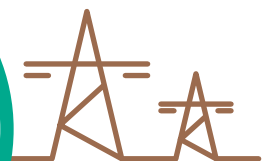
EDP Naturgas Energia has consolidated its position as the second natural gas distributor in Spain, with 27,093 GWh of gas distributed.

**ELECTRICITY DISTRIBUTION**

EDP HC Energía is the 4<sup>th</sup> national electricity distributor, with 9,168 GWh of electricity distributed.

SHARE  
**8.6%**

SHARE  
**3.7%**



**ENERGY  
WITH  
INTELLIGENCE**

SUSTAINABILITY  
REPORT  
2015



02

Driving new ideas

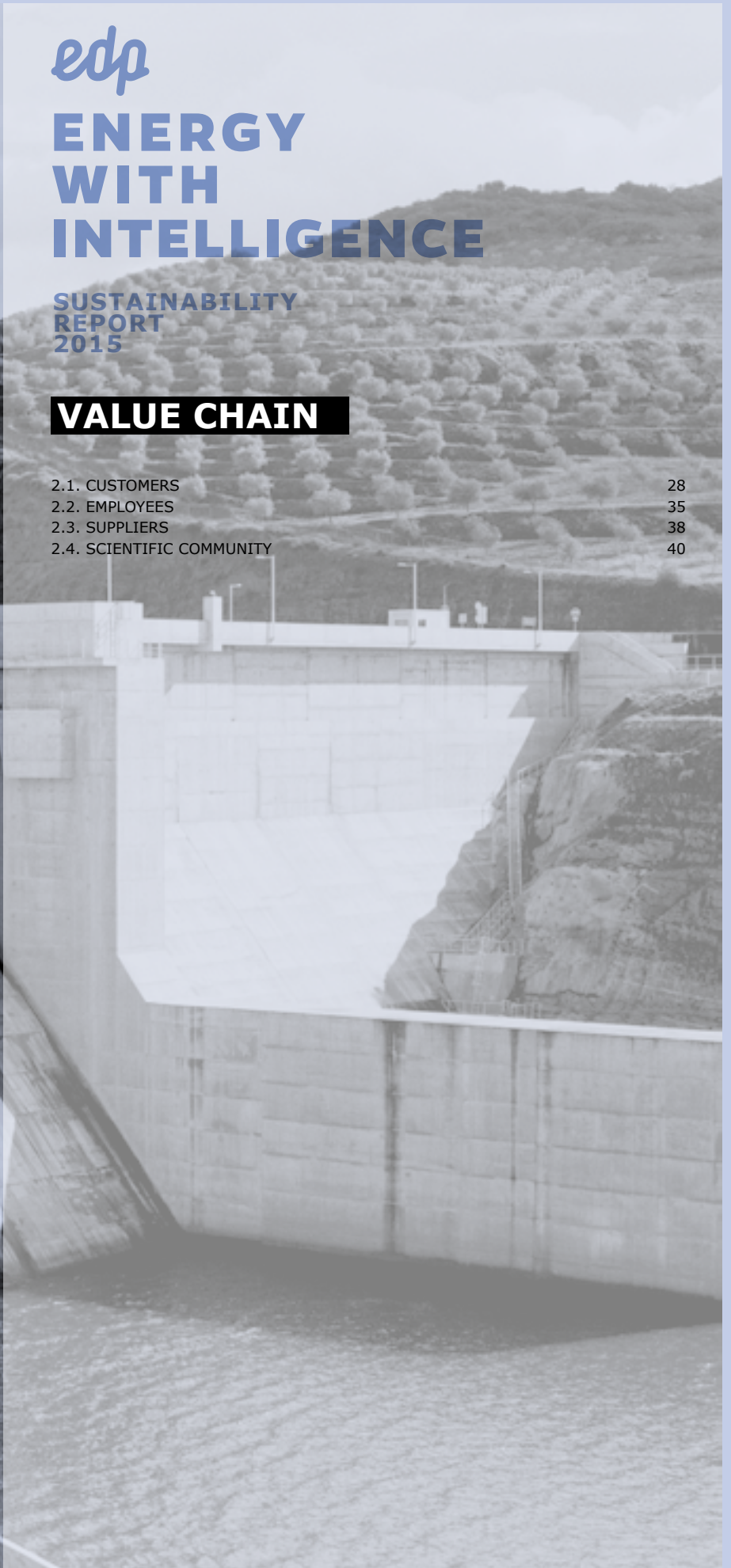
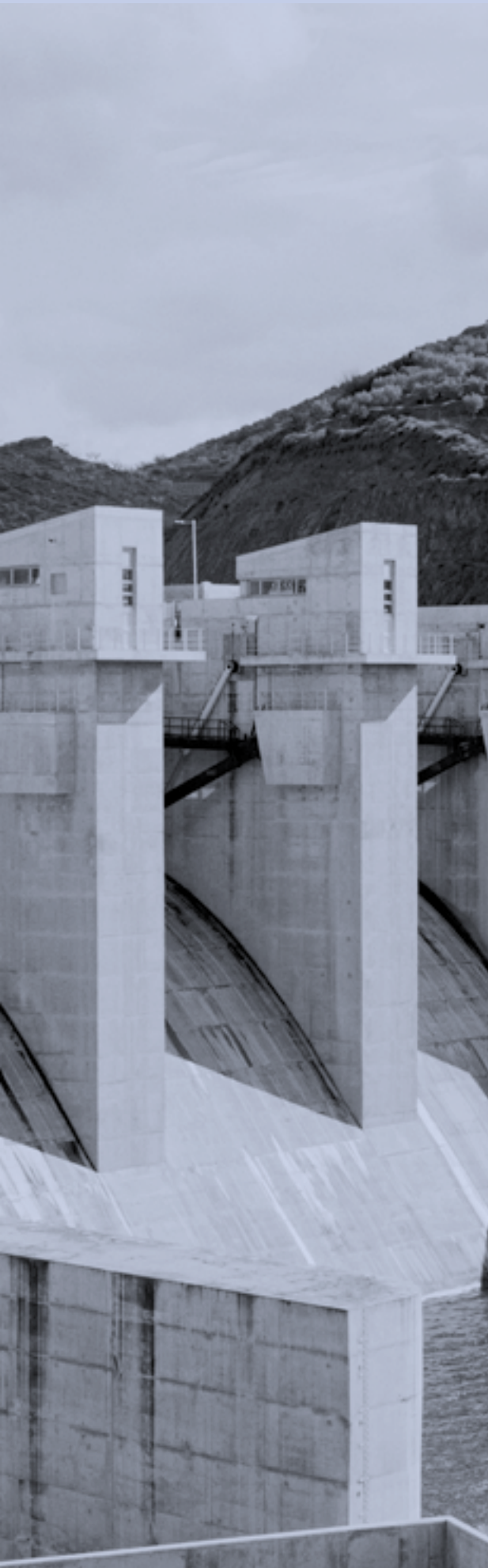


# ENERGY WITH INTELLIGENCE

SUSTAINABILITY  
REPORT  
2015

## VALUE CHAIN

2.1. CUSTOMERS	28
2.2. EMPLOYEES	35
2.3. SUPPLIERS	38
2.4. SCIENTIFIC COMMUNITY	40



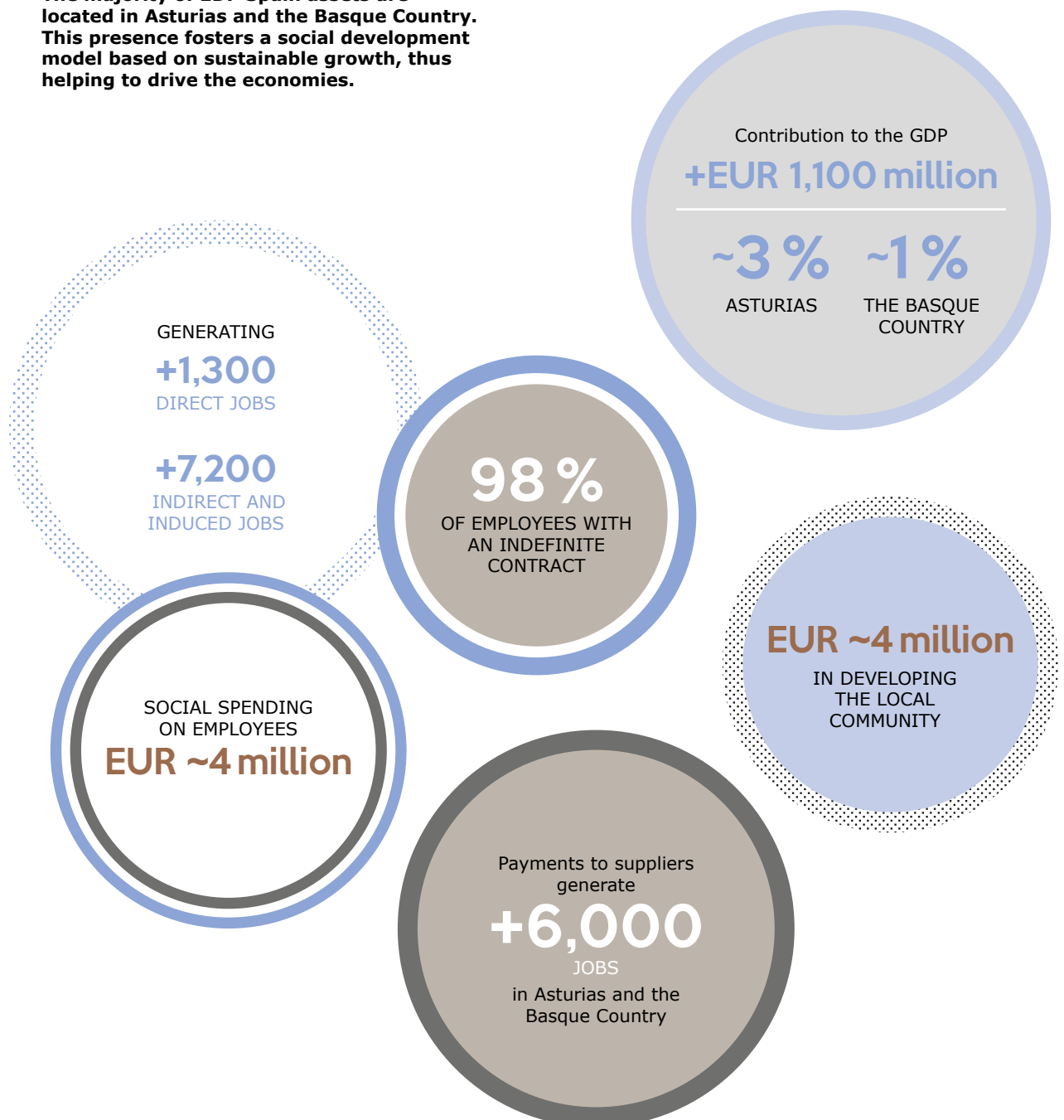
**ENERGY  
WITH  
INTELLIGENCE**

SUSTAINABILITY  
REPORT  
2015

## 02 VALUE CHAIN

CUSTOMERS, EMPLOYEES, SUPPLIERS AND THE SCIENTIFIC COMMUNITY MAKE UP THE VALUE CHAIN OF THE EDP GROUP. CUSTOMERS, BY ACTIVELY DEMANDING NEW ENERGY PRODUCTS AND SERVICES, MOBILIZE THE EXPERTISE OF THE ASSOCIATES, DRIVE THE TECHNOLOGICAL DEVELOPMENT OF SUPPLIERS, AND FOSTER INNOVATION THROUGH THE SCIENTIFIC COMMUNITY.

The majority of EDP Spain assets are located in Asturias and the Basque Country. This presence fosters a social development model based on sustainable growth, thus helping to drive the economies.



## 2.1. CUSTOMERS

EDP has segmented its customers into two large groups and defines different strategies for each of them:

# B2B

LARGE VOLUME CONSUMERS

## 19,422

Electricity consumers

## 5,563

Gas consumers

# B2C

BUSINESS AND HOUSEHOLD CONSUMERS

## 992,519

Electricity consumers

## 831,105

Gas consumers

**EDP WISHES TO BE SEEN AS A RESPONSIBLE, FAIR, DYNAMIC AND APPROACHABLE COMPANY.**

In this context, EDP offers its customers a broad range of channels, products and services, with the emphasis always being on the greatest **efficiency**.

OUR AIM IS TO OFFER TAILOR-MADE SERVICES FOR CUSTOMERS, WHILE GUARANTEEING THE EFFICIENCY OF THEIR FACILITIES

### **APPROACHABLE**

**Because it is a company that looks after its customers, talks their language, listens to them, counts on them, and, above all, is sensitive to their needs.**

#### **B2B Customers**

- /// Solar Heating Plan
- /// Climate Control Plan
- /// Renewal scheme for DHW (Domestic Hot Water) boilers and heaters

#### **B2C Customers**

- /// Building services to optimise domestic hot water and heating facilities
- /// Micro-generation facilities and solar thermal panels

THE AIM IS TO  
ADAPT VALUE ADDED  
SERVICES THAT ALLOW  
CUSTOMERS TO BE  
MORE EFFICIENT AND  
OBTAIN FINANCIAL  
AND/OR ENERGY  
SAVINGS

### **DYNAMIC**

**Because it is capable of using different channels to get its message across in a proactive and expeditious way, it provides advice focused on savings, and it innovates to offer the best solutions.**

#### **B2B Customers**

- /// Assess your consumption: take the online test to learn more about energy consumption
- /// *Powerhome*, an appliance that enables the contracted power to be optimised to the minimum needed, which fosters energy saving
- /// *Funciona*, the maintenance services for gas and electric facilities and household appliances
- /// Energy certification

#### **B2B Customers**

- /// *Óptima +*, a service to manage and optimise energy consumption
- /// Management of individualised consumption of a facility, machine or section
- /// *Integra Electricity and Integra Gas* for the maintenance of transformation centres (TC) or gas regulation and metering stations (ERM)
- /// Efficient lighting
- /// *Save to Compete*, implementation of energy efficiency projects for large corporations
- /// Specific projects for the renewal and optimizing facilities, climate control, change of voltage, etc.

### **FAIR**

**Because it treats as equal those who are equal, always sides with the person who is right, and apologizes when it is in the wrong.**

#### **B2B Customers**

- /// EDOnline
- /// Newsletters, with sustainability, efficiency and savings tips
- /// E-billing

#### **B2B Customers**

- /// Energy and Company Newsletter

### **RESPONSIBLE**

**Because it generates wealthy by using the planet's resources in a responsible way, it looks after the environment, and works with cultural and social entities.**

#### **B2B Customers**

- /// Responsible points, which the customers can donate to NGOs and solidarity projects
- /// Efficient homes: website service where customers can find household safety, efficiency and savings tips
- /// Source of the energy: 100% of the supply of all B2C customers come from highly-efficient cogeneration and renewable energy sources

#### **B2B Customers**

- /// Sustainable mobility: fostering the use of alternative energy vehicles (VEAS), along with the setting up of gas stations and charging stations

# THE RELATIONSHIP WITH THE CUSTOMER IS RAPIDLY CHANGING AND THE ENERGY SECTOR IS NO EXCEPTION.

# 1

## CUSTOMERS ARE INCREASINGLY MORE DEMANDING

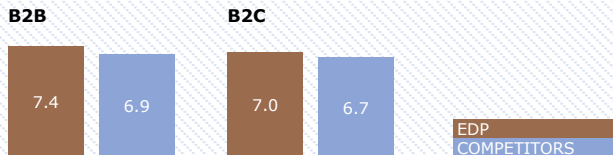
There are increasingly more customers that opt to select products or services based on the information available online, and what is more, they also generate their own contents based on personal experience with the purchase. We are dealing with a new concept of a customer who is increasingly more demanding and with a great impact on the brand's online reputation.

### JAVIER SÁENZ DE JUBERA ÁLVAREZ Commercial and Corporate General Manager

In 2015, EDP continued at the head of the customer satisfaction rankings in Spain. Thus, our Gijón Call Center repeated the success of 2014 and was again the best Spanish Call Center among those that receive over 1.2 million calls per year. We also embarked on the project to improve the in-person service at our Commercial Offices, which has resulted in lower waiting times and in better quality of service according to the customer surveys.

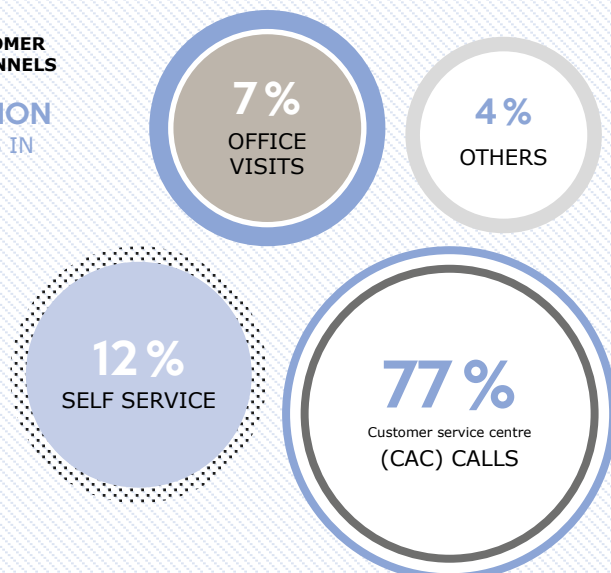
In this regard, we will continue to progress in 2016 with a new design for all our Commercial Offices, which will also have a new location in an important number of cities to make them more accessible to our customers. On the other hand, we will continue to **reinforce the digital channels to adapt to the requirements of an increasingly more significant part of our customers.**

### 2015 AVERAGE OVERALL SATISFACTION



### MIX OF CUSTOMER SERVICE CHANNELS

2.8 MILLION OPERATIONS IN 2015





We are  
the most highly  
rated company  
by its customers

# 2

## AN EVER MORE COMPETITIVE MARKET

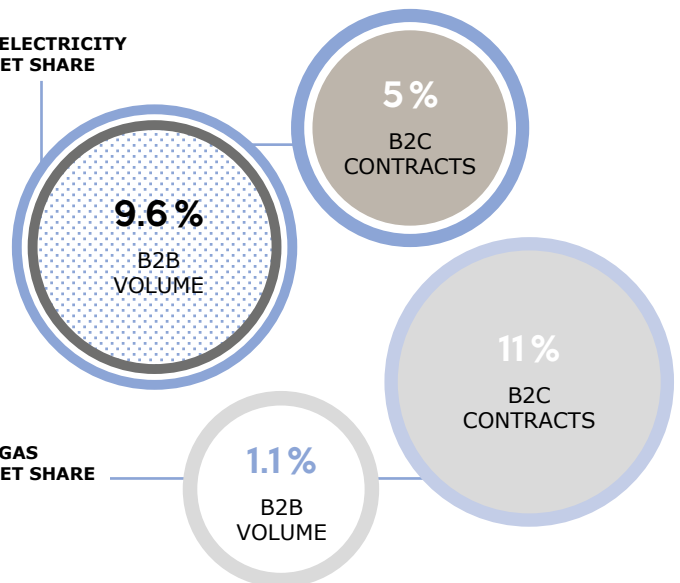
Changing market conditions has been a constant in customer management since the market was deregulated.

The commitment to a dual gas and electricity package, together with the range of value added services, has become a hallmark of the company's commercial management.

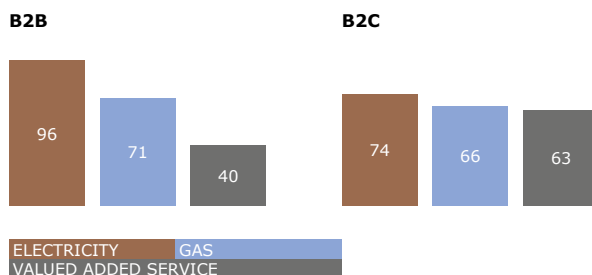
### JAVIER FLÓREZ FERNÁNDEZ B2B Sales Director

EDP focuses on two clear areas of differentiation from its competitors for all its B2B customers: personal attention for each customer and offering a wide range of products and service to guarantee that their needs are met. This strategy allowed EDP, in B2B, to grow in market share in 2015, where it obtained customer satisfaction and loyalty ratios higher than those of our competitors. **We want to be the most highly rated energy company by its customers.**

#### 2015 ELECTRICITY MARKET SHARE



#### 2015 BRAND AWARENESS



400,000  
smart meters  
installed

3

### TECHNOLOGY IS EVOLVING AND IS INCREASINGLY MORE ACCESSIBLE

The challenge facing companies today is to use the technology resources and turn the need for change into a business opportunity. Year after year, EDP stands out for its leadership in supply quality, a challenge which now includes the smart and efficient management of the networks.

#### MASSIMO LUCIO ROSSINI Network and Corporate General Manager

*In 2015, the activities of the two distributors of the EDP in Spain Group focused on ensuring increasingly better indicators of operational efficiency, specifically by means of rigorous management of the OPEX costs and of investment projects.*

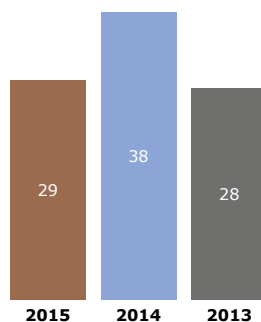
*HC Distribución and Naturgas Distribución also managed to achieve, at the same time, **the best indexes regarding the supply quality to the users of their distribution networks, thanks to the essential input of their contractors.***

*As regards electricity distribution, the launch of the InovCity project has been agreed in Pola de Siero, where the installation has been completed of the whole system to remotely manage consumption and other components of the system (photovoltaic generation, street lighting, supply to electric cars, remote control of local council buildings). Over 400,000 smart meters have so far been installed in our grids and this means we are ahead of the set targets.*

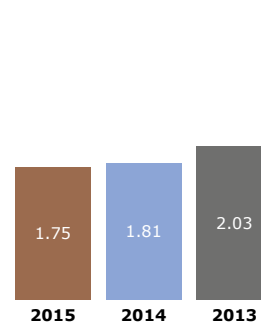
*Naturgas Distribucion has focused its development and growth on acquiring Reposl LPG assets in the areas where it operates (the Basque Country, Asturias and Cantabria) and the operation to integrate that activity will be implemented during 2016.*

*The Regulated Business unit team continue to fulfil their commitment to the Corporation, the local communities and our customers.*

**TIEPI (equivalent time interruption of installed power) EVOLUTION AT EDP SPAIN (minutes)**



**SUPPLY CONTINUITY INDEX (minutes of interruption per supply point and year)**



# 4

## NEW BUSINESS MODELS THAT CHALLENGE THE CURRENT STATUS

The new technologies have led to a new customer relations model. Each minute counts, nobody wishes to queue or wait, and least of all not have their query dealt with by phone. Customers want information in real time. Therefore, the setting up of new communication channels and a greater self-service capacity are fundamental in the new business model.

**32% B2C customers registered with EDPonline**

## DIGITALISATION MAINSTREAMING PROGRAMME

EDP has launched the Digitalization Mainstreaming Project, which is being implemented through mainland Spain and Portugal and whose goal is to strengthen the digital relationship with the Group's customers.

After its first phase was underway in Portugal, it started in Spain in early 2015 and its sphere includes both B2B segment customers (Corporations and Companies) and the B2C segment (Households and Businesses).

### The project implementation is based on four levers:

- Incentivising customers to adopt a more digital relationship with the company, by means of offering better rates, campaigns, contests...
- Incentivising channels and operators to promote the digital relationship.
- Ensuring the quality of the data and the possibility of virtual communications (eliminating the paper format).
- Measuring the contribution of each lever and making the organisation aware of the importance of digitalization.

EDP Spain has embarked on this project with two very important potentials: the existence of the customer area on the commercial website (EDPonline) where customers can manage their contracts, and e-billing; and the driving of both initiatives together with the incorporation of email addresses to the customer databases are the three priority goals, whose initial results can already be seen:

**At the end of 2015, 32% of B2C customers (around 400,000) registered in the EDPonline customer area, and 23% of customers with e-billing.**

### EVOLUTION OF THE CHANNELS



## E-METERS AND SMART GRIDS

In 2007, the obligation was introduced to replace all the residential customers' meters (power under 15 kW<sup>9</sup> with more modern ones that allow remote management. The deadline to complete this was set as the end of 2018. This legal obligation will mean an investment of over EUR 50 million for EDP HC Energía (the distributor of the EDP Spain Group).

The remote management of the meters will allow consumption to be read remotely, along with changes to the contracted power, tariffs and disrupting/restoring the supply. There are three key aspects of the remote management system: first, the meters themselves; second, the hubs, i.e., equipment installed in the transformation centres that can be used to communicate and collect information from the meters using the electricity grid for the communication process, thanks to PLC (Power Line Carrier) technology; and, third, an IT system that connects those hubs and stores the information gathered to make it available to other systems of the company, such as the billing system of the grid management system.

Furthermore, the whole remote management system requires constant supervision that guarantees communication between the different elements and their correct functioning. The huge volume of information and the need to develop new systems and applications makes the role of information technologies essential for the success of the project.

The new electronic meters alone improve and make the meter reading more efficient. However, EDP Spain wanted to go much further in the use of this new equipment and searched for applications that allow the services to be improved. It therefore created the InovGrid Department in 2013, which focuses on searching for and developing new ways of

IN 2018  
**+650,000**  
SMART METERS

exploiting the grid, particularly the low voltage one, and on creating new services for the customers. These include detecting and locating failures in the medium and low voltage systems and the development of a website where customers can find their load curve.

**The European Union's 20/20/20 challenge for 2020 (20% cut in greenhouse gas emissions, 20% improvement in energy efficiency and 20% of EU energy from renewables) profiles a new electricity grid that, compared to the traditional challenges based on service quality and operational efficiency, will be facing three new challenges:**

- An increase in the distributed generation, i.e., many small generation sources, located near to consumption points, which will be injecting low voltage energy in the grid in an intermittent and unpredictable manner.
- An increasingly more relevant role of energy efficiency, which will mean a greater demand for information on electricity consumption by the customer.
- Incorporation of the electric vehicle, which even though it continues to be an additional consumption in the grid, its large-scale appearance will condition the development of current electric grids.

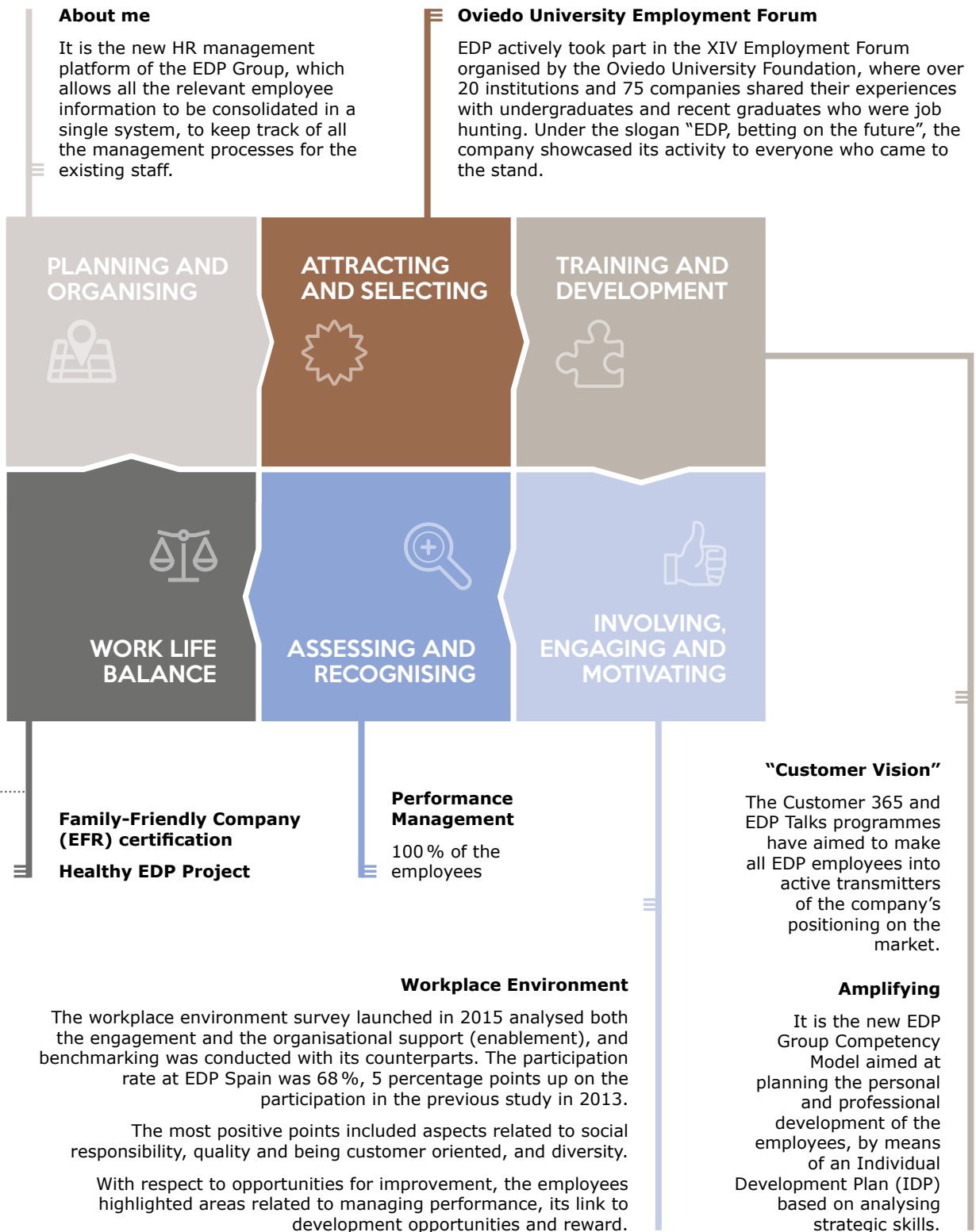
The European challenges for 2020 are now endorsed and driven by the appearance of a new figure, the "prosumer", which is a more aware and demanding user, who is more active and more committed both regarding distributed generation and efficiency in its consumption.

IN 2018  
**+6,500**  
HUBS  
**96 MILLION**  
DATA A DAY

In this context, the smart grids emerged, which are taken to be the smart electricity networks that will have to be capable of supporting an electricity system with a large number of producers and a large number of consumers with different consumption habits. This all requires a great deal of information at the appropriate time that allows the grid to be managed. Therefore, a greater number of information collection points will be necessary, along with a system managing it, and which allows better use of the existing assets. EDP Spain has always been committed to developing information systems to manage the network and it therefore has a very high degree of automation in the high and medium voltage grids. Our current challenge is to use the deployment of the smart meters to provide the low voltage network with the necessary equipment to ensure its optimum management and thus progress on the right track regarding smart grids.

## 2.2. EMPLOYEES

The Human Resources strategy of the EDP Group seeks to foster the professional and personal development of the employees, in keeping with the corporate values and the creation of share value (Company-Employee binomial). Its implementation is through the culture of the Group, the hierarchy, the professionalization of the functions and of the employee itself, based on the management cycle of human capital:



**1,510** EMPLOYEES

25%  75% 



**42**

AVERAGE AGE OF  
THE WORKFORCE

**99.9%**

EMPLOYEES ON  
PERMANENT CONTRACTS



## TRAINING



**+50,000** HOURS

**+11,200** PARTICIPANTS

EMPLOYEES WITH RIGHT  
TO PATERNITY/MATERNITY  
LEAVE

**34**  **24** 

100% taking leave and returning to their job. Maternity leave includes an additional 15 days prior to the due date. Two days' extra on top of the legally establish paternity leave.



**+EUR 3 million**

PENSION PLAN  
CONTRIBUTION

### FÉLIX ARRIBAS ARIAS Human Resources, Finances and Administration Director

*In 2015, we worked on developed the most advanced policies as a family-friendly company, by consolidating the integrated vision of the **EFR model for EDP Spain** and fostering an efficient extension of the EFR culture in the value chain. Special mention should also be made of the designing and development of the **Healthy EDP project** to encourage healthy habits among the employees; implementation of this initiative will be one of the most notable challenges for 2016.*

## THE FAMILY-FRIENDLY (EFR) MODEL

The EFR model is in response to a new work culture that strengthens and transmits the image of engagement with the employees and society, as well as being a good employer, which is all in keeping with innovation and flexibility concepts. It drives the improvement of the reputation and brand, attracting and retaining talent, competitiveness and attracting socially responsible investment.

**The 2015/2016 EFR initiatives, apart from consolidating the EFR model for EDP Spain and by extension to the value chain, assume the following objectives to:**

- /// Drive a merit culture and results (performance management).
- /// Highlight the conciliation measures.
- /// Improve the company-employee internal communication.
- /// Foster healthy habits among employees.

## HEALTHY EDP PROJECT

The healthy EDP project is based on three fundamental pillars: nutrition, sport and health, and will be implemented throughout 2016/2017 by means of different schemes.

- /// Nutrition includes all the actions aimed at improving and maintaining correct nutrition that guarantees improved health and wellbeing.
- /// Sport covers the actions aimed at promoting the benefits of doing sport among employees.
- /// Prevention will include actions to foster the prevention of diseases and thus consolidate the health and wellbeing of the employees.

## HEALTH AND SAFETY

In 2015, we reinforced the measures aimed at improving the health and safety management and organisational aspects, both for EDP Spain Group companies (electricity and gas divisions) and for the partner companies that provide their services at our centres and premises. The perimeter of group companies holding OHSAS 18001 certification has been widened and now stands at 100% both in the electricity and gas divisions.

EDP Spain aspires to attain the level of excellence in this area, to position itself at the head of the energy sector. Therefore, the emphasis has been on assessing the level of the preventive culture in the organisation, the status of the improvement actions underway and the establishing of other new ones, partly arising from a sectoral comparative study which has been conducted to compare the management level of the company with other leading companies.

On the other hand, the final touches are being given to the design of the Crisis Management and Business Continuity in EDP Spain plan, integrated with the Critical Infrastructures Plans - overseen by the Spanish Ministry of the Interior - and with the self-protection and internal and external emergency plans for our centres and facilities.

As main objectives for 2016, the Improvement Measures Plan 2016-2017, arising from the benchmarking study, will get underway, and the aim is to ensure the Crisis Management and Business Continuity in EDP Spain is totally operational.

“Zero  
accidents”  
TARGET

## BENCHMARKING REGARDING THE MANAGEMENT OF HEALTH AND SAFETY AT WORK

In 2015, EDP Spain conducted a sectoral comparative study (benchmarking) on the management of Health and Safety at Work, which included all the companies making up the Group. As regards the electricity division, it contrasted and extended the similar study conducted in 2009, while it was the first time an analysis of these characteristics had taken place in the gas businesses.

### The objectives of the study were to:

- ⚡ Analyse the management and organisational aspects of the prevention of occupational risks implemented in EDP Spain.
- ⚡ Update some aspects of the equivalent study conducted for the electricity division in 2009.
- ⚡ Assess the degree of implementation of the improvement actions proposed for that year.
- ⚡ Apply the study to the Naturgas Energia companies that, since 2014, are part of the EDP Spain Joint Prevention Service.
- ⚡ Evaluate the preventive culture.
- ⚡ Propose areas for improvement in the short- and medium-term.

### PREVENTIVE CULTURE

The safety culture has been assessed according to the following two areas: (a) analysis of the management and organisational aspects in controlling prevention and (b) the perception that the organisation has of prevention in the day-to-day performance.

The internal review phase included the executive examination of the system to manage the Prevention

of Occupational Risks that we have in place and the obtaining of direct information, that took place by means of the safety culture questionnaire (CUSEG) and personal interviews with the management committee, directors, heads and managers in the chain of command. In total, over 200 questionnaires were completed and 61 interviews held.

Both in the electricity and gas businesses, the opinion of the participants in the study regarding aspects making up the safety culture (organisation/management and perception) was positive. The scores obtained were 2.13 and 2.03, respectively, on a scale of 1 (best score) to 5 (worst score).

**These results reflect that safety is embraced at EDP Spain as a company value, where the safe habits and behaviour are put into practice.** They likewise suppose that there are expertise, engagement and personal standards in safety in the organisation, and that the training is focused on the job and is run efficiently.

In this regard, it should be stressed that, in our operational areas, knowledge of the risk and the rules, along with the training and coaching are among the factors that have been particularly rated highly.

### BENCHMARKING

As regards the benchmarking, EDP Spain was in second place with 28 points, above the average of the sector at 24 points and only two points behind the highest ranked. The aspects where EDP Spain stood out from the other companies of the sector were coordination of business activities, monitoring preventive activity and the low accident rates.

## 2.3. SUPPLIERS

### **RAFAEL CAREAGA ARLUNDUAGA** *Director of Institutional Resources and Relations*

*In 2015, we began to operate with a single Management Manual and Procurement Manual for the whole EDP Group, in line with operating procedures and with the deployment of an updated version of the operating software (Sinergie V). This has all led to greater synergies and to better management of the information generated.*

*In the last quarter of 2015, we wanted to **discover the opinion of our most important suppliers**. Therefore, thanks to a survey, with a very high response rate, we could conclude that they feel very satisfied with their relationship with EDP Spain and rate it as a transparent and reliable company.*

*Our aim is not only for this degree of satisfaction and trust expressed about EDP Spain to continue in the future, but also to be improved. We have therefore defined a plan of action, on which we will embark in 2016, and which we will share and execute together with our suppliers.*

### EDP SPAIN SUPPLIER SURVEY

The objectives of the relationship model with the stakeholders defined by EDP include establishing the perception of the stakeholders of the company, along with their opinion about aspects that they consider to be important in their interaction with the organisation. This is the way for them to integrate their expectations in the management of the Group.

In this line, a survey was conducted in 2015 with a sample of 126 EDP Spain suppliers, which obtained a global response of 60%. They included different types of suppliers (works and facilities, general services, and goods and products) from different business units (generation, electricity distribution, commercial, gas distribution and others).

The survey reviewed aspects of the EDP Spain relationship with its suppliers, the interrelation tools with them (such as the SINERGIE portal and RePro) were assessed and their perception of areas such as innovation, ethics, health and safety, the environment and sustainability is analysed.

**It was concluded that suppliers consider EDP Spain to be a reliable and transparent company. They feel very satisfied and rate EDP over the sector, fundamentally due to the mutual trust and the good relationship in the routine working with EDP Spain staff. However, they ask for better weighting of their technical capacity when awarding the work and the possibility to establish long-term agreements, the aspects were their satisfaction was lowest.**

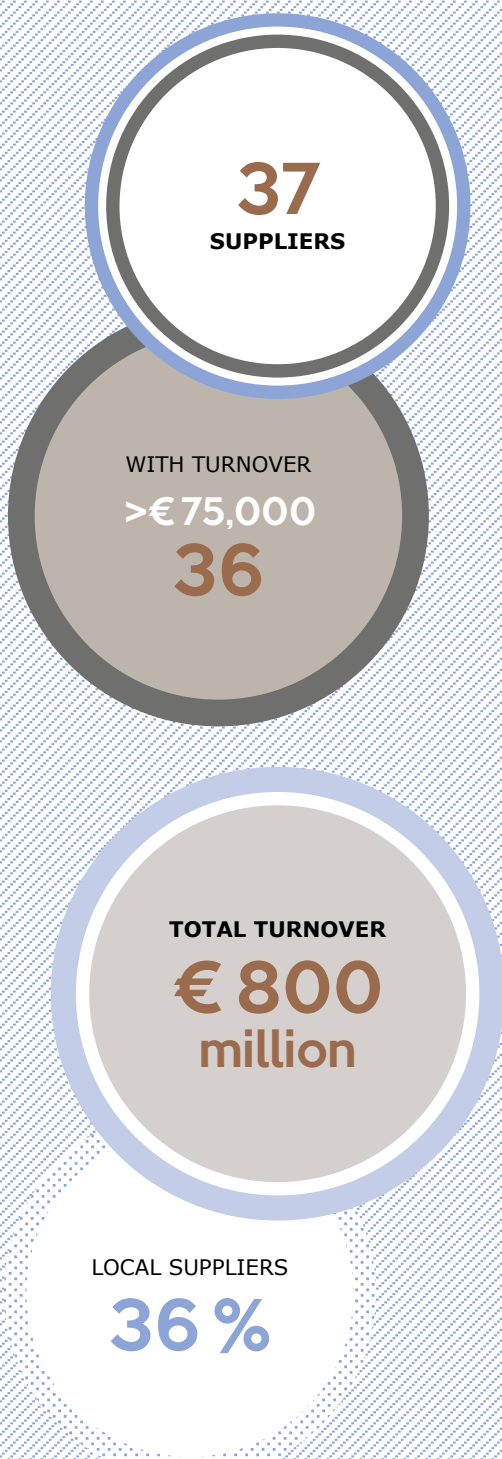
The SINERGIE tool is known and used by the suppliers and their use of it is considered to be correct, even though only 37% of them currently accept that the tool provides them with more collaboration opportunities with EDP Spain; as regards RePro, the majority of suppliers are registered and consider the requirements of EDP Spain to be high, even though they acknowledge that it facilitates participation in the Sector's tendering processes.

They rate the sustainability and environment as important factors in their relationship with the company, demanding more information and greater participation in training sessions on these areas.

Innovation when working with EDP Spain is considered as a key factor by nearly all the suppliers and even though they believe the company is innovative, only a small percentage believe that there are opportunities for cooperation in this regard. Health and Safety is equally important in their relationship with the company, an aspect where EDP Spain is considered to be demanding. Finally, the ethics code, which even though it is regarded very positively, requires greater dissemination: only 36% claim to be aware of the existence of the whistleblowing channel and express interest in better communication on its content and scope.



### FUEL SUPPLIERS



### OTHER SUPPLIERS

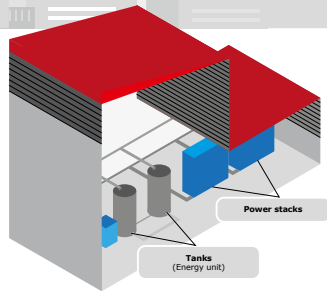


## 2.4. SCIENTIFIC COMMUNITY

EDP Spain includes the scientific community in its value chain as a stakeholder that helps to develop technological solutions that will allow our company to face the sustainable development challenges that the energy sector is facing.

### REDOX 2015 PROJECT

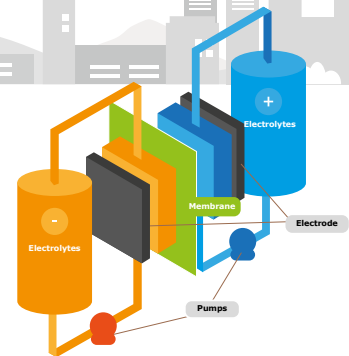
Development of a 30 kW Vanadium Redox Battery (VRB) with a 2.5 h storage capacity and operating tests of the battery connected to the LV grid to power the EDP offices in Gijón (Asturias).



#### The battery is formed by linking cells

This technology uses a liquid electrolyte stored in two tanks. It allows the power of the stored energy to be designed independently.

- Power = Cell voltage x current density
- The charging and discharging is produced in the electrodes by means of redox reactions.
- The current flows through a membrane.



### POWER STORAGE

When the sector professionals try to explain how the electricity market operates, we begin by making it clear that electricity that is produced at each instant has to be the same as the demand, as "electricity cannot be stored". But that is not exactly true, as it is technically possible to store electricity in batteries or using hydraulic pumping power stations. What happens is that those technologies are either not competitive compared to the use of grids to distribute electricity or they involve extremely costly investments at very specific sites (pumping power stations need two reservoirs instead of one). Therefore, storage technologies have only been used in very specific cases or in applications which cannot be powered by the grids.

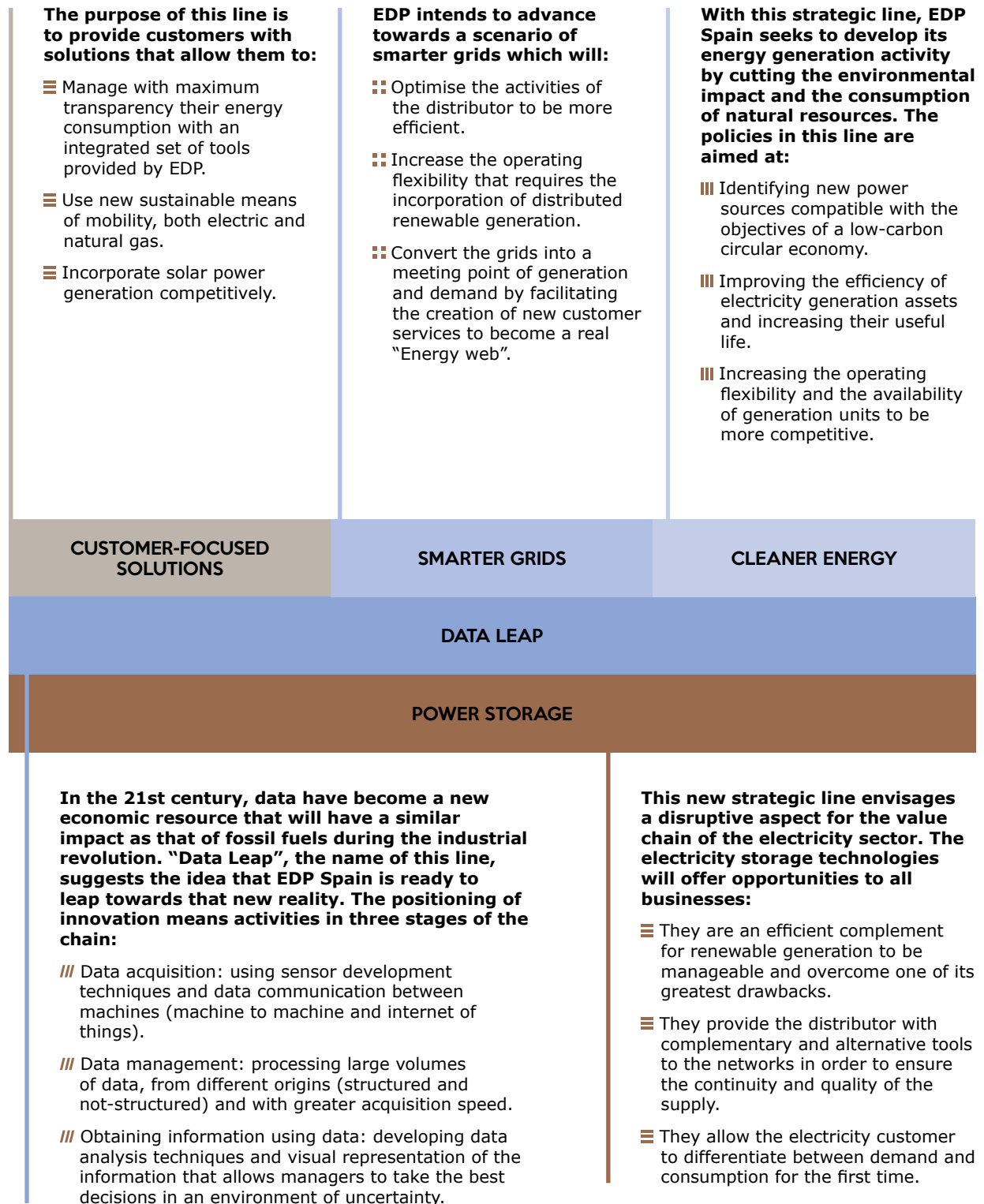
For 150 years, electricity supply and demand have been able to be matched without storage being needed. It is true that the electricity sector has had a chronic problem in managing demand (all customers consume electricity at the same time and we do not want to change our habits to save some euro cents). Yet the power generated using conventional sources (hydraulic, coal, natural gas) can be managed flexibly to meet demand.

This situation is going to change radically. In the 21<sup>st</sup> century, politicians and society are increasingly more convinced that electricity should be generated using renewable sources. Yet the supply of electricity generated from renewable sources cannot be managed flexibly (we do not have wind and sun available when we want it). Therefore now, apart from a problem of managing demand, we also have a problem of managing the supply and the only way to bring match both would be by resorting to storage. Schemes therefore appear to overcome the problems of storage not being competitive by means of endeavours in research and development.

The European Union has taken firm steps to support R&D&i when storing energy, set out in the Horizon 2020 framework programme. In 2013, the Spanish Government therefore decided that it was necessary to establish the capacity of the scientific community and of industry in Spain to develop these technologies. It therefore asked the Spanish Smart Grids Technology Platform (Futured), which had driven storage projects, to set up a working party to gather information on that capacity. Futured thus created the Energy Storage Interplatforms Group (GIA), led by EDP Spain, which has worked with over sixty entities of the scientific community and of Spanish industry.

The GIA has already produced an initial document on the state-of-the-art of the storage technologies and it publishes on the Futured website a list of R&D&i projects and of entities with capacity to participate in new projects.

The EDP Spain R&D&i activities are structured by means of an innovation strategy based on five strategic lines, three of which are in line with the marketing, distribution and generating businesses and the other two deal with cross-cutting aspects common to all businesses.



**ENERGY  
WITH  
INTELLIGENCE**

SUSTAINABILITY  
REPORT  
2015



03

Lines opening up new horizons



*edp*

# ENERGY WITH INTELLIGENCE

SUSTAINABILITY  
REPORT  
2015

## DEMOCRACY

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**ENERGY  
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## 03 DEMOCRACY

**“DEMOCRACY” INCLUDES STAKEHOLDERS SUCH AS PUBLIC AGENCIES AND REGULATORS, PARLIAMENT AND POLITICAL PARTIES AND INTERNATIONAL INSTITUTIONS, ALL WITH A FUNDAMENTAL ROLE IN DEFINING THE GAME PLAN FOR THE ENERGY MARKETS.**

### 3.1. REGULATION IN THE ENERGY SECTOR

**SANTIAGO BORDIÚ CIENFUEGOS-JOVELLANOS**  
*Regulation Director*

*A stage of reforms in the energy sector was completed in 2015, whose most outstanding consequences is that the **electricity tariff surplus** has been reached for the second year running and the gas tariff deficit is practically resolved. Furthermore, particularly noteworthy during this last year has been the approval of rules such as the **regulation of self-consumption**, hourly billing for the consumers signed up to the Voluntary Price for the Small Consumer, the **natural gas organised market in mainland Spain and Portugal**, the distribution of the cost of the electricity rate subsidy (bono social) or the regulation of the remuneration for the electricity distribution for the period 2016-2019. The progressive legislative convergence with Europe continues to advance resolutely. The coming years can be faced with optimism after this difficult stage where the remuneration cuts, new charges and taxes and hard market conditions have been successfully overcome.*

#### THE END OF THE ELECTRICITY TARIFF DEFICIT

In 1997, the Electricity Sector Act 54/1997 was passed in order to foster greater liberalisation and competence in the electricity sector and to incorporate the European provision regarding electricity into our legal system.

However, that legislation has proven to be insufficient over time to guarantee the financial balance of the system, among other reasons, because the methodology to remunerate the regulated activities lacked the necessary flexibility to adapt to changes in the system or to the evolution of the economy, characterised by the high level of investment in distribution and transport networks, the high penetration of the generation using renewable resources, the evolution of the electricity wholesale market (appearance of new agents and greater complexity in the offers), the appearance of an excess capacity in the gas combined cycle thermal power stations...

An annual imbalance thus emerged between revenue and costs of the electricity system, i.e., between the real cost of the electricity supply and the price paid by the consumers, which stood at the figure of EUR 27,000 million and which is known as the tariff deficit.

The 24/2013 Act (repealing and replacing the initial 54/1997 Act) sought to eliminate once and for all this tariff deficit, by avoiding continuous legislative changes and contributing stability to the electricity sector. Pursuant to this legislation, reforms were undertaken regarding the revenue and costs of the electricity system that have managed to return to financial sustainability.

**In 2014, there was a tariff surplus of over EUR 500 million, which would be even higher in 2015**

## IN FAVOUR OF SELF-CONSUMPTION

**The self-consumption decree passed in November clearly addressed for the first time in Spain the situation of those consumers that have a generation facility (a photovoltaic panel, a gas turbine...) within their internal network and who generate electricity for their own consumption.**

The decree is polemic regarding its economic system. It deems appropriate that self-consumers pay less in their bill for the grid that they cease to use, as they demand electricity from the grid, but it is not deemed appropriate that they stop contributing to other security of supply and energy policy costs included in the electricity bill. These other costs include: premiums on renewables, solidarity with insular consumers, amortization of the tariff deficit from previous years, the costs which REE incur to keep the balance between generation and demand (as electricity has to be generated at the very time it is consumed), etc.

For the self-consumer, who continues to benefit from the security of supply of the electricity system, to reasonably contribute to those costs, the decree created the "self-consumption charges" (colloquially mistakenly dubbed the "sun tax"), which are calculated according to total consumption.

The aim is to avoid a consumer demanding 100 GWh a year, but who self-consumes 95%, having to pay the same for the security of supply as the other consumer of 5 GWh that does not self-consume. It has to be taken into account that if the photovoltaic panel or the turbine fails, the grid gives self-consumers the guarantee that they are going to be able to continue consuming 100 GWh, and the charges are then calculated according to the total consumption.

However, the legislation envisages different exemptions. If consumers are physically disconnected from the electric system, they do not pay any charge as they do not benefit from the security of supply of the system. And neither do they have to pay anything as self-consumers up to 10 kW of power with a non-modulable generator (photovoltaic or wind).

Another issue that has raised comments about the decree is regarding the surplus. What happens if self-consumers generate more than they need at any time? The general legislation on incorporating production to the grid would require that surpluses to be sold on the electricity market according to the same rules as any other generator.

However, self-consumers of up to 100 kW are allowed to discharge energy to the grid without the need for any formality, even though no compensation for this energy delivery is defined. They are opinions that claim that a "net balance" is needed, i.e., that those surpluses are returned to the self-consumers when they need it. However, it would therefore be necessary for the decree to establish who and at what price that service would be provided. The current lack of regulation is an incentive not to oversize the generation facility and for it to be in line with consumption needs.

Those controversial aspects may surely be likely to be reviewed by future Government, but in any case, it is a positive thing that a legislative framework exists that allows serious steps to be taken for self-consumption to gain importance in the development of the energy sector in the medium term.





## WHAT IS A GAS HUB?

**The gas hub is an organised gas procurement market, similar to a stock market, and very similar to the electricity procurement market that has been operating in Spain since 1998. Such a market has been launched on the Iberian Peninsula in the last year.**

The transfer of gas products, performed anonymously, takes place on an electronic market run by an authorised manager, with virtual transactions, without identifying buyers or sellers, but with public trading prices.

The European experience of the hubs in the United Kingdom, the Netherlands, Germany, Belgium, France, Italy and Austria, shows that they have created more competitive prices, and a transparent and flexible system that allows opportunities to be seized.

Gas contracting in mainland Spain and Portugal has so far been mainly performed bilaterally, often using private brokers. When the gas trading at the hub is developed and has sufficient liquidity, more markets will appear, trading on longer horizons and financial markets.

An important consequence of the development of this market will be to move from an oil-indexed price, as has been the case so far, to new benchmarks that can correctly reflect the supply and demand situation on the Iberian Peninsula.

# hub

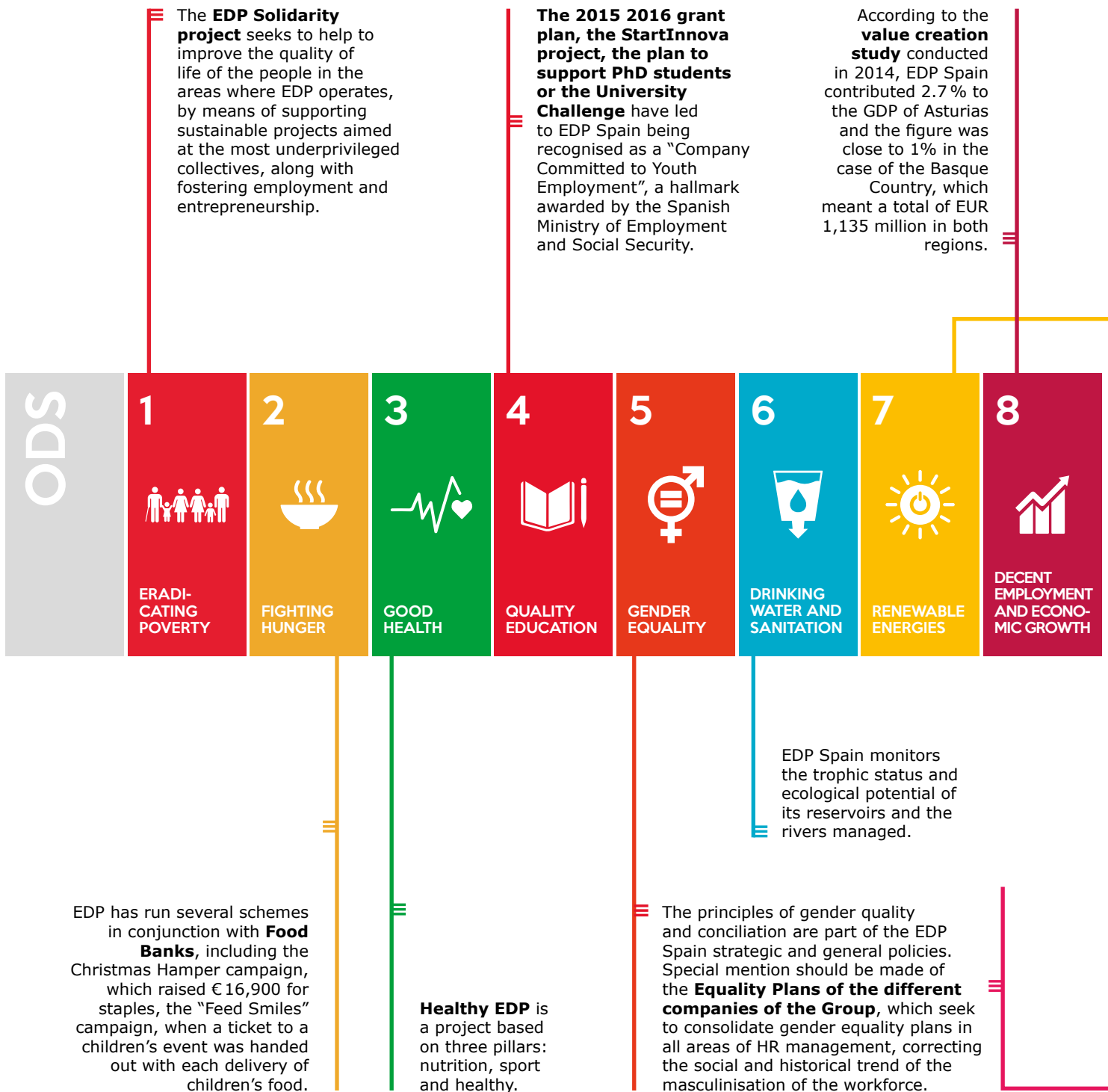
**The hub will allow the market to be more flexible, give a signal about pricing to new buyers and sellers and introduce competition to the currently established supplies, both as regards selling and demand, aspects that will undeniably benefit the consumer.**

There have been many marketers on the Spanish market up to now, but the most of the volume is traded by just a few, who contribute the majority of the "physical gas" to the system, gas that is sold to consumers by means of bilateral contracts, on the basis of one-two year durations, with prices indexed to oil prices, and only known by the marketer and the purchaser.



## 3.2. THE EDP COMMITMENT TO SUSTAINABLE DEVELOPMENT GOALS

In September 2015, the World Summit on Sustainable Development was held, where the UN General Assembly adopted the 2030 Agenda for Sustainable Development. This 2030 Agenda sets 17 goals, known as the Sustainable Development Goals (SDGs), which have replaced the Millennium Goals, defined in 2000, and reached or implemented in an unequal and incomplete way, partial successes and unwavering failures.



The 2015 annual budget on R&D&i in electricity and gas was over EUR 1.1 million, mainly aimed at new sustainable solutions and services for the different stakeholders.

As regards sustainable cities, **Pola de Siera has become the first Inovcity** that the EDP Group has got underway in Spain.

EDP Renewables is tasked with developing energies from renewable sources and there are 9.6 GW of installed capacity in 10 countries.

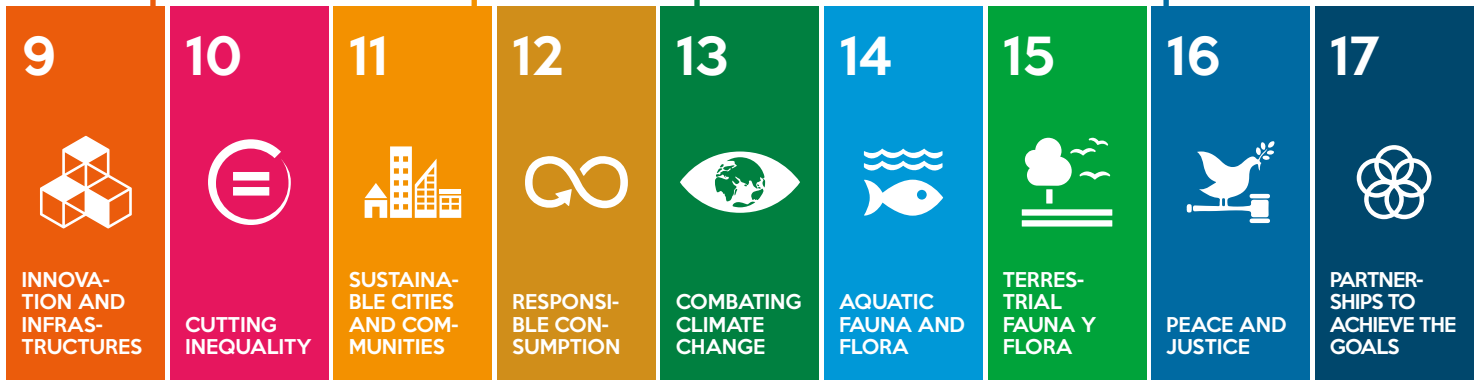
**The quality and security of supply are fundamental in the regulated businesses of distributing electricity and gas**, where EDP HC Energía and EDP Naturgas Energia continue to lead the market.

Access to energy by the most underprivileged collectives is also guaranteed, with **over 60,000 customers covered by the electricity rate subsidy [bono social]**.

For the fifth year running, EDP has been named as **one of the most ethical companies of the world** by the Ethisphere Institute, out of a total of 131 selected companies.

The Group's Code of Ethics specifically prohibits any types of violence, along with ending abuse, exploitation, trafficking and torture of children, and guaranteeing equal access to justice.

The EDP Group's main contribution to achieving the SDGs is 5 commitments to combat climate change being included in its strategy, and already on a local scale, EDP Spain is helping to combat climate change by **recovering energy from residual gases from the iron and steel industry**.



EDP has an extensive **portfolio of sustainable services and products** to encourage sustainable and responsible consumption by its customers (see *Value Chain*).

In 2015, the Group earmarked **over EUR 56 million for spending and investments related to improving and protecting the environment** in addition to the spending on CO<sub>2</sub> quota trading, which is recorded independently.

EDP Spain controls the environmental quality standards for water bodies where the thermal power plants, major consumers of water, are located.

Those studies foster the protection of the biodiversity but in the terrestrial and aquatic environment.

This goal calls for "mobilising additional financial resources from different sources" for poor countries, and for contributing 0.7% of the GDP to development, a percentage that only Denmark, Luxembourg, Norway and Sweden, and the United Kingdom meet.

### 3.3. THE FUTURE OF COAL-FIRED THERMAL POWER STATIONS IN SPAIN

In November 2010, the European Parliament and Council passed the Industrial Emissions Directive (integrated pollution prevention and control), creating a general framework based on permits that take an integrated approach to the environmental performance of a facility to avoid pollution between transferred between the different settings.

On the path to achieving the reduction envisaged in previous Directives for SO<sub>2</sub>, NO<sub>x</sub> and Particles, the new legislation establishes more restrictive limits that will apply from January 2016 for the existing facilities and whose compliance involves, yet again, making large additional environmental investments.

Given this fact, the Directive envisages the choice of two mechanisms in order to make compliance of the new emission limit values by the existing facilities more flexible, thus allowing an adaptation and decision-making period on new investments: the Transitional National Plan and the Limited Useful Life Exemption.

The **Transitional National Plan (TNP)** is a mechanism designed so that Member States can achieve significant reductions in the emissions of pollutants, from 2016 onwards, while allowing the existing power plants to continue operating as they implement the adaptation investments.

The emissions in tons of each of the pollutants resulting from multiplying benchmark production by the new established emission limit values are therefore calculated a priori for each of the facilities included in the Plan.

The Plan then allows the power plants not to perform the adaptation investments provided that they function in such a way

that the emission of pollutants between January 2016 and 30 June 2020 does not exceed the previously calculated amounts.

By limiting the total tons, the application of the Transitional National Plan will reduce SO<sub>2</sub> emission by over 60 % with respect to the average SO<sub>2</sub> emissions in the period 2011-2013. At the end of the period, in 2020, the SO<sub>2</sub> emissions of the thermal power plants in Spain will have fallen from 1,700,000 tons in 1990 to 45,500 tons in 2020, which barely accounts for 20 % of the national total.

In the case of NO<sub>x</sub> emissions, the application of the Transitional National Plan will reduce the emissions by over 70 % with respect to the average NO<sub>x</sub> emissions in the period 2011-2013. At the end of the period, in 2020, the NO<sub>x</sub> emissions of the thermal power plants in Spain will have fallen from 300,000 tons in 1990 to 43,500 tons in 2020, just over 5 % of the national total.

The cut in the total volume of particles emissions will be 40 % with respect to the average emissions of the thermal power plants in Spain during the period 2011-2013.

At the end of the period, in 2020, the particles emissions of the thermal power plants in Spain will have fallen from 34,500 tons in 1990 to 4,000 tons in 2020, under 5 % of the national total.

Therefore, the application of the Transitional National Plan guarantees reduction in absolute values nationwide, even if the investments to adapt the power plants have not occurred. The power plants included in the Plan can perform the adaptation investments at any time or not do so and close at the end of the Plan in June 2020.

In Spain, 97 % of the existing power plants have signed up to this mechanism: 9,720 MW of the

10,085 MW installed and currently operating.

**EDP will be the first company to bring a denitrification process in Spain into service once the committed investments have been completed at Aboño 2 in 2016 and at Soto de Ribera 3 in 2017. The commissioning of these plants, scheduled for 2016 at Aboño 2 and 2017 at Soto de Ribera 3, will enable both power plants to operate with NO<sub>x</sub> emissions of the Best Available Technique, thus ensuring the future of both facilities in Asturias.**

Bulgaria, Croatia, Czech Republic, Finland, Greece, Hungary, Ireland, Lithuania, Poland, Portugal, Rumania, Slovakia, Slovenia and the United Kingdom have adopted this flexibility measure along with Spain.

## 2018 TARGET

-60 % SO<sub>2</sub>

-70 % NO<sub>x</sub>

-40 % PM<sub>10</sub>

on 2011-2013 national average emissions

**MARCOS ANTUÑA EGOICHEAGA**  
**Projects and Communication Director**

*In 2015, particularly noteworthy was the progress in the implementation of the **denitrification projects** for the Aboño 2 and Soto 3 coal-fired units, a strategic initiative to adapt these units to the requirements of the European Industrial Emissions Directive 2010/75 and extend their operating life until 2035. On the other hand, the extension of the Save To Compete programme to Cantabria has been important. The first project in Spain that CEL Technologies had awarded to us was successfully completed in December. Seventy-two applications, which represent consumption of 1,000 GWh/year and a potential investment of EUR 15.6 M, were received for this programme. Forty-nine applications have been analysed and validated, and 17 show potential for the PIEE (Energy Efficiency Project). As regards Sustainable Mobility, the 2015-2020 plan was implemented, with the progressive transformation of our fleet from conventional fuels to alternative energy, the construction of service stations for electric charging and gas, both in corporate centres and in new facilities to open to the public. Particularly noteworthy in this case are those in Gijón and Vitoria.*

*As the main goals for 2016, we should mention the coming into service of the Aboño 2 denitrification equipment, followed by the one at Soto 3, even though that will be in 2017. As regards Energy Efficiency, we expect to expand the number of Save to Compete underway and extend it to other regions. With respect to Sustainable Mobility, we are going to launch internally the Sustainable Mobility Plan for Employees and we intend to open the Gijón and Vitoria service stations to the public, so that they can charge with electricity and fill up with gas the vehicles powered by those energies. In addition, we plan to launch the projects for new service stations in Oviedo and Bilbao.*

## EDP INVESTS IN DENITRIFICATION PROJECTS (SCR)

The Aboño 2 and Soto 3 SCR projects aim to adapt both units to the gas emission limits set by the European Industrial Emissions Directive 2010/75. The useful life of both units have thus been extended and the risk of closure from 2020 onwards has been avoided, as they could have been forced to very reduced operating levels and under the minimum profitability threshold.

SCR technology is selective catalytic denitrification reduction that basically consists of removing the nitrogen oxides present in the combustion gases, by means of

injecting a reducing agent - an ammoniacal solution - that reacts with those nitrogen oxides with the aid of a catalyst and turn them, by means of several combined chemical reactions, into nitrogen and water. The catalyst is made up of titanium oxide and vandadium oxide and is housed within a reactor, where the critical reactions occur.

SCR technology will allow the nitrogen oxide emissions to be reduced to under to 200 mg per cubic meter limit in normal conditions from 30 June 2020.

The Aboño 2 project, started in 2014, continued throughout 2015 and ended the year with overall progress over 40%.

As regards the Soto 3 project, the implementation contract was signed on 30 April and the order to start work was issued at the same time. 2015 ended with overall progress of over 10%.

## 3.4. THE PARIS CLIMATE CHANGE AGREEMENT IN 10 IDEAS

### 1 GOAL

Hold the increase in global average temperature to well below 2 degrees C above pre-industrial levels (which would mean annual emission of 40,000 million tons of CO<sub>2</sub>) and pursue efforts to limit the temperature increase to 1.5°C (the IPPC, the group of experts on climate change, will set the annual tons of CO<sub>2</sub> to achieve this temperature increase in a special report to be published in 2018).

### 2 LONG-TERM GREENHOUSE GAS EMISSIONS

There is also the long-term goal to reach global peaking of greenhouse gas emissions as soon as possible (and even sooner in developed countries), and therefore to reduce emissions to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases, i.e., zero CO<sub>2</sub> balance, in the second half of the century.

### 5 FINANCE

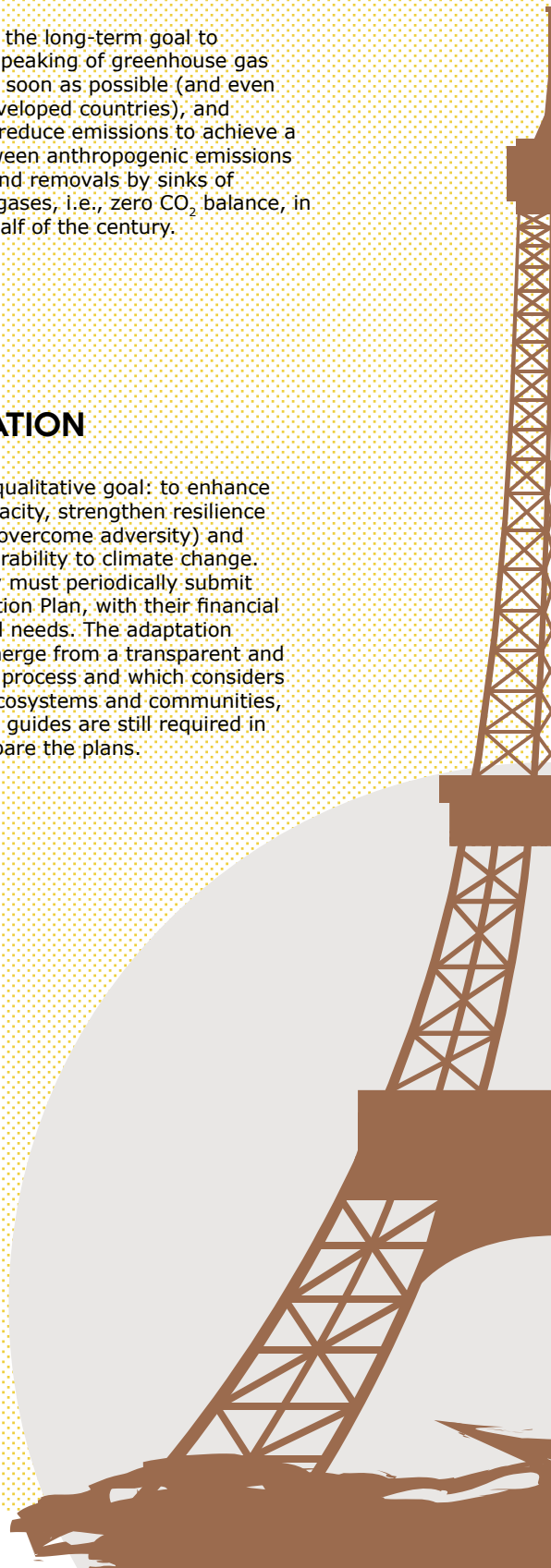
The Agreement envisages the legal obligation of developed countries to continue providing financial resources to assist developing countries with the cost of the infrastructures needed to protect the population from the impact of climate change in the most vulnerable countries. It calls on "other parties" to provide financial support voluntarily, in relation to the emerging economies or to the countries that are able to do so. Developed countries have undertaken to provide the financial support that had committed in 2009 (100 billion dollars a year from 2020 onwards).

### 6 ADAPTATION

It defines a qualitative goal: to enhance adaptive capacity, strengthen resilience (capacity to overcome adversity) and reduce vulnerability to climate change. Each country must periodically submit their Adaptation Plan, with their financial priorities and needs. The adaptation plans will emerge from a transparent and participative process and which considers vulnerable ecosystems and communities, but technical guides are still required in order to prepare the plans.

### 9 ENHANCING PRE-2020 AMBITION

The Decision that accompanies the Agreement calls on all parties to enhance pre-2020 the level of the ambition of the commitments submitted so far by the different countries (the national contributions compiled so far will lead to a temperature increase of between 2.7 °C and 3.5 °C). It also calls on the parties to ratify the second period of the Kyoto Protocol (Doha Amendment to the Kyoto Protocol), which would require 144 acceptance instruments for it to come into force, and it only has 55.



### 3 LEGAL STATUS OF THE AGREEMENT

The Paris Agreement is a legally binding 12-page document with 29 articles. It is accompanied by a non-legally binding Decision, which sets out in detail the technical aspects that have to be considered between now and 2020 in order to be able to implement it in that year. Sanctions for the countries that do not meet their commitments are not currently envisaged.

### 4 NATIONAL CONTRIBUTIONS

Nearly 190 countries that account for 95 % of world emissions have submitted their "tentative" national contributions and will submit the official contributions when they ratify the Agreement. Those commitments must be reviewed every 5 years, with the requirement that they are increasingly more ambitious than those before.

### 7 LOSS AND DAMAGE

There are some impacts of climate change to which it is not possible to adapt, they are so severe that they cause huge damage and may leave permanent aftermath. Loss and Damage has been left as a separate aspect in the Agreement. The vulnerable countries have managed to keep the working party created in 2013 to analyse issues arising from Loss and Damage (Warsaw Mechanism).

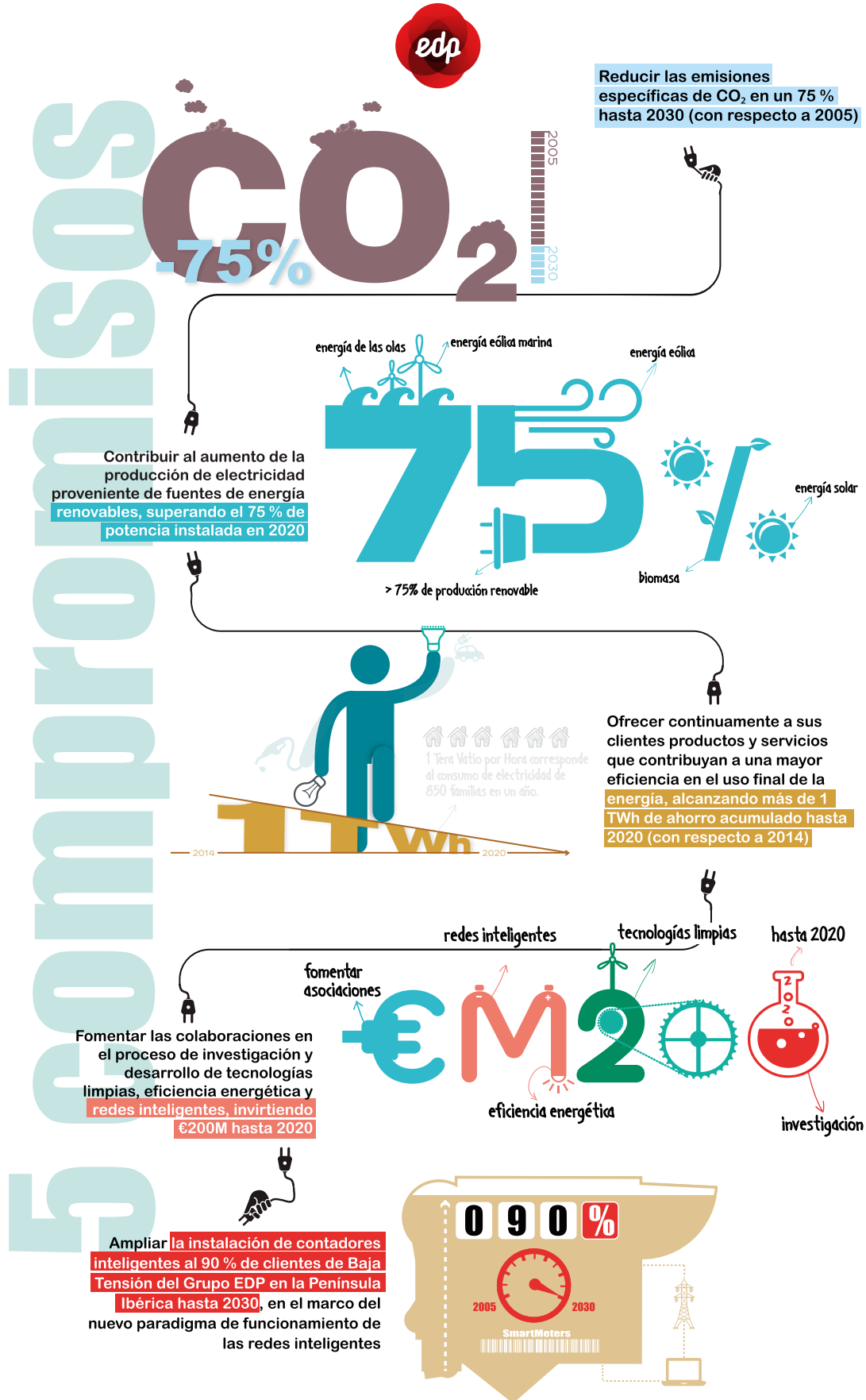
### 8 GLOBAL STOCKTAKING AND TRANSPARENCY

A mechanism has been established to review, every 5 years, the global progress in achieving the goals. The first global stocktaking will take place in 2023. Transparency appears as an essential tool: each country will have to report its emissions inventory, its progress in the scope of its commitments, and its participation in the financing processes.

### 10 ENTRY INTO FORCE OF THE AGREEMENT: ADOPTION, SIGNATURE AND RATIFICATION

The Agreement was adopted by 196 countries in December 2015. On 22 April 2016, it was opened for signature, with the participation of 175 parties, but it still needs to be ratified to come into force. Only when it is ratified by at least 55 % of the countries that in turn account for at least 55 % of global greenhouse emissions, will it come into force. The European Commission plans to submit a proposal to all Member States before the summer for the European Union to ratify the agreement on behalf of all of them.

### 3.5. EDP UNVEILS ITS COMMITMENTS TO COMBAT CLIMATE CHANGE





## EDP SPAIN COMMITTED TO SUSTAINABLE MOBILITY

EDP Spain has developed a new energy service to position itself as a global operator in sustainable mobility, thus highlighting the EDP commitments to society and the environment. The strategy consists of several steps: replacing the own fleet by alternative energy vehicles, opening natural gas filling stations and electricity charge points up to the general public, and expanding the portfolio of sustainable mobility services to its customers.

### ELECTRIC VEHICLE

The electric vehicle is a viable mobility alternative to transport people and goods in an environmentally friendly way. They are vehicles that are driven by electric motors instead of by combustion engines. They use the energy stored in the batteries in the vehicle to move around. The batteries are recharged by connecting them to the mains at a charging point or electricity "pump" using a cable.

In this line, in 2015, EDP Spain installed new charging points for electric vehicles on public roads in Pola de Siero (the Group's first Inovcity in Spain) and in Candás (Carreño). The facility means that the local residents can charge their electric vehicles free of charge for a year, the result of the agreement between both local councils and EDP to supply electricity.

Those charging points are in addition to those already installed in Gijón and other places.

In addition, EDP organised in Oviedo sessions on electric vehicles with owners' associations, along with the Asturian Business Association of Telecommunications and Electric Facilities and the Asturian Territorial Professional Association of Property Administrators. The sessions focused on the advantages of electric mobility and the implications on the Commonhold Property Act. The importance of fostering the use of the electric vehicle in the cities was stressed, along with its environmental and economical advantages.

**The latest amendment of the Commonhold Property Act allows the owners of electric vehicles to install a charging point in their garage space, after duly notifying the other owners and assuming the cost of the facility and of charging the vehicle.**

The NGV fleet will boast more than 100 VEHICLES

### NATURAL GAS VEHICLE

EDP Spain is also committed to using natural gas vehicle as its company fleet. Natural gas is considered to be the most environmentally-friendly fossil fuel, and is becoming an alternative to other oil derivative fuels, such as diesel or fuel oil (liquid fuels) or other gas fuels (Liquefied Petroleum Gas - LPG) by cutting polluting emissions from the transport vehicles.

Natural gas filling stations have been set up at the following points to serve EDP Spain's own fleet: Vitoria, Barakaldo, Bilbao (General Concha), Albericia (Santander), Rocés (Gijón) and La Corredoria (Oviedo).

On the other hand, work is being carried out on setting up and commissioning natural gas filling stations for external use in order to try to expand the products and services to our customers. These natural gas filling stations, one in Vitoria and another in Rocés-Gijón, will soon be operating and will serve both EDP Spain's internal fleet and any user with an alternative energy vehicle. One of the first customers at the Rocés natural gas filling station in Gijón will be two municipal solid waste collection vehicles belonging to the Urban Environment Service (EMULSA).

The EDP Spain fleet of natural gas powered vehicles has already notched up over 1.2 million kilometers using NGV

**ENERGY  
WITH  
INTELLIGENCE**

SUSTAINABILITY  
REPORT  
2015

04

A renewable breath of life



# ENERGY WITH INTELLIGENCE

SUSTAINABILITY  
REPORT  
2015

## TERRITORIAL AND SOCIAL ENVIRONMENT

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**ENERGY  
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SUSTAINABILITY  
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2015

## 04 TERRITORIAL AND SOCIAL ENVIRONMENT

TERRITORIAL AND SOCIAL ENVIRONMENT INCLUDES THE STAKEHOLDERS LINKED TO THE TERRITORIES IN WHICH EDP IS PRESENT, LOCAL COMMUNITIES AND LOCAL COUNCILS WHERE THE COMPANY IS A DRIVING FORCE FOR DEVELOPMENT, ALONG WITH CIVIL SOCIETY ORGANISATIONS (MAINLY NGOS) AND THE MEDIA AND OPINION LEADERS THAT, BY MEANS OF THEIR INVOLVEMENT IN THE DISCUSSION REGARDING REGULATORY DECISIONS AND POLICIES, CONDITION THE OPERATIONAL AND STRATEGIC DEVELOPMENT OF THE COMPANY.

### **YOLANDA FERNÁNDEZ MONTES**

*Director for the Environment, Sustainability, Innovation and Quality*

*In 2015, EDP Spain continued with its commitment to leadership in sustainable development in its three dimensions: economic, social and environmental.*

*As regards the economic performance, we continue to be committed to creating value with a continuous improvement Lean programme, which has generated over 300 new initiatives in all the business areas and with an R&D&i activity that manages, in conjunction with universities and technology centres, a portfolio of projects that develop the strategic innovation lines of the group and which have enjoyed the economic support both of the Spanish Government and the governments of Asturias and the Basque Country.*

*The environmental performance was controlled, as in previous years, with the renewal of the certificates of the environmental management systems. In keeping with the new requirements of the ISO 14001:2015, environmental management and corporate social responsibility has been embraced by means of implementing the stakeholder policy through the Guide to Managing the Relationship with Stakeholders, which systemises how the EDP Group relates with its stakeholders in each of its activities and in all the geographical areas where it operates.*

*During 2016, the approval of the Transitional National Plan, which includes the Aboño (units 1 and 2) and Soto (unit 3) thermal power plants, will increase the flexibility in the operating of the power plants once the denitrification investments underway have been completed. On the other hand, as part of the ratification of the Paris Agreement (COP21), EDP will progress in its commitments until 2020 to combat climate change and thus contribute to the UN sustainable development goals.*

300  
LEAN  
new  
schemes

economic  
social  
environmental

## 4.1. EDP SPAIN ENVIRONMENTAL PERFORMANCE

In a social setting where there is an ever increasing demand for the strict compliance of environmental legal requirements, the environmental management of EDP Spain during 2015 was noted for the following milestones:

# 1

The EMAS Environmental Management System remained in force in the Soto (units 4 and 5) and Castejón (units 1 and 3) combined cycles and the Sidergas steelworks gas cogeneration plant. This certificate ensures compliance of all the applicable legal requirements regarding the environment.

The ISO 14001 certified Environmental Management System has been maintained at the EDP Spain hydraulic power plants, the Soto (units 2 and 3) and Aboño (units 1 and 2) conventional thermal power plants, Sevares natural gas cogeneration plant, gas and electricity distribution business and the Gesta headquarters. This system guarantees the identification of all the environmental aspects of the businesses and facilities, and it proposes corrective and preventive actions for appropriate legal compliance and continuous improvement.

# 2

In 2015, the most important aspects were related to the noise levels, resulting in an ever more demanding municipal and regional legislation, and the characterization of the soil and underground water at the different sites.

In keeping with the new requirements of the ISO 14001:2015, environmental management and corporate social responsibility have been embraced by means of the implementation of the stakeholder policy and the company continues to strive to manage the environmental risk by using the environmental risk analysis models implemented for the whole EDP Group from Spain.

# 3

As regards the legal framework, particular noteworthy is the approval of the Transitional National Plan, which includes the Aboño (units 1 and 2) and Soto (unit 3) thermal power plants, as it will increase the flexibility in the operating of the power plants once the denitrification (SCR) investments underway have been completed.



## 4.2. AIR QUALITY

Climate change, the depletion of the ozone layer or acidification are global problems that we are used to hearing about and yet they seem remote from our everyday lives. However, the quality of the air that we breathe and the associated health problems are a real problem and particularly significant in our cities.

International endeavours to deal with air pollution can be traced back to the 1960s and, since then, major efforts have been made to cut emissions of pollutants. However, economic development and social wellbeing are counteracting this: the hotspots are increasingly less polluted but there are more of them.

**HOTSPOTS**  
- pollutants  
+ numerous

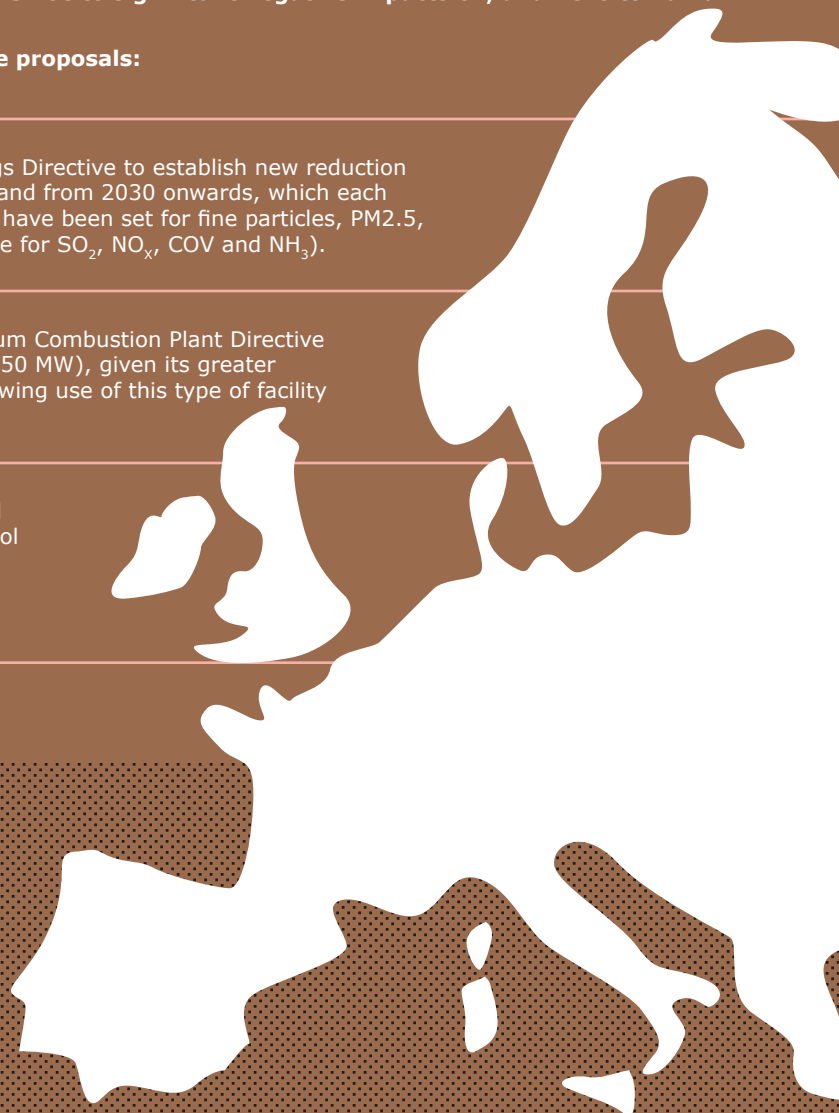
### LATEST LEGISLATIVE DEVELOPMENTS REGARDING AIR QUALITY

In December 2013, the European Commission published the "Pure Air for Europe" package in order to "reach levels of air quality that do not give rise to significant negative impacts on, and risks to human health and environment".

This package is based on three legislative proposals:

- 1 Review of the National Emission Ceilings Directive to establish new reduction undertakings between 2020 and 2029 and from 2030 onwards, which each country must not exceed (new ceilings have been set for fine particles, PM<sub>2.5</sub>, which are in addition to the existing one for SO<sub>2</sub>, NO<sub>x</sub>, COV and NH<sub>3</sub>).
- 2 Passing in December 2015 of the Medium Combustion Plant Directive (with thermal power of between 1 and 50 MW), given its greater contribution to pollution due to the growing use of this type of facility (biomass).
- 3 EU-wide ratification of the international amendments to the Gothenburg Protocol to abate acidification, eutrophication and ground-level ozone, which cause long-range cross-frontier air pollution.

Pure Air  
for  
Europe



## MAIN POLLUTANTS

The main pollutants affecting health are sulphur dioxide, nitrogen oxides and particles, which are either emitted directly or which can form ("secondary particles") from gases such as sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and ammonia (NH<sub>3</sub>), along with ground-level ozone, which is not generated directly but rather is formed, in sunlight, from volatile organic compounds (VOC) or nitrogen oxides (NO<sub>x</sub>), and particles.

## WHAT ARE THEIR IMPACTS?

Those pollutants impact human health (irritating eyes, nose, throat and lungs at low concentrations) and the environment, as they contribute to the acidification and eutrophication, along with secondary particle formation and ground-level ozone (**photo-chemical smog**).

## WHERE ARE THEY GENERATED?

Sulphur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) are acidifying pollutants that are mainly generated in the combustion of fossil fuels for high temperature industrial processes and also when generating electricity.

On the other hand, particles are related to any type of combustion, not only industrial but also the heating of buildings and housing units.

Furthermore, the NO<sub>x</sub> and particles are also emitted in combustion processes related to traffic and transport in general.

## HOW ARE THEY CONTROLLED?

Given the health and environmental problems that those pollutants cause, air quality surveillance booths, measuring the concentration of those parameters, have been set up throughout Spain. This information is available to the public and is used to determine at any given moment the pollution levels of a zone and if they exceed the admissible maximum levels for health and the environment.

## ARE THERE ANY BREACHES IN SPAIN?

The last report issued in Spain on the state of the air quality published in 2015, indicated that the sulphur dioxide (SO<sub>2</sub>) level had not been produced. The cutting of this pollution was particularly notable from 2008 onwards with the investments in desulphuration plants in the electric sector.

As regards nitrogen oxides (NO<sub>x</sub>), the city of Madrid breached the hourly threshold values (the hourly value of 200 µg/m<sup>3</sup> was exceeded on over 18 occasions), while the annual levels (40 µg/m<sup>3</sup>) were exceeded in 5 zones: Madrid, Barcelona, Llobregat, Murcia and L'Horta (Valencia).

Spain has always had high levels of particles, whose concentrations are naturally increased by Saharan dust episodes; once they had been discounted to assess the pollution in the air, there was a reduction in the concentration levels of this pollutant, dropping from ten exceedances recorded in 2011 to three in 2014 (Tierras del Ebro, La Coruña and Central Asturias, which was 35 times over the daily threshold value of 50 µg/m<sup>3</sup>) and only in Central Asturias was the annual limit value (40 µg/m<sup>3</sup>) also exceeded.

smog  
PHOTOCHEMICAL

SO<sub>2</sub>  
NO<sub>x</sub>  
PM<sub>10</sub>  
COV



### WHAT MEASURES HAVE BEEN IMPLEMENTED TO MINIMISE THE IMPACT OF THOSE POLLUTANTS?

In the case of the nitrogen oxides, traffic is the main contributor and there are ever more demanding regulations, the last of which was published at the end of 2015 (EURO 6). Diesel cars are more polluting in terms of NO<sub>x</sub> emissions. Therefore, parking fees are higher for those cars in cities such as London and there is even talk of banning diesel cars in cities such as Paris or even nearer in Madrid from 2020 onwards. However, petrol cars emit more CO<sub>2</sub> emissions, and even though they do not pollute air quality, they contribute to the warming of the atmosphere (climate change).

As regard emissions from fixed sources, the coming into force of the new Industrial Emissions Directive means more challenging limit values and, therefore, new investments, including denitrification plants for thermal power plants.

In the case of particles and given the exceedances recorded in the Principality of Asturias, the regional government has produced Air Quality Improvement Plans in Avilés and Gijón. They are also working on the drafts of the relevant Policy Protocols that involve measures such as information for the general public, restricting traffic, along with specific measures for local industrial activities, in order to minimise particle concentrations in the atmosphere.

According to the protocol, the Aboño thermal plant must cut its emissions if the alert level is triggered due to adverse weather events. EDP is conducting studied in collaboration with different university departments to establish the influence of the operation of the power plant in the area, particularly in terms of air quality.



### PHOTOCHEMICAL SMOG OR TOXIC MIST

Photochemical smog (smoke + fog) is a dark reddish-brown fog caused by environmental pollution and facilitated by temperature inversion. During periods of high pressure, the low layers of the atmosphere cool much more than the higher ones, and given the lack of air that facilitates mixing, the lower layer is trapped and keeps the pollution of the stagnant air. The NO<sub>x</sub> and VOC, mainly caused by traffic and industrial processes that burn fossil fuels, form ground-level ozone and secondary particles in the presence of sunlight which cause this phenomenon.

Smog is harmful to health as it irritates the eyes and the respiratory tract (nose, throat) and aggravates allergies. Smog also causes changes to the climate as there is no rain with smog and without rain (or wind), nature cannot overcome smog.

smoke + fog  
humo + niebla

## 4.3. COLLABORATION WITH NGOS

The collaboration with the NGOS is mainly run from the EDP Spain Foundation, which publishes its own annual report and the corporate volunteering programme.

Some particularly noteworthy schemes in 2015 are:

### Solidarity Computers

This action consists of the employees buying the computer equipment that is going to be removed from service, along with the direct donation of equipment to different entities.

Since it started in July 2014, this scheme has led to over €26,000 and 562 computers being donated.

Médicos sin fronteras [Doctors without Borders], Aspanovas and Cáritas are some of the beneficiary companies.



**DONATION**  
**+€26,000**  
**562 computers**

**RESULT**  
**2015**

**37** projects submitted

**11** projects selected

**€344,000** contributed

### “Solidarity EDP” scheme

Scheme driven by the EDP Foundation to support sustainable projects in the areas where EDP operates that foster improvements to the quality of life of socially disadvantaged people, the integration of communities at risk of social exclusion and promoting social entrepreneurship.

### Valgrande Pajares reforestation project

The EDP Foundation, together with the Fund for the Protection of Wild Animals (FAPAS) have embarked on the environmental reforestation project of the Valgrande-Pajares ski resort, where 2,000 trees have been planted and all of which are native species, such as Scots pine, yew, holly and rowan.



In 2015, a further 1,000 trees were planted in the Santo Adriano district, which means that over 80,000 trees have been planted in Asturias.

**+80,000 trees**  
**ASTURIAS**

## 4.4. PROTECTING VULNERABLE CUSTOMERS

Local communities basically identify sustainable development with environmental protection and eco-efficiency, and consider air pollution and air quality as the most relevant aspect in that regard. They likewise rate very positively that environmental aspects are taken into account in corporate decision making and they pinpoint the subsidies for disadvantaged families to meet their energy needs as the most important aspect for EDP to focus on as regards its citizen outreach and social development.

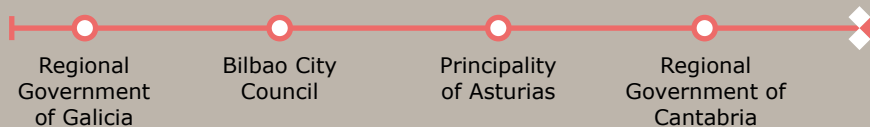
### AGREEMENT TO PROTECT VULNERABLE CUSTOMERS

Current legislation establishes that vulnerable consumers are entitled to the electricity rate subsidy [Bono Social], which involves a 25% discount on the voluntary price for the small consumer (PVPC). Yet EDP Spain is firmly committed to protect vulnerable consumers and has decided to go further than the legal requirements.

Therefore, and as proof of its commitment to the community, EDP Spain has signed specific voluntary agreements with the Public Authorities that have shown interest in maximising the **protection of Vulnerable Consumers**.

Those agreements seek to avoid the natural gas and/or electricity supply to those vulnerable consumers being cut off due to their failure to pay certain invoices, or if the supply has already been cut off, to try to get it reconnected as soon as possible, by means of the aid that the Administration will award to the Beneficiary to pay the bill or bills in question.

**EDP currently has such annual agreements in force with the following administrations:**



Once the Madrid and Basque Country agreements, currently in the pipeline, have been signed, 88% of customers will be covered by vulnerability agreements.

88%  
of EDP Spain customers  
are covered by  
an agreement

## 4.5. A YEAR IN IMAGES

### Quality of the electricity supply in Gijón

During 2015, the connection to improve the quality of the Gijón electricity supply was planned and implemented by means of a 132 kV high voltage line from the Pumarín and Gijón Norte sub-stations.

**+€ 267 million**  
invested

Since 2011, EDP HC Energía has invested over EUR 267 million to improve its distribution network. Over EUR 63 million of this amount was for the company's investment in Gijón.



EDP in Aragón operates and maintains 150 kilometres of electricity distribution grids and over 60 transformation centres.

**150 km**  
electricity  
distribution

### DRILLS Fire fighting

### AENA and EDP conducted a joint drill

Over 30 drills were conducted in 2015 and special mention should be made of the one run at Asturias Airport, where AENA staff, the fire-fighting and rescue services, national law enforcement and security force and EDP conducted a joint drill to put out a fire at the distribution centre on site, by assessing the coordination of activities and impact on the normal operating of the airport.

### New electricity line in La Ribagorza (Huesca)

EDP HC Energía has erected a new medium voltage overhead line between La Puebla de Roda and Biascas de Obarra (Huesca), where an old line was replaced that was over 45 years old and consisted of 74 timber supports.

The work was complex, due to its accessibility and environmental component, and a helicopter had to be used to transport different materials in some cases.

**SUPPLY  
~420 housing units  
in the old town**

## New LNG in Laguardia (Álava)

EDP Naturgas Energia has replaced the LPG plant in Laguardia (Álava) by a new liquefied natural gas (LNG), thus adapting the current distribution grid of 5.5 kilometres and the facilities of the 227 current customers of this supply.

It should be noted that, given the technical characteristics of natural gas, 420 housing units located in the old town will be able to be supplied, which had been unfeasible up to now.

## Improving the gas supply quality in Santander

EDP Naturgas Energia has improved the quality and security of the supply of natural gas in Santander through two new Regulation and Metering Stations (RMSs), along with 1.6 kilometres of new pipelines.

**In 2015, investments in Cantabria by EDP Naturgas Energia totalled within €4.2 million within the 2015-2018 investment plan, with over €14 million earmarked.**

**INVESTMENT  
EUR  
+4.2 million**



## The car sector committed to NGV

EDP, SEAT and VW-Audi Spain have signed a cooperation agreement to drive the development of vehicles running on Natural Gas Vehicle and of the infrastructures need to foster the use of this fuel.



## EDP Naturgas Energia, zero accidents leading to sick leave

The Autonomous Commission of Safety and Hygiene in the Workplace for the Chemical Industry (COASHIQ) awarded EDP Naturgas Energia a health and safety prize for "zero frequency rate", given no accident leading to sick leave was recorded in 2014.

zero  
accidents  
2014



## EDP, the electricity company best rated by customers

The Spanish Consumer Satisfaction Index (STIGA) highlights EDP as the best electricity company and the second best gas company assessing aspects such as the perceived quality level (image, price, service), loyalty and influence (intention of leaving). This is likewise endorsed by the National Energy Commission (CNE), whose latest report points out that EDP is the company with the highest customer loyalty index.

## EDP Spain Prevention and Environment Awards

Over 30 EDP Spain employees and two suppliers were recognised for awareness and commitment to environmental and preventive policies at the XVI EDP Spain Health and Safety Awards and the XII EDP Spain Environmental Awards.



## "Aboño: Back to the Future"

A meeting was organised with former and current workers to mark the 30th anniversary of Unit 2 at the Aboño Thermal Power Station. The film "Aboño: Back to the Future", which told the unit's story down through the years, was shown.



RESPONSIBLE  
COMPANY  
REGARDING  
YOUTH  
EMPLOYMENT

## Commitment to youth employment

Thanks to the grant programme, worth one million euros and with over 200 grant holders, along with other projects for young people, such as StartInnova, Plan to support PhD students, University Challenge, etc, EDP Spain has been recognised as a "Responsible Company regarding Youth Employment", a certification granted by the Spanish Ministry for Employment and Social Security, as part of the Spanish Strategy for Social Responsibility of the Companies.

€1 million  
+200  
grant holders



## Lean Ibérico

Identifying new cross-cutting initiatives and sharing improvement schemes already underway are the main objectives of the LEAN Ibérico programme, launched in 2015 with an integrated team for the Combined Cycle plants and team to pool schemes in the other Generation areas (Thermal Power Plants, Waste and Cogeneration and Hydraulic Power Plants).

**NEW**  
**cross-cutting**  
**initiatives**

**+ 1 2 0 0 0 0 0**

## Over one million kilometres travelled with NGV

The EDP Spain natural gas vehicle fleet has already travelled over 1.2 million kilometres. This means significant economic and environmental savings, which reaffirms the company's commitment to the use of this sustainable mobility technology.

## EDP, the best website of Asturias



During the XVII Best Website of Asturias Awards, organised by the El Comercio Newspaper, EDP was recognised as the best website, both generally and of the Asturian business sector.

**AWARD**  
**best website**

## FM Global awards the Castejón Combined Cycle Thermal Power Station

FM Global, the international insurance company, has honoured the Castejón power plant with the prestigious HPR (Highly Protected Risk) award for the strategy to improve the sprinkling of its facilities, from the design to the continuous monitoring and implementation of the insurance company's recommendations

## LEAN O<sub>2</sub>

The Lean O<sub>2</sub> session gathered together 100 interns in Oviedo with a dual goal. On the one hand, to explain the Group's continuous improvement programme (Lean) and its implementation, and, on the other hand, to encourage them to make improvement proposals in their work areas, with over 100 proposals put forward and all of which have been analysed.

**+100**  
**proposals**  
**analysed**

## "My Consumptions" website

EDP HC Energía has launched the "My Consumptions" website as a tool so that all the users with an integrated remote managed meter can consult their consumption (daily/hourly load curve) and thus be able to make decisions to modify their habits, by search more efficient consumption.



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SUSTAINABILITY  
REPORT  
2015

05

Planning for the future





# ENERGY WITH INTELLIGENCE

SUSTAINABILITY  
REPORT  
2015

## YEAR-ON-YEAR DATA

5.1. FINANCIAL INDICATORS	77
5.2. TECHNICAL INDICATORS	78
5.3. ENVIRONMENTAL INDICATORS	81
5.4. SOCIAL INDICATORS	82



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WITH  
INTELLIGENCE**

SUSTAINABILITY  
REPORT  
2015

**05** YEAR-ON-YEAR DATA

Is EDP a sustainable company?



ECONOMIC  
SOCIAL  
ENVIRONMENTAL

Long-term competitiveness and low risk in our company's operations are underpinned by three pillars: **economic, social** and **environmental**, all of which are fundamental to keep EDP strong, sustainable and growing.

Companies need to generate cash to pay their employees' salaries, invest in new projects and, of course, allow investors to recoup their investment.

#### EDP SPAIN AND ITS OPERATIONS IN 2015

##### IT GENERATES ELECTRICITY

**5,375 gross MW**

POWER INSTALLED

**15,493 GWh**

NET ENERGY GENERATED

**4<sup>th</sup>**

ELECTRICITY DISTRIBUTION OPERATOR

**660,143**

SUPPLY POINTS

**9,168 GWh**

DISTRIBUTED ENERGY

**29 MINUTES**

BEST NATIONAL SUPPLY QUALITY INDEX (TIEPI)

**2<sup>nd</sup>**

NATURAL GAS DISTRIBUTION OPERATOR

**917,846**

SUPPLY POINTS

**27,093 GWh**

ENERGY TRANSPORTED

**1.75 MINUTOS**

INTERRUPTION TIME BY SUPPLY AND YEAR

##### IT MARKETS LIGHTS, GAS AND VALUE ADDED SERVICES

**1,011,941**

ELECTRICITY SUPPLY

**836,668**

GAS SUPPLY POINTS

**15,524 GWh**

ELECTRICITY MARKETED

**26,636 GWh**

GAS MARKETED

**483,000**

CUSTOMERS SIGNED UP TO THE FUNCIONA SERVICE

OPERATING CASH FLOW

**EUR 482 million**

INVESTMENTS

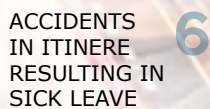
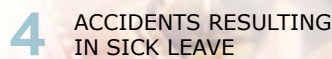
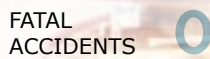
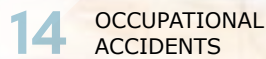
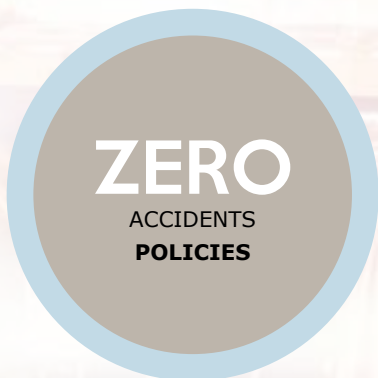
**EUR 121 million**

ECONOMIC

Companies are expected to guarantee a promising future, both for their employees and for their neighbouring communities.



# SO CI AL



Companies are also responsible for protecting natural resources, while they are running their businesses.

ENVIRONMENTAL FOOTPRINT TO GENERATE 1 MWh AND ITS DISTRIBUTION TO THE CONSUMPTION POINTS<sup>(1)</sup>



**8.6** GJ with PCS/MWh  
TOTAL FUEL CONSUMPTION



**656.3** kg CO<sub>2</sub> eq/MWh  
TOTAL CO<sub>2</sub> EQUIVALENT EMISSIONS



**1.1** kg SO<sub>2</sub>/MWh  
SO<sub>2</sub> TOTAL EMISSIONS



**1.2** kg NO<sub>x</sub>/MWh  
NO<sub>x</sub> TOTAL EMISSIONS



**0.1** kg particles/MWh  
TOTAL PARTICLE EMISSIONS



**38.9** m<sup>3</sup>/MWh  
TOTAL WATER CONSUMED



**36.7** m<sup>3</sup>/MWh  
DISCHARGE VOLUME



**0.2** kg/MWh  
TOTAL HAZARDOUS WASTE MANAGED



**20.9** kg/MWh  
TOTAL WASTE AND BY-PRODUCTS RECOVERED



**4.4** euros/MWh  
ENVIRONMENTAL EXPENDITURE AND INVESTMENTS

<sup>(1)</sup> It includes the environmental footprint of the electricity generation and the gas and electricity distribution.  
The net generation includes 15.5% of the Trillo Nuclear Power Station and 15.5% of the operative wind power MW in Spain.

ENVIRONMENTAL

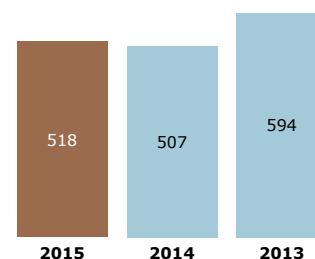
## 5.1. FINANCIAL INDICATORS

	UN	2015	2014	2013
<b>FINANCIAL INDICATORS<sup>(1)</sup></b>				
Turnover	MC	3,875	4,086	4,050
EBITDA	MC	518 <sup>(2)</sup>	507	594
Net profit (EAT)	MC	598 <sup>(2)</sup>	110	125
Operating cash flow	MC	790 <sup>(2)</sup>	326	396
Operational investments	MC	121	96	104
Current assets	MC	1,102	1,450	1,615
Total Assets	MC	6,197	7,231	7,262
Net Equity	MC	3,192	3,101	2,801
Net debt	MC	865	2,017	2,215

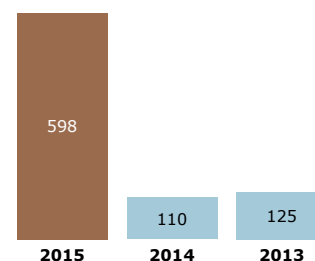
(1) The 2013 data were recalculated using the new consolidation criteria.

(2) These results include the positive impact of the sale of the Gas de Murcia assets and those beyond the Cantabrian coastal strip, along with the impact of the sale of the EDPR shares; if we discounted them, EBITDA would be EUR 429 million, EAT would be EUR 100 million, and the operational cash flow would be EUR 292 million.

EBITDA (€ million)



EAT NET PROFIT (€ million)

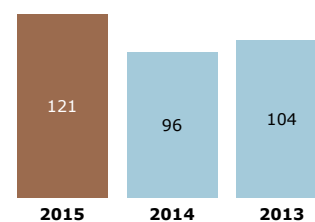


	UN	2015	2014	2013
<b>ECONOMIC INDICATORS</b>				
<b>VALUE CREATION</b>				
Generated economic value	MC	4,449	4,185	4,214
Distributed economic value <sup>(1)</sup>	MC	4,158	4,017	4,174
Retained economic value <sup>(2)</sup>	MC	291	168	40
<b>ENVIRONMENTAL EXPENDITURE AND INVESTMENTS</b>				
Managing waste, wastewater and land protection	MC	19.4	17.8	18.1
Projects related to energy efficiency	MC	1.9	3.2	9.8
Environmental management and prevention	MC	32.0	4.6	4.0
Research projects related to the environment	MC	1.0	0.9	0.4
Others:	MC	2.2	2.4	4.3

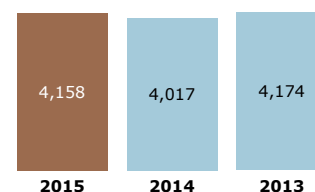
(1) Payments to employees, suppliers, shareholders, foundations, financial and taxes.

(2) Difference between the economic value generated and distributed.

OPERATIONAL INVESTMENTS (€ million)



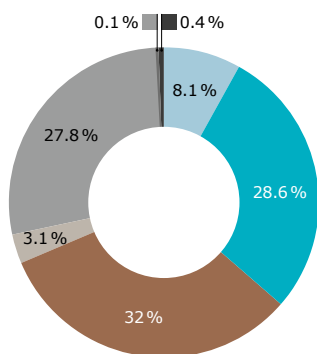
DISTRIBUTED ECONOMIC VALUE (€ million)



## 5.2. TECHNICAL INDICATORS

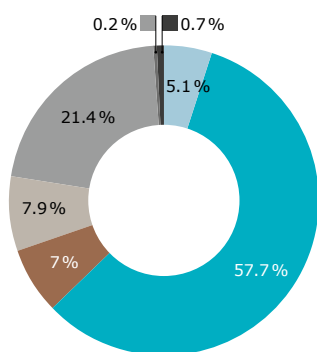
### ELECTRICITY GENERATION

INSTALLED GENERATING CAPACITY BY TECHNOLOGY



Hydraulic	Conventional thermal
Natural Gas	Nuclear (15.5% Trillo)
Wind Power (15.5% EDP Renewables)	
Cogeneration	Waste

NET ELECTRICITY GENERATION BY TECHNOLOGY



Hydraulic	Conventional thermal
Natural Gas	Nuclear (15.5% Trillo)
Wind Power (15.5% EDP Renewables)	
Cogeneration	Waste

	UN	2015	2014	2013
<b>INSTALLED PRODUCTION CAPACITY</b>				
<b>Hydraulic Total</b>	<b>Gross MW</b>	<b>433</b>	<b>433</b>	<b>433</b>
Conventional thermal	Gross MW	1,535	1,535	1,535
Natural gas	Gross MW	1,721	1,721	1,721
Nuclear (15.5% Trillo)	Gross MW	166	166	166
<b>Thermal total</b>	<b>Gross MW</b>	<b>3,422</b>	<b>3,422</b>	<b>3,422</b>
<b>Overall total</b>	<b>Gross MW</b>	<b>3,855</b>	<b>3,855</b>	<b>3,855</b>
Wind power <sup>(1)</sup> (15.5% of EDP Renewables operational capacity)	Gross MW	1,494	1,401	1,316
Operational MW in Spain (15.5%) <sup>(2)</sup>	Gross MW	340	340	358
Cogeneration <sup>(3)</sup>	Gross MW	5	5	35
Waste <sup>(4)</sup>	Gross MW	20.4	20	83
<b>Special Total</b>	<b>Gross MW</b>	<b>1,520</b>	<b>1,426</b>	<b>1,433</b>
<b>Total</b>	<b>Gross MW</b>	<b>5,375</b>	<b>5,281</b>	<b>5,288</b>

(1) Investments in wind power are through EDP Renewables; this stake was sold in December 2015.

(2) The MW fell in 2014 on 2013 due to the change in the consolidation criteria.

(3) EITO and Bergara and AIE Hospital Oviedo sale and change in consolidation criteria (Tudela) explain the 2013/2014 difference.

(4) Sale of Intever, Sinova, Tercia and Bioener and the change in Bioastur consolidation criteria explain the 2013/2014 difference.

	UN	2015	2014	2013
<b>NET ELECTRICITY GENERATION</b>				
<b>Hydraulic Total</b>	<b>MWh</b>	<b>792,503</b>	<b>947,479</b>	<b>1,098,482</b>
Conventional thermal	MWh	8,945,939	6,413,856	6,406,606
Natural gas	MWh	1,081,823	656,276	654,244
Nuclear (15.5% Trillo)	MWh	1,226,642	1,204,363	1,157,058
<b>Thermal total</b>	<b>MWh</b>	<b>11,254,404</b>	<b>8,274,495</b>	<b>8,217,908</b>
<b>Overall total</b>	<b>MWh</b>	<b>12,046,907</b>	<b>9,221,974</b>	<b>9,316,390</b>
Wind power <sup>(1)</sup> (15.5% of EDP Renewables operational capacity)	MWh	3,315,140	3,063,265	3,084,965
Operational MW in Spain (15.5%) <sup>(2)</sup>	MWh	751,285	802,280	899,310
Cogeneration <sup>(3)</sup>	MWh	28,746	26,268	213,492
Waste <sup>(4)</sup>	MWh	101,860	128,818	431,643
<b>Special Total</b>	<b>MWh</b>	<b>3,445,745</b>	<b>3,218,351</b>	<b>3,730,099</b>
<b>Total</b>	<b>MWh</b>	<b>15,492,652</b>	<b>12,440,325</b>	<b>13,046,489</b>

(1) Investments in wind power are through EDP Renewables; this stake was sold in December 2015.

(2) Sale of EITO and Bergara and AIE Hospital Oviedo and the change in consolidation criteria (Tudela) explain the 2013/2014 difference.

(3) Sale of Intever, Sinova, Tercia and Bioener and the change in in Bioastur consolidation criteria explain the 2013/2014 difference.

Net electricity generation=gross electricity generation - plant self-supply

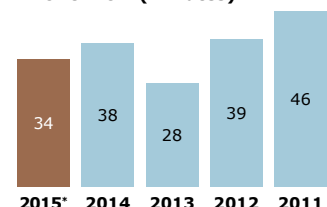


## GAS AND ELECTRICITY DISTRIBUTION

	UN	2015	2014	2013
<b>ELECTRICITY DISTRIBUTION FACILITIES</b>				
HV overhead lines (50/132 kV)	Km	1,274	1,270	1,270
MV overhead lines (5/10/16/20/22/24 kV)	Km	4,765	4,748	4,748
HV underground lines (50/132 kV)	Km	39.41	38.00	38.48
MT underground lines (5/10/16/20/22/24 kV)	Km	1,617	1,616	1,590
LV overhead grids	Km	9,609	12,486	12,452
LV underground grids <sup>(1)</sup>	Km	3,112	3,233	3,196
Transformation centres	No.	6,719	6,719	6,730
Transformation centre installed capacity	MVA	2,281	2,278	2,272
Substations	No.	59	59	57
Transformers in substations	No.	123	124	120
Installed capacity in sub-stations	MVA	5,255	5,288	5,258

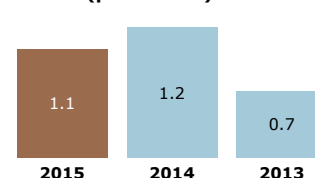
(1) Change of accounting criteria to mass capture in the quantification of line km.

### TIEPI (equivalent time interruption of installed power) EVOLUTION (minutes)

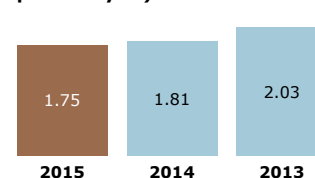


\* Favourable ruling on the discount of the effect January-February 2015 storm effect; the TIEPI is therefore 29 minutes.

### GAS NETWORK BREAKAGE INDEX (per 100 km)



### SUPPLY CONTINUITY INDEX (minutes of interruption per supply point and year)



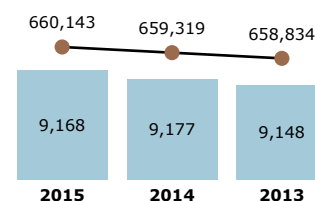
	UN	2015	2014	2013
<b>GAS DISTRIBUTION NETWORKS</b>				
Gas distribution networks <sup>(1)</sup>	Km	7,715	10,143	9,996

(1) Sale of Gas Distribución Murcia assets and geographical areas outside of Asturias, Cantabria and the Basque Country.

## SUPPLY POINTS IN THE NETWORKS AND DISTRIBUTED ENERGIES

	UN	2015	2014	2013
<b>ELECTRICITY DISTRIBUTION</b>				
<b>Supply points</b>	No.	<b>660,143</b>	<b>659,319</b>	<b>658,834</b>
Low Voltage (1 kV)	No.	659,004	658,182	657,707
Medium Voltage (>1 kV and < 36 kV)	No.	1,116	1,114	1,104
High Voltage (> 36 kV)	No.	23	23	23
<b>DISTRIBUTED ENERGY</b>				
<b>Low Voltage (1 kV)</b>	GWh	<b>9,168</b>	<b>9,177</b>	<b>9,148</b>
Medium Voltage (>1 kV and < 36 kV)	GWh	2,223	2,386	2,483
High Voltage (> 36 kV)	GWh	1,307	1,288	1,260
<b>GAS DISTRIBUTION</b>				
<b>Supply points</b>	No.	<b>917,846</b>	<b>1,026,343</b>	<b>1,017,348</b>
<b>Energy transported</b>	GWh	<b>27,093</b>	<b>46,426</b>	<b>51,535</b>

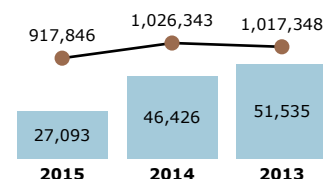
### ELECTRICITY DISTRIBUTION



● Supply points (No.)

■ Distributed energy (GWh)

### GAS DISTRIBUTION

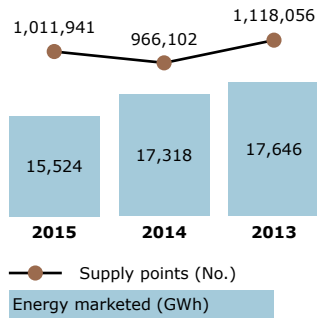


● Supply points (No.)

■ Energy transported (GWh)

## MARKETING ELECTRICITY AND GAS

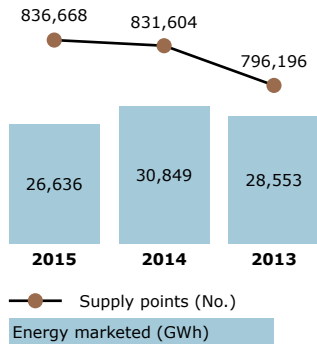
### ELECTRICITY MARKETING



	UN	2015	2014	2013
<b>ELECTRICITY MARKETING</b>				
<b>SUPPLY POINTS</b>				
	No.	<b>1,011,941</b>	<b>966,102</b>	<b>1,118,056</b>
Last resort	No.	237,559	246,898	255,761
Free market <sup>(1)</sup>	No.	774,382	719,204	862,295
<b>ENERGY MARKETED</b>				
	GWh	<b>15,524</b>	<b>17,318</b>	<b>17,646</b>
Last resort	GWh	497	513	608
Free market <sup>(1)</sup>	GWh	15,027	16,805	17,039
EDP Spain share	%	8	9.3	9.6

(1) The energy marketed by UN Generación to CHC is not included.  
The consolidation criteria were changed in 2015 and 50% of the CHC Energía (620 Gwh) have not been considered.

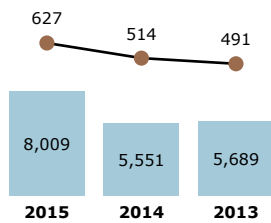
### GAS MARKETING



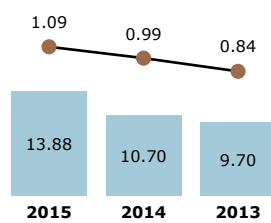
	UN	2015	2014	2013
<b>GAS MARKETING</b>				
<b>SUPPLY POINTS</b>				
	No.	<b>836,668</b>	<b>831,604</b>	<b>796,196</b>
Last resort	No.	58,772	67,845	73,060
Free market <sup>(1)</sup>	No.	777,896	763,759	723,136
<b>ENERGY MARKETED</b>				
	GWh	<b>26,636</b>	<b>30,849</b>	<b>28,553</b>
Last resort	GWh	279	269	354
Free market	GWh	26,357	30,580	28,199
EDP Spain share	%		4	5

## 5.3. ENVIRONMENTAL INDICATORS

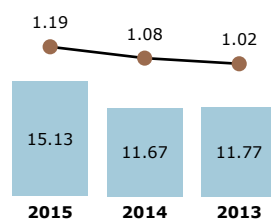
**CO<sub>2</sub> emissions**



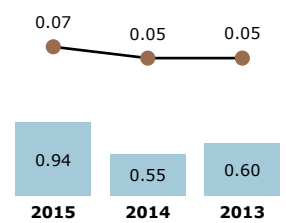
**SO<sub>2</sub> emissions**



**NO<sub>x</sub> emissions**



**PARTICLE EMISSIONS**



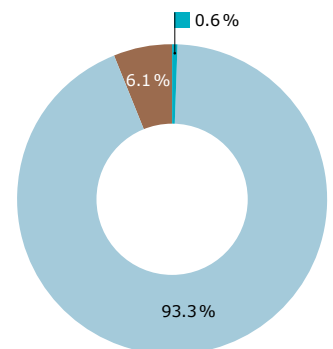
● Specific emissions (g/kWh)

■ Total emissions (ktons)

	UN	2015	2014	2013
<b>WASTE AND BY-PRODUCTS</b>				
Total hazardous waste	Tons	2,224	1,244	1,547
Total non-hazardous waste	Tons	351,284	271,597	278,783
Total by-products	Tons	22,940	58,998	52,587
Total generated	Tons	376,448	331,839	332,917
Total recovered	Tons	266,727	235,808	226,295

**WASTE AND BY-PRODUCTS**

Recovered 71%



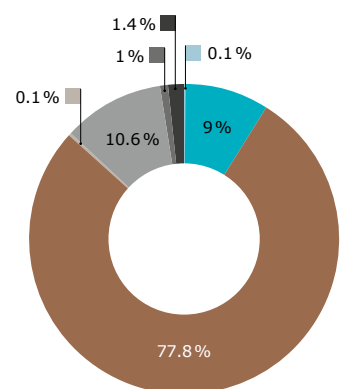
Hazardous waste

Non-hazardous waste

By-products

	UN	2015	2014	2013
<b>FUEL CONSUMPTION</b>				
Fuel oil	TJ	131	193	132
Natural gas	TJ	9,904	7,071	11,316
Coal	TJ	85,305	58,635	55,430
Diesel	TJ	82	114	92
Furnace gas (GHA)	TJ	11,631	11,555	10,719
Coke Making Gas (GBC)	TJ	1,054	768	842
Steelwork Gas (GLD)	TJ	1,484	1,318	1,173

**FUEL CONSUMPTION**



Fuel oil

Natural gas

Coal

Diesel

Furnace gas (GHA)

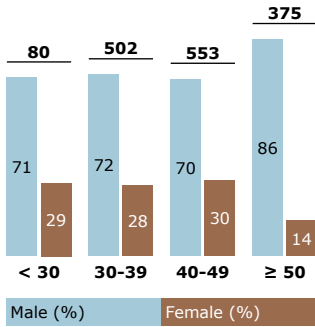
Coke Making Gas (GBC)

Steelwork Gas (GLD)

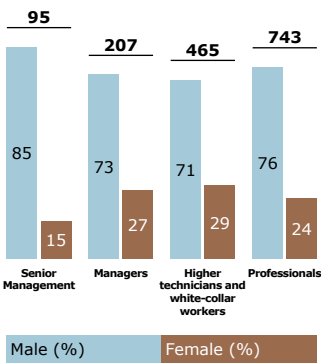
	UN	2015	2014	2013
<b>WATER</b>				
Cooling water	m <sup>3</sup> x10 <sup>3</sup>	494,323	448,895	477,351
Electricity generation water	m <sup>3</sup> x10 <sup>3</sup>	2,345	2,455	1,887
Recovered water out of abstracted water	%	94	98	99

# 5.4. SOCIAL INDICATORS

## EMPLOYEE PROFILE BY AGE



## EMPLOYEE PROFILE BY PROFESSIONAL CATEGORY



	UN	2015	2014	2013	2012
<b>WORKFORCE</b>					
Employees	No.	1,510	1,566	1,612	1,645
Female employees	%	25	24	24	23
Average age of the workers	Years old	42	47	47	45
Absentee rate <sup>(1)</sup>	%	3.4	3.52	3.52	3.66
			3.49	3.49	4.02
Employee remuneration costs	EUR thousands	103,569	110,706	107,878	109,227
Contributions to Pension Plans	EUR thousands	2,978	3,145	3,436	3,675

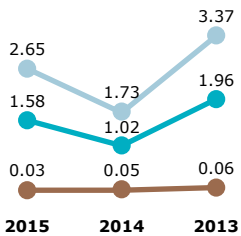
## TRAINING

Total training hours	Hours	50,243	55,700	59,092	59,795
Participation rate	People	11,273	7,585	9,345	9,272
Training actions	No.	1,147	1,110	1,298	1,256

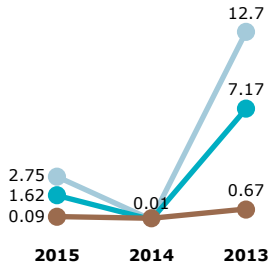
(1) In previous years, the gas and electricity businesses had been differentiated when reporting the rate.

## HEALTH AND SAFETY RATES OWN WORKERS

### ELECTRICITY SECTOR

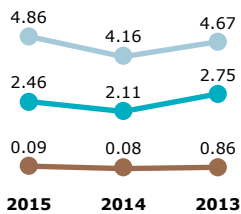


### GAS SECTOR

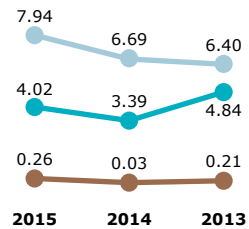


## HEALTH AND SAFETY RATES CONTRACTED WORKERS

### ELECTRICITY SECTOR



### GAS SECTOR



● Hazard index

No. of accidents resulting in time off work/people exposed\*10<sup>3</sup>

● Frequency index

No. of accidents resulting in time off/hours worked\*10<sup>6</sup>

● Severity index

No. days lost/hours worked\*10<sup>3</sup>



# ENERGY WITH INTELLIGENCE

SUSTAINABILITY  
REPORT  
2015



#### **PUBLISHED BY**

EDP Spain Division for the Environment,  
Sustainability, Innovation & Quality.  
Plaza de la Gesta, 2. 33007 - Oviedo.

#### **DESIGN & LAYOUT**

Eteria Marketing y Comunicación

#### **IMPRESIÓN**

Artes Gráficas EUJOA

#### **LEGAL DEPOSIT**

AS-2657-2012  
Junio de 2016.

#### **CONTACT INFORMATION**

To contact EDP's Division for the Environment,  
Sustainability, Innovation & Quality with any  
query regarding this report and its contents,  
please use the following e-mail address:  
medioambiente@edpenergia.es



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