Water Disclosure Project 2012

Information Request

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.

Water Management and Governance

1. Water management and governance

1.1 Does your company have a water policy, strategy or management plan?

Yes.

1.1a Please describe your policy, strategy or plan, including the highest level of responsibility for it within your company and its geographical reach

EDP has a Corporate Environmental Policy that is transversal throughout the company and includes all the significant environmental aspects. The Corporate Environmental Policy states "Constantly improve environmental performance", this includes sustainable water management.

Most of the main companies that form EDP have their own environmental policies that always include the environmental management system, with focus on the significant environmental aspects, in which water management is always present.

EDP considers having a significant impact on water resources, namely in the thermal and hydro production assets, so EDP manages water issues in such a way that minimises this impact. This good management is validated by the ISO 14001 and the EMAS certification, both applying the continuous improvement management approach.

EDP has water management plans in most of its production assets, By the end of 2011 EDP had world wide70% of its installed capacity certified by ISO 14001, with 84% in Portugal, 70% in Spain and 77% in Brazil EDP Group had also 33% of its installed capacity with EMAS registration.EDP has an Environmental Management System applied to Corporate management of Environmental policies and strategic environmental plans, environmental information and performance of EDP Group organizations that guarantees the adequate management of all environmental significant aspects, in which water is included.

The Top responsible for water issues is Mr. Pita de Abreu, the member of the Board of Directors in charge for sustainability.

The board of directors is the ultimate responsible for the environmental and sustainability policy as well as for the environmental performance of the company that includes water management. The board is assisted by a corporate environmental and sustainability office. Its manager is responsible for the reinforcement of the environmental and sustainability policy and for the follow-up and reporting of EDP Group environmental and sustainability performance, which includes water management performance.

The water operational management is delegated in the power plant's directors and the water related risks are followed by the CRO (Chief Risk Officer).

During 2012, EDP will develop a water policy that will address all the related strategic issues.

1.1b Does the policy, strategy or plan specifies water-related targets or goals?

Yes.

1.1c Please describe these water-related targets or goals and the progress your company has made against them.

Country or geographical reach	Category of target or goal type	Description of target or goal	Progress against target or goal
Portugal	Direct operations	Sines Power plant – Water consumption reduction in 12%	100% (the reduction was 12.7%)
Portugal	Direct operations	Sines Power plant – Treated effluent reduction in 35%	100% (the reduction was 38%)
Portugal	Direct operations	Tejo-Mondego hydro power plants – Avoid oil contamination through diminution of oil lubricated equipments	100%
Spain	Direct operations	Aboño power plant - Water consumption reduction of 100.000 m3 through recovery of the same amount of water for FGD (from April till December).	100% by April 2011.
Spain	Direct operations	Aboño power plant – Change to sea water of the water used in the cleaning of the slag and sludge pumps. Savings of 30.000 m3/year.	100% by September 2011.
Spain	Direct operations	Aboño power plant – Reuse of the lixiviated water from the ashes collector, in the FDG. Savings of 60.000 m3/year.	100% by September 2011.
Spain	Direct operations	Soto power plant – Reduction of water abstraction in about 21%.	100% .
Spain	Direct operations	Soto power plant – Change in cooling circuit, from open to a closed one.	100% .
Spain	Direct operations	Castejon power plant - Reduction in 25% of the volume of the refrigeration effluent.	100% .

1.2 Do you wish to report any actions outside your water policy strategy or plan that your company has taken to manage water resources or engage stakeholders in water-related issues?

Geographical reach	Type of actions	Action	Outcomes
Global	Direct Operations	EDP has an environmental management system that manages the significant environmental aspects. Water is one of the most important aspects. All situations regarding water are closely followed, from use to spills.	The follow-up of water use and consumption.
Portugal	Direct Operations	In thermal and hydro production (EDP Produção): In the thermal and hydro production company EDP develops activities of plant's project, construction, exploitation and decommissioning. All these actions are developed in the straight compliance with the law and with all the voluntary commitments assumed by EDP, namely in what regards water use reduction. For new plants, during project phase, EDP incorporates the corporate environmental practices and ensures that the minimization and compensation measures stated by the Environmental Impact Declaration (issued by the competent state authorities) are effectively accomplished. In addition, best (voluntary) practices are added to the project guaranteeing that it will have a good environmental performance.	Outcome: Reduction of - Water use and consumption, - Energy consumption - Operating costs
Portugal	Direct Operations	Examples of good voluntary practices: - In Lares plant the industrial water supply is a mixture of water from the channel and reused water from: final wash of the treatment sand filters and mixed bed exchangers; the recirculation of mixed bed exchangers (when the water does not achieve the minimum requirements to be send to the demiwater tank, namely high conductivity); good quality condensate and boiler blow down	Outcome: Reduction of - Water use and consumption, - Energy consumption - Operating costs

		water. The first two are sent to the water treatment plant and the last one is sent to the service water tank. - During normal operation there are actions regarding the internal control aiming to demonstrate the respect for legal imposed limits, on surface and ground water withdrawal. These restrictions apply to water used in cooling and/or process, to rejected effluent volume and quality, to the quality of the receptor water. When the receptor is a river its water quality is also monitored with a monthly periodicity. - Depending on each installation characteristics and on the associated infrastructures, the ground water quality is sometimes monitored through piezometers. - In Setúbal power plant, in the oil heating lines, condensate water recovery equipment was installed. This equipment collects the residual treated water that is later used in the power plant garden irrigation. - In Sines power plant, the boiler slag extraction wet system was replaced for a dry one, one of the main objectives of this replacement was water use reduction. The replacement began in 2004 and ended in 2008. The water use associated with this system, 532 000 m3/year, was eliminated. Some other environmental, operational and maintenance advantages of this replacement were: discontinuance of mud production in the liquid effluent treatment installation; discontinuance of product consumption associated with the hopper water treatment (44 ton/year); significant cost reduction associated with the cleaning of the area; economical possibility of selling of the hopper the bottom ash. Also at the Sines power plant, by the end of 2009, and within the desulphurisation project, conditions were created to allow the reuse of almost all of the chemical effluent treated at the liquid effluent treatment installation.	
Portugal	Direct Operations	In distribution, in Portugal, there is a special procedure regarding spills. This obliges its communication within 24 hours to the distribution company environmental department and establishes all the adequate actions to mitigate its impact.	Outcome: Avoidance and minimisation of spill impact on the environment.
Spain	Direct Operations	In HC Energía - Production and distribution company in northern Spain: Aboño power plant (Gijon): (1) Improvement of the Aboño 1 hopper, through the optimization of valves, the plant uses less treated and potable water, (2) Reduction of water use in about 55 000m3/month in the Aboño 2 desulphurization (3) Improvement of water circulation systems for Aboño 1 and 2 (4) Sea water desalinization (5) Recuperation of purge water Soto de Ribera power plant (Oviedo): (1) Reuse of rain water for irrigation (2) Continuous chlorine dosage in water cooling, preventing water spills.	Outcome: Reduction of - Water use and consumption, - Energy consumption - Operating costs
Brazil	Direct Operations	In Brazil an environmental evaluation is made during the viability studies phase for the hydro plants. In this phase the surface and ground water quality parameters are evaluated. During construction phase the impacts are monitored, and minimization measures are taken, all much focused on water quality. During operation the water quality and quantity are regulated by the plant operating license and are closely monitored.	Outcome: Mitigation of the risk of degrading water quality.
Spain and Portugal	Other: Water regulatory risk	In November 2009, an internal working group was created to access the impact of the water framework directive on EDP Produção hydro power plants by the EDP Produção board.	Outcome: Mitigation of regulatory risk
Global	Community engagement	Econnosco program, an initiative for EDP employees. This programme involves reduction in electricity and water consumption in EDP's office buildings, waste management and the creation of a	Outcome: Reduction of - water use and consumption,

		Sustainability Ambassador – a volunteer employee who encourages sustainability measures in his/her workplace. From 2006 till 2009, in Portugal, the program reduced in 32% the water use in buildings.	- energy consumption
Global	Public policy	EDP participates in several public policy fora, such as BCSD GT Agua, WBCSD and the European Water Partnership initiative.	Outcome: In all of them EDP discusses and defends its opinions in what relates with water use, management and sustainability.

Risks and Opportunities

RISKS INDICATORS

Operations

2.1 Are any of your operations located in water-stressed regions?

Yes.

2.1a Please specify the method(s) you use to characterize water-stressed regions.

Method	Please add any comments here:
Global Water Tool	The Global Water Tool is a tool developed by the WBCSD aiming to help companies to access which of its assets are located in water stress areas, in countries that lack access to improved water and sanitation and which of its suppliers are in water stress areas.

2.1b Please list the water-stressed regions where you have operations and the proportion of your total operations in that area.

Country	Region within country	Proportion of operations located in this region (%)	Further comments
Spain	Murcia	0-10	Only one site of EDP Group is located in water stress area. It is a small co-generation plant, Central de La Sierra de Tercia, located in Murcia, Spain. This plant represents 0.07% of installed capacity 0.22% of production in 2011 and 0.0029% of total water withdrawals. The main objective of this plant is to consume the residues of the local swine industry. This industry produces effluents that have strong pollutant effect and are subject to strong environmental legislation that forces either the effluent reutilization either its treatment. The La Sierra de Tercia Plant was built to treat these effluents. Since the plant is in a water stress region, it was built using the best water saving technologies and processes, such as the reuse of condensate from the effluent treatment, and the reuse of part of the purge in the irrigation of adjacent fields.

2.2 Are there other indicators (besides water stress) which you wish to report which help you to identify which of your operations are located in regions subject to water-related risk?

No.

2.2a Please list the regions at risk where you have operations, the relevant risk indicator and proportion of your total operations in that area.

Na.

2.2.

All other operations are acknowledge to be in regions without water stress.

2.3 Please specify the total proportion of your operations that are located in regions at risk which you identified in questions 2.1 and/or 2.2?

0,07%

2.4 Please specify the basis you use to calculate the proportions used for questions 2.1 and/or 2.2

Basis used to determine percentage	Please add comments here
Production volumes, installed capacity and water withdrawals	Only one site of EDP Group is located in water stressed area. It is a small co-generation unit, located in Murcia, Spain and representing 0,07% of installed capacity 0.22% of production in 2011 and 0.0029% of total water withdrawals.

Supply Chain

2.5 Do any of your key inputs or raw materials (excluding water) come from regions subject to water related risk?

Do not know.

2.5.b You may explain n here why you are not able to identify if any of your key inputs or raw materials come from regions subject to water-related risk and whether you have plans to explore this issue in the future.

EDP is developing an internal tool to identify the risks to sustainable development present in the supply chain. Although the direct link of raw materials regions to water related risks is not yet possible, during 2011 EDP examined the impact of different risks in the different supply chain categories, along with its significance and the adequacy of the current monitoring/mitigation practices in place. In the Environment Section, water related risks were considered, namely water stress and the production of polluted effluents.

EDP also participates in a working group promoted by the Achilles Company, in which an inquiry is being developed for companies to allow for a better identification and understanding of supply chain related risks, in which water is also considered.

Although we cannot estimate proportion, we already Identified relevant Supply Categories with potential water related risks: 1) Primary energy supply such as Coal, gas; oil and refined oil products; 2) Construction, Civil engineering and related services.

3 Risk Assessment

Operations

3.1 Is your company exposed to water-related risks (current or future) that have the potential to generate a substantive change in your business operation, revenue or expenditure?

Yes.

3.1a Please describe (i) current and/or future risks to your operations, (ii) the ways in which these risks affect or could affect your operations before taking action, (iii) the estimated timescale of these risks and (iv) your current or proposed strategies for managing them

Country or geographical description	Risk Type	Potential business impact	Timescale (years)	Risk management strategies
Portugal	Regulatory - other	The purpose of the Water Framework Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which: (a) prevents further deterioration and; (b) promotes sustainable water use based on a long-term protection of available water resources; (c) aims at enhanced protection and improvement of the aquatic environment; (d) ensures the progressive reduction of groundwater pollution, and (e) contributes to the mitigation of the effects of floods and droughts. The Directive will most probably impact in EDP hydro power plants through heavier constraints on: - Ecological flows - Flood and cleaning discharges - Hydropeaking - Sediment management - Working regime - Water body physical, chemical and ecological quality. These restrictions will most probably impact EDP cash flow generation.	Current	In Portugal EDP is represented in the relevant River Basin Councils. These are advisory boards in which all the water users (consumers and non consumers) are represented amongst many others (government, scientists, etc.). This allows EDP to proceed with a close follow up of the activities of the national river managements authorities.
Spain	Regulatory - other	The purpose of the Water Framework Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which: (a) prevents further deterioration and; (b) promotes sustainable water use based on a long-term protection of available water resources; (c) aims at enhanced protection and improvement of the aquatic environment; (d) ensures the progressive reduction of groundwater pollution, and (e) contributes to the mitigation of the effects of floods and droughts. The Directive will most probably impact in EDP hydro power plants through heavier constraints on: - Ecological flows - Flood and cleaning discharges - Hydropeaking - Sediment management - Working regime - Water body physical, chemical and ecological quality. These restrictions will most probably impact EDP cash flow generation.	Current	In Spain EDP closely follows up the activities of the national river managements authorities
Portugal	Physical: Declining water quality	These risks can occur at Ribatejo and Lares power plants. Decrease or even interruption of the steam generators production, as a consequence of shortcomings in cooling water.	Current	(1) Optimization of continuous monitoring of water quality; (2) Increase the frequency of routine inspections and tests in the critical seasons of the year, namely, spring and summer; (3) Prepare/ensure alternative supply sources for demineralization water process.

Portugal	Physical: Declining water quality	These risks can occur in outdoor transformers, in case of explosion with oils spilling and underground water contamination.	Current	(1) Best practices for hazardous substances use, storage and transport ; (2) Implementation of emergency procedures; (3) Construction of retention basins.
Portugal	Physical: Declining water quality	These risks can occur at Setúbal power plant. Degradation of groundwater quality withdrawal for demineralized water production, due to salinity increase. Contamination by biofouling (Dreissena polymorpha and Corbicula fluminea) of surface water (Sado estuary) with negative consequences on the cooling capacity as well as on degradation of the condenser system materials. These risks have a direct negative impact on power plant availability for electricity production, thus impacting cash flow generation.	Current	(1) Definition/review of inspection plans and analysis programs for ground and surface water; (2) Evaluation of the need to prepare contingency plans, particularly in relation to groundwater withdrawal.
Portugal	Physical: Declining water quality	These risks can occur at Sines power plant. Water degradation/contamination by turbidity changes with possible impact on the water pretreatment necessary for demineralized water production. Algae presence with strong affluence, which can largely affect water pumping equipments and cooling capacity. These risks have a direct negative impact on power plant availability for electricity production, thus impacting cash flow generation.	Current	(1) Development and use of a algae growing model to identify abnormal algae concentration situations; (2) Implementation of algae detection equipment, in order to minimize impact on the critical periods; (3) Installation of grid cleaning systems, and algae retention systems; (4) Definition of alternative origins for demineralized water.
Portugal	Physical: Flooding	Floods caused by local hydrological conditions and rising sea levels affect the accessibility and/or impact the operations of EDP's infrastructures such as offices, electricity distribution lines or gas distribution pipelines	Current	EDP manages these risks either through direct corrective actions on its assets either by prevention measures. The directive actions are: - In a power plant exposed to river overflow – Setúbal - protection walls were constructed - In a new power plant exposed to river overflow – Ribatejo -the equipments were placed at a superior height - In hydro power plants the floodgates circuits were duplicated, in hydro power plants diesel emergency groups were placed in flood protected sites, etc.). The prevention measures are based on using all the relevant information to anticipate the floods: - Access to meteorological forecasts, - A dedicated communication channel with the civil protection authorities - Annual detailed equipment maintenance plan - Companies' and sites' emergency plans - "All risks" insurance - Environmental liability insurance - Civil responsibility insurance The concern with physical risks which include water related risks, affecting EDP is transversal throughout the company. In Portugal, Spain and Brazil, most of the assets are ISO 14001 and EMAS certified thus guaranteeing that risks related with extreme events and water scarcity or excess are identified and mitigated. In response to physical risks which include water related risks, EDP's

				hydropower plants are designed to support what is technically named "the flood of the millennium". Also, all plants have emergency plans that are fully operational and address all events that might disrupt normal operation, some of them water related. Water related risks to assets and losses are mostly covered by a range of insurances for the Group's assets in operation, so the maximum risk cost incurred is mostly transferred out of the EDP Group (except for partial revenue losses). Also, EDP has a captive insurance policy (Energia RE, based in Luxembourg) for sharing Group's small losses (below external insurance deductibles) and to give direct access to reinsurance market.
Spain	Physical: Flooding	Floods caused by local hydrological conditions and rising sea levels affect the accessibility and/or impact the operations of EDP's infrastructures such as offices, electricity distribution lines or gas distribution pipelines	Current	EDP manages these risks using all the relevant information to anticipate them: - Access to meteorological forecasts, - A dedicated communication channel with the civil protection authorities - Annual detailed equipment maintenance plan - Companies' and sites' emergency plans - "All risks" insurance - Environmental liability insurance - Civil responsibility insurance The concern with physical risks which include water related risks, affecting EDP is transversal throughout the company. In Portugal, Spain and Brazil, most of the assets are ISO 14001 and EMAS certified thus guaranteeing that risks related with extreme events and water scarcity or excess are identified and mitigated. In response to physical risks which include water related risks, EDP's hydropower plants are designed to support what is technically named "the flood of the millennium". Also, all plants have emergency plans that are fully operational and address all events that might disrupt normal operation, some of them water related. Water related risks to assets and losses are mostly covered by a range of insurances for the Group's assets in operation, so the maximum risk cost incurred is mostly transferred out of the EDP Group (except for partial revenue losses). Also, EDP has a captive insurance policy (Energia RE, based in Luxembourg) for sharing Group's small losses (below external insurance deductibles) and to give direct access to reinsurance market.
Brazil	Physical: Flooding	Floods caused by local hydrological conditions and rising sea levels affect the accessibility and/or impact the operations of EDP's infrastructures such as offices, electricity distribution lines or gas distribution pipelines	Current	EDP manages these risks using all the relevant information to anticipate them: - Access to meteorological forecasts, - A dedicated communication channel with the civil protection authorities - Annual detailed equipment maintenance plan - Companies' and sites' emergency plans - "All risks" insurance

				- Environmental liability insurance - Civil responsibility insurance The concern with physical risks which include water related risks, affecting EDP is transversal throughout the company. In Portugal, Spain and Brazil, most of the assets are ISO 14001 and EMAS certified thus guaranteeing that risks related with extreme events and water scarcity or excess are identified and mitigated. In response to physical risks which include water related risks, EDP's hydropower plants are designed to support what is technically named "the flood of the millennium". Also, all plants have emergency plans that are fully operational and address all events that might disrupt normal operation, some of them water related. Water related risks to assets and losses are mostly covered by a range of insurances for the Group's assets in operation, so the maximum risk cost incurred is mostly transferred out of the EDP Group (except for partial revenue losses). Also, EDP has a captive insurance policy (Energia RE, based in Luxembourg) for sharing Group's small losses (below external insurance deductibles) and to give direct access to reinsurance market.
Portugal	Increase water stress	(1) Water stress can reduce water availability for power plant cooling systems (2) water stress can reduce water availability for hydro power plants Both situations can reduce plant availability and production thus decreasing cash flow generation.	6-10	For new plants, during project phase EDP incorporates the corporate environmental best practices. In addition, best (voluntary) practices are added to the project guaranteeing that it will have a good environmental performance. As an example of good voluntary practices during project phase there is the Lares plant, in which the industrial water supply is a mixture of water from the channel and the reused water from the final wash of the treatment sand filters and mixed bed exchangers; the recirculation of mixed bed exchangers (when the water does not achieve the minimum requirements to be sent to the demiwater tank, namely high conductivity); good quality condensate and boiler blow down water. The first two are sent to the water treatment plant and the last one is sent to the service water tank. In the exploitation phase there are actions aiming to reduce water use. An example of good practices during exploitation phase is in Setúbal power plant, in which condensate water recovery equipment was installed in the oil heating lines. This equipment collects the residual treated water that is later used in the power plant garden irrigation. Another action is the replacement at Sines power plant of the boiler slag extraction wet system for a dry one, one of the main objectives of this replacement was water use reduction. The replacement began in 2004 and ended in 2008. The water use associated with this system, 532 000 m3/year, was eliminated. Some other environmental, operational and maintenance advantages of this replacement were: discontinuance of mud production in the liquid effluent treatment installation; discontinuance of product consumption associated with the hopper water treatment (44 ton/year); significant cost reduction associated

				with the cleaning of the area; economical possibility of selling of the hopper the bottom ash. Also at the Sines power plant, by the end of 2009, and within the desulphurisation project, conditions were created to allow the reuse of almost all of the chemical effluent treated at the liquid effluent treatment installation. Water stress in hydro power plants is managed through the reservoir dams that allow water stock.
Portugal	Other – water contamination	Water contamination due to oil spill over from transformers.	Current	This risk is mitigated through the implementation of best practices, through the existing emergency procedures and through the construction of retention basins.

3.2 What methodology and what geographical scale (e.g. country, region, watershed, business unit, facility) do you use to analyze water-related risk across your operations?

Risk Methodology	Geographical scale
Global Water Tool	Facility

Currently EDP uses the Global Water Tool to access which facilities are under water stress. Additionally EDP analyses water related risk in a qualitative approach per facility. EDP is also following the available methodologies in order to access which will be the most adequate.

Supply Chain

3.3 Do you require your key suppliers to report on their water use, risks and management?

Not Yet. EDP is developing an internal tool to identify the risks to sustainable development present in the supply chain. Although the direct link of raw materials regions to water related risks is not yet possible, during 2011 EDP examined the impact of different risks in the different supply chain categories, along with its significance and the adequacy of the current monitoring/mitigation practices in place. In the Environment Section, water related risks were considered, namely water stress and the production of polluted effluents.

EDP also participates in a working group promoted by the Achilles Company, in which an inquiry is being developed for companies to allow for a better identification and understanding of supply chain related risks, in which water is also considered.

3.4 Is your supply chain exposed to water-related risks (current or future) that have the potential to generate a substantive change in your business operation, revenue or expenditure?

Yes.

3.4a Please describe (i) the current and/or future risks to your supply chain, (ii) the ways in which these risks affect or could affect your operations before taking action, (iii) the estimated timescale of these risks, and (iv) your current or proposed strategies for managing them.

Country or geographical reach	Risk type (to supplier)	Potential business impact (to responding company)	Estimated timescale (years)	Risk management strategies (to responding company)
Colombia	Water scarcity	Coal mining uses water. If there would be restrictions on water use this could cause an impact. If coal becomes scarce its price will increase, which will negatively impact EDP's cash flow	Unknown	(1) EDP has diversified fuel sources; (2) EDP has invested strongly on renewable (wind) thus reducing its exposure to fossil fuels.

4 Impacts to business

4.1 Has your business experienced any detrimental impacts related to water in the past five years?

4.1a Please describe (i) these detrimental impacts, (ii) their financial impacts, and (iii) whether they have resulted in any changes to company practices.

(i) Detrimental impacts	(ii) financial impacts	(iii) whether they have resulted in any changes to company practices
Detrimental impacts - Deterioration of the aquifer water quality that supplies raw water to Setúbal Power Plant	**Financial Impacts -** Additional operation costs in the years 2005 and 2009, due, respectively, to costs associated with cementation/sealing and opening of groundwater holes: 2005: artesian well cementation: 7 240.00 € and 2009: Sealing an artesian well: 5 450.00 €, execution of new artesian wells: 29 532.00 € and supply and assembly of pipes and pumps for artesian wells: 46 680.00 €	**Changes to company practices –** EDP has implemented measures to reduce water use**.**

5 Opportunities

5.1 Do water-related issues present opportunities (current or future) that have the potential to generate a substantive change in your business operation, revenue or expenditure?

Yes.

5.1a Please describe (i) the current and/or future opportunities, (ii) the ways in which these opportunities affect or could affect your operations, (iii) the estimated timescale, and (iv) your current or proposed strategies for exploiting them.

Country	Opportunity Type	Potential business impact	Estimated timescale (years)	Strategy to exploit opportunity
Portugal	Sale of new products and services	Hidropower electricity production - The electric generation from hydropower plants increases EDP's cash flow. It is more interesting than producing electricity from fossil fuel power plants.	Current	EDP is heavily investing in hydropower plants: By 2015 there will be more 1,7 GW more hydro capacity, by 2020 there will be 1,8 GW more. The investments are: Sabor, 170 MW hydro reversible power plant (HRPP) reservoir dam (RD); Ribeiradio-Ermida, 77 MW RD; Foz Tua, 251 MW HRPP RD; Fridão, 238 MW; Carvão-Ribeira, 555 MW HRPP RD; Picote II, 246 MW repowering RD; Bemposta II, 191 MW HRPP repowering RD; Alqueva II, 256 MW HRPP repowering RD; Venda Nova III, 736 MW HRPP repowering RD; Salamonde II, 204 MW HRPP repowering RD; Paradela III, 318 MW HRPP repowering RD.
Portugal	Cost savings	Cooling towers - Less water use will impact less on operating costs if water use taxes increase.	Current	Closed water refrigeration circuits, with cooling towers, were adopted in the recently built Ribatejo and Lares combined cycle power plants. When compared to the conventional fuel-oil and coal plants of Setubal and Sines they are less water intensive because they use less water thus reducing the dependence on water availability.
Spain	Cost savings	Cooling towers - Less water use will impact less on operating costs if water use taxes increase.	Current	In Spain the Soto and Castejon power plants have closed water refrigeration circuits, with cooling towers. When compared to the conventional condenser cooling systems these are less water intensive because they use less water thus reducing the dependence on water availability.
Portugal	Sale of new products and	Reversible hydropower - Increases cash flow from	Current	Reversible hydro power plants play a strategic role because they permit energy storage thus allowing for a

	services	operations.		better electrical system management.
Portugal	Cost savings	Adoption of closed water refrigeration circuits with cooling towers - Water consumption decrease and lower dependence on water availability	Current	Installation of this system in recently built Ribatejo and Lares combined cycle power plants

6 Managing trade-offs between water and carbon emissions

6.1 Has your company identified any linkages or trade-offs between water and carbon emissions in its operations or supply chain?

Yes.

6.1a Please describe the linkages or trade-offs and the related management policy or action.

Linkage or trade-off	Policy or action
There is a direct link among water and CO2. This link mostly occurs through energy. Energy is consumed to transport and treat water, water is used to produce energy in hydropower plants and it is also used in the thermal power plants cooling source. Energy has a direct link to CO2 since most of the energy used comes from fossil sources that emit CO2. GHG reduction systems in power plants, such as the desulphurization systems cause an increase in water consumption. In EDP's operations there are many trade-offs between water and CO2 emissions: - Water shortage on the hydropower plants will cause more energy production from thermal sources, thus generating more CO2 emissions; - Decline of water quality causes more energy consumption in pre-treatments and pumping, thus causing more CO2 emissions. The above mentioned trade-offs also exist in EDP's supply chain, namely because some of the suppliers have a water intensive business. Per example the coal suppliers, that use large amounts of water in the coal preparation plant.	- Reduce water and energy consumption; - Diversification of suppliers and of technologies. EDP has developed strategies to diminish its exposure to water and CO2 risk through water use/consumption saving measures such as: - In the Lares plant the industrial water supply is a mixture of water from the channel and the reused water from the final wash of the treatment sand filters and mixed bed exchangers and the recirculation of mixed bed exchangers (when the water does not achieve the minimum requirements to be sent to the demiwater tank, namely high conductivity) and the good quality condensate and boiler blow down water. The first two are sent to the water treatment plant and the last one is sent to the service water tank; - In Setúbal power plant the condensate water recovery equipment was installed in the oil heating lines. This equipment collects the residual treated water that is later used in the power plant garden irrigation: - In Sines power plant there was the replacement of the boiler slag extraction wet system for a dry one, one of the main objectives of this replacement was water use reduction. The replacement began in 2004 and ended in 2008. The water use associated with this system, 532 000 m3/year, was eliminated. Some other environmental, operational and maintenance advantages of this replacement were: end of mud production in the liquid effluent treatment installation; end of product consumption associated with the hopper water treatment (44 ton/year); significant cost reduction associated with the cleaning of the area; economical possibility of selling of the hopper the bottom ash.

WATER ACCOUNTING

7 Withdrawals and recycling

7.1 Are you able to provide data, whether measured or estimated, on water withdrawals within your operations?

Yes.

7.1a Please report the water withdrawals within your operations for the reporting year

Location	Withdrawal type	Quantity (ML/yr)	Proportion of data that has been verified
Portugal	Surface water	1 006 889	100%
Portugal	Ground water	107	100%
Portugal	Municipal water	2 114	100%
Portugal	Other	3 203	100%
Spain	Surface water	437 916	100%
Spain	Municipal water	846	100%
Spain	Other	1 120	100%
Brazil	Surface water	10	100%
Brazil	Ground water	23	100%
Brazil	Municipal water	62	100%
USA	Municipal water	6	100%

7.2 Are you able to provide data, whether measured or estimated, on water recycling/reuse within your operations?

Yes.

Country or geographical reach	Withdrawal type	Quantity (megaliters/year)	Proportion of data that has been verified (%)	Comments
Brazil	Reuse	0.319	100	
Spain	Recycle	229	100	

7.3 Please use this space to describe the methodologies used for questions 7.1 and 7.2 or to report withdrawals or recycling/reuse in a different format to that set out above

The data was obtained directly through direct flow meter measures and indirectly through calculations using pump operation time.

7.4 Are any water sources significantly affected by your company's withdrawal of water?

No.

7.4.b You may explain why your company's withdrawal of water does not significantly affect any water sources.

The operation of electricity plants (gas and coal, cogenerations and hydro plants) needs water, for use, and consumption. Water use occurs in the hydro power plants, in which water is turbinated, and in the thermal power plants, in which water is used in the condenser cooling circuits. Water is consumed in thermal power plants in the cooling towers, in all plants in the refilling of the water-steam circuit and in some auxiliary systems such as pre-treatment systems.

All EDP power plants have been subjected to a licensing process in which the authorisation of the competent authorities has only been given when the plant's operation was compatible with the resource use and when it was granted that it would not cause any significant damage.

8 Discharges

8.1 Are you able to identify discharges of water from your operations by destination, by treatment method and by quality using standard effluent parameters?

Yes.

8.2 Did your company pay any penalties or fines for significant breaches of discharge agreements or regulations in the reporting period?

No.

8.3 Are any water bodies and related habitats significantly affected by discharge of water or runoff from your operations?

Yes.

8.3a Please list any water bodies and associated habitats which are significantly affected by discharge of water or runoff from your operations

Country	Water body	Impact	Company action and outcomes
Portugal	Riparian zones	Impact on biodiversity, impact on river flow, impact on sediment transportation, etc.	EDP is developing measures to compensate its impacts due to the new Hydro power plants.
Brazil	Riparian zones	Impact on biodiversity, impact on river flow, impact on sediment transportation, etc.	

Further information

9 Water intensity

9.1 Please provide any available financial intensity values for your company's water use across its operations

Country or geographical region	Financial metric	Water used type (megaliters)	Currency	Financial intensity (currency/Megaliters)	Please provide any contextual details that you consider relevant to understand the units or the figures you have provided
Portugal	Certified revenue	Water use in operations	Euro	2391	
Spain	Certified revenue	Water use in operations	Euro	4958	
Brazil	Certified revenue	Water use in operations	Euro	3633403	

9.2 Please provide any available water intensity values for your company's products across its operations

Country or geographical region	Product	Product unit	Water use type	Water unit	Water intensity (Water unit/Product unit)	Please provide any contextual details that you consider relevant to understand the units or the figures you have provided
Portugal	Electricity	KW-hr	Water use in operations	MEgaliter	82.49	
Spain	Electricity	KW-hr	Water use in operations	MEgaliter	71	
Brazil	Electricity	KW-hr	Water use in operations	MEgaliter	0.09	
ROW	Electricity	KW-hr	Water use in operations	MEgaliter	0.14	