

LOVE ENERGY

edp

02 STRATEGIC APPROACH

GLOBAL ENERGY TRENDS 35

STRATEGIC PRIORITIES

Strategic Agenda 2016-2020 41

Strategic Guidelines Compliance 45

RISK MANAGEMENT 46



02 STRATEGIC APPROACH

2.1. GLOBAL ENERGY TRENDS

DECARBONIZATION REQUIRES A CHANGE IN PARADIGM

After three years of stagnation, carbon emissions of the energy sector have risen again in 2017, growing 1.6%, and it is estimated that growth also occurred in 2018. Furthermore, the International Energy Agency (IEA) estimates in its base scenario of the World Energy Outlook 2018 (New Policies Scenario) that carbon emissions increase by 10% between 2017 and 2040, which would make it impossible to limit the global temperature increase to 1.5°C compared to the pre-industrial era as defined in the Paris Agreement (December 2015).

This increase in emissions derives from the expected increase in primary energy consumption of 27% by 2040, supported by increases of 22% of the population and 117% of world GDP and by the increasing use of natural gas and petroleum products in developing countries. Conversely, the expected decoupling between economic growth and increased demand for energy, resulting in a significant reduction (2.3%/year) of energy intensity globally, and the reduction of 0.6%/year of carbon intensity emissions from the energy sector make a significant contribution to limit the increase of carbon emissions.

Although several countries have demonstrated their commitment to reduce their environmental impact, such as China taking a leading role in coordinating global efforts and India affirming its objective to increase its environmental commitment by 2020, several regions of the world still need to take concrete steps to contribute to decarbonization efforts, owing to fears of the impacts of the required energy transition on workers and their communities.

Promoting an accelerated decarbonization of the world energy system requires an energy transition that approaches sustainability considering environmental, economic and social aspects.

THE LEADERSHIPS OF THE EUROPEAN UNION

Strengthening the leadership position of the European Union (EU) and supporting the fulfillment of the Paris Agreement, in 2018 were concluded the negotiations of the Clean Energy for all Europeans, which aims to guide a sustainable energy development during the next decade and presented a set of scenarios that represent its view for 2050.

The Clean energy for all Europeans legislative package established objectives of 32% for the share of renewables in final consumption and of 32.5% of energy efficiency by 2030. It is expected that this package leads to a reduction of emissions of 45% by 2030, compared with 1990, which represents an increase in the ambition of the EU relative to its goal of 40%.

To provide the necessary price signals to support decarbonization, the EU has reviewed its Emissions Trading System. Aiming at reducing the available emissions allowances, protecting industries facing international competition and supporting investments in low carbon technologies, this review results in a very significant increase in the price of CO₂ (from around 8 €/tCO₂ at the beginning of January 2018 to around 24 €/tCO₂ at the end of the year).

The vision of a carbon neutral European Union in 2050, designed by the European Commission and presented in 2018, considers two energy transition scenarios based on different technological contributions and lifestyle changes. Both scenarios

demonstrate the need to reduce energy consumption by around 40%, increase the electrification rate to over 50% (compared with 22% in 2015), and increase the share of renewables to around 61% (compared to 12% in 2015).

INCREASE OF ENERGY DEMAND

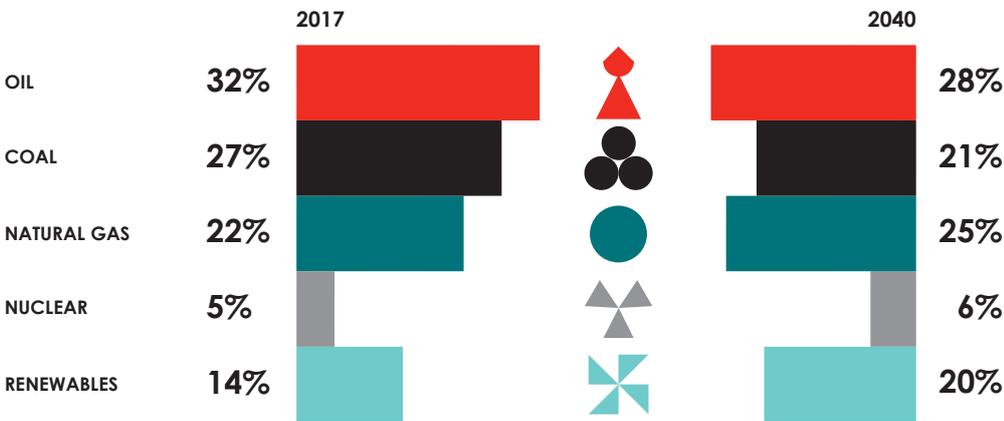


The expected increase in demand is due to the growth of countries outside the OECD (emerging economies), with China remaining the largest energy consumer. Emerging economies in Asia will be responsible for two-thirds of this growth, with India accounting for the largest contribution (about 26%). Conversely, OECD countries are expected to reduce their demand, with a decrease of 4% by 2040.

At a global level, fossil fuels will still account for 74% of primary energy consumption by 2040, with renewable energy sources accounting for 20% and nuclear energy the remaining 6%. OECD countries are expected to reduce their dependence on oil (-23% of consumption), while increases of 25% and 89% are anticipated for the regions of China and India, respectively. Coal should register a decrease of 40% in OECD and 13% in China until 2040, with consumption in India being expected to grow 117%. The only energy sources that should grow in all geographies are natural gas and renewables. China will remain the world's largest renewable energy consumer.

Achieving the necessary decarbonisation and meeting the Paris Agreement (Sustainable Development Scenario) would require a reduction of 23% of the world energy consumption and a reduction in the weight of fossil fuels to 60% by 2040. This would imply a significant effort by the emerging economies to follow the trends of the OECD countries.

PRIMARY ENERGY SOURCES IN THE WORLD (2017 - 2040)



Source: AIE, World Energy Outlook 2018, New Policies Scenario.

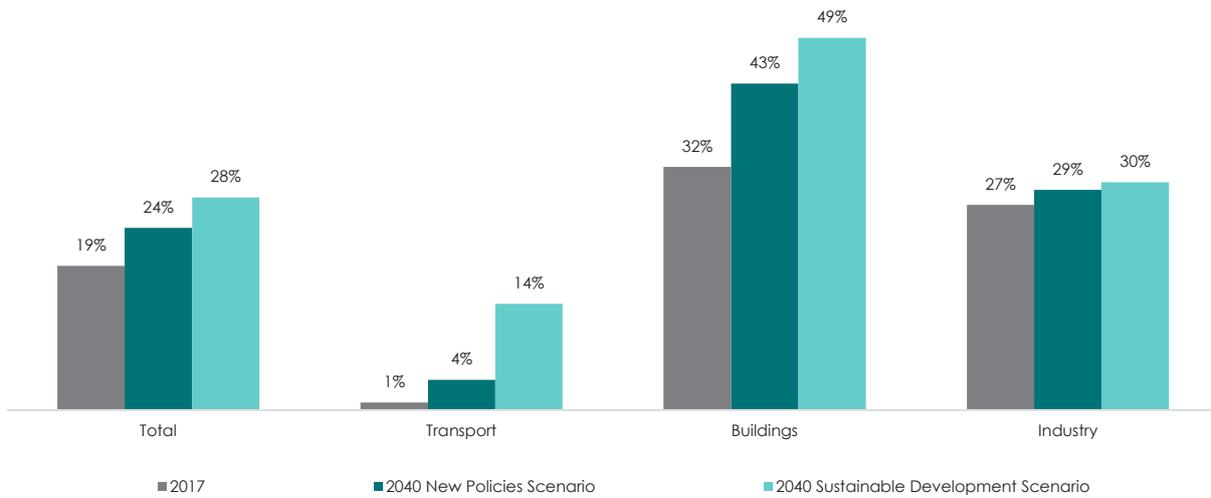
GROWING ELECTRIFICATION



According to the IEA, meeting the Paris Agreement objectives will require increasing energy efficiency to stabilize primary energy consumption at current levels and accelerating the electrification of the economy, with the electrification rate rising from 19% currently to 28% by 2040. In effect, electrification has two major benefits: on the one hand, electric technologies, such as electric vehicles and heat pumps, are more efficient than conventional alternatives, which translates into a reduction in total energy consumption; on the other hand, the transport and heating/cooling sectors are mostly satisfied by fossil fuels, with electricity being the easiest energy vector to decarbonize through the penetration of renewables.

The transport sector is identified as one of the key sectors to achieve decarbonization targets. Starting from a very low electrification rate (1% in 2017), the IEA identifies as necessary achieving a 14% rate and a reduction in final energy consumption of 6% by 2040. Another very relevant sector is the buildings sector, which despite having already an electrification rate of 32% should achieve 49% by 2040, also reducing its final energy consumption by 6%.

ELECTRIFICATION RATE



Source: AIE, World Energy Outlook 2018, New Policies Scenario e Sustainable Development Scenario.

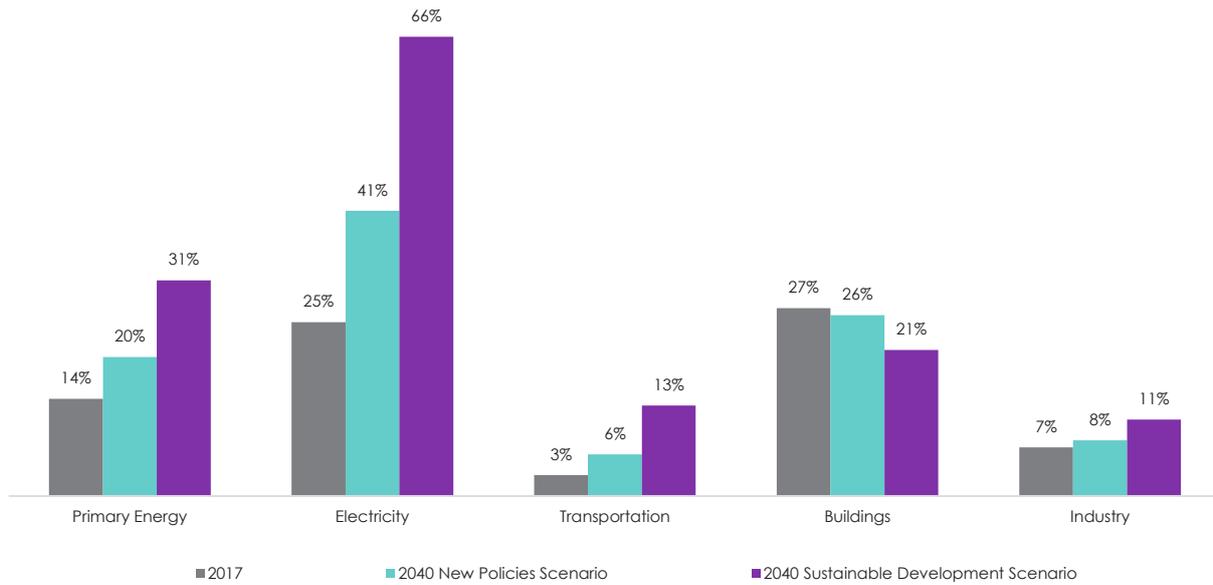
RENEWABLES AT THE CENTRE OF THE ENERGY TRANSITION



Although renewable energy sources in primary energy are expected to account for only 20% of consumption in 2040, this is not the case for the electricity sector. Indeed, the contribution of renewable energy sources to electricity generation is expected to grow from 25% in 2017 to 41% in 2040 in the IEA baseline scenario. However, to achieve the objectives of the Paris Agreement, a contribution of 66% would have to be achieved. On the other hand, the other sectors have much lower uses of renewable energy, with the transport sector being the fastest growing sector, resulting from the use of biofuels. In the buildings sector there is even an expectation of reduction, motivated by the increasing electrification and consequent reduction of the use of biomass.

Investments in wind (onshore and offshore) and solar energy will drive the increasing use of renewable energy, as a result of their increasing competitiveness compared to fossil fuels. The development of long-term remuneration mechanisms, either through competitive auctions or corporate energy purchase agreements, will reduce the risk associated with these investments, with clear economic benefits for society.

SHARE OF RENEWABLES



Source: AIE, World Energy Outlook 2018, New Policies Scenario e Sustainable Development Scenario.

FLEXIBILITY

The rapid growth of renewable-based installed capacity has affected the economic viability of several existing electricity generation assets, which are needed to provide firm capacity to complement the natural variability and intermittency of renewable resources. In this context, and recognizing that the current wholesale market is insufficient, a number of countries (for example Germany, France, the United Kingdom, Italy, several US markets, etc.) have chosen to implement capacity compensation mechanisms to ensure the necessary firm power for the proper functioning of the electricity system.

The increased flexibility of generation will also require increasingly flexible electricity management and consumption structures, through the introduction of batteries, demand side management technologies and increased interconnectivity between the various electricity systems. It is therefore imperative to promote the digitalization of the electricity sector value chain in order to ensure the integration of the various systems, enabling several advantages such as efficiency gains in systems operation, costs reduction (for example in the generation and use of networks) and greater decarbonization through better integration of renewables in the system.

THE NEED FOR A FAIR ENERGY TRANSITION**POLLUTER-PAYS
PRINCIPLE**

The internalization in energy markets of environmental and social costs of carbon emissions, for example through a price associated with these emissions, provides the needed price signal to encourage investment in energy efficiency and low carbon technologies. This strategy has already been implemented in some countries, notably Europeans, although its implementation is sometimes complex. In order to ensure that the carbon price does not distort energy markets by reducing its effectiveness, it should be designed with the widest possible geographical scope and cross-cutting across economic sectors and energy vectors, taking into account the emissions associated with each, following the polluter pays principle. The potential negative impacts in the economy and society should be minimized or even reversed by an efficient recycling of tax revenues through the creation of funding lines for low carbon technologies and the reduction of other taxes (such as the IRS). The possible loss of competitiveness of industries facing international competition must be tackled through compensations (for example with fixed rents) or the taxation of imported products on the basis of the associated emissions.

The need to implement decarbonization policies from a more comprehensive perspective that addresses the economic and social impacts became evident again during 2018 with the creation of the "Yellow Vests" movement (*gilet jaunes*). This movement has led to demonstrations in several countries of the world against what they consider to be disparities in the distribution of fiscal efforts, including the creation of carbon rates and increases in fuel rates.

SOCIAL EQUITY

The current model for financing renewables is an example of inefficient distribution of effort, since, even though the electricity sector accounts for only around 25% of energy consumption, it is the electricity consumers who bear most of these costs (more than 80% in Portugal and Spain). This effect distorts competition among the various energy vectors, limiting electrification and penalizing consumers who are most dependent on this energy vector.

In addition, in most countries, there is a huge disparity between the cost structure of the electricity sector, which is mostly composed of fixed costs, and the current tariff structure, mostly composed of variable costs. This cost allocation to consumers on the basis of their consumption provides cross-subsidization and greatly favors consumers with the economic capacity to invest in decentralized generation and necessarily leads to cost increases for other consumers, which affects mainly vulnerable consumers.

Reviewing the tariff structure, increasing the fixed component, and transferring renewable financing to the State Budget are examples of measures that promote a socially responsible decarbonization.

ENERGY POVERTY

The fight against energy poverty requires both the creation of specific financing lines for vulnerable consumers, with a focus on energy efficiency measures, and a tariff reform that ensures that energy tariffs reflect the costs associated with the energy services they provide. Financing building rehabilitation and purchasing efficient equipment, supported by the development of population education measures, enables consumers to reduce their energy needs and improve thermal comfort. If necessary, the implementation of social tariffs should be based on a logic of social solidarity, financed by the state budget or by other consumers.

Only with an energy transition that considers environmental, economic and social impact, it is possible to guarantee the collaboration of all market agents to successfully implement the required reforms and achieve the ambitious decarbonization targets.

2.2. STRATEGIC PRIORITIES

2.2.1 STRATEGIC AGENDA 2016-2020

Recent years have introduced significant challenges in the energy sector related to the ongoing energy revolution but also to the changes in companies' processes and human capital stemming from the digital and cultural leap already under way.

These factors give rise to uncertainty and volatility in the business, implying a proactive management of risks and opportunities.



In this sense, EDP strategically positions itself with a low-risk and cross-diversified resilient profile, creating conditions for the execution of a strategy to create value in the face of the challenges of a context of low ecological footprint and behavioral and technological changes of its stakeholders, as well as the expected changes in context.

EDP positions with a resilient low-risk and cross-diversified profile, creating conditions for value generation in a context of low ecological footprint and behavioral and technical changes in its stakeholders.

The strategic architecture communicated by EDP in May 2016 reinforced the commitment of balanced growth with financial deleveraging and the maintenance of an attractive return to shareholders, based on the strategic pillars followed since 2006 and which have proved adequate.

STRATEGIC PRIORITIES FOR THE PERIOD 2016-2020:

FOCUSED GROWTH	EBITDA CAGR 2015¹-20	+3%
FINANCIAL DELEVERAGING	Net Debt/EBITDA 2020	~3,0X
KEEP LOW RISK PROFILE	% EBITDA Regulated/ LT Contracted	~75%
REINFORCE EFFICIENCY	OPEX/Gross Profit 2020	26%
DELIVER ATTRACTIVE RETURNS	EPS CAGR 2015¹-20	+4%
	DPS Floor at €0,19/share increase vs 2015	+3%

EDP's **growth-oriented commitment** is embodied in an expected increase of EBITDA of about 3% per year by 2020¹ driven by the creation of growth opportunities focused on renewables, predominantly comprising wind, on-shore and off-shore, but also hydro and solar.

Therefore, the BP 2016-20 foresees an average net investment of 1.4 billion euros per year in the period 2016-20, of which 84% relates to regulated and long-term contracted activities, with about 55% visibility, at that date, of the renewables growth target up to 2020.

The **financial deleveraging** effort aims to reinforce the visibility in free cash flow generation in the medium term, establishing the target of a Net Debt/EBITDA ratio of ~3.0x in 2020, supported by a rigorous control over the investment together with EDP Renováveis' asset rotation strategy and the execution of the strategic partnership with CTG.

EDP's preservation of its **low risk business profile** remains a priority, namely in what concerns the recognition as one of the most integrated and regulated European utilities, set on the commitment of maintenance of the weight of its regulated activities around 75% of total EBITDA in 2020. To this end, EDP will aim to ensure, wherever possible, long-term contracts for the sale of energy as well as to diversify its business portfolio.

The commitment towards **efficiency** was reinforced, being supported through the development of a culture of continuous improvement, based on programs spread across the Group. The fourth edition of the OPEX program was launched in 2015

¹ Based on recurrent and weather adjusted EBITDA and Net Profit in 2015

with a target of 130 million euros for 2018, which was exceeded in 2017, reaching 141 million euros in savings by the end of that year. Hence, a new program (OPEX V) was launched in 2018 aiming at reinforcing the previous one, adding an additional amount of 60 million euros to the savings initially envisaged, totaling a savings target of 190 million euros and 260 million euros for 2018 and 2020, respectively.

Regarding the **shareholders return**, EDP is committed to increase the dividend floor by 3%, to €0.19 per share, from 2016 fiscal year. This commitment is based on the expectation of a Net Profit annual increase of about 4% per year by 2020¹, intending to achieve a payout ratio that is in a range between 65% and 75% of recurrent Net Profit

During 2018, operations were carried out to optimize the group's portfolio, always aiming at complying with the guidelines that had been proposed when the 2016-2020 strategic plan was implemented. In this context, it is worth mentioning the sale of the total stake in some small hydroelectric plants held by the group, both in Portugal and Brazil, generating a cash inflow of around 287 million euros and a capital gain of 83 million euros.

Additionally, in December, EDPR closed its first sell-down transaction. Under this strategy, EDPR proposes to sell recurrently majority stakes in projects in operation or in late stage of development, allowing to crystallize value and to reinvest the proceeds in accretive growth, while continuing to provide operating and maintenance services. Under this transaction EDPR sold an 80% equity shareholding in a portfolio comprising 499 MW of wind onshore assets in the US and Canada, and cash proceeds totalled about 260 million dollars and a capital gain of 109 million euros.

Regarding the strategic partnership with CTG, in December 2018 EDPR completed the sale of 10% of its stake in an offshore project in the United Kingdom. Offshore projects are a commitment by EDP to support future growth options and to be in the forefront of this new wave of industry development, which are already being developed through partnerships, in order to be able to further develop technological expertise in the sector. The Group is currently developing offshore projects in the UK, France, USA and Portugal, which are expected to start operating after 2020.

Also in 2018, the first 113km, out of a total of 1,297km of transmission network in Brazil awarded to the Group on late 2016, start operating. This investment will represent a total of around 800 million euros between 2016 and 2021 and will represent, after completion of the entire project, a foreseen EBITDA of 160 million euros per year.

Given the rapid changes in the world technological context, EDP kept, in 2018, its ambition to remain in the forefront of the digital transformation. In this sense, EDP created in 2017 a dedicated team (EDP X) to accelerate the transition, and in 2018 has strengthened its resources.

SUSTAINABILITY STRATEGIC AXES

In the Business Plan 2016-2020, EDP communicated to the market a strategic sustainability agenda integrated in the maintaining a low-risk profile pillar. This profile also benefits from the maintenance of a leading position and worldwide recognition of its sustainability practices. In this sense, the sustainability strategy was organized around four strategic axes: Creating economic value; Developing our people; Managing climate and environment issues; Strengthening trust. Each of the strategic axes is aligned with the following United Nations Sustainable Development Goals: 5, 7, 8, 9, 11, 12, 13, 15 and 17.

¹ Based on recurrent and weather adjusted Net Profit in 2015

STRATEGIC UPDATE 2019-22

On March 12, 2019 EDP presented to the market its Strategic update until 2022 and communicated its vision and strategic pillars for the future and a repositioning of its business platforms, together with key strategic initiatives and financial targets.

EDP's **Vision** is to lead the energy transition to create superior value, based on 5 strategic pillars:

- **Accelerated and focused growth**, achieved by the step up of growth in renewables
- **Continuous portfolio optimization**, through renewable assets' rotation to accelerate growth and value crystallization together with the disposal of selective assets to balance EDP's risk profile
- **Solid balance sheet and low-risk profile**, based on strong deleverage targeting a solid investment grade and the reinforcement of its low-risk profile
- **Efficient and Digitally enabled**, driving efficiency across the organization with digital revolutionizing EDP towards the future
- **Attractive shareholder remuneration**, delivering superior value to our shareholders through a distinctive renewables equity story, strong earnings growth and an attractive dividend policy

Based on this vision and strategy EDP will be able to deliver:

SUSTAINABLE GROWTH	>€4B EBITDA in '22 >5% CAGR ²	>€1B Net Profit in '22 >7% CAGR ²
DELEVERAGING AND LOW RISK PROFILE	<3.0x ND ¹ /EBITDA in '22	>75% EBITDA Regulated/ LT Contracted
ATTRACTIVE RETURNS	>7% Earnings per share CAGR ²	0.19€/share Floor

¹ Net Debt adjusted from regulatory receivables
² Recurring CAGR 2018-22

EDP's vision also reflects its commitment to sustainable development, fully assuming the structuring role of energy in supporting more balanced growth models from a social and environmental point of view. In addition to a business model focused in decarbonization, EDP maintains its commitment in ensuring that its activity actively contributes to the seventeen United Nations Sustainable Development Goals to be achieved by 2030.

IN 2022 WE WILL ACHIEVE...

ENVIRONMENTAL STANDARDS
targeting 0 pollution accidents

>20%
EDP fleet will be electric

100%
administrative buildings will be carbon-neutral

>75%
customers' satisfaction

€25 MN/YEAR
social investment in the community



20%
of employees volunteering

100%
employees with skills for the energy transition challenge – e.g. digital capabilities

+50%
Women employees vs. 2010

€20 MN
invested in Access to Energy

SAFETY STANDARDS
targeting 0 fatal accidents (inc. FSE)

2.2.2. STRATEGIC GUIDELINES COMPLIANCE

		TARGET 2020	STATUS 2018	OBSERVATIONS
FOCUSED GROWTH	<ul style="list-style-type: none"> Net Investments LT Contracted Renewables¹ EBITDA CAGR 2015²-20 	<ul style="list-style-type: none"> Avg. €1.4B/yr +3.9GW +3% 	<ul style="list-style-type: none"> €1.6B +3.4GW -3% 	<ul style="list-style-type: none"> See chapter 3 Performance
FINANCIAL DELEVERAGING	<ul style="list-style-type: none"> FFO/Net Debt Average Cost of Debt Net Debt/EBITDA 	<ul style="list-style-type: none"> ~24% 4.2% ~3.0x 	<ul style="list-style-type: none"> ~17% 3.8% ~4.0x 	<ul style="list-style-type: none"> See chapter 3 Performance
KEEP LOW RISK PROFILE	<ul style="list-style-type: none"> Renewables installed capacity Avg. Residual Asset Life EBITDA Regulated/ LT Contracted 	<ul style="list-style-type: none"> ~76% ~21 anos ~75% 	<ul style="list-style-type: none"> 74% ~26 anos 77% 	<ul style="list-style-type: none"> See chapter 3 Performance
REINFORCE EFFICIENCY	<ul style="list-style-type: none"> Opex V Target Annual Cost Saving Accumulated Opex Savings OPEX/Gross Profit 	<ul style="list-style-type: none"> €260M³ €900M 26% 	<ul style="list-style-type: none"> €203M ~€308M 30% 	<ul style="list-style-type: none"> See chapter 3 Performance
DELIVER ATTRACTIVE RETURN	<ul style="list-style-type: none"> Target Dividend Payout Range DPS Floor 2016 EPS CAGR 2015²-20 	<ul style="list-style-type: none"> 65-75% €0.19/share +4% 	<ul style="list-style-type: none"> 62% €0.19/share -2% 	<ul style="list-style-type: none"> See chapter 3 Performance
GENERATE ECONOMIC VALUE INVESTING IN DECARBONIZATION	<ul style="list-style-type: none"> Renewable capacity Investment in I&D+I (aggregate) Smart meters (Iberia) Saved Energy (aggregate) 	<ul style="list-style-type: none"> ~76% €200M 90%⁸ 1 TWh 	<ul style="list-style-type: none"> 74% €211M 38% 1 TWh 	
DEVELOP OUR PEOPLE	<ul style="list-style-type: none"> Engagement level Female employees Certification according to OHSAS 18001⁴ Suppliers with high H&S impacts, certified according to OHSAS 18001 Frequency index (FI)⁵ 	<ul style="list-style-type: none"> ≥ 75% 27% 100% 100% ≤ 2.00 	<ul style="list-style-type: none"> 72% 25% 44% 62% 2.11 	
IMPROVE ENVIRONMENTAL PERFORMANCE	<ul style="list-style-type: none"> Emissions variation vs 2005 Maximum certified installed net capacity Certified substations capacity Certified suppliers with high environmental impacts Variation in specific waste materials vs. 2015 	<ul style="list-style-type: none"> -75%⁷ 100% 100% 100% -20% 	<ul style="list-style-type: none"> -59% 97% 86% 68% -32% 	
IMPROVE TRUST	<ul style="list-style-type: none"> Clients/Users satisfaction Recognition by the Ethisphere Institute Protect Human Rights in the supply chain⁶ Implement full stakeholders auscultation⁷ Employees participating in volunteer activities Hours/year in volunteer activities Investment in the community (LBG) (aggregate value) Critical suppliers evaluated according to ESG criteria Service providers with audited ESG risks 	<ul style="list-style-type: none"> > 80% √ 4th stage 4th stage 20% 20,000h €100M 100% 100% 	<ul style="list-style-type: none"> 78% √ 2nd stage 2nd stage 18% 19,375h €110M n.d.⁹ n.d.⁹ 	

¹ Including installed capacity equity

² Based on recurrent EBITDA and Net Profit and adjusted from weather impact in 2015.

³ Target incremented in 2018, following the replacement of OPEX IV by OPEX V.

⁴ Employees covered by OHSAS 18001.

⁵ Accidents with EDP coworkers and outsourcing workers for a million worked hours.

⁶ 1st stage - Impact Study; 2nd stage - Supplier's Code of Conduct; 3rd stage - Supplier's assessment in the Human Rights dimensions; 4th stage - Plans for improvement in relevant cases; adjustment of purchasing policies.

⁷ 1st stage - Definition of a stakeholder auscultation methodology; 2nd stage - Implementation of the methodology in all Business Units in Portugal; 3rd stage - Implementation of the methodology in all Geographies; 4th stage - Cover all segments of the EDP Group's stakeholders.

⁸ Target for 2030.

⁹ Status 2018 still to be determined.

2.3. RISK MANAGEMENT

RISK GOVERNANCE MODEL

EDP Group follows a risk governance model based on the concept of 3 lines of defence internal to the organization, which are complemented by an external fourth line of defence, external audit and regulation/ supervision.

For every line of defence there are clearly defined responsible bodies and forums for debate and decision, formally established to materialize each line of defence at corporate and Business Units levels, avoiding duplication of efforts and/ or the existence of gaps and promoting the cooperation and collaboration between different areas.

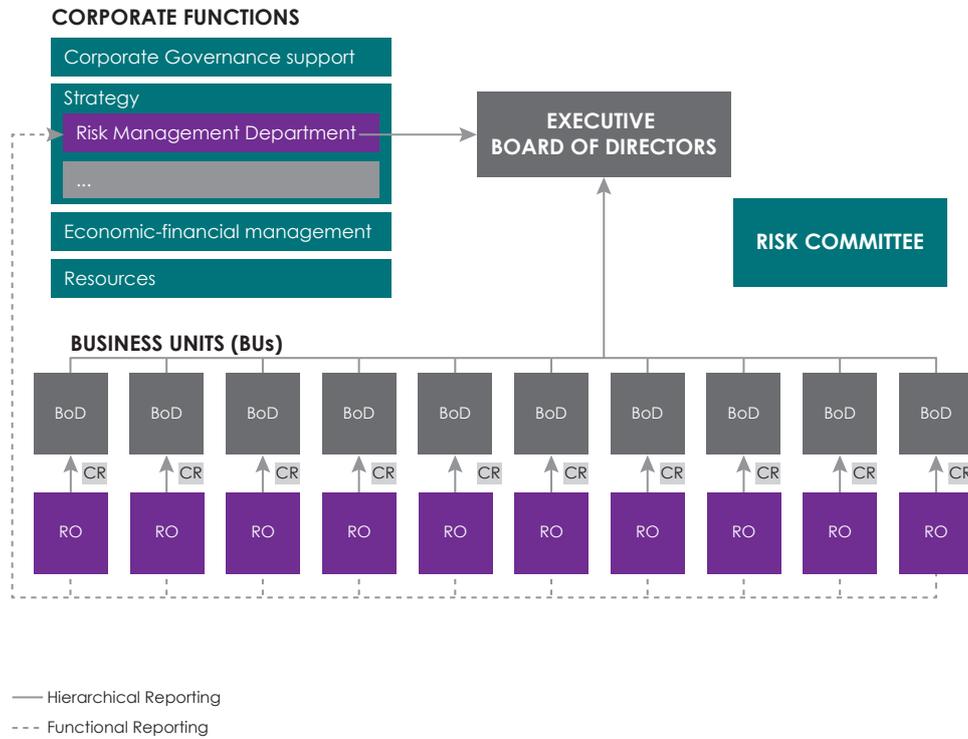
	1ST LINE: BUSINESS (RESPONSIBILITY FOR RISK)	2ND LINE: RISK (SUPPORT THE ANALYSIS AND MONITORING OF RISK)	3RD LINE: AUDIT (INDEPENDENT SUPERVISION)
MISSION	Daily of running business, including proactive management of risks, aligned with established risk policies.	Support in the identification, analysis, evaluation and monitoring of risk (to support business).	Performance and coordination of auditing exercises, seeking the improvement of processes of risk management, control and corporative governance.
AREAS INVOLVED¹	BUs. Corporate departments (with decision-making responsibility).	Risk management (corp. and BUs). Planning and control. Compliance. Sustainability.	Internal audit (corp. and BUs).
RATIONAL	Who benefits the most from risk should be the responsible for taking it.	Given the (natural) incentive for business to take risk, it is beneficial to have an independent function specialized in risk.	It is beneficial to have an independent entity responsible for the verification and evaluation of processes of risk management and control.

¹ Not exhaustive

RISK GOVERNANCE MODEL OF THE 3 LINES OF DEFENCE

Risk management is represented by the Risk Management Department at corporate level, as well as by several risk units across the Business Units (lead by their respective risk-officer) that functionally report to the corporate Risk Management Department, guaranteeing a fluid articulation and communication concerning key risk sources and mitigation actions.

In addition, Risk Committees are held at corporate level and in key Business Units, gathering top management and relevant specialists for analysis, debate and advice on key risk exposures for the Group, respective limits and other mitigation actions.



MODEL FOR RISK FUNCTION REPORT AT EDP GROUP

A more detailed description about the intervening bodies in the risk governance model at EDP Group, as well as attributed responsibilities, is available in the Corporate Governance Chapter, part I, section 52.

KEY RISKS

EDP Group seeks to have a comprehensive perspective over the key risks it is exposed to, at strategic, business, financial and operational level, establishing processes to assure follow-ups and proactive management.

The year of 2018 was marked mainly by the announcement of the Public Offer for Acquisition of China Three Gorges in May 11, 2018 as well as by some regulatory decisions in Portugal.

	ILLUSTRATION OF TOPICS (NOT EXHAUSTIVE)	RECENT EVOLUTION/ EXPECTED IN THE SHORT-TERM	
STRATEGY	Surrounding context	- Geopolitical instability. - Social and economic crisis. - Technological disruption. - Change of competitive paradigm. =	- Growing instability of the global geopolitical context, GDP growth forecasts decreased (namely for Portugal, Spain and United States of America) and financial stress increased with a decrease in stock markets.
	Internal strategy	- Investment strategy. - Relationship with stakeholders. - Corporate planning. =	- Announcement of a Public Tender Offer for the Acquisition of EDP.
BUSINESS	Energy markets	- Fluctuations of pool price, commodities and CO2. - Volatility of the generation volume of renewable energies (i.e., hydro and solar). - Volatility of energy consumption. - Changes in sales margins. ↑	- Structural rise of market exposure (with the end of final adjustment of CMEC), highlighting the hydro profile of the generation portfolio, which naturally turns hydrology in Iberia and Brazil one of the most relevant risks of the Group. - Continuous postponement of necessary market design reforms (given the misalignment of marginal market).
	Regulation	- Changes in taxes and sectorial charges. - Changes in tariff regimes of regulated activities. - Legislatives amendments. - Changes in regulations (e.g., environmental). ↑	- Regulatory impacts in Portugal (e.g., innovative features) with significant materialization in the results of the Group.
FINANCIAL	Financial markets	- Fluctuation of interest rate. - Fluctuation of exchange rate. - Inflation. - Fluctuation of the value of financial assets held by the Group. ↑	- Uncertainty relative to a possible gradual reduction of expansionary monetary policies in Europe. - Political uncertainty and consequent volatility and devaluation of BRL until September (with correction after the results of the elections in Brazil). - Key foreign exchange exposure to USD and BRL. - Appreciation of USD as consequence of a more restrictive monetary policy.
	Credit and counterparties (energy and financial)	- Default of financial counterparties. - Default of energy counterparties (contracts to buy/ sell energy). - Default of clients (B2B and B2C). ↓=	- (Relative) strengthening of the banking system in the Euro Zone. - Positive inflexion of the level of non-performing loans and defaults.
	Liquidity	- One-off insufficiencies of treasury. - Downgrade of financial rating (and consequent rise of financing costs and limitation of access to financing). ↓	- Abundant liquidity and reduced cost of capital, particularly in Europe and United States of America. - Consolidation of rating investment grade.
	Social liabilities	- Capitalization of the Pension Fund of Defined Benefit. - Additional costs with current and anticipated retirements. - Costs with medical expenses. ↓=	- Autonomisation of medical expenses and death benefits financing and consequent increasing contributions for the Pension Fund EDP Group.
OPERATIONAL	Development/ construction of physical assets	- Delay in commissioning date of assets (COD) and inherent loss of profit. - Deviations in the cost of investment (CAPEX). ↓=	- Continuous investment in transmission in Brazil and development of renewable capacity through EDP Renewables.
	Operation of physical assets	- Damages in physical assets and third parties. - Malfunctions by component or installation defect. - Unavailability due to external events (e.g., atmospheric events, floods, terrorist attacks). - Technical and non-technical losses of distribution grid. =	- Increased impact of extreme events in Iberia, with significant damage of assets of distribution and generation of energy in Portugal.
	Processes	- Irregularities in the processes' execution (regarding commercial activities, selection and management of suppliers, billing, etc.). =	-
	Human resources	- Work accidents. - Unethical conduct. - People management. - Relationship with unions and other stakeholders. ↓=	- Trend of decreasing index of frequency of accidents in EDP Group.
	Information systems	- Unavailability of information and communication systems. - Integrity and security of information. ↑=	- Higher level of structural exposure (in particular of large-scale cyber-attacks, data protection directives) partially compensated by a reinforcement of mitigation measures (cyber range, SOC, cyber risk insurance, training sessions).
	Legal	- Losses arising from lawsuits related with tax, labour, administrative, civil, or others (penalties, compensation and agreements). =	-

A more detailed description of each risk is available in the Corporate Governance Chapter, part I, section 53.

EMERGING RISKS

Besides closely monitoring key risks inherent to its activity, the Group maps key trends (at global and sectorial level) that may be translated into threats and opportunities, and proactively develops adequate mitigation strategies. Due to their impact throughout the year, one should highlight (1) the challenge of adjustment of the wholesale market design to current market conditions, (2) the changing paradigm of decentralized resources, (3) the industrial revolution and digitalization of the electric sector, (4) the growing threat of cyber risks and (5) the (possible) increasing frequency and severity of extreme climate events.

	DESCRIPTION	IMPACT	MITIGATION MEASURES
WHOLESALE MARKET DESIGN (IN EUROPE)	<p>Uncertainty around the evolution of the wholesale market design, given the current challenges:</p> <ul style="list-style-type: none"> - Marginal remuneration system not adjusted to the current context of growing penetration of fixed cost technologies (renewables, backup, storage). - Growing penetration of technologies with 0 marginal cost (reducing prices and increasing prices' volatility). 	<ul style="list-style-type: none"> - Uncertainty around the returns of the conventional generation, in particular as backup capacity (relevant in a perspective of ensuring security of supply). - Volatile context, not suitable for long-term investments necessary to the modernization, decarbonization and security of supply. 	<p>Active and constructive participation in several forums, at European and national level, for the adoption of adequate and equilibrated market design solutions for various stakeholders, in particular:</p> <ul style="list-style-type: none"> - Adoption of energy auctions for long-term contracts to promote renewables. - Recognition of the need for capacity remuneration mechanisms. - Support to price signals of CO2 at European level. <p>Reinforcement of focus on long-term contracts (renewable and conventional generation), to reduce risk and increase competitiveness in the supply offer to final clients.</p>
DISTRIBUTED RESOURCES	<p>Growing proliferation of distributed resources, including:</p> <ul style="list-style-type: none"> - Decentralized production (in particular solar PV) for self-consumption. - Electric vehicles. - Active demand side management. - Storage. 	<p>Threat relative to:</p> <ul style="list-style-type: none"> - (Possible) reduction of margins for traditional generation due to a reduction of the volume of energy generated centrally. - Reduction of the contribution of consumers in self-consumption for the costs of the system (grids and others) and consequent need for tariff increases. - Changing dynamics of energy flows in the grid. <p>Opportunity for the sale of new products and services.</p>	<p>Proactive role in the commercialization of innovative products and solutions, with benefit in margin and client retention:</p> <ul style="list-style-type: none"> - Sale of solar panels for self-consumption (and batteries). - Commercialization of solutions associated with electric mobility (e.g., green electric mobility). - Solutions of energy efficiency (e.g., Re:dy with application to the electric car, solar generation, heating, control of outdoor spaces). <p>Active regulatory management, in particular related with tariff structure, enabling the existence of efficient price signals and incentives.</p>
4TH INDUSTRIAL REVOLUTION (AND DIGITALIZATION)	<p>Proliferation of new technologies with disruptive potential for the electric sector, including (among others):</p> <ul style="list-style-type: none"> - Blockchain. - IoT. - AI/ machine learning. - Virtual/ augmented reality. - Robotic Process Automation (RPA). 	<p>New market entrants such as aggregators, services of design science research (DSR) or solutions for clients.</p> <p>Opportunities for operational and business optimization, e.g.:</p> <ul style="list-style-type: none"> - Operation and maintenance of assets (generation and grids). - Pricing and segmentation. - Innovation of product and client services. - Optimization of back-office and shared services. 	<p>Follow-up on best practices and developments at digital level applicable to the energy sector.</p> <p>Release of dedicated department to EDP Group digitalization (Digital Global Unit – DGU), as result of EDPX project, developed with the collaboration between internal and external specialists to accelerate ideas and test digital solutions:</p> <ul style="list-style-type: none"> - Assets/ operations (e.g., predictive maintenance, asset management, task force digitalization, energy/ trading management). - Client (innovation of products and services, namely electrification). - Group (agile/ project-based solutions, optimization/ automation of internal processes).

	DESCRIPTION	IMPACT	MITIGATION MEASURES
<p>CYBER-RISKS</p>	<p>Exposure to several cyber risks, due to a growing sophistication and integration of technologies.</p>	<p>Financial, operational and reputational loss, due to (among others):</p> <ul style="list-style-type: none"> - Loss/ interruption of operations (e.g., dispatch/ plants, billing, client service). - Damage/ destruction of assets (grids, plants, other systems). - Violation/ destruction of data (personal and others). 	<ul style="list-style-type: none"> - Continuous improvement of the security of internal systems. - Security Operations Center (SOC) dedicated to continuously monitor the security of OT/ IT infrastructure of the Group. - Internal cyber range to simulate and test the reaction of employees to cyber-attacks. - Security courses and awareness programs on key principles of information security. - Cyber insurance.
<p>EXTREME CLIMATE EVENTS</p>	<p>Structural climate changes (in particular temperature and precipitation), with impact in the frequency and severity of extreme climatic phenomena (floods, droughts, storms, wildfires).</p>	<ul style="list-style-type: none"> - Damage to physical assets and loss of profit. - Impact on quality of service (distribution grid). - (Possible) structural changes in hydro generation (average and volatility). 	<ul style="list-style-type: none"> - Geographic and technological diversification. - Active role fighting against climate change (namely promoting decarbonization and energy efficiency). - Adoption of TCFD recommendations, and mapping of the main climate risks for EDP according to transition and physical risks categorization. - Existence of dedicated areas and plans for Crisis Management and Business Continuity (at corporate level and for key Business Units).

RISK APPETITE

The EDP Group is exposed to a number of risks due to its dimension and diversity of businesses and geographies in which it operates, hence it recognizes risks as an integral and unavoidable component of its activity, both as threats as opportunities.

Acknowledging this fact, the Group establishes explicitly and implicitly its risk appetite for all internal and external stakeholders, both at corporate and Business Units level, as well as for the various categories of risks, through a set of mechanisms:

- The periodical development and approval of the Group's Business Plan by the Executive Board of Directors, which is communicated to all stakeholders, and where key strategic orientations are set for the upcoming 3 to 5 years;
- The rigorous evaluation of risk related to investment and divestment opportunities proposed by the Business Units and approved by the Executive Board of Directors, including the estimation of returns adjusted to risks vs. established hurdles. This evaluation is supported by the opinion of the Investments Committee, which includes specialists from relevant areas of expertise;
- The development of a wide set of risk management policies, both at corporate and Business Unit level, which establish guidelines, methodologies of evaluation and exposure limits for key risks¹;
- The periodical development of risk mapping exercises, based on objective, quantitative and comparable criteria, allowing an analysis of the exposure to key risks, as well as the adoption of preventive treatment actions for excessive exposure to risks (regarding the established tolerance of risk);
- The establishment of a wide set of mechanisms for periodical reporting of key risks, at Group and Business Unit level, thus allowing a regular monitoring of the evolution of actual and emerging risks and comparison of the exposure to different risk profiles within the established limits;
- The adoption of a risk governance model based on 3 independent lines of defence (business, risk/ compliance and internal audit), which guarantees the implementation of the established strategies and alignment with risk appetite, namely:
 - A formally established risk-officers network in all Business Units with material risks;
 - A regular Risk Committee², with the participation of the members of the Executive Board of Directors responsible for relevant risks, where key sources of risk are analysed and mitigation actions are proposed through dedicated dashboards.

In terms of positioning, the Group establishes the maintenance of a controlled risk profile as a fundamental pillar for its strategy, expressed transversally along 3 natures of risk:

- Risks for which the Group has zero tolerance (e.g., health/ safety and ethics);
- Risks for which the Group is constrained externally and are managed proactively within the established tolerances (e.g., counterparties);
- Risks inherent to markets in which the Group operates and are managed proactively around the established risk appetite to optimize the trade-off risk-return (e.g., energy markets).

The risk appetite of the Group and key risk indicators (KRIs)/ objectives are reviewed and approved regularly by the Executive Board of Directors.

¹ Including, among others, the Enterprise Risk Management Policy, Limits Structure from the Energy Management Business Unit, the Financial Management Policy, the Counterparty Policy, the Insurable Risks Management Policy, the Health and Safety Policy, the Information Systems Policy and the Principals, Structures and Procedures of Crisis Management and Business Continuity

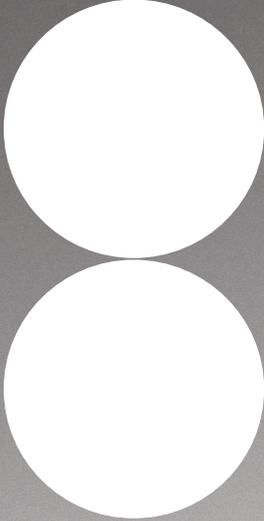
² Corporate and at Business Units level, when justified

	RISK APPETITE (ASPIRATIONAL)		KRI (TARGET)	
STRATEGY	Risk-return profile	- Activity focused mainly in regulated or long-term contracted operations , guaranteeing a higher level of stability and predictability of cash-flows. - Growth focused on grids and renewable generation with demonstrated medium-long term viability , complemented by selective bets on innovative high potential generation technologies. Evaluation by Investment Committee of returns adjusted to risk vs. established hurdles.	75% +50%	EBITDA in regulated or long-term contracted activities by 2020. Net investment in renewables (accumulated 2016-20).
	Innovation	- Early adopter of technological solutions and high value added services for the Group (e.g., off-shore wind and solar), for clients (e.g., EDP intelligent house: decentralized solar, electric mobility, batteries and EDP Re:dy) and remaining stakeholders , supported by dedicated area (EDP Inovação).	€200M	R&D investment of until 2020 (vs. 2015).
	Geographical footprint	- Geographical presence focused in geographies with reduced country risk , complemented by strategic bets in geographies with accumulated market know-how/ expertise and/ or high structural potential.		% international EBITDA in 2020 generated in investment grade geographies.
	Sustainability	- Reference in sustainability through the adoption of actions and use of broad, specific and transversal KPIs ¹ , performance recognized by independent international entities, supported by a dedicated area. - Systematic and proactive action to minimize likely negative impacts on the Group's accumulated capital reputation. Reputational performance followed-up using independent references, scoring aligned or superior to main peers . Relations with stakeholders supported by dedicated area, in articulation with Executive Board of Directors.	↓75% 75%	CO2 emissions by 2030 (vs. 2005). Wind, hydic and solar installed capacity by 2020.
	Reputation			Absolute performance vs. peers in reputational indexes (e.g., RepRisk).
	Dividends policy	- Predictability and sustainability of dividends policy as a fundamental element of the shareholders' value proposition , remuneration in line with best peers.	65-75% €0,19	Target payout ratio. Dividends per share floor.
BUSINESS	Energy markets	- Structural position broadly balanced between generation in market and client sales. Presence in energy markets focused on the hedging of the wholesale margin (with reduced exposure to trading positions), diversified sourcing based on financial instruments of reduced complexity (forwards and plain vanilla swaps). Structural and trading risks managed by dedicated BU, framed by a policy stating global as well as individual risk factors' limits, and periodical and systematic monitoring using a dedicated model.		Wholesale margin coverage risk (Profit @ Risk). Trading margin risk (Value @ Risk). Maximum level of exposure. Risk of individual factors. Minimum sourcing stock.
	Regulatory approach	- Proactive management of regulatory agenda, promoting the permanent constructive dialogue with public and regulatory entities to contribute to the development of regulatory and legal frameworks that are fair and stable for all stakeholders.		-
	Client satisfaction	- Agenda focused on ensuring distinctive levels of global client satisfaction in all markets and segments, as well as minimizing number of complaints.		Client satisfaction scoring. # complaints per 1000 contracts.
FINANCIAL	Debt	- Target of alignment of level of debt with main peers , adjusting to the weight of regulated or long-term contracted activities. Proactive management of debt at fixed/ floating rates , taking into account market conditions and the revenues profile of the Group. Target to reduce refinancing risk through an increase of the average debt maturity , constrained by market conditions and considering the risk/ return trade-off.	~3,0x ~5 years	Net debt / EBITDA by 2020. Maximum level of exposure to floating rates. Average debt maturity.
	Liquidity	- Maintenance of liquidity reserves enough to cover refinancing needs in short-medium term.	18-24 months	Refinancing needs covered by existing liquidity.
	Rating	- Target to maintain rating investment grade for key rating agencies .		Investment grade rating in internationally recognised agencies.
	Exchange rate	- Exposure diversified by the presence in multiple geographies, with net position (assets - liabilities) broadly balanced through the use of hedging instruments and/ or financing sources in local currencies. Management supported by dedicated areas ² and framed by financial management policy.		Equity@risk. Net investment exposure (by currency).
	Counterparties (energy and financial)	- Proactive management of the exposure to energy and financial counterparty risk , through the adoption of methodologies to evaluate, monitor and report exposures, framed by policies and global and individual rating limits.		Levels of exposure and energy and financial counterparties loss, global and by counterparty.

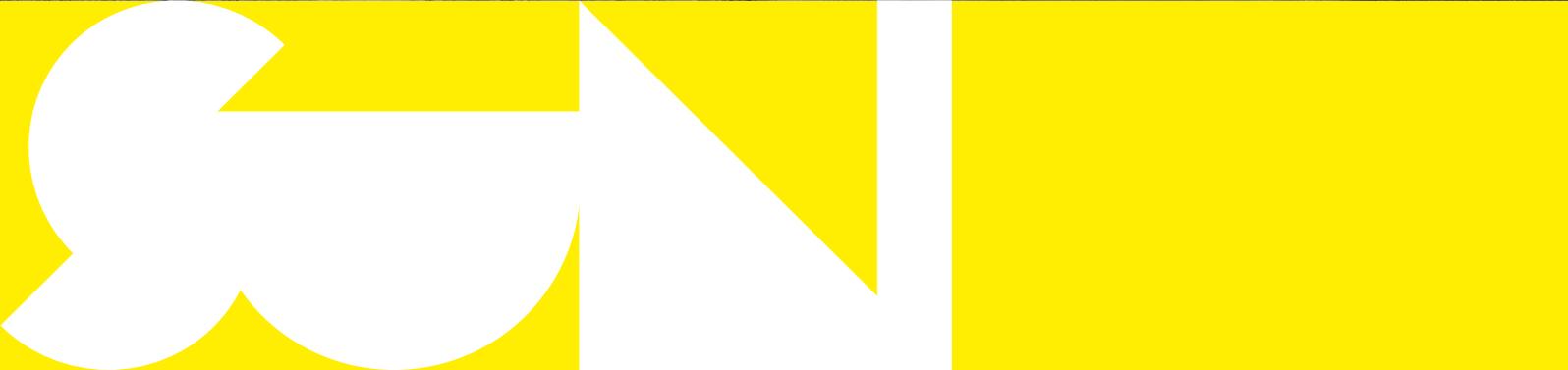
¹ Regarding economic value, eco-efficiency, environmental protection, innovation, integrity and good governance, access to energy and social development

² In EDP Brasil, the local Risk Management Office is responsible for the management of financial risks related to changes of interest and exchange rates, consistent to the principles defined by EDP Group

	RISK APPETITE (ASPIRATIONAL)	KRI (TARGET)
	<p>Credit to clients</p> <p>- Proactive management of client credit risk, quantitative monitoring of exposure and adoption of a wide set of mechanisms, including scoring and risk-adjusted pricing for B2B clients, promotion of direct debit, collateralization and regulatory compensation.</p>	<p>Expired debt/ commercial revenues. Impairment for doubtful clients/ commercial revenues.</p>
	<p>Social liabilities</p> <p>- Pension plan for new employees under a defined contribution scheme, heritage of employees and pensioners under a defined benefit scheme. 100% coverage of liabilities under the defined contribution scheme through assets. Diversification of investments on multiple assets and management entities, follow-up by dedicated Committee.</p>	<p>Level of coverage of the Pension Fund.</p>
OPERATIONAL	<p>Physical assets</p> <p>- Generation: development prefers well-established technical solutions and suppliers. Operation strives to strike a balance between minimizing maintenance costs and programmed unavailability and the risk of costs or loss of profit associated to unprogrammed unavailability.</p> <p>- Distribution: development strives maximization of grid resilience (and guarantee n-1 redundancy). Operation geared towards overcoming targets of service quality.</p>	<p>Average unavailability. GoS indicators (ICEIT, SAIDI).</p>
	<p>Insurable risks</p> <p>- Extensive coverage of insurable risks at Group and BU level, with coverage, exclusions, premiums, stop-losses and caps suited to each specific context. Relationship with brokers and insurance companies centralized in specialized area.</p>	<p>Gross and net insurance losses associated with risks. Loss ratio.</p>
	<p>Suppliers</p> <p>- Systematic evaluation of suppliers' risks, including the evaluation based on a broad set of sustainability criteria (including financial), relationship owned by a dedicated BU.</p>	<p>Scoring of key suppliers.</p>
	<p>Health and safety</p> <p>- Zero tolerance for health and safety incidents with employees, external contractors or other third parties. Development of preventive policies and measures and conduct of awareness actions, supported by dedicated area.</p>	<p>Frequency and severity rate of incidents with EDP and external employees and third parties.</p>
	<p>Ethics</p> <p>- Zero tolerance for any unethical and fraud behaviour. Dedicated channel for independent treatment of any arising incidents.</p>	<p>Ethics Index scoring.</p>
	<p>Information systems</p> <p>- Continuous monitoring of arising and existing threats for information systems. Proactive development of initiatives and internal tests to ensure the integrity and availability of the various systems of the Group and data.</p>	<p>Disaster recovery tests result. # threats detected by SOC.</p>
	<p>Legal/ Compliance</p> <p>- Strict compliance with laws, norms and internal and external regulation, ensured by dedicated compliance area and periodical follow-up of ongoing contingencies by dedicated area.</p>	<p>Volume of legal contingencies by geography. Volume of legal provisions.</p>
	<p>Crisis and business continuity</p> <p>- Preventive action framed by corporate and BU level policies, including the performance of business impact analysis to prioritize and develop action plans before, during and after-crisis, coordinated by dedicated area.</p>	<p>% BUs with business impact analysis and business continuity plans.</p>



ON A CLEAR



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DAY YOU CAN SEE FOREVER