Investor CDP 2012 Information Request

0. Introduction to the document

EDP responds systematically to the Carbon disclosure project since 2009. This activity has allowed us to make a deep systematization and reflection upon our CO2 strategy, emissions and projects thus giving us a deep insight about the market, present and future.

Every year we attach a pdf file in order to provide a friendlier reading version.

Please feel free to give us your feedback on any issue (luisa.serra@edp.pt).

We expect you to enjoy this reading as much as we have enjoyed doing it.

0. Introduction to CDP

Please give a general description and introduction to your organization

Following our full disclosure policy, all information about Energias de Portugal (EDP) can be accessed in www.edp.pt. EDP strongly recommends the consultation of our 2011 Annual Report.

EDP is a European utility company, based in Portugal but also present in 12 other countries, being the most relevant Portugal, Spain, Brazil and USA.

2011 in short figures:

Turnover	15,121 EUR Million
Gross Operating Profit	3,756 EUR Million
Net profit	1,125 EUR Million
Employees	12,305
Net assets	41,281 EUR Million
Equity	8,110 EUR Million
Net debt	16,948 EUR Million
ISIN	PTEDP0AM0009
SEDOL	4103596

EDP's vision is to be a global energy provider company, leader in creating value, innovation and sustainability.

EDP's values are: initiative, innovation, trust, excellence and sustainability.

EDP generates, distributes and commercializes electrical energy, and transports, distributes and commercializes gas.

EDP has a strong role in what regards Climate Change, from the mitigation point of view as well as from the adaptation one.

Since 2006 EDP is strongly supporting renewable energy through its wind generation business unit, now named EDP Renováveis (EDPR), thus contributing to a cleaner electricity generation.

0. Reporting year

01.01.2011 – 31.12.2011

0. Country list configuration

Please select the countries for which you will be supplying data. This selection will be carried forward to assist you in completing your response

Portugal
Spain
USA
Brazil

0. Currency selection

Euro

Management

1. Governance

Group and Individual Responsibility

1.1 Where is the highest level of direct responsibility for climate change within your company?

Individual/Sub set of the board or other committee appointed by the board.

If an individual or committee is identified:
1.1a. Please identify the position of the individual or name of the committee with this responsibility

i. indentify the job title of the individual
António Pita de Abreu the member of EDP's corporate executive board that has the responsibility upon Sustainability issues. He is an engineer with a long time experience in the company having worked many years in generation and overseas.
ii. description of his position within the corporate structure
Mr Pita de Abreu is a member of EDP's corporate executive board. He has responsibilities upon the following areas: sustainability, labor relations, IT, ethics and electric generation.

Individual Performance

1.2 Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

If yes: 1.2a Please complete the table

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator
Board/Executive Board	Monetary reward	Sustainability index that includes three performance vectors: economic, environmental and social. CO2 emissions reduction is included in the environmental vector. The methodology is based on the Dow Jones Sustainability Index.
Environment/sustainability managers	Monetary reward	The employees entitled to this benefit are: - The Corporate Sustainability Department - Sustainability Department of EDP Distribution company (part of) - Sustainability Department of EDP Generation company (part of) - Sustainability Department of EDP Gás company (part of) - Members of Financial Control Department of EDP - The colleagues from the BU that collaborate with the corporate Sustainability Department. The benefit is calculated using the index that includes three performance vectors: economic, environmental and social. CO2 emissions reduction is specifically stated in the environmental vector. The methodology is based in the Dow Jones Sustainability Index.
Business unit managers	Monetary reward	Sustainability index that includes three performance vectors: economic, environmental and social. CO2 emission reduction is specifically stated in the environmental vector. The methodology is based in the Dow Jones Sustainability Index.
Employees EDP Brazil	Monetary reward	All employees of EDP Brazil have the ISE Bovespa index performance in their KPI's. The ISE Bovespa includes CO2 emission reduction in its environmental vector evaluation.

2. Strategy

Risk Management Approach

2.1 Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities.

Integrated into multidisciplinary companywide risk management processes

If "integrated into company-wide risk management process", "a specific climate change risk management process", or "a process that forms part of the company's overall approach to governance/compliance" are selected:

2.1a Please provide further details (see guidance)

i. The scope of the process – type of risks and opportunities considered by the process such as regulatory, customer behaviour changes, reputational and weather related

EDP has a Corporate Policy on Enterprise-Wide Risk Management (CPEWRM), that states: Objectives, Principles, Structure and Governance and identifies all company departments that have responsibilities in risk management. Governance and Control are established in CPEWRM and were stated by the Executive Board of Directors (EBD). The EBD decides about the company's risk appetite and the acceptable level of risk exposure, it also delegates tasks and responsibilities, defines the overall risk limits and ensures that risk management policies and procedures are observed.

The EBD is supported by a group of committees, among them the Risk Committee, chaired by the CEO, composed by: CFO, CRO, Corporate Financial Department Director, Iberian Trading Unit manager, Energy Strategic Planning Department Director and other senior management members who are invited upon agenda request. The main tasks of the Risk Committee are: to monitor key risks and risk appetite of EDP Group, to approve reporting and monitoring mechanisms, to approve or define recommendations concerning key risks or extraordinary risk events and approve or define recommendations concerning the Group Risk Policy, procedures and limits.

At corporate level, there is a Risk Management Department that is responsible for independent risk control, supervision and continuously report on overall compliance (with the established procedures and limits), as well as, the development of specific models and methods for risk management.

The type of risks considered is vast and is listed in the Risk Types at EDP Risk Portal, the corporate Risk database, among others one can find:

- Credit Risks – Clients, counterparties, among others.
- Environmentally strategic – Climate change, biodiversity, social liabilities, environmental passive
- Market – Forex, liquidity, price (fuel, electricity, financial instruments and others) and tax rates
- Operational – Clients, financing, suppliers, management, legal compliance, planning, project, construction, human resources, IT and systems
- Sector – Environment, competition, economic, politic, social, volume (of transaction).

ii. how risks opportunities are accessed at a company level

Business Units (BU) manage their own risks (down side) and opportunities (upside) within the established mandates. BU Risk Officers articulate both with their hierarchies, and with the CRO, thus ensuring the alignment of objectives, processes, report and control.

The methodology developed for risk management (identification, scoring and monitoring) is supported by a software platform, web based, named "Portal de Risco do Grupo EDP" (Risk Portal- EDP Group). This was internally developed to consistently collect information on each relevant risk. It is widely used in EDP Group and provides data with qualitative and quantitative risks assessment. All actions regarding a particular risk are registered and can be followed up on the tool. In the Risk Portal the risk maps are automatically produced for all the identified risks. EDP works with the following two-dimensional risk maps: (1) risk manageability vs. expected risk; (2) risk control vs. expected risk; (3)(manageability-control gap) vs expected risk where "expected risk"= frequency x severity.

Financial and Business Risks exposure are analyzed with Monte Carlo simulations and stochastic methods, applying VaR, CFaR, PaR, among others.

Credit risks (counterparty or client default) are analyzed by external and internal rating and multivariate methodologies that allow the identification of financial and business risk exposures.

Multi-dimensional stress tests and scenario analysis are also applied to the bi-annual business plan and budget.

Water and climate risks and crisis management are ultimately delegated in the CEO and in the Board. In order to succeed in this mission, the CEO is assisted by the board, namely by the officer in charge of Environment and Sustainability and by the officer in charge of Generation. Operational Climate Change Risk is managed by BUs and followed at corporate level by the Corporate Risk Management Department and by the Sustainability Department (DSA). DSA has developed a project, ClimEDP, transversal to the company that has evaluated the impact of Climate Change Risk in EDP's processes and assets. This project is in the Risk Portal.

iii. how risks opportunities are assessed at an asset level (individual sites)
The risk assessments that leaded to the Risk Portal were performed on an asset base approach for each relevant BU.

iv. the frequency of monitoring in terms of weeks/months/ years
Risks are followed up depending on their materiality and on their control status, that is, risks which can cause a major impact or that are not properly managed are followed up on a regular basis that can range from weekly to bi-annual. Usually, risks in this situation are under some corrective action towards mitigation, either by increasing its control either by transferring the risk. The most common monitoring frequency is annual.

v. criteria for determining materiality/priorities
The risk materiality is decided upon its impact on the BU as well as its impact on EDP Group. In a small BU a risk may be important, but when evaluated at group level it may be almost irrelevant, either because of its value, either because it is naturally hedged. All risks are evaluated taking into account these two vectors. A risk that has an important impact at Group Level is considered a priority and is addressed in an urgent manner with actions to diminish or transfer it.

vi. to whom are the results reported
The actions/projects developed to manage these risks are reported to BU management as well as to the Risk Management Corporate Department and when they are significant they are also reported to the Board.
Furthermore for the fourth consecutive year, EDP Group is recognized by the Dow Jones organization and for the second consecutive year, EDP Group has been considered the world leading company in the electric sector. EDP leads in areas like integrated risk management, management control systems, biodiversity, social reporting and stakeholders' management. For the second consecutive year, EDP Group is the world leader in the social dimension. In a total of 22 criteria, EDP is considered Best Practice in 10 and has obtained the maximum score in 6.

Business Strategy

2.2 Is climate change integrated into your business strategy?

Yes

If yes: 2.2a Please describe the process and outcomes (see guidance)

EDP's strategic plan, issued by the Executive Board of Directors (EBD on Investor's Day in 2008, stated that CO2 emission factor (EF) would be reduced by 56% by 2012 in comparison with 2005 emissions. EF would drop from 600KgCO2/MWh in 2005 to 270KgCO2/MWh by 2012.
In 2009, EDP committed itself to a more ambitious target, to reduce by 2020 by 70% EF, in comparison to 2008. EF will drop from 400KgCO2/MWh in 2008 to 120KgCO2/MWh by 2020. This reduction is a result of the Group's Strategy and will be achieved through substantial business decisions:
- Investment in wind power – CO2 free electricity generation
- Switch from coal and fueloil to CCGT - contributes to CO2 intensity reduction
- Construction of new hydropower plants, most of them with pumped storage capability – CO2 free electricity generation
- Repowering existing hydropower plants – CO2 free electricity generation
- Investment in smart grids – increases electrical system efficiency
- Investment in innovative efficiency projects in demand side management- increases electrical end users efficiency

The EF evolution in KgCO2/MWh was 2006: 490, 2007: 460, 2008: 400, 2009: 360, 2010: 244 and 2011: 285
2010 was an abnormally wet and windy year, in 2010 there was considerable EF reduction - EDP surpassed the 56% target having reduced 59% of specific emissions. On the other hand, 2011 was an atypical dry year, and, disregarding all the CO2 emission reduction initiatives that EDP has undertaken, the 2011 EF was 285kgCO2/MWh (above 2012 target).

i. How the business strategy has been influenced, i.e., internal communication/reporting processes that achieve this

EDP's strategy is based on three pillars: controlled risk, superior efficiency and focused growth. Controlled risk means that many types of risk are thoroughly addressed: Strategic, Business, Market, Operational, Credit and Regulatory Risks. Climate risk is dealt within the Strategic and Operational risks, through an on-going project, ClimEDP, in which Climate Change risk is assessed as well as company adaptation, there are also specific risks analyses that evaluate Climate Change impact, namely water shortage.
EBD defines the corporate strategy based on the inputs from corporate departments such as Energy Strategic Department, Risk Department, and relevant BU: electrical generation company, electrical distribution, gas distribution, among others. These inputs include market analysis, scenario analysis, technology analysis, regulation analysis, among others.
The data produced incorporates important climate change issues such as emissions regulation, CO2 price, and extreme weather events, among others. Fuel use and availability is also considered, although it is not directly connected with climate change.

ii. What climate change aspects have influenced the strategy, e.g., how the strategy is linked to the risks and opportunities and emissions reduction targets

The key factors that have shaped EDP's strategy are CO2 and fuel prices.
EDP's emission reduction mitigates climate change, but also decreases its exposure to CO2 and fuel price volatility risk. EDP's strategy also incorporates climate change in the short term, through adaptation measures that EDP has undertaken in order to reduce climate change impacts on its assets, such as the construction of protection walls (Setúbal), the placement of equipments at a superior height (TER), the installation of algae cleaning systems (in Sines the algae explosive growth in the cooling source was due to a local increase in sea temperature), the duplication of floodgates circuits and the placement of diesel emergency groups in flood protected sites in hydropower plants. These initiatives are registered and followed up by the ClimEDP project. Next steps of the project will be the incorporation of climate change weather scenarios in the climate change risk analysis. These scenarios will be produced by the Portuguese Meteorological Institute and will start to be available by the end of 2012.

iii. The most important components of the long term strategy that have been influenced by climate change

The most important components of the long term strategy that have been influenced by climate change are:
(1) Generation mix – to include more renewable
(2) CO2 emissions of EDPs power plants – considerably curbed
(3) Adaptation measures– to reduce EDP's assets exposure to extreme weather risk.

iv. How this is gaining you strategic advantage over your competitors

The strategy adopted by EDP has proven to be successful. The significant investment EDP has made in low or zero emissions generation technologies, namely wind generation, has allowed EDP to own the third global wind generation company – EDP Renováveis (EDPR). This company is a paradigmatic case of success. Through the mother company EDP, EDPR had easy access to the credit market that has allowed it to move fast into emerging markets in which incentives were being given to green power generation, thus being allowed to collect most of these economic incentives. Those incentives can be power purchase agreements, tax credits, among others. Due to the global economy downturn, those incentives are declining and companies that were able to collect them in due time did won a very strong competitive advantage.
The change in generation mix has originated energy source diversification protecting EDP from fuel price volatility. The change in generation mix also attenuated the effect of CO2 price.
Furthermore adaptation measures diminish EDP's risk and protect EDP's assets and cash flow generation.

v. what have been the most substantial business decisions made during the reporting year that have been influenced by the climate change driven aspects of the strategy

As announced in the Financial Report, several relevant substantial business decisions occurred in 2011 that were

related with Climate Change:
- EDP and China Three Gorges Corporation (CTG) engaged in a partnership. CTG is China's largest clean energy group with an ambitious renewable energy plan. It has 22,500MW in operation in the Three Gorges hydro power plant, with 88.2TWh Average annual output. It is the largest hydro in the world. CTG has plans to further construct 48.5GW on Yangtze river. CTG has 1GW wind power capacity and a 2020 target installed capacity of 90GW (70GW hydro and 20GW wind). This partnership strengths EDP's credit profile increasing EDP's financial liquidity position.
- EDPR took full control of GENESA a wind power company,
- EDP Brazil began the construction of a hydropower plant - Santo Antônio do Jari - located between the border of Pará and Amapá States. Its installed capacity will be 300MW,
- EDPR increased its installed capacity in 806MW (12.1%). This position allows EDPR to attain a market quota of 4% in Europe and 7% in EUA.
- EDPR created a joint venture with EDP Brazil in 2008, in 2011 EDPR Brazil had an installed capacity of 84MW and a pipeline of 1614MW. Also in 2011 the Tramandaí (70MW) project was terminated.
- Home Energy Management – EDP has design and developed integrated energy efficiency solutions that include micro-generation.
- Since 2010 EDP leads the Portuguese electric mobility project (www. mobie.pt).
- EDP is developing a wind off-shore project through the Windfloat with the installation of an experimental 2MW turbine at the Portuguese north sea.

Companies should explain what they mean by long and short term

Less than 3 years - short term, more than 3 years medium/long term.

Engagement with Policy Makers

2.3 Do you engage with policy makers to encourage further action on mitigation and/or adaptation?

Yes

If yes: 2.3a Please explain (i) the engagement process and (ii) actions you are advocating

(1) engagement process

EDP has dedicated structures in each geography that manage the relation with the supervisory bodies of the energy sector:
- Portugal: Corporate Regulation and Competition Department
- Spain: Regulación y Relaciones Institucionales Department (Regulation and Institutional Relationship Department)
- EDPR (Europe and USA): Market Analysis & Regulation Department
- Brazil: "Área de Assuntos Regulatórios" (Regulatory Issues Department)

i. Method of engagement

Through trade/Industry organization:

- EURELECTRIC, the European electricity sector association, EDP participates as a member of ELECPOR, the Portuguese Association of Electricity Companies. EDP is represented, amongst others, in the Environmental and Sustainable Development Policy Committee and in some of its various working groups, subgroups and task forces, namely the Working Groups "Climate Change", "Environmental Protection" and "Energy Efficiency"
- APE, Portuguese Energy Association
- WEC, the World Energy Council
- APREN – Portuguese renewable energy association
- COGEN – The Portuguese cogeneration association
- AEE, Wind Industrial Association (EDPR Spain)
- RWEA – Romanian Wind Energy Association, (EDPR Romania), participation in task groups
- SER-FEE - French Wind Energy Federation, EDPR participates in the technical groups: acoustics, dangers studies, environmental, security, economic, law and regulation, offshore and marine energy and site
- WEWAG - Wind Energy Whopping Crane Action Group – EDPR collaborates with WEWAG that is developing a habitat conservation plan to address the potential impacts of wind energy the whooping crane and lesser prairie

chicken within the central United States. WEWAG works in coordination with the U.S. Fish and Wildlife Service and nine state wildlife agencies
- ABRADEE - Brazilian electric distribution association
- APINE - Brazilian electric generation association
- ABEEólica – Brazilian wind generation association

Through ONG:
- Joint projects with WWF
- Participation in the COP side events
- WBCSD - World Business Council for Sustainable Development (www.wbcsd.org), a CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development issues
- BCSD Portugal - the Portuguese Business Council for Sustainable Development, member of the WBCSD regional network
- CBDES Sustentável Brazilian council for sustainable development

Through Institutional Authorities:
- EWP- European Water Partnership – Stakeholder participation in the the EU Blueprint to Safeguard Europe's Water, EDP is part of the steering committee
- Portuguese government - Contribution to the Portuguese Climate Change Adaptation Commission with technical inputs. Contribution with information, opinions and recommendations regarding co-generation and the transposition into national law of the EU energy legislation. Participation in the public discussion of the PNAER (National Renewable Energies Action Plan) and PNAEE (National Energy Efficiency Action Plan). Follow up of the PNALE - (Climate Change National Plan). Participation in ENAAC, the Portuguese National Adaptation Strategy Plan.
- ERSE Portuguese Energy Services regulator - Participation in the public discussions of: (1) the consumer efficiency promotion plans, (2) technical advices on the electrical grid operation and commercialization regulation, (3) harmonization of integration of renewable and special regime production in MIBEL
- EER European Energy Regulators – EDP participated in the Public Consultation on Harmonization of Renewable Support Schemes and CEER's advice on the take-off of a demand response electricity market with smart meters

ii. topic of engagement
- CO2 emissions regulation
- EU-ETS
- MIBEL Iberian electricity market
- EU regulation
- EU Regulatory trends
- Climate change Risk and Opportunities
- Climate change mitigation
- Climate change adaptation
- Energy efficiency
- Renewable energy
- Offshore energy
- Wave energy
- Photovoltaic
- Electrical mobility

iii. nature of engagement
EDP participates in all forms: (1) Answer to consultations: EWP, EURELECTRIC, Government, among others.(2) participation in working group: SER-FEE, WEWAG, ENAAC, WBCSD, among others. (3) participation in research: Winfloat (off-shore wind energy) and Pelamis (wave energy), (4) lobbying: ERSE, EU, USA

(2) actions advocated – the nature of the advice given/endorsement or opposition of policy proposals or were you encouraging action on mitigation /adaptation
EDP supports both mitigation and adaptation. Examples:
- At the COP 15 in Copenhagen EDP produced a statement sustaining the summit objectives: global participation of countries, strong support to renewable energy and to implementation mechanisms.
- Encouraging adaptation strategy and actions, through participation in ENAAC, EWP, among others.
- Development of clean electrical production, through the support to renewable generation, namely the Pelamis wave energy and windfloat off-shore wind turbine projects, among others.

3. Targets and Initiatives

Targets

3.1 Did you have an emissions reduction target that was **active** (ongoing or reached completion) in the reporting year?
If you have an absolute target:
3.1a Please provide details of your absolute target

Yes.

If it is an absolute target:
3.1a Please provide details of your absolute target

ID	Scope	% of emissions in Scope	% reduction from base year	Base year	Base year emissions	Target year	Comment
A-1	Scope 1	100%	20%	2008	Total – 19,814 kt Specific- 400 g/kWh	2015	The company's absolute target for 2015 is 22.7 Mton of CO_2, while keeping approximately the same emission intensity (0,285 ton CO2/MWh) as of 2011. This target is based on the following generation mix: 21.4% of Coal, 14.3% of CCGT, 2.1% of Co-generation, 30.2% of Hydro, 31.7% of Wind and 0.3% of Biomass. CO2 emissions are expected to increase in the near future due to the following circumstances: - Very low price of CO2 in the European market - High natural gas price compared with coal. Consequently, CCGT are less competitive than coal-fired power plants - Significant load factor decrease of CCGT in Portugal and Spain - Mandatory use of a certain amount of national coal in Spain, with much lower net caloric value than imported coal, thus leading to higher CO2 emissions - Start-up of the Brazilian coal power plant (Pecem) in mid-2012 which will add about 1.7 Mton CO2 per year to EDP's expected emissions (from the Iberian market) - Slightly lower investment in renewable worldwide in the period 2012-2015 (due to the economic crises) These trends, however, will likely change if the market circumstances change, namely CO2 and fuel prices, which have a significant impact on the generation mix of the EDP Group. Furthermore, it is expected that the company's global emission intensity will start to drop from 2014/15 on, when the new hydropower plants and repowering under development, (representing 1.7 GW additional capacity) will start to be fully operational. In spite of this increase in emissions in the near future, from 2005 to 2015 emissions were reduced

If it is an intensity target:
3.1b Please provide details of your intensity target

ID	Scope	% of emissions in Scope	% reduction from base year	Metric denominator (intensity targets only)	Base year	Base year emissions	Target year	Comment
I-1	Scope 1	100%	56%	kWh	2005	Total – 28 255 kt Specific- 600 g/kWh	2012	CO_2 emission factor (EF) will be reduced in 56% by 2012 in comparison with 2005 emissions. EF will drop from 600 tCO2/MWh in 2005 to 270 tCO2/MWh in 2012.
I-2	Scope 1	100%	70%	kWh	2008	Total – 19 814 kt Specific - 400 g/kWh	2020	In 2009, EDP committed itself to a more ambitious target, to reduce in 2020 by 70% emission factor (EF), in comparison to 2008, EF will drop from 400 tCO2/MWh in 2008 to 120 tCO2/MWh in 2020.

3.1c Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
A-1	Decrease	20	No change	n.a.	In 2009 EDP stated that CO2 emissions reduction are a part of the company strategy, since 2005 EDP is changing its assets into cleaner ones thus attaining substantial CO2 emissions reductions.
I-1	Decrease	37	No change	n.a.	In 2009 EDP stated that CO2 emissions reduction are a part of the company strategy, since 2005 EDP is changing its assets into cleaner ones thus attaining substantial CO2 emissions reductions.
I-2	Decrease	10	No change	n.a.	In 2009 EDP stated that CO2 emissions reduction are a part of the company strategy, since 2005 EDP is changing its assets into cleaner ones thus attaining substantial CO2 emissions reductions.

For both types of target, also:
3.1d Please provide details on your progress against this target made in the reporting year

	% complete (time)	% complete (emissions)	Comment
A-1	43%	100%	Although EDP has been following a trend of CO2 emissions reduction in its strategy and investments, the yearly emissions are also constrained by the meteorological conditions that year, if it is wet or dry and if it is windy as well as the energy market. If the coal power plants become very much cheaper than the gas ones, then the emissions reductions will not be as substantial as EDP would like them to be.
I-1	95%	95%	Although EDP has been following a trend of CO2 emissions reduction in its strategy and investments, the yearly emissions are also constrained by the meteorological conditions that year, if it is wet or dry and if it is windy as well as the energy market. If the coal power plants become very much cheaper than the gas ones, then the emissions reductions will not be as substantial as EDP would like them to be.
I-2	25%	41%	Although EDP has been following a trend of CO2 emissions reduction in its strategy and investments, the yearly emissions are also constrained by the meteorological conditions that year, if it is wet or dry and if it is windy as well as the energy market. If the coal power plants become very much cheaper than the gas ones, then the emissions reductions will not be as substantial as EDP would like them to be.

Emissions Reduction Initiatives

3.2 Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?

Yes

If yes: 3.2a Please provide details (see guidance)

In Portugal EDP has created an ESCO company – EDP Serviços – that provides energy efficiency services.
EDP has many projects that avoid third party emissions. Examples:
(1) EDP Gás has a natural gas refuelling station at Braga, Portugal that provides fuel to public buses. In 2011 provided 618,294 m3 of CNG to Braga public bus, avoiding 37.29 TCO2e per year. In ten years EDP estimates to avoid 372.9 TCO2e. Warming potentials from GHG protocol: 74.01 KgCO2/GJ gasoil, 56.06 KgCO2/GJ natural gas, 0.0336 GJ/m3 natural gas. This project will generate neither CERS nor ERUs.
(2) Electrical vehicle – the emissions avoided can add up till almost 90% depending on the electrical grid energy mix. A i-Miev (30 kWh/100 miles) in Portugal in 2011 saves about 80/85% emission compared with diesel/gasoline. Within 10 years, considering 15,000 kms per year and a 300 vehicle fleet, it saves about 10,000 tons CO2. GHG emission factors diesel (2.797e-4 ton CO2/km) and gasoline (2.3747e-4 ton CO2/km), Portuguese national grid

emission factor (226.7kgCO2/MWh). This project will generate neither CERS nor ERUs.
(3) EDP in Portugal developed projects that reduce energy consumption and CO2 emissions The global energy saved in PPEC projects was 5 TWH (2005-2011), thus avoiding 1.85 MTCO2..
- RESIDENTIAL: Pack 4 CFL through IPSS (Social Solidarity Institutions) 7.3 years, 69,848, KEuro, 6,719 TCO2 avoided in 2011, 25,844 tons CO2 total lifetime; Kit Efficient House: LED + Standby Killer 16 years 39,048 KEuro 3,756 TCO2 avoided in 2011, 14,448 tons total lifetime; Promotion of Efficient Light - LED,20 years, 49,475 KEuro, 4760 TCO2 avoided in 2011, 18,306 TCO2 total avoided; Standby Killer - remote control (Only 12%),12 years,4,480 KEuro, 431 TCO2 avoided in 2011, 1658 TCO2 total avoided.
- TERTIARY: Astronomical digital time switch control (Street Lighting) 6 years, 34,167 KEuro, 3,222 TCO2 avoided in 2011, 12,642 TCO2 total avoided; CFL for IPSS, 2.6 years, 54,667,KEuro, 5,155 TCO2 avoided in 2011, 20,227 TCO2 total avoided; LED traffic lights,17 years, 18,472 KEuro,1,742 TCO2 avoided in 2011, 6,835 TCO2 total avoided; Street lighting flux regulator - urban environment,15 years, 95,220 KEuro, 8,979 TCO2 avoided in 2011, 35,231 TCO2 total avoided; Street lighting flux regulator - road access,15 years, 69,828 KEuro, 6,585 TCO2 avoided in 2011, 25,836 TCO2 total avoided
- INDUSTRY & AGRICULTURE: High efficiency motors,15 years, 31,478 KEuro, 2,336 TCO2 avoided in 2011, 11,647 TCO2 total avoided; VSD for ventilation systems,15 years, 43,343 KEuro, 3,216 TCO2 avoided in 2011, 16,037 TCO2 total avoided; VSD for refrigeration systems, 15 years,12,738 KEuro,945 tonCO2 avoided in 2011 4,713 TCO2 total avoided; Lamps replacement 16 years, 79,078 KEuro, 5,868 TCO2 avoided in 2011, 29,259 TCO2 total avoided; VSD for pumping systems,15 years, 92,787 KEuro, 6,885 TCO2 avoided in 2011, 34,331 TCO2 total avoided.
(4) EDP Brasil, total energy savings in 2011 were about 20 GWh, emissions avoided are approximately 611.02 tCO2. Coefficient - average emission factor of the Brazilian grid 0.0292 TCO2/MWh. Examples:
- Boa Energia na Comunidade (Good Energy in the Community) – Replacement of inefficient equipment (eg. compact fluorescent lamps and standard to connect to the grid). Project investment of US$ 6,478,333.33; 17,234.97 MWh saved and 503.26 tCO2e avoided. The period considered for calculation is 16 years.
- Prédios Públicos SP (Public Buildings SP) - Replacement of inefficient lamps and ballasts and luminaries by higher energy efficiency equipment in 27 Public Buildings in São Paulo. The investment was US$ 637,222.22; the energy reduction was 1,017.33 MWh and the emission avoided was 29.71 tCO2. The period considered for calculation is 16 years.
- Boa Energia Solar (Good Solar Energy) – The project consists on the replacement of 1458 electric showers by solar heating system in housing; Replacement of 10,291 incandescent bulbs with compact fluorescent lamps in housing and Community events focusing on education. Total investment of US$ 4,440,000.00; 827.79 MWh saved which resulted in 24.17tCO2e avoided. The period considered for calculation is 16 years for lamps and 15 years for solar equipments.
- Eficiência Energética em Túneis SP (Energy Efficiency in Tunnels SP) – Installation of LED lamps. US$ 2,532.77 invested; 25.89MWh saved, representing 0.76tCO2 avoided. The period considered for calculation is 17 years.
- Projeto de Eficientização Semafórica (Efficiency traffic signal) - Installation of LED lamps. Investment of US$ 606,316.66; 1,085.97MWh saved and 31.71 tCO2 avoided. The period considered for calculation is 17 years.
- Hospitais e Entidades Beneficentes (Hospitals and Charitable Entities) – Installation of high efficiency equipments in Hospitals and Charitable Entities. Investment of US$ 513,966.66; 733.37MWh saved and 21.41 tCO2 avoided. The period considered for calculation is 16 years for lamps and 15 years for solar equipments.

3.3 Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

Yes.

If yes, complete questions 3.3a, 3.3b and 3.3c:
3.3a Please identify the total number of projects at each stage of development, and for those in the implementation stages, estimated CO2e savings (New for CDP 2012)

Stage of development	Number of projects	Total estimated annual CO2e savings (only for rows marked *)
Under investigation	0	
To be implemented*	0	*
Implementation commenced*	18	742.8 Tons

Implemented*	0	*
Not to be implemented	0	

3.3b For those initiatives implemented in the reporting year, please provide details in the table below (CDP 2011 Q3.3a, amended)

Activity type	Description of activity	Estimated annual CO2e savings	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
Energy efficiency process	01-Electricity consumption management (reduction of losses in transformers)(at Sines PP) Modification of Operational Procedure: during a unit shutdown, the unit main transformer is switched off, and electricity supply to the unit´s ancillary equipment is provided by the transformer of another unit Scope 2	Not available	600 Euro / daily (when applicable) 219000 Euro / year	n.a.	n.a.
Energy efficiency process	02-Reduction of the auxiliary boiler consumption (at Lares CCGT) Modification of Operational Procedure: with 2 units simultaneously in operation, power plant auxiliary boiler is shut down and starts operation only if tripping of one unit occurs. Previously, the auxiliary boiler would stay in stand-by mode while the two units were in operation Scope 2	Not available (NG consumption reduction depends on operational regime of power plant In 2011: Reduction of 167,000 m3 in NG consumption)	Not available (NG consumption reduction depends on operational regime of power plant In 2011: Reduction of 167,000 m3 in NG consumption)	n.a.	n.a.
Fugitive emissions reduction	03-Develop post-combustion carbon capture, with membrane nano-technology Small scale demonstration at a coal fired power plant Scope 1	Not applicable	Not applicable	475,000 Euro *	n.a.
Fugitive emissions reduction	04-Develop pre-combustion carbon capture, by enhanced key technologies for integrated gasification combined cycle (IGCC). Develop advanced technologies for air separation, CO2/H2 separation and hydrogen combustion in gas-turbines. Demonstration in prototype pilot plants. Scope 1	Not applicable	Not applicable	440,000 Euro *	n.a.
Fugitive emissions reduction	05-EDP has developed a demonstration project "Sown Biodiverse Permanent Pastures Rich in Legumes" in which it was proved that these pastures can effectively capture CO2	7 kTCO2/year Total - 42 kTCO2	n.a.	30,000Euro	n.a.
Energy efficiency process	06-Improve the efficiency of the compressed air facilities in an hydro power plant Aguieira Hydro Power Plant Scope 2	Not available	€ 3.000	€ 2.880	0.954 year
Fugitive emissions reduction	07-Develop oxi-combustion carbon capture, at high efficient circulating fluidized-bed combustion Develop design and simulation tools, test a demonstration pilot plant (30MWt), predesign a demonstration plant (300MWe) and assess feasibility of the technology Scope 1	Not applicable	Not applicable	129,000 Euro *	n.a.
Fugitive emissions reduction	08-Study of an integrated infrastructure for carbon dioxide transport and storage in the Iberian and North Africa region. Identify potential sources and sinks of captured CO2 and assess their most cost effective transport links Scope 1	Not applicable	Not applicable	28,000 Euro *	n.a.
Transportation fleet	09-Fleet management - Eco-driving - GPS equipments - fuel consumption alerts (...) Scope 3	505 ton	12,620 €	24,000 Euro	2 years
Energy efficiency building services	10-Energy-saving lighting (Lares CCGT)	Estimated Electrical energy savings:	3.8 k Euro	2.4 K Euro	2 years

	Installation of motion / presence detectors for lighting management (light switch on / off) Scope 2	72 MWh/year 16.3 Ton CO2/year			
Energy efficiency process	11-Telemetering in hydro power plants Telemetering in hydro power plants to know the load diagram Scope 2	Not available	Not available	n.a.	n.a.
Energy efficiency building services	12-Improve the lighting efficiency in hydro power plants Split of the lightning circuits for a better adjust of the lightning level to the needs / improve the lightning efficiency with installation of low consumption lamps / Installation of motion detectors Scope 2	Not available	Not available	n.a.	n.a.
Behavioral change	13-Newsletter on best practices about energy saving in hydro power plants Scope 2	Not available	Not available	n.a.	n.a.
Energy efficiency building services	14-Improve the lighting efficiency in an hydro power plant Improve the lighting efficiency in the room of machines of Stª Luzia's Hydro Power Plant Scope 2	Not available	€ 1,081.26	€ 872.06	0.806 year
Transportation use	15-Installation of videoconference software in an thermal power plant Scope 3	Not available	Not available	n.a.	n.a.
Transportation use	16-Installation of videoconference software in hydro power plants Scope 3	Not available	Not available	n.a.	n.a.
Transportation use	17-Commuting Online platform to manage commuting and to raise workers awareness Scope 3	197.5 ton	4,948 €	0	n.a.
Transportation use	18-Service mobility Video conference systems installation (6 systems and Webex platfform). Scope 3	17 ton	65,000 Euro	34,659.98 Euro	0.5

3.3c What methods do you use to drive investment in emissions reduction activities? (CDP 2011 Q3.3b, no change)

Method	Comment
Compliance with regulatory requirements/standards	Switching electrical generation from gas and coal to wind and hydro is also a consequence of the restrictions to CO2 emissions due to the European Trading System EU-ETS.
Dedicated budget for energy efficiency	Switching electrical generation from gas and coal to wind and hydro is an energy efficiency measure that diminishes the use of fossil fuel primary energy (coal, gas and oil), thus avoiding CO2 emissions
Dedicated budget for low carbon product R&D	EDP has a dedicated budget for low carbon product R&D, namely through its R&D company, EDP Inovação, that is developing projects such as off-shore wind power, wave power, CO2 capture and storage, among others.
Employee engagement	Electricity, water and paper consumption reductions in EDP's buildings are projects developed mainly by employees.
Financial optimization calculations	Factor taken into account when analyzing investments in new projects such as wind power
Internal price of CO2	Factor taken into account when analyzing investments in new projects such as wind power

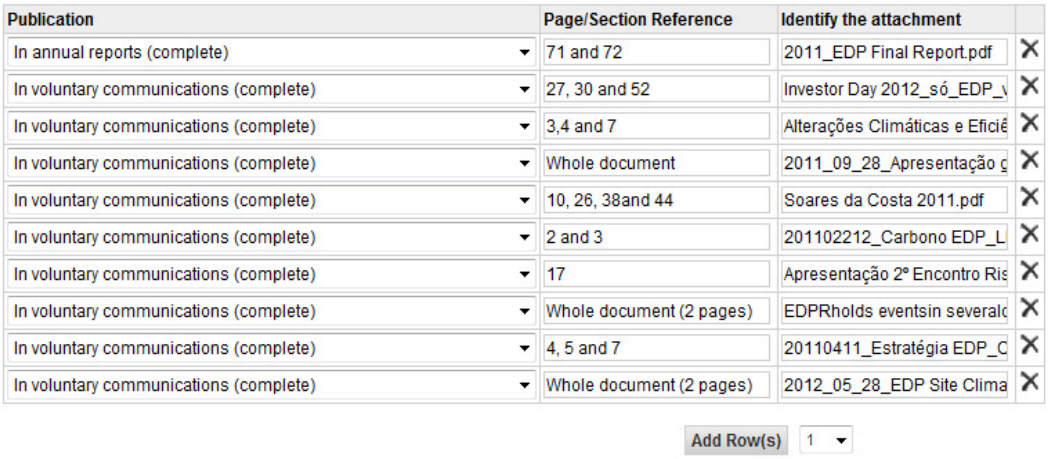
If no: 3.3d If you do not have any emissions reduction initiatives, please explain why not (CDP 2011 Q3.3c, no change)

n.a.

4. Communications

4.1 Have you published information about your company's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s)

Publication	Page/Section reference	Identify the attachment



Publication	Page/Section Reference	Identify the attachment	
In annual reports (complete)	71 and 72	2011_EDP Final Report.pdf	✕
In voluntary communications (complete)	27, 30 and 52	Investor Day 2012_só_EDP_v	✕
In voluntary communications (complete)	3,4 and 7	Alterações Climáticas e Eficiê	✕
In voluntary communications (complete)	Whole document	2011_09_28_Apresentação g	✕
In voluntary communications (complete)	10, 26, 38and 44	Soares da Costa 2011.pdf	✕
In voluntary communications (complete)	2 and 3	201102212_Carbono EDP_L	✕
In voluntary communications (complete)	17	Apresentação 2º Encontro Ris	✕
In voluntary communications (complete)	Whole document (2 pages)	EDPRholds eventsin severalc	✕
In voluntary communications (complete)	4, 5 and 7	20110411_Estratégia EDP_C	✕
In voluntary communications (complete)	Whole document (2 pages)	2012_05_28_EDP Site Clima	✕

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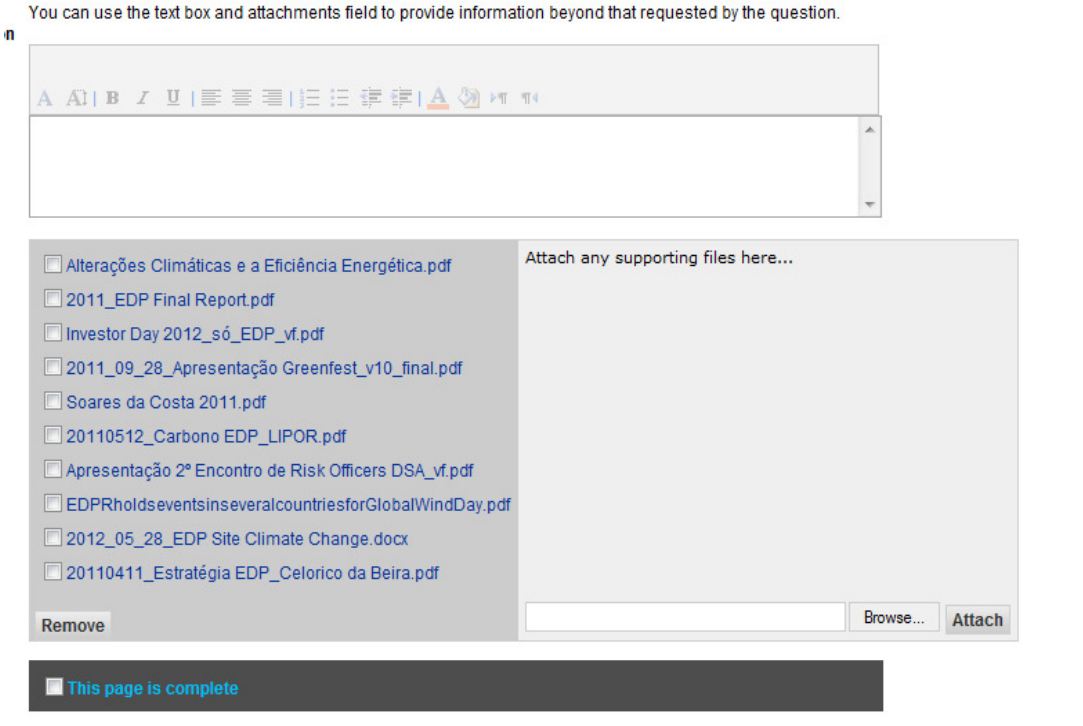

Risks & Opportunities

5. Climate Change Risk

5.1 Have you identified any climate change risks (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure?

Please identify the relevant categories:

5.1.a. Risks driven by changes in regulation:

ID	Risk Driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood of impact	Magnitude of impact
RR01	Fuel energy taxes and regulations	Regulatory risk in Iberia Due to the economic crisis in Portugal and Spain there is a pressure on electricity tariff deficit reduction.	Increase in operational costs	Current	Direct	Likely	Low-medium
RR02	Fuel energy taxes and regulations	Changes in the legislator incentives to wind energy. These incentives can be a feed in tariff, a tax credit or a capital incentive. Its decrease can cause a reduction in wind power revenues in Europe and USA	Other – Decrease in revenues	Current	Direct	More likely than not	Low-medium
RR03	Fuel energy taxes and regulations	Changes in wind farms permit regulation. Decrease in wind farms authorizations	Increased operational costs	Current	Direct	Very unlikely	Medium
RR04	CO2 Taxes	CO2 regulation in Europe. Decrease in thermal revenues, reduction in security of supply due to the limited use of fossil fuel generation plants	Other – Decrease in revenues	Current	Direct	Likely	Low
RR05	Fuel energy taxes and regulations	Environmental laws and regulations that constrain the location of power plants and/or distribution grids	Other – Decrease in revenues	Current	Direct	About as likely than not	Medium
RR06	Fuel energy taxes and regulations, CO2 Taxes	Uncertainty surrounding new Federal regulation in Brazil	Other: taxation upon GHG emissions	Current	Direct	More likely than not	Medium
RR07	CO2 Taxes	Creation of new Regional Markets (State Policies)	Other: taxation upon GHG emissions	current	Direct	More likely than not	Low
RR08	General environmental regulations including planning	Possible decrease in electricity demand due to efficiency regulations - energy conservation targets; energy-efficient buildings	Other – Decrease in revenues	current	Direct	More likely than not	Low

5.1.b. Please describe:

i. the potential financial implications of the risk/opportunity before taking action

ii. the methods you are using to manage this risk/opportunity

iii. the costs associated with these actions

Risk RR01 - Due to the economic crisis in Portugal and Spain there is a pressure on electricity tariff deficit reduction. The most relevant decisions taken for Portugal include cuts in capacity payments and the CMECs. In Spain there were cuts in capacity payments, in the distribution revenues, in the national coal incentives, in the transport system

operator, in the social tariff fund and in the gas access tariffs. These decisions may represent in 2014 about 50 MEuro for Portugal and 25 MEuro for Spain. In Portugal there is still no decision about the cuts in the small hydro incentives and the renewable incentives. In Spain there can possibly occur further cuts. In iberia EDP is very much protected due to its diversified generation mix, diversified geographies, diversified asset maturities and diversified activities.
i. The potential financial implications of this risk are very low. The adjustments were already made and represented less than 2% of EBITDA.
ii. This risk is mitigated through a close follow up of regulatory bodies and through generation mix, geography, asset maturity and market diversification.
iii. The main cost associated with the regulatory follow-up is the annual budget for the Departments that do the regulatory follow-up. These Departments exist for Portugal Spain, Brazil and USA. Their budget is roughly 5 MEuro per year. On the other hand, generation mix, geography, asset maturity and market diversification of EDP's generation assets have no marginal cost, since they are consequence of the company's strategy.

Risk RR02 - Changes in the legislator incentives to wind energy. These incentives can be a feed in tariff, a tax credit or a capital incentive. Decrease in wind power revenues can impact in Europe and USA.
i. The potential financial implications of the risk before taking action depend on the country and also on the intervention measure from the regulators/policy makers. It may affect the remuneration of the current wind farms, but mostly it can also affect company's growth (the intervention may make new investments less attractive). The maximum exposure is very small since it is very unlikely and difficult to change past contracts, PPAs and regulated represent 90% of total output, the remaining 10% is not covered by this risk since they are on the spot market. Thus this risk is most likely smaller than 1% revenues, considering 2011 values it would be smaller than 5 MEuro.
ii. Same response of RR01.
iii. Same response of RR01.

Risk RR03 - Changes in wind farms permit regulation. Decrease in wind farms authorizations.
i. This risk may affect company's targets in terms of growth, and consequently EBITDA.
ii. This risk is mitigated through a close follow up of regulatory bodies and through generation mix, geography, asset maturity and market diversification.
iii. Same response of RR01.

Risk RR04 - CO2 regulation in Europe. Decrease in thermal revenues, possible restrictions on the use and construction of fossil fuel generation plants
i. CO2 regulation heavily impact on generation from fossil fuels, increasing its operational costs and decreasing plant efficiency, many plants are working with low load factors, but are filling the supply gaps due to the volatility of renewable. The financial impact is loss of EBITDA.
ii. This risk was largely mitigated through the change in the generation mix of EDP, namely the investment in CCGT and in wind and hydro. This contributed to a more balanced generation technology portfolio.
iii. The costs associated with these actions are the investment, in 2011, on renewable energy (wind) of 829 MEuro and on Hydro 500 MEuro.

Risk RR05 - Environmental laws and regulations that constrain the location of power plants and/or distribution grids.
i. This risk affects capex expenditure and can also decrease the revenues from the project.
ii. During the project phase the project team takes into account the possible restrictions that might appear.
iii. The cost of this action is imbibed in the project phase cost, thus being impossible to disaggregate.

Risk RR06 - In December 2009, Brazil adopted Law No. 12,187 which established the first National Policy on Climate Change. The policy aims to align the economic and social development with climate change protection. In addition, sector plans would be established for mitigation and adaptation of climate change in order to achieve the national commitment of voluntary reductions of 36.1% to 38.9% GHG emissions by 2020, according to the national policy. In December 2010 some articles of the National Policy on Climatic Changes were regulated. The regulation mention the 'Plano decenal, where reduction targets and procedures for energy sector will be set, this sector currently presents 868 million tCO2e, 26% of the total Brazilians emissions.

i. potential financial
The estimated Risk exposure of EDP to this risk is less than 10 MEuro per year.

ii. The same of RR01 and EDP currently prepares its emissions inventory and evaluates potential opportunities to reduce emissions in their operational and administrative processes
iii. costs:
Investment in hydro in Brazil in 2011 were 172 MReal approximately 70 MEuros

Risk RR07 - Some States in Brazil are organizing themselves to establish policies and regulations regarding emissions reduction. The most advanced State is Rio de Janeiro which has already established a Climate Change State Policy with caps applied to certain sectors, the energy one is not yet included. This law states that the total clean or low carbon energy to be generated in Rio must increase to achieve a 40% share till 2030.
i. This risk is considered to be less than 20 MEuro.
ii. The same of RR01 and EDP currently prepares its emissions inventory and evaluates potential opportunities to reduce emissions in their operational and administrative processes.
EDP Brazil considers that current operations, distribution and generation, are very much prepared to reduce GHG emissions. EDP Brazil participates in major discussion fora about regulation and taxation, EDP actively participates in national initiatives, such as the Brazil GHG Protocol Programme and EPC – Empresas pelo Clima, led by Fundação Getúlio Vargas (Foundation) and other international institutions. The company has also integrated the Brazilian Delegation in the last four COPs.
EDP has made its GHG Inventory in the last 5 years, setting reduction targets and considering climate change aspects on its activities.
iii. To be part of EPC, FGV charges 19,444.44 USD per year. Next years laws shall mature and the energy Sector might be included in the caps.

Risk RR08
i. The potential financial implications of this risk are very low since efficiency measures take a considerable time to be implemented.
ii. Same as RR01.
iii. Same as RR01.

5.1.c. Risks driven by changes in physical climate parameters:

Risk ID	Risk Driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood of impact	Magnitude of impact
RPC01	Change in mean (average) precipitation	The hydro generation is an important component of our generation assets, especially in Portugal and Brazil. Any climate change implying a decrease in rainfall results in less hydropower generation. This decrease may not be balanced by higher energy prices.	Other – Decrease in operational income	Current	Direct	More likely than not	Low-medium
RPC02	Change in temperature extremes	Higher temperatures can disturb power plant normal operation, because sometimes the cooling source's temperature is already outside of its legally admissible values even before its use at the power plant. Higher temperatures decrease the volume compressed air inserted in the combustion chambers thus decreasing energy generation. Higher temperatures can also result in increased population's water consumption. When this water is pumped directly from the Group's reservoirs to water supply networks, such volumes do not generate energy and it's likely that the company won't be compensated for this. Droughts may imply extra reservoir water expenditure in activities such as irrigation and maintenance of	Other – Decrease in operational income	Current	Direct	More likely than not	Low

		ecological flows, with inherent loss of energy/revenue, when these water flows are not turbinated or when they are released during off-peak hours (lower energy prices).					
RPC03	Change in extreme precipitation and droughts	Events, such as abnormal precipitation, droughts, extremely strong winds, pronounced sea waiving at seashore and sudden increases in algae coming in from the sea, can be accentuated by climate changes and have caused known business interruptions at both thermal and hydropower plants. Extreme precipitation can also cause floods, dam overflow and landslides.	Increased operational costs	Current	Direct	More likely than not	Low
RPC04	Tropical cyclones	Under extreme winds, wind farms shut down, for safety purposes. The increased frequency of wind speeds above cut-off wind speed automatic shut-down could have an effect on the turbine's wear, thereby increasing maintenance costs and/or reducing life span. Extreme winds can also affect the distribution and the transmission grids likely limiting EDP's capacity to generate energy in power stations.	Increased operational costs	Current	Direct	Likely	Medium
RPC05	Other physical climate drivers	Episodic events of particularly frequent and intense storms with lightning can be very damaging to electrical grids, wind turbines and any weather exposed electrical device in general. This impact must be considered since the frequency of such storms may increase due to climate changes.	Increased operational costs	Current	Direct	Likely	Medium
RPC06	Other Physical climate drivers	Under a varying atmospheric pressure, the operation of natural gas pipelines, such as the ones EDP has in Portugal and Spain, can become more demanding, since safety controls are particularly sensitive to pressure, increasing the risk of preventive shut-down and, over time, increased wear of pipelines and valves, increasing operation and maintenance costs and/or reducing life span.	Increased operational costs	Current	Direct	Likely	Medium
RP07	Change in temperature extremes	The change in temperatures might affect the peak load, increasing electricity demand and at the same time affect distribution and generation, causing less energy availability	Other – Decrease in operational income	Current	Direct	More likely than not	Low-medium

5.1.d. Please describe:

i. the potential financial implications of the risk/opportunity before taking action

ii. The methods you are using to manage this risk/opportunity

iii. The costs associated with these actions

EDP has the EMAS registration for 33% of installed capacity and the ISO 14001 certification in Pt and Spain (70% installed capacity). In Brazil, most the assets are certified by ISO 14001 and OHSAS 18001. The ISO 14001 section that addresses these subjects is 4.4.7 – emergency preparedness and response.
There is also a range of insurances for the Group's assets in operation. So, the maximum physical risk cost incurred is mostly transferred out of the EDP Group (except for partial revenue losses and tail-end events). EDP has also a strategic captive insurance policy. Also it has a fund in Luxembourg (Energia RE) that secures the small losses not covered by the insurers' pool.

Risk RPC01
i. Depending on the regulatory context the financial implications of this risk could go from a negligible value until about a ten million.
ii. EDP is building reversible hydropower plants that allow hydro generation in drought situations, but also to store electricity generated from wind farms. The Sabor dam, under construction, is a reservoir dam located in an upstream position of Douro, the most affluent river in Portugal. This dam will allow water storage for consumption and energy generation in such a quantity that Portugal will have electrical consumption independency (for peak hours) for about 30 days.
iii. The new hydropower plants that EDP is building have investment costs. These are not direct costs associated with the management of this risk, but this risk will be partially mitigated by the new hydropower plants, it is a collateral benefit from building the dams. Investments in new hydro plants comprise: completion of repowering works at Picote II (246MW) and Bemposta II (194MW); ongoing construction works at repowering of Alqueva II (256MW of hydro reversible plant with reservoir, 'HRPP with reservoir'), Baixo Sabor (171MW of HRPP with reservoir), Ribeiradio-Ermida (77MW with reservoir), Foz Tua (251MW HRPP with reservoir), repowering of Venda Nova III (740MW HRPP with reservoir) and Salamonde II (207MW HRPP with reservoir); and development of other hydro plants in pipeline, fully secured representing over 1GW of additional capacity. Investments in hydro represented about 0.4 billion Euro in 2011.

Risk RPC02
i. The potential financial implications is less than a MEuro, this value was obtained for an outage of a typical CCGT in Summer for a full week.
ii. In new thermal power plants, the cooling system is based on cooling towers instead of condenser, using a much lower water volume and introducing a much smaller change in temperature. In new CCGTs at higher temperatures there is also a decrease in efficiency, at high temperature the volume of compressed fed into the combustion chamber is lower than at moderate temperatures. As an example EDP has build in Portugal, two CCGTs with this technology TER and Lares.
iii. EDP's generation mix, geographical, asset maturity and market diversification also mitigates this risk. EDP's capex is not a direct cost but this risk will be partially mitigated by the new plants and infrastructures, it is a collateral benefit. Capex for 2012 till 2015 will be approximately 2 billion Euro per year in wind and hydro.

Risk RPC03
i. The potential financial implications are plant outage. Per example a CCGT full week outage is less than a MEuro.
ii. This risk is managed through risk prevention measures, such as the construction of protection walls (Setúbal), placing equipments at a superior height (Ribatejo), algae cleaning systems (in Sines the algae explosive growth in the cooling source was due to a local increase in sea temperature), in hydropower plants the duplication of floodgates circuits and the placement of diesel emergency groups in flood protected sites.
iii. The costs of these actions are evaluated, per example the algae cleaning systems did cost around 1.5 EUR Million. EDP's hydropower plants are also projected to support the so called "flood of the millennium".

Risk RPC04
i. The potential financial implications are less than 4 MEuro.
ii. In electricity distribution, extreme winds can cause major incidents. In order to assess its influence, EDP (in Portugal) created an incident database and some conclusions are already available about predictable future risks. The extreme wind phenomena can cause supply interruptions causing economic and image company costs: the fall of electric lines and the impossibility of power plants to connect to the grid and sell their generation, among others. The Distribution Company is developing a geo-referenced platform that will allow the assessment of any event's severity and help define operation, maintenance or engineering actions. In Portugal, during the storm and fire

seasons, EDP manages differently the emergency teams and the stocks ensuring a faster and more effective corrective action. In most important urban areas, substations are also redundant. These actions reduce interruption in the event of a catastrophe.
In Brazil, EDP developed SITRaios to manage the grid physical risks. This system automatically detects thunder storms (that usually precede grid shutdowns), allowing real time intervention in the prevention of future grid shutdowns.
iii. The SITRaios project has an investment of approximately 850 thousand EUR.

Risk RPC05 - In Brazil, EDP developed SITRaios to manage the physical risks of the grid. This system automatically detects thunder storms that usually precede grid shutdowns, allowing real time intervention in the prevention of future grid shutdowns. The SITRaios project has an investment of approximately 850 thousand EUR. In Portugal the distribution company manages the storm and the wildfire seasons differently from the rest of the year increasing the material stock and enlarging the number of the emergency teams.

Risk RPC06 - The gas grid project incorporates best practices in what regards the avoidance of risk areas. These include the gas grid ring layout that prevents supply interruptions.
EDP's gas company has also special procedures focused on physical risks, which are: the safety and health manual, the accident's analysis and the two-monthly meeting.
The costs of these actions are incorporated into the Gas Technical Division budget therefore not easy to quantify, but one can roughly estimate about 80 thousand Euro per year in Portugal.

RP07 - The change in temperatures might affect the peak load, increasing electricity demand and at the same time affect distribution and generation, causing less energy availability
i. This risk can cause a decrease in revenue in about 1-2% in the days in which it occurs, at the most 5 days per year
ii. The best strategy for this risk is diversification, of assets, of technologies life cycle, geographical, among others.
iii. The same as RPC01 and RPC02.

5.1.e. Risks driven by changes in other climate-related developments:

Risk ID	Risk Driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood of impact	Magnitude of impact
RCC01	Reputation	Social liabilities - Operations in dam's reservoirs, in successive flood situations in Portugal and Brazil and during winter. Water discharges in dam's reservoirs, in successive flood situations, are not always well understood by some stakeholders, such as environmental NGO. This may affect the company's reputation.	Wider social disadvantages	Current	Direct	likely	Medium-low
RCC02	Induced changes in human and cultural environment	Personnel risk related to climate change, both directly, through death or illness in the event of extreme weather conditions (ex: heat waves, cold waves, hurricanes, bush fires, among others), and indirectly, through epidemics and facilitated disease spreading (ex: after floods), or chaos and disorder (ex: inability to reach working place or leave their home).	Reduction/Disruption in generation capacity	Current	Direct	unlikely	Medium-low
RCC03	Uncertainty in	Climate change may cause	Reduced demand for	Current	Direct	unlikely	Medium-

	market signals	consumer demand volatility or industrial consumption reduction or changes in sector tariffs causing reduction of energy market value in the energy sector	goods/services				low
RCC04	Change in consumer behaviour	EDP's Consumers (B2B and B2C) might be subjected to Climate Change Regulations like the use of low emission products. In order to cope with it, companies may be forced into extra costs, falling into difficult economic situations.	Reduced demand for goods/services	Unknown	Indirect	unlikely	Medium-low

5.1.f. Please describe:

i. The potential financial implications of the risk/opportunity before taking action

ii. The methods you are using to manage this risk/opportunity

iii. The costs associated with these actions

Risk RCC01 – Reputation
i. the potential financial implications of this risk can be brand value degradation. EDP's brand is evaluated in 2,755 Million Euro, if this risk occurs a reasonable value is about 5%, 137 Million Euro.
ii. EDP is developing a pilot project, ComPro (Comunicação de Grandes Projectos - Communication Plans and Procedures for major Projects), whose main objective is the strengthening of the bi-directionality of the communication with local stakeholders and the improvement of communication in sustainability and environmental issues. This project is being applied to some new investments such as new hydropower plants. In the near future, EDP aims to extend the ComPro methodology to the major investments.
EDP also has a dedicated website for the communication of new hydropower plants (www.a-nossa-energia.edp.pt).
EDP has developed social innovation projects in some of the regions in which new hydropower plants are being constructed. These projects include entrepreneurship enhancement through capacity building development (human capital), through product promotion in new markets, namely emerging ones, and through the empowerment in social institutions, among others.
iii. The dedicated website cost around 65 thousand Euro to implement and 5 thousand Euro annually to maintain. Social innovation projects – About 800 thousand Euro in 2010.

Risk RCC02 – Induced changes in human and cultural environment
i. the cost associated with this risk is the loss of revenue. This can be a loss in generation, distribution and commercialisation; this would be less than 15 million.
ii. EDP has a Corporate procedure that establishes the principles, structure and procedures regarding the Crises and Business Continuity Plans (CCBCP), that must be produced by the main BU, these must address the mitigation actions that must be taken when some exceptionally harmful event occur. These plans are being developed, or already exist for key areas/events such as power plants, electrical distribution, bird flu, main data processors, among others. The plans (will) include emergency plans and frequent emergency drills. All key workers are (will be) identified, have (will have) a VPN access and know (will know) which should be their actions to cope with the situation. EDP has also personnel insurance that covers most of these events and support employees.
iii. The costs associated with the management of these risks are included in the Corporate Risk Department and in the Health and Safety Department Budgets, about 1 million.

Risk RCC03 – Uncertainty market signals
i. The impact is measured as a percentage of revenue, 4%.
ii. EDP manages the future risk through scenario analysis performed by the Risk and the Energy Strategic Department.

EDP has developed side demand models that incorporate changes in consumer volatility. This is perceived as a business opportunity and EDP has created EDP Serviços an ESCO company that provide efficiency and CO2 services
iii. The costs of these risks are included in the Department budgets, about 1 million Euro.

Risk RCC04 – Changing consumer behaviour
This risk is rather unlikely and its impact is very much uncertain.
i. The financial impact is a reduction on electricity sales. The impact is measured as a percentage of revenue, 4%.
ii. EDP manages the future risk through scenario analysis performed by the Risk and the Energy strategy department.
iii. The costs of these risks are included in the Department budgets and are less than 4 million per year.

6. Climate Change Opportunities

6.1 Have you identified any climate change opportunities (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure?

Please identify the relevant categories:

6.1.a. Opportunities driven by changes in regulation:

Risk ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood of impact	Magnitude of impact
OR01	Cap and trade schemes	Cap and trade impact the generation mix forcing utilities to use less fossil fuel sources. EDP's strategy strongly supports renewable energy generation thus gaining a competitive advantage.	Increase demand for products/services	Current	Direct	Virtually certain	High
OR02	Fuel energy taxes and regulations	Taxes and regulations on fossil fuel mobility will most probably force the shift towards electric mobility.	New products/ business	1-5 years	Direct	Virtually certain	High
OR03	Voluntary agreements	CO2 services and green energy are a new interesting business area	New business/products	Current	Direct	Virtually certain	Medium
OR04	Cap and trade schemes	CDM projects developed by EDP in Brazil.	New products/ business	Current	Direct	Virtually certain	Medium
OR05	Other regulatory drivers	Renewable generation in countries where wind power is currently underdeveloped	Increase demand for products/services	Current	Direct	Virtually certain	Medium
OR06	Fuel energy taxes and regulations	In regulated activities (distribution and last resource supply) costs may be recognized, if proven the need to invest more in assets in order to guarantee service quality levels, while selling electricity at a fixed price.	New products/ business	Current	Direct	Likely	Low
OR07	Other regulatory drivers	Wind offshore generation regulation in Europe will most probably give EDP new opportunities. EDP has since January 2010 the permission to develop (with sea energy) 1.3 GW of offshore wind turbines in Scotland.	Increased generation capacity	Current	Direct	Likely	Medium-High
OR08	Other regulatory drivers	European and national legislation concerning ESCOs create a business opportunity in utilities	New products/ business	Current	Direct	Very Likely	Medium
OR09	Other regulatory	Financial incentives to reduce electricity use.	New products/ business	Current	Direct	Very Likely	Medium

	drivers						

6.1.b Please describe:

i. The potential financial implications of the risk/opportunity before taking action

ii. The methods you are using to manage this risk/opportunity

iii. The costs associated with these actions

Regulatory opportunities are constantly monitored by the Regulation and Competition Department in different companies and geographies, as well as by the Energy Strategic Departments, in Iberia and Brazil.

OR01
i. There is a considerable market for renewable energy strongly reinforced by CO2 emissions restrictions. In the next years it is estimated that the operating cashflow from renewable will constantly grow and by 2014 will surpass the billion Euro.
ii. This opportunity is managed by the Board using the inputs from the Regulation and Competition Department and the Energy Planning Departments.
iii. The cost associated with this opportunity is the Capex on wind and Hydro. From 2012 till 2015 Capex in renewable will be 0.9 Billion Euro, and capex in hydro will be 0.4 Billion Euro per year.

OR02
EDP considers that electrical mobility is an opportunity because: it consumes electricity; vehicles will have zero local emissions and will mostly consume electricity during off-peak hours and might help to regulate the grid. The electrical vehicle recharging system is a business very much related with EDP's strategy.
i. The potential market for electrical mobility for EDP is the sale of electricity for mobility that will account for about 8.5 MEuro, based on 19,000 vehicles for 2020.
ii. In Portugal EDP has currently 12 electrical cars and 5 electrical motorbikes and EDP has also installed 400 charging locations. In Spain EDP has a partnership with Mitsubishi in which when a car is sold EDP installs the charging system at the client's house. In 2010 EDP in Brazil has inaugurated the first electric vehicle recharging network, with 20 points in the Brazilian states of São Paulo and Espírito Santo. The network is used for recharging 90 bicycles donated by EDP to military and municipal police forces and environmental authorities.
iii. Investment associated - 2 MEuro.

OR03
i. The potential market for the next years 5 could be about 10 MEuro just for the RECs business.
ii. Presently EDP sells green energy, energy certified by RECs, Renewable energy certificates issued by AIB, the Association of Issuing Bodies, to a small group of clients. EDP is currently developing a green services business area that will provide the clients with efficiency services, green energy and CO2 footprint evaluation and compensation. This is a promising area because many businesses are actually under great pressure to cope with voluntary sustainability evaluations in which these products are key factors.
iii. The costs associated with this opportunity are the commercial selling structures that not only sell these products but also sell electricity. A pro rata of the structure costs would be 50 KEuro per year.

OR04 CDM projects developed by EDP in Brazil generating voluntary certificates.
i. In 2010 the south America VER market accounted about 17 MUSD. Brazil did play a significant part in this figure.
ii. EDP has a CDM portfolio in Brazil that includes five projects already registered with the Executive Board of UN FCCC and two in the validation process. These are the repowering of the fourth unit of Mascarenhas(ES) hidro power; PCH São João (ES) and Paraíso (MS); and the wind power plants of Água Doce and Horizonte (SC). In 2011, 40,426 VER s (Verified Emission Reductions) conform to the VCS standard (Voluntary CO2 Standard) were emitted and sold by EDP. The hydro power plant project of Jari recently acquired is under appliance for VER validation. The revenue from the VERs is invested in socio-environmental projects supported or developed by Instituto EDP.
iii. The cost currently associated with this opportunity is about 50 k USD per year.

OR05 Renewable generation in countries where wind power is underdeveloped

i. There is a considerable market for renewable energy strongly reinforced by CO2 emissions restrictions. In the next years it is estimated that the operating cashflow from renewable will constantly grow and by 2014 will surpass the billion Euro.
ii. EDP renewable company, EDPR is the world third wind player. In 2011 EDP had 7.2 GW of installed power, a load factor of 25% in Europe and 33% in the USA and a 21 GW pipeline. EDP is focused in doing business in countries with under exploited wind potential and adequate incentive framework. Through the mother company EDP, EDP Renováveis has better access to the credit market thus being allowed to move fast into emerging markets in which incentives are being given to green power generation. Those incentives can be power purchase agreements, tax credits, among others.
iii. Investment associated - the Capex on wind, from 2012 till 2015 Capex will be 3.5 Billion Euro through these years.

OR06 In regulated activities (distribution and last resource supply) costs may be recognized, if proven the necessity to invest more in assets in order to guarantee service quality levels, while selling electricity at a fixed price. This regulatory issue can decrease operational costs, increasing the margin and also contributing to a better reputation because EDP is able to invest more in these areas.

OR07 Wind offshore generation regulation.
i. The potential market for offshore wind power is about 3 GW/annum worldwide. EDP R being the third windpower company will most surely install some of this power.
ii. Wind offshore generation is an opportunity and may be supported by regulation. EDP has, since January 2010, the permission to develop (with Sea Energy) 1.3 GW offshore wind farms in Scotland. EDP is also developing a pioneer demonstration project , windfloat a 2 MW sea wind turbine.
iii. The cost of the windfloat demonstration project is 20 MEuro.

OR08
i. In Portugal EDP's estimates the potential ESCO market to be about 1300 MEuro.
ii. EDP has created an ESCO company, EDP Serviços and ESCO company to supply energy efficiency and CO2 services.
iii. The costs associated with this opportunity are the commercial selling structures that not only sell these products but also sell electricity. A pro rata of the structure costs would be about 5 MEuro per year.

OR09 – PPEC project
i. The potential market is about 600 MEuro
ii. Efficiency is a major business area. PPEC initiatives do cover these.
iii. The annual cost is 0.9 MEuro per year.

6.1.c. Opportunities driven by changes in changes in physical climate parameters:

Risk ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood of impact	Magnitude of impact
OPC01	Change in precipitation pattern	Water scarcity is a strong scenario. EDP uses water in the thermal power plants cooling system and in the hydropower plant. Through the installation of cooling towers, instead of condensers, EDP has substantially reduced water use. Also the hydro reversible power plants have contributed to a decrease water use guaranteeing some power generation.	Increase generation capacity	Current	Direct	Virtually certain	Medium - High
OPC02	Change in mean (average) temperature	Higher temperatures during summer and mild temperatures in winter may lead to increased electricity and/or gas sales in these periods as a result of intensive use of HVAC equipments.	Increase demand for products/services	Current	Direct	likely	Medium

OPC03	Change in extreme temperature	Resilient technologies may be needed to cope with extreme temperature and weather. Utilities should be able to develop this technologies in the market (ex: conductors for HV lines and cables that can bear higher temperatures with lower losses) and eventually lower the cost of both new and existing technologies by scale effect, e.g.: underground HV cables.	New business/products	1-5 years	Direct	Likely	Medium

6.1.d. Please describe:

i. the potential financial implications of the risk/opportunity before taking action

ii. the methods you are using to manage this risk/opportunity

iii. the costs associated with these actions

EDP has the EMAS registration for 33% of installed capacity.
In Portugal and Spain, most of the facilities are ISO 14001 certified: 70% of installed capacity, thus ensuring that they are well prepared to manage extreme events. In EDP in Brazil, physical risks such as dam overflow are fully identified, and most the assets are certified by ISO 14001 and OHSAS 18001. The ISO 14001 section that addresses these subjects is 4.4.7 – emergency preparedness and response.
These certifications guarantee that EDP is already prepared to a range of climactic events thus gaining an advantage regarding its competitors that do not have such a preparation.

OPC01 - Change in precipitation pattern
i. The potential financial revenue of this opportunity is the revenue that EDP obtains by having pump and storage compared without having it, and the marginal revenue that EDP generates by having cooling towers instead of condenser units.
ii. Water scarcity is a strong scenario. EDP uses water in thermal power plants cooling systems and in hydropower plants. Through the installation of cooling towers, instead of condensers, EDP has substantially reduced water use.
Also the hydro reversible power plants have contributed to a use of a smaller amount of water guaranteeing the same power generation. These power plants allow hydro generation in drought situations and also pump water back from the second to the first reservoir storing the energy generated in wind farms mainly in off-peak hours. The Sabor dam, under construction, is a reservoir dam located in an upstream position of Douro, the most affluent river in Portugal. This dam will allow water storage for consumption and energy generation in such a quantity that Portugal will have electrical consumption independency for peak hours for 30 days.
iii. EDP is building new hydropower plants that have investment costs. These are not direct costs associated to the management of this risk, but this risk will be partially mitigated by the new hydropower plants, it is a collateral benefit from building the dams. Investments in new hydro plants comprise: completion of repowering works at Picote II (246MW) and Bemposta II (194MW); ongoing construction works at repowering of Alqueva II (256MW of hydro reversible plant with reservoir, 'HRPP with reservoir'), Baixo Sabor (171MW of HRPP with reservoir), Ribeiradio-Ermida (77MW with reservoir), Foz Tua (251MW HRPP with reservoir), repowering of Venda Nova III (740MW HRPP with reservoir) and Salamonde II (207MW HRPP with reservoir); and development of other hydro plants in pipeline, fully secured representing over 1GW of additional capacity. Investments in hydro represented about 0.4 billion Euro in 2011 These new power plants will increase EDP's cash flow because they will produce energy only with maintenance costs, they will not have fuel costs. In new thermal power plants the cooling system is based on cooling towers instead of condenser using a much lower water volume and introducing a much smaller change in temperature. In Portugal, the power plants build up with this technology are TER and Lares CCGT power stations.

OPC02 - Change in mean (average) temperature

i. Higher temperatures during summer may lead to increased electricity and/or gas sales in these periods as a result of intensive use of HVAC equipments. Increased electricity and/or gas sales will positively impact the company cash flow in about 2 a 3 %.
ii. EDP manages this opportunity by guaranteeing always energy supply, even in summer peaks, this is achieved by the diversified investments that EDP has done in generation.
iii. The investments in new power plants, see answer to OPC01 and Capex on renewable, from 2012 till 2015 Capex will be 3.5 Billion Euro.

OPC03 - Change in extreme temperature - Resilient technologies may be needed to cope with extreme temperature and weather. Utilities should be able to support the development of this technologies in the market (ex: conductors for HV lines and cables that can bear higher temperatures with lower losses) and eventually lower the cost of both new and existing technologies by scale effect, e.g.: underground HV cables. These technologies will decrease operational costs.

6.1.e Opportunities driven by changes in other climate-related developments:

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood of impact	Magnitude of impact
OCC01	Other drivers	Economy decarbonization increase EDP's competitive advantage due to its low CO2 generation and also to its services in efficiency, green energy and CO2 compensation.	Increased demand for existing products/Services	Current	Direct	Virtually certain	Medium - High
OCC02	consumer behaviour	Electric mobility	New products /business services	10 years	Direct	likely	Medium - High
OCC03	consumer behaviour	Smart grids	New products /business services	5 years	Direct	Likely	Medium - High
OCC04	Induced changes in human and cultural environment	RECs	New products /business services	Current	Direct	likely	Medium - High
OCC05	consumer behaviour	Energy services – efficiency and CO2 compensation	New products /business services	Current	Direct	Very likely	Medium - High
OCC06	Other drivers	Diversification – assets, geography and processes	Other – protects assets and the generation's free cash flow	Current	Direct	Very likely	Medium - High
OCC07	consumer behaviour	Gas supply to mobile transport	New products, business, services	Current	Direct	Virtually certain	Medium
OC08	consumer behaviour	Clean electricity production	New products, business, services	Current	Direct	Virtually certain	Medium

6.1.f Please describe:

i. The potential financial implications of the risk/opportunity before taking action

ii. The methods you are using to manage this risk/opportunity

iii. The costs associated with these actions

OCC01 - Economy decarbonization
i. The potential market for energy efficiency services is well above the 1300 MEuro

ii. Economy decarbonization increase EDP's competitive advantage due to its low emissions generation and also to its services in energy efficiency, green energy and CO2 compensation. Also, under the decarbonization trend, EDP sells green energy - energy certified by RECs, Renewable Energy Certificates issued by AIB, the Association of Issuing Bodies - to a small group of clients. EDP is currently developing a green services business area that will provide the clients with energy efficiency services, green energy and CO2 footprint evaluation and compensation. This is a promising area because many businesses are actually under great pressure to cope with voluntary sustainability evaluations in which these products are key factors.
iii. The costs associated with these opportunities are related to existing structures, and are about 150kEuro per year.

OCC02 - Electric mobility – Increasing emission regulations will cause the swift from fossil fuel mobility to electric one.
i. The potential market for electrical mobility for EDP is the sale of electricity for mobility that will account for about 8.5 MEuro, based on 19000 vehicles for 2020.
ii. EDP considers that electric mobility is an opportunity because: it consumes electricity; vehicles will have zero local emissions and will mostly consume electricity during off-peak hours and might help to regulate the grid. The electric vehicle recharging system is a business very much related with EDP's strategy. In Portugal EDP has currently 12 electrical cars and 5 electrical motorbikes and EDP has also installed 400 charging locations. In Spain EDP has a partnership with Mitsubishi in which when a car is sold EDP installs the charging system at the client's house. In 2010 EDP in Brazil has inaugurated the first electric vehicle recharging network, with 20 points in the Brazilian states of São Paulo and Espírito Santo. The network is used for recharging 90 bicycles donated by EDP to military and municipal police forces and environmental authorities.
iii. The investment associated with this opportunity is 2 MEuro.

OCC03 - Smart grids.
I. The potential market for smart grids is about 600 to 1000 MEuro, just considering the distribution component. The micro generation, the electric vehicles and all other services will add up to this amount.
ii. Smart grids are the new technology that will allow a much more efficient electrical grid management and the incorporation of several features into the grid such as energy remote management, micro generation, distributed generation, electric vehicles, among others. Foreseeing this, EDP has launched a project, InovGrid, which is now in demonstration phase. Under this project, 70 MEuros will be invested in smart grids and in 200 thousand energy boxes (smart meters). With this project EDP will address three main drivers of the electrical sector: energy remote management, micro generation and smart grids. The project is now in demonstration in Évora where it was implemented in 31,000 consumers' homes. Success in these consumers will allow EDP to opt for a full rollout to consumers in Portugal, Spain and Brazil. To quantify the expected impact of this project EDP have also set our goals in terms of Key Performance Indicators, to be assessed at the main site in Évora after 2013. The project is aligned with the current European 20-20-20 goals and aims to demonstrate a full featured implementation of the smart Grid concept and show how to harness its potential to increase the share of small to medium size distributed generation. It will do so by enlisting the active participation of consumers and small producers, including them as relevant market-shaping forces.
iii. EDP's investment in smart grids totals 15 MEuros (31,300 smart meters installed; integration of IT systems; setting up communications infrastructures, remote network control systems).

OCC04 – Renewable Energy Certificates (RECs).
i. The potential market for RECs could be about 10 MEuro.
ii. RECs are certificates that proof that one megawatt-hour (MWh) of electricity was generated from a renewable energy resource. EDP has currently the sourcing and a small client portfolio. The development of this business is an opportunity especially because EDP has the sourcing and the clients. The sourcing is produced in the new hydropower plants that are not under any special feed-in tariff. The clients exist and will grow due to the growing number of voluntary sustainability evaluations in which companies will need to score to keep up with their peers.
iii. The costs associated with this opportunity are the commercial selling structures that not only sell these products but also sell electricity. A pro rata of the structure costs would be 50 KEuro per year.

OCC05 - Energy services– energy efficiency and CO2 compensation.
i. The potential market for CO2 services can be up to 7 MEuro and for energy efficiency about 1300 MEuro.
ii. Efficiency services are an existing opportunity because services have a positive return, the major drawback is for some projects its payback period. On the other hand CO2 compensation is a promising area because many

businesses are actually under great pressure to cope with voluntary sustainability evaluations in which these products are key factors. And EDP has already the product and the sourcing at competitive prices.
iii. The costs associated with this opportunity are the commercial selling structures that not only sell these products but also sell electricity. A pro rata of the structure costs would be about 50 KEuro per year.

OCC06 - Diversification – assets, geography and processes. EDP operates in 12 countries, in four main business areas: generation (thermal and hydro), renewable generation (wind), transport (gas) and distribution (gas and electricity). Businesses have natural hedges among themselves; per example in case of an oil price peak the cash flow from thermal assets will decrease, being partially compensated by the cash flow from renewable. Another example occurs in the case of increasing CO2 license prices, the cash flow from thermal assets will decrease, being compensated by the cash flow from renewable. The 12 countries are located in USA, Brazil and throughout Europe thus guaranteeing that if an extreme event such as a violent storm or earthquake occur, part of the assets will be protected somewhere else.

OC07 - Gas supply to mobile transport
i. Potential market under analyses
ii. The Supply of gas (LNG and CNG) is a natural activity for EDP Gas
iii. Associated costs about 50 KEuro per year

OC08 - Clean electricity production
i. Potential market is about 10MEuro per year.
ii. Supply of electricity with guaranteed origin, per example wind, photovoltaic, among others.
iii. The cost is about 50 KEuro per year

Emissions

7. Emissions Methodology

Base year

7.1 Please provide your base year and base year emissions (Scopes 1 and 2).
Use the table in the ORS to provide the following details for Scopes 1 and 2:

Base year	Base year emissions Scope 1	Base year emissions Scope 2
2005	28,255,003	1,861,319
2008	19,813,643	1,571,028

Methodology

7.2 Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

European Directive no. 2003/87/CE - EDP Scope 1 stationary combustion emissions were calculated using the methodology defined by the European Directive no. 2003/87/CE. This methodology calculates CO2 emissions from fuel consumption using measured data, emission factor and oxidation factor.

GHG protocol (http://www.ghgprotocol.org/) - EDP's Scope 1 fleet emissions and Scope 2 emissions were calculated using the GHG protocol guidelines and EDP data.

Portugal - methodology approved by APA, I.P. (Agência Portuguesa do Ambiente, the Portuguese Environment Agency- www.apambiente.pt) - EDP power plants in Portugal report greenhouse gas emissions using the methodology approved by APA for the GHG national inventories and the EU-ETS (European Emission Trading Scheme). These reports are verified by APA certified auditors.

Spain - EMEP-CORINAIR and IPCC international methodology - EDP power plants quantify greenhouse gas emissions using the EMEP-CORINAIR and IPCC international methodology.

If you have selected "other":
7.2a Please provide further details
7.3 Please give the source for the global warming potentials you have used

Gas	Reference
SF6	IPCC 4th Assessment Report (GWP over a 100 year time span)

7.4 Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data

Fuel/Material/Energy	Emission Factor	Unit	Reference
Trains (in Spain)	26.19	g CO2/t/km	RENFE's Report (GRI A+ and is audited by AENOR)
Trucks (in Spain)	128.15	g CO2/t/km	RENFE's Report (GRI A+ and is audited by AENOR)
Airplane – long haul (>1000 km)	239.63	g CO2/ pass/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Airplane – short haul (500 to 1000 km)	92.45	g CO2/ pass/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Airplane – domestic (< 500 km)	171.47	g CO2/ pass/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Train	115.2	g CO2/pass/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Marine Shipping	33.23	g CO2/t/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Inland shipping	33.23	g CO2/t/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Diesel heavy truck	922.6	g CO2/t/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Bus diesel	66.59	g CO2/pass/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Motor Bike	125.9	g CO2/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Metro	101.7	g CO2/pass/km	World Resources Institute (2008) GHG Protocol tool for mobile emissions V2.2
Electric Emission factor Portugal (Scope 2) 2011	226.7	kg CO2/MWh	Electricity national emission factor - Portuguese Regulator
Electric Emission factor Spain (Scope 2) 2011	171	kg CO2/MWh	Electricity national average emission factor - Spanish Regulator
Electric Emission factor Brazil (Scope 2) 2011	51.1	kg CO2/MWh	Electricity national emission factor – Brazil Minister of Science and technology
Electric Emission factor USA and ROE (Scope 2) 2011	643.3	kg CO2/MWh	Electricity emission factor of the states in which EDP is operating, weighted by generation
Gasoline (Europe and USA)	2.32	kg CO2/litre	GHG Protocol Mobile emissions based on fuel use
Gasoline (Brazil)	2.32	kg CO2/litre	National emission factor
Diesel (Europe and USA)	2.74	kg CO2/litre	GHG Protocol Mobile emissions based on fuel use
Diesel (Brazil)	2.68	kg CO2/litre	National emission factor
CNG (Brazil)	1.91	kg CO2/m3	National emission factor
Alcohol (Brazil)	1.47	kg CO2/litre	National emission factor

8. Emissions Data

Boundary

8.1 Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory
Select from

x	**Financial control**
x	**Operational control**
	Equity share
	Climate Change Reporting Framework (CCRF)
	Other

Scope 1 and 2 Emissions Data

8.2 Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

16,957,182

8.3 Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

1,280,398

8.4 Are there any sources (e.g. facilities, specific GHGs, activities, geographies, among others.) of Scope 1 and Scope 2 emissions which are not included in your disclosure?

Yes

If yes: 8.4a Please complete the table

Reporting entity	Source	Scope	Explain why the source is excluded
	Methane	1	Not materially relevant
	N2O	1 & 2	Not materially relevant

Data Accuracy

8.5 Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
1	Less than or equal to 2%	Fuel measurement (uncertainty 1.5%)	In Europe, GHG emissions evaluation follow the guidelines in Commission Decision n. 2007/589/CE. EDP's methodology is approved by APA (Agência Portuguesa do Ambiente) the Portuguese environmental authority who manages the national inventory system and CO2 licenses under the EU-ETS.
2	Less than or equal to 2%	GHG Protocol or national (Brazil) conversion factors	CO2 emissions were obtained using company data (fuel use or distance) and converting to CO2 using emission factors of the GHG Protocol or national (Brazil). The values are fully audited. EDP considers as an acceptable figure an error of less than 2%.

External Verification or Assurance

8.6 Please indicate the verification/assurance status that applies to your Scope 1 emissions

If Scope 1 emissions have been verified or assured (complete or underway), answer questions 8.6a and 8.6b:

8.6a Please indicate the proportion of your Scope 1 emissions that are verified/assured

More than 90% but less or equal to 100%

8.6b Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Relevant statement attached?
Limited assurance	ISAE 3000	yes

8.7 Please indicate the verification/assurance status that applies to your Scope 2 emissions
If Scope 2 emissions have been verified or assured (complete or underway), answer questions 8.7a and 8.7b.
8.7a Please indicate the proportion of your Scope 2 emissions that are verified/assured

More than 90% but less or equal to 100%

8.7b Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Relevant statement attached?
Limited assurance	ISAE 3000	yes

Carbon Dioxide Emissions from Biologically Sequestered Carbon

8.8 Are carbon dioxide emissions from the combustion of biologically sequestered carbon (i.e. carbon dioxide emissions from burning biomass/biofuels) relevant to your company?

Yes

If yes: 8.8a Please provide the emissions in metric tonnes CO2e

1988 [Biomass (1431) + Alcohol (557)]

9. Scope 1 Emissions Breakdown

Electric utilities should report emissions by country/region using the tables in QEU2 Oil and gas sector companies are requested to provide breakdowns of emissions by value chain segment and activity as shown in OG2 and OG3 ICT companies can use the sector module to respond to Q9.2d

9.1 Do you have Scope 1 emissions sources in more than one country or region (if covered by emissions regulation at a regional level)?

Yes

If yes: 9.1a Please complete the table below

Country/Region	Scope 1 metric tonnes CO2e
Portugal	8,435,299
Spain	8,514,588
Brazil	6,318
USA	929
ROE – Rest of Europe	52

9.2 Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division (9.2a)	X
By facility (9.2b)	

By GHG type (9.2c)	X
By activity (9.2d)	

Where a breakdown option has been ticked, a table appears to allow you to enter the relevant emissions data

9.2.a

Business Division	Scope 1 metric tonnes CO2e
Electricity generation and distribution	16,943,815
Gas transport and distribution	13,367

9.2.c

GHG Type	Scope 1 metric tonnes CO2e
CO2	16,941,485
SF6 (GWP=22,800)	5,742
Methane (Gas losses) (GWP=25)	9,955

10. Scope 2 Emissions Breakdown

Oil and gas sector companies are requested to provide the breakdown of emissions by value chain segment as shown in OG2 ICT companies can use the sector module to respond to Q10.2c

10.1 Do you have Scope 2 emissions sources in more than one country or region (if covered by emissions regulation at a regional level)?

Yes

If yes: 10.1a Please complete the table below

Country/Region	Scope 1 metric tonnes CO2e
Portugal	1,085,116
Spain	128,010
Brazil	51,554
USA	12,581
ROE – Rest of Europe	3,137

10.2 Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By business division (10.2a)	x
By facility (10.2b)	
By activity (10.2c)	

Where a breakdown option has been ticked, a table appears to allow you to enter the relevant emissions data

10.2.a

Business Division	Scope 1 metric tonnes CO2e
Electricity generation and distribution	1,280,052
Gas transport and distribution	346

11. Scope 2 Contractual Emissions

11.1 Do you consider that the grid average factors used to report Scope 2 emissions in question 8.3 reflect the contractual arrangements you have with electricity suppliers?

Yes

If no, complete questions 11.1a and 11.1b:

11.1a You may report a total contractual Scope 2 figure in response to this question. Please provide your total global contractual Scope 2 GHG emissions figure in metric tones

N.a.

11.1b Explain the basis of the alternative figure (see guidance)

N.a.

11.2 Has your organization retired any certificates, e.g. Renewable Energy Certificates, associated with zero or low carbon electricity within the reporting year or has this been done on your behalf?

Yes. EDP participates in the RECS-Renewable Energy Certificate System with four Portuguese hydropower plants: Ponte de Jugais (19.22 MW), Sabugueiro I (13.24 MW), Desterro (12.592) and Vila Cova (23.4 MW). These certificates are issued since 2003 by REN (www.ren.pt), the national transmission grid operator, a member of AIB-Association of Issuing Bodies.
The REC System has the main objective of encouraging generation from renewable energy sources and guaranteeing the consumer/trader that, by acquiring a RECS certificate, they are supporting renewable energy generation and reducing emissions. For each MWh produced in the power plants enlisted in the REC system, a certified is issued and can be traded. The additional revenue complements the price of the electricity and is a reward for the producer for having generated electricity from a renewable source.

If yes: 11.2a Please provide details including the number and type of certificates

Type of certificates	Number of certificates	Comments
Renewable Energy Certificates	180,076	Generated: 146,606 Transferred: 519,390 Redeem: 21,400

12. Energy

12.1 What percentage of your total operational spend in the reporting year was on energy?

73.4%

12.2 Please state how much fuel, electricity, heat, steam, and cooling in MWh your organization has consumed during the reporting year

Energy Type	MWh
Fuel	53,611,386
Electricity	808,182
Heat	0
Steam	0
Cooling	0

12.3 Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuel Type	MWh
Coal	31,229,255
Natural Gas	17,782,350
Gasoil	35,622
Fuel oil	188,686
Solid Biomass	930,463
Blast Furnace Gas	2,574,752
Coke Oven Gas	375,822
Oxygen Steel Furnace Gas	417,515
Fuel for mobile (Gasoline, diesel oil, alcohol, LNG)	76,920

13. Emissions Performance

Emissions History

13.1 How do your absolute emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Increased

If emissions have increased, decreased or remained the same overall:

13.1a Please complete the table

Reason	Emissions Value (percentage)	Direction of change	Comment
Increased stationary combustion in thermal power plants owned by the company in the Iberian Peninsula	15%	Increase	Hydroelectric Production Index (HPI) for the Iberian Peninsula - 0.92 in Portugal and 0.82 in Spain – **WAS BELOW THE AVERAGE HYDROLOGICAL YEAR AND MUCH LOWER THAN THAT OF 2010** (around 1.3), which led to a heavy decrease in hydroelectric power generation in this geography about 4 TWh less. As a result of the **DECREASED WATER AVAILABILITY** and despite the reduction in demand for electricity on the Iberian Peninsula (about 3%), there was an increased use of thermal power stations to meet consumption demand, with particular emphasis on coal for market reasons - more 34% production from coal-fired power plants and less 27% CCGT, when compared to 2010.

Emissions Intensity

13.2 Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue (CDP 2011 Q13.2, amended)

Intensity figure	Metric numerator [mtCO2e]	Metric denominator [Turnover M€]	% change from previous year	Direction of change from previous year	Reason for Change
1206	18,237,580	15,120.851	8	Increase	Although the company created more value in 2011 (more 6.7% compared to 2010), the increase in this intensity figure reflects the increased use, in the generation mix, of thermal power plants (scope 1) in the Iberian Peninsula (more 34% production from coal-fired power plants and less 27% from CCGT compared to 2010), due to the heavy decline of hydroelectric power generation in this geography (less 4 TWh) and despite the increase in wind power generation worldwide (plus 2.4 TWh).

13.3 Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e **per full time equivalent (FTE) employee** (CDP 2011 Q13.3, amended)

Intensity figure	Metric numerator [mtCO2e]	Metric denominator [FTE employee]	% change from previous year	Direction of change from previous year	Reason for Change
1482	18,237,580	12,305	13	Increase	Compared to 2010, the FTE employee raised 1.7% while the scope 1+2 emissions raised 14.9%. Thus, the increase in this intensity figure is mainly due to a generation mix with higher carbon content: the increased stationary combustion (scope 1) in thermal power plants owned by the company in the Iberian Peninsula (more 34% production from coal-fired power plants and less 27% from CCGT compared to 2010), as a result of the heavy decline of hydroelectric power generation in this geography (less 4 TWh) and despite the increase in wind power generation worldwide (plus 2,4 TWh).

13.4 Please provide an additional intensity (**normalized**) metric that is appropriate to your business operations (CDP 2011 Q13.4, amended)

Intensity figure	Metric numerator [mtCO2e]	Metric denominator [Electricity generation* (GWh)]	% change from previous year	Direction of change from previous year	Reason for Change
307	18,237,580	59,340.4	16	Increase	Compared to 2010, the total power generation decreased 1.3% while the scope 1+2 emissions raised 14.9%. The increase in this intensity figure is mainly due to a generation mix with higher carbon content: increased stationary combustion (scope 1) in thermal power plants owned by the company in the Iberian Peninsula (more 34% production from coal-fired power plants and less 27% from CCGT, compared to 2010), as a result of the heavy decline of hydroelectric power generation in this geography (less 4 TWh) and despite the increase in wind power generation worldwide (plus 2.4 TWh).

**Includes heat generation in CHP plants*

ICT companies can use the sector module to respond to this question

14. Emissions Trading

14.1 Do you participate in any emissions trading schemes?

Yes.

If yes: 14.1a Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
European Union ETS	1.1.2011 to 31.12.2011	16,059,957	0	16,862,252	Facilities EDP own and operate

14.1b What is your strategy for complying with the schemes in which you participate or anticipate participating?

EDP is currently involved in the European Trading Scheme (EU ETS). This has already entered the Kyoto period (2008-2012), with stricter requirements than the pilot phase for utilities.

EDP's strategic plan, issued on Investor's Day in 2008, stated that CO2 emission factor (EF) would be reduced by 56% by 2012 in comparison with 2005 emissions. EF would drop from 600 tCO2/MWh in 2005 to 270 tCO2/MWh by 2012. By 2010 EDP did already surpassed the target having reduced 59% of specific emissions, more than the 56%

target.

In 2009, EDP committed itself to a more ambitious target, to reduce by 2020 in 70% EF, in comparison to 2008. EF will drop from 400 tCO2/MWh in 2008 to 120 tCO2/MWh by 2020. This reduction is a result of the Group's Strategy and will be achieved through substantial business decisions.

In order to diversify risk and optimize the alternatives presented in the Kyoto Protocol, in 2007 EDP signed emissions reduction purchase agreements (ERPAs) resulting from CDM projects with several entities.

EDP also participates in the voluntary CO2 credit market and generated several tonnes of VERs – Verified Emission Reductions. Some of these VERs were redeemed to neutralise Group events, while the rest was traded.

As far as CO2 funds are concerned, EDP is continuously monitoring and seeking new investment opportunities, always aiming the diversification of its generation mix and geographical locations. Furthermore, emission credits were also purchased with guaranteed delivery on the forward market.

14.2 Has your company originated any project-based carbon credits or purchased any within the reporting period?

Yes

If yes: 14.2a Please complete the following table

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits retired	Purpose, e.g. compliance
Purchase CER	n/a	n/a	CDM	4,891,748	4,891,748	2,909,953	Compliance
Purchase ERU	n/a	n/a	JI	426,504	426,504	192,915	Compliance

15. Scope 3 Emissions

15.1 Please provide data on sources of Scope 3 emissions that are relevant to your organization

Sources of Scope 3 emissions	metric tonnes CO2e	Methodology	If you cannot provide a figure for emissions, please describe them
Fuel and energy-related activities (not included in scope 1 or scope 2)	933,552	GHG Protocol	
Waste generated in operations	7,666	GHG Protocol	
Business travel	8,700	GHG Protocol	
Employee commuting	2,280	GHG Protocol	
Upstream leased assets	19,928	GHG Protocol	

15.2 Please indicate the verification/assurance status that applies to your Scope 3 emissions

Verification or assurance complete

15.2a Please indicate the proportion of your Scope 3 emissions that are verified/assured

100%

15.2b Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Relevant statement attached?
Limited assurance	ISAE 3000	Yes

15.3 Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources? (CDP 2011 Q15.3, amended)

Yes

If yes: 15.3a Please complete the table (CDP 2011 Q15.3a, amended)

Sources of Scope 3 emissions	Reason	Emissions value (percentage)	Direction of change	Comment
Fuel and energy-related activities (not included in scope 1 or scope 2)	Change in physical operating conditions	39	Increase	2010 had been an abnormal wet and windy year. On the contrary 2011 was a dry year, so the coal power plant and the gas ones did operate more.
Waste generated in operations	Change in output	72	decrease	Stock variation.
Business travel	Change in boundary	12	decrease	
Employee commuting	Change in boundary	15	increase	
Upstream leased assets	Change in physical operating conditions	61	increase	

Further information

In 2012 EDP will continue to implement the GHG scope 3 Protocol.
GHG scope 3 emissions (S3) calculation methodology was published in November 2011. The extent covered by EDP in S3 calculations has been changing since it started, in 2009, and it will be stabilised at the end of the scope 3 GHG protocol methodology implementation. Each year more processes are being covered. Most of the raw data like distances, weights, litters and electric consumption are collected in the company's internal information system, SIS. The data is then used in calculations, thus obtaining S3 emission per country and process, and finally reported. Presently calculations cover the following S3 categories:
-Category 3 Fuel and energy related activities (not included in scope 1 or scope 2)
- Category 5 Waste generated in operations
- Category 6 Business travel
- Category 7 Employee commuting
- Category 8 Upstream leased assets.

Planning:
1. Analyses of GHG Scope 3 protocol Nov. 2012 – March 2013
2. Category relevance analyses Jul. 2013
3. Data systematization Aug. 2013
4. Establishment of the emission coefficients and updates Sept. 2013
5. Establishment of data collection methodology Nov. 2013
6. Establishment of the calculation system Dec. 2013
7. Implementation Jan. 2014
8. Monitoring 2014
9. Establishment of targets 2014
10. Follow – up 2014-...