

Water Disclosure Project 2014

Information Request

W0.1 Please give a **general description** and introduction to your **organization**.

EDP responds to the Water Disclosure Project since 2010. This activity has enabled us to streamline the available data and reflect upon our water management strategy, targets and projects.

We attach a pdf file in order to provide a friendlier working version. Please feel free to give us your feedback on any issue (luisa.serra@edp.pt).

Following our full disclosure policy, all information about Energias de Portugal (EDP) can be accessed in www.edp.pt. In addition EDP strongly recommends the consultation of the 2013 Annual Report.

EDP has a relevant presence in the world energy outlook, being present in 13 countries, with more than 9.8 million electricity customers and 1.3 million gas supply points and over 12,000 employees around the world. On December 31, 2013, EDP had an installed capacity of 23GW, generating 60.9TWh, of which 67% comes from wind and hydro plants.

2013 in short figures:

Turnover	16,103 EUR Million
Gross Operating Profit	3,617 EUR Million
Net profit	1,005 EUR Million
Employees	12,179
Net assets	42,650 EUR Million
Equity	11,529 EUR Million
Net debt	17,451 EUR Million
ISIN	PTEDPOAM0009
SEDOL	4103596

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

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

EDP is strongly committed with Sustainability, People, Results and Clients. In what regards Climate Change EDP is committed to reduce in a sustainable manner the specific greenhouse gas emissions of the energy it produces. EDP is also committed to promote energy efficiency and the access to energy.

W0.2 Please state the **start** and **end** date of the year for which you are **reporting data**.

Period for which data is reported	
From: 01.01.2013	To: 31.12.2013

W0.3 Please indicate the category that describes the **reporting boundary** for companies, entities or groups for which water impacts are reported.

Reporting boundary
Companies, entities or groups over which financial control is exercised.

W0.4 **Exclusions:** Are there any geographies, facilities or types of water inputs/outputs within this boundary of which are not included in your disclosure?

No.

W1 Context

W1.1 Please rate the importance (current and future) of water quality and water quantity to the success of your organization

Water quality and quantity	Importance rating	Please explain
Direct use: sufficient amounts of good quality freshwater available for use across your own operations	Vital for operations	EDP uses and consumes a considerable volume of water. Water is used mostly in the hydro turbines of hydropower plant. Water is consumed mostly by evaporation in cooling towers. In both cases water should have a very good quality; otherwise it would cause damage in equipments. Water is also used in make-up water. This must have very high quality water in order to decrease water treatment costs.
Direct use: sufficient amounts of recycled, brackish and / or produced water available for use across your own operations	Not very important	
Indirect use: sufficient amounts of good quality freshwater available for use across your value chain	Vital for operations	EDP uses coal and gas as prime fossil energy sources. Both fuels consume water in their extraction and transport.
Indirect use: sufficient amounts of recycled, brackish and / or produced water available for use across your value chain	Not very important	

W1.2 Have you evaluated how water quality and water quantity affects /could affect the success (viability, constraints) of your organization's growth strategy?

Yes, evaluated over the next 5 years.

W.1.2a Please explain how your organization evaluated the effects of water quality and water quantity on the success (viability, constraints) of your organization's growth strategy. [2400]

EDP is concerned with water availability for its operations and supply chain, but EDP is also concerned with the impact of its operations and supply chain on water. In 2013 EDP began a project to evaluate EDP's water footprint and virtual water. Its preliminary results are already internally available and already allow the identification of key issues regarding operations and supply chain.

In 2013 EDP created a Working Group on water management, this includes (among others): Evaluation of Water Framework Directive WFD, Water Footprint, Water risks assessment, Water related penalties and Water Opportunities.

Since 1980 in Portugal EDP monitors physical, chemical and biological parameters in 38 water bodies. Of those, 28 are under obligatory monitoring plans and their results are reported to the Portuguese Environmental Authority.

Among other objectives the data collected is used to ascertain the efficacy of:

- Ecological flows,
- Activities implemented to compensate (biologically) the physical discontinuity of the river.

In Brazil hydro plants are monitored fully complying with existing regulation. Furthermore special attention is paid to plants operating in sensitive regions like those in protected areas and to plants subjected to specific risks.

In EU EDP is working closely with the regulatory bodies and academia to fully implement the WFD and at the same time prevent its detrimental impact on the business. Examples of such activities are the work in progress regarding ecological flows reservoir water quality and multi-use of reservoir water.

Water quantity and availability are evaluated within the models used by EDP to evaluate the exposure to a reduction in quantity and availability. These phenomena have also been qualitatively characterized in a Climate Change project and in Climate Change risk evaluation in the EDP's Water Disclosure responses of previous years.

EDP's hydro generation expansion studies include the analyses of water quantity and availability. In the models historical series with more than 50 years of data are used allowing the assessment of water scarcity impact in EDP's Cash flow generation.

In Portugal in extreme dry years the losses in hydropower production can reach 5000 GWh. This energy demand must be fulfilled by fossil fuel power plants. At current market prices this can represent about 250 M€.

W1.3 Has your organization experienced any detrimental impacts related to water in the reporting period?

Yes.

W1.3a Please describe the detrimental impacts experienced by your organization related to water in the reporting period

Country	River basin	Impact indicator	Impact	Description of impact	Overall financial impact	Response strategy	Description of response strategy
Spain	Aboño	Physical - River Water pollution	Brand damage. Fines/ penalties.	Impacts - River Water pollution, Fines were applied to EDP, negative media coverage In July 2012, there was an accidental leak of fuel oil at the Abono thermal plant owing to a burst pipe in one of the plant's generation units. Despite the rapid intervention of emergency teams, which managed to recover most of the spilt oil, an estimated 10 metric tons of fuel reached the sea via the Abono river. The oil reached a number of beaches and rocky areas on a 13 km stretch of coastline from Cabo Torres to Antromero beach.	Direct financial impacts – fines: about 200 k €. Indirect impact much higher.	Increase internal standards	The emergency plan was activated environmental damage prevention measures were taken. Approximately 100 HC Energia employees volunteered to take part in the daily clean-up operations; these were completed in 15 days, although other recovery operations continued. The accident was not classified at the environmental damage level because it did not result in significant damage to the natural resources and services affected, in accordance with the Legislation on Environmental Accountability.
Portugal	Douro	Physical: Declining water quality	Higher operating costs.	In Vilar-Tabuaço hydro power plant there has been occurring eutrophication in the dam reservoir.	The infrastructure cost was about 25 k€.	Infrastructure investment	The oxygenation system increases the Oxygen content of the turbinated water during the period in which thermal strata occurs. This diminishes material degradation.

W2. Procedures and requirements

W2.1 Please select the option that best describes your procedures with regard to assessing water risks and provide an explanation as to why this option is suitable for your organization

Options	Please explain [1000]
<p>Water is integrated into a comprehensive, company-wide risk assessment process incorporating both direct operations and supply chain.</p>	<p>EDP has an integrated Enterprise-Wide Risk Management System supported by a Corporate Policy on risk that is put in place by all levels of the company and it is sponsored and supervised by the Risk Management Corporate Department. This is responsible, among others, for keeping updated the assessment of the most significant risks, for its evaluation, for the definition of the main concepts, methods, risk measures and key risk indicators.</p> <p>Water management is supported by a water management policy issued in 2011.</p> <p>Water risks are managed within the Strategic and Operational risks, through an ongoing project, Sustainability Risks assessment. In which Water related impacts, risks and related management actions, including water stress adaptation are addressed</p> <p>Water issues are also addressed in a water working group established since 2013.</p>

W2.2 Please state how frequently you undertake water risk assessments, what geographical scale and how far into the future you consider

Frequency	Geographic scale	Timeframe [500]
<p>All risks assessed in EDP are (at least) annually monitored.</p> <p>Water related risks are under close monitoring due to the materiality of their impact in EDP's business.</p>	<p>Business unit</p>	<p>Water related risks are considered in a near, medium and far future.</p> <p>Due to the materiality of their impact in EDP's business it is correct to consider all time scales.</p>

W2.3 Please select the methods used to assess water risks?

Internal company knowledge

Life Cycle Assessment

WBCSD Global Water Tool

Water footprint network

Life Cycle Assessment

WRI Water Stress Definition

W2.4 Which of the following contextual issues are always factored into your organization's water risk assessments?

N.	Issues	Choose option	Please explain [500]
1	Current water availability and quality parameters at a local level	Relevant, included	In 2013 EDP created a Working Group on water management, its activities include (among others): Water Framework Directive – WFD; Quality and volume monitoring in EDP; Environment and Ecosystem water bodies related impacts; Performance and report; Water Footprint; Water stress and water availability; Water intensity evaluation; Tradeoffs water vs. CO2, Water vs. energy and water vs. food; Inclusion of Water in management decisions; Water risk/ opportunities assessment and Water related penalties.
2	Current water regulatory frameworks and tariffs at a local level	Relevant, included	In 2013 EDP created a Working Group on water management, its activities include (among others): Water Framework Directive – WFD; Quality and volume monitoring in EDP; Environment and Ecosystem water bodies related impacts; Performance and report; Water Footprint; Water stress and water availability; Water intensity evaluation; Tradeoffs water vs. CO2, Water vs. energy and water vs. food; Inclusion of Water in management decisions; Water risk/ opportunities assessment and Water related penalties.
3	Current stakeholder conflicts concerning water resources at a local level	Relevant, included for some facilities/suppliers	In 2013 EDP created a Working Group on water management, its activities include (among others): Water Framework Directive – WFD; Quality and volume monitoring in EDP; Environment and Ecosystem water bodies related impacts; Performance and report; Water Footprint; Water stress and water availability; Water intensity evaluation; Tradeoffs water vs. CO2, Water vs. energy and water vs. food; Inclusion of Water in management decisions; Water risk/ opportunities assessment and Water related penalties.
4	Current implications of water on your key commodities/raw materials	Relevant, no yet included	In 2013 EDP created a Working Group on water management; its activities include (among others) the evaluation of EDP's water foot print as well as its virtual water.
5	Current status of ecosystems and habitats at a local level	Relevant, included	In 2013 EDP created a Working Group on water management, its activities include (among others): Water Framework Directive – WFD; Quality and volume monitoring in EDP; Environment and Ecosystem water bodies related impacts; Performance and report; Water Footprint; Water stress and water availability; Water intensity evaluation; Tradeoffs water vs. CO2, Water vs. energy and water vs. food; Inclusion of Water in management decisions; Water risk/ opportunities assessment and Water related penalties.
6	Estimates of future changes in water	Relevant, included	In 2013 EDP created a Working Group on water management, its activities include (among others): Water Framework Directive – WFD; Quality and volume monitoring in EDP; Environment and Ecosystem water bodies related impacts;

	availability at a local level		Performance and report; Water Footprint; Water stress and water availability; Water intensity evaluation; Tradeoffs water vs. CO2, Water vs. energy and water vs. food; Inclusion of Water in management decisions; Water risk/ opportunities assessment and Water related penalties.
7	Estimates of future potential regulatory changes at a local level	Relevant, included	In 2013 EDP created a Working Group on water management, its activities include (among others): Water Framework Directive – WFD; Quality and volume monitoring in EDP; Environment and Ecosystem water bodies related impacts; Performance and report; Water Footprint; Water stress and water availability; Water intensity evaluation; Tradeoffs water vs. CO2, Water vs. energy and water vs. food; Inclusion of Water in management decisions; Water risk/ opportunities assessment and Water related penalties.
8	Estimates of future potential stakeholder conflicts at a local level	Relevant, included	In 2013 EDP created a Working Group on water management, its activities include (among others): Water Framework Directive – WFD; Quality and volume monitoring in EDP; Environment and Ecosystem water bodies related impacts; Performance and report; Water Footprint; Water stress and water availability; Water intensity evaluation; Tradeoffs water vs. CO2, Water vs. energy and water vs. food; Inclusion of Water in management decisions; Water risk/ opportunities assessment and Water related penalties.
9	Estimates of future implications of water on your key commodities/raw materials	Relevant, no yet included	In 2013 EDP created a Working Group on water management, its activities include (among others): water related scenarios, namely the evaluation of future implications of water on key commodities/raw materials.
10	Estimates of future potential changes in the status of ecosystems and habitats at a local level	Relevant, not yet included	In 2013 EDP created a Working Group on water management, its activities include (among others): water related scenarios, namely the evaluation of future potential changes in the status of ecosystems and habitats at a local level.
11	Scenario analysis of availability of sufficient quantity and quality of water relevant for your operations at a local level	Relevant, included for some facilities / suppliers	The evaluation of availability of sufficient quantity of water relevant for operations at a local level is already done in an aggregated approach.
12	Scenario analysis of regulatory and or tariff changes at a local level	Relevant, not yet included	In 2013 EDP created a Working Group on water management, its activities include (among others): water related scenarios, namely the evaluation of regulatory and tariff changes at a local level
13	Scenario analysis of stakeholder conflicts	Relevant, not yet	In 2013 EDP created a Working Group on water management, its activities include (among others): water related scenarios, namely the evaluation of stakeholder conflicts concerning water resources at a local level.

	concerning water resources at local level	included	
14	Scenario analysis of implications of water on your key commodities/raw materials	Relevant, not yet included	In 2013 EDP created a Working Group on water management, its activities include (among others): water related scenarios, namely the evaluation of implications of water on your key commodities/raw materials.
15	Scenario analysis of potential changes in the status of ecosystems and habitats at local level	Relevant, not yet included	In 2013 EDP created a Working Group on water management, its activities include (among others): water related scenarios, namely the evaluation of potential changes in the status of ecosystems and habitats at a local level.

W2.4a Which of the following stakeholders are always factored into your organization's water risk assessments?

N.	Stakeholder	Choose option	Please explain [500]
1	Customers	Relevant, not yet included	Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed.
2	Employees	Relevant, included	Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed. EDP has promoted an internal project aiming at resource efficiency. Water consumption in offices was substantially reduced.
3	Investors	Relevant, included for some facilities/suppliers	Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed. EDP reports annually to the water disclosure project. Also EDP is frequently summoned to respond to investors question about sustainability, questions often include water issues.
4	Local communities	Relevant, included for some facilities/suppliers	Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed.

			In all projects – generation, distribution, other - local communities are always involved.
5	NGOs	Relevant, included for some facilities/suppliers	<p>Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed.</p> <p>EDP has been working for long with some NGO's. In new projects their positions are taken into consideration. This has led to several joint projects.</p>
6	Other water users at a local level	Relevant, included for some facilities/suppliers	<p>Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed.</p> <p>Local water users are always taken into account. Many EDP's facilities, namely the hydro plants, There are multiple users of the water bodies, and their needs are always taken into account.</p>
7	Regulators at a local level	Relevant, included	Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed.
8	Statutory special interest groups at a local level	Relevant, included for some facilities/suppliers	Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed.
9	Suppliers	Relevant, not yet included	Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed.
10	Water utilities/suppliers at a local level	Relevant, included for some facilities/suppliers	Water related Risks are under evaluation in the activities of the Working Group on water management. Some preliminary studies have already been done, like water stress impact, Climate change impact, water regulation impact, but there are still many issues to be addressed.

W2.5 Do you require your key suppliers to report on their water use, risks and management?

Yes.

W2.5a Please provide the proportion of key suppliers you require to report on their water use, risks and management and the proportion of your procurement spend this represents

Proportion of key suppliers %	Total procurement spend %	Please explain [500]
100%	100%	<p>EDP developed a supplier's risk matrix to assess sustainability risks, among others: "operation in water stress area" and "emission of polluting liquid effluents".</p> <p>EDP also participates in a WG promoted by Achilles Company aiming at a better identification and understanding of supply chain related risks, in which water is also included.</p> <p>In 2012 EDP created the Corporate Water Management Working Group that will address water risk assessment in operation and value chain.</p>

Further information

EDP developed an internal tool – suppliers risk matrix to identify the risks to sustainable development existing in the supply chain.

With this tool the risks in the relevant supply categories were identified. These risks were analyzed and it was obtained their significance as well as the adequacy of their current monitoring/mitigation practices. Among the identified risks there are water related risks such as "operation in water stress area" and "emission of polluting liquid effluents". Although the direct link of raw materials regions to water related risks is not yet possible, EDP has 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 vector, water related risks were considered, namely water stress and the production of polluted effluents.

In 2013 EDP began a project to evaluate EDP's water footprint and virtual water. Its preliminary results are already internally available and already allow the identification of key issues regarding operations and supply chain. This tool will allow EDP to identify which suppliers are more exposed to water risks as well as which suppliers have biggest impacts on water resources.

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.

In 2012 EDP created the Corporate Water Management Working Group, its 13th activity is “Inclusion of Water issues in managerial decision processes– Investment, supplier’s choice and others”, the 15th is “Water risk management – water risk assessment in operation and value chain”. Currently EDP is developing a process to incorporate environmental risk management (including water risk) into the suppliers’ evaluation. Its first step has already been achieved EDP has produced its water footprint this tool being an important step towards a comprehensive analyses of the suppliers exposure to water risk.

The supply chain water risk is also assessed and included in Corporate Risk system, the “Portal de Risco”.

EDP has not yet calculated the integrated water risk exposure of its Tier 1 suppliers.

In Brazil presently, all environmental aspects are approached by the Index for Supplier Development (Índice de Desenvolvimento do Fornecedor) applied for whole company. The Company is implementing a Supply Chain Management Project which aims to ensure their environmental good practices, including water management, whenever applicable to the suppliers’ context. Outcomes: The enhancement of criteria to select supplier will help the Company to keep track of direct and indirect impacts of its activities, ensuring that its sustainability policies and guidelines are applied within all its partners. This will also raise awareness about importance of water management, and will definitely.

W3. Water risks

W3.1 Is your organization exposed to water risks, either current and/or future, that could generate a substantive change in your business, operations, revenue or expenditure?

Yes direct operations and supply chain.

W3.2 Please provide details as to how your organization defines substantive change in your business, operations, revenue or expenditure from water risk [2400]

A substantive change is one that surpasses a 1% reduction in profits.

W3.2a Please complete the table below providing information as to the **number of facilities in your direct operations exposed to water risks** that could generate a substantive change in your business, operations, revenue or expenditure. Please also provide either the proportion of cost of goods sold, global revenue or global production capacity that could be affected across your entire organization at the river basin level.

Country	River basin	Number of facilities within the river basin exposed to water risk	Reporting metric	Proportion of chosen metric that could be affected within the river basin
Portugal	Cávado Lima	18	% global production capacity	6% - 10%
Portugal	Douro	15	% global production capacity	6% - 10%mn
Portugal	Tejo - Mondego	10	% global production capacity	1% - 5%
Portugal	Outros	18	% global production capacity	1% - 5%

Further information

The facilities presented in 3.2.a) are exposed to water risks since they are hydro power plants that use large amounts of water to produce electricity in their turbines.

These facilities do not consume water, they use water.

The facilities impact on water is due to its reservoir that transforms the running water river from a lotic to a lentic system.

W3.2b Please list the **inherent water risks** that could generate a **substantive change** in your **business, operations, revenue or expenditure**, the potential impact to your direct operations and the strategies to mitigate them

Country And River basin	Risk driver	Potential impact and magnitude of potential financial impact	Description of impact	Timeframe and Likelihood	Response strategy	Costs of response strategy and Details of strategy
Portugal All river basins	Other Regulatory - Restrictions on water use	Higher operating costs Medium High	The Water framework directive aims at preventing further deterioration and; promoting sustainable water use enhancing protection and improvement of the aquatic environment; ensuring reduction of groundwater pollution, and contributing to the mitigation of the effects of floods and droughts. It will most probably constrain: - Ecological flows; - Flood and cleaning discharges; - Hydro peaking; - Sediment management; - Working regime; - Water body physical, chemical and ecological quality.	Current up to 1 year Highly probable	Comply with local legal requirements or company own internal standards, whichever is more stringent	Costs - Medium 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, universities, etc.). This allows EDP to proceed with a close follow up of the activities of the national water management authorities. In 2012 EDP created a working group on water issues in which the main questions regarding water are addressed, from water related risks (physical, regulatory, social, among others) to opportunities to operational efficiency, and so on.
Spain All river basins	Other Regulatory - Restrictions on water use	Higher operating costs Medium High	The Water framework directive aims at preventing further deterioration and; promoting sustainable water use enhancing protection and improvement of the aquatic environment; ensuring reduction of groundwater pollution, and contributing to the mitigation of the effects of floods and droughts. It will most probably constrain: - Ecological flows; - Flood and cleaning discharges; - Hydro peaking; - Sediment management; - Working regime; - Water body physical, chemical and ecological quality.	Current up to 1 year Highly probable	Comply with local legal requirements or company own internal standards, whichever is more stringent	Costs - Medium In Spain EDP closely follows up the activities of the national and regional water management authorities. In 2012 EDP created a working group on water issues in which the main questions regarding water are addressed, from water related risks (physical, regulatory, social, among others) to opportunities to operational efficiency, and so on.
Portugal	Physical: Declining water quality	Higher operating costs Low-medium	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 up to 1 year Highly probable	Infrastructure investment	Costs - Medium (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	Higher operating costs Low-medium	<p>These risks can occur at Sines power plant.</p> <p>Water degradation/contamination by turbidity changes with possible impact on the water pre-treatment necessary for demineralized water production.</p> <p>Algae presence with strong affluence, which can largely affect water pumping equipments and cooling capacity.</p> <p>These risks have a direct negative impact on power plant availability for electricity production, thus impacting the cash flow generation.</p>	<p>Current up to 1 year</p> <p>Highly probable</p>	Infrastructure investment	<p>Costs – Medium</p> <p>(1) Development and use of a algae growing model to identify abnormal algae concentration situations;</p> <p>(2) Implementation of algae detection equipment, in order to minimize impact on the critical periods;</p> <p>(3) Installation of grid cleaning systems, and algae retention systems;</p> <p>(4) Definition of alternative origins for demineralized water.</p>
Portugal	Physical: Flooding	Property damage Medium High	<p>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.</p>	<p>Current up to 1 year</p> <p>Highly probable</p>	Comply with local legal requirements or company own internal standards, whichever is more stringent	<p>EDP manages these risks either through direct corrective actions on its assets or by preventive measures. The direct actions include:</p> <ul style="list-style-type: none"> - In a new power plant exposed to river overflow – Ribatejo -the equipments were placed at a higher height - In hydropower plants the floodgates circuits were duplicated and in diesel emergency groups were placed in flood protected sites, etc.). <p>The preventive 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</p> <p>The concern with physical risks which may affect EDP, including water related risks, 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 are identified and mitigated.</p> <p>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.</p> <p>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.</p>

Iberia	Increase water stress	Medium High	<p>(1) Water stress can reduce water availability for power plant cooling systems</p> <p>(2) water stress can reduce water availability for hydro power plants</p> <p>Both situations can reduce plant availability and production thus decreasing cash flow generation.</p>	<p>4-6 years</p> <p>Highly probable</p>	Other Geographical and technology diversification	<p>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.</p> <p>As an example of good voluntary practices during project phase there is the Lares power 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.</p> <p>In the exploitation phase there are actions aiming to reduce water use.</p> <p>Another action is at Sines power plant, the boiler slag extraction wet system was replaced by a dry system. One of the main objectives of this substitution was the reduction of water use. The substitution process began in 2004 and ended in 2008. Consequently, the water use associated with the original system, around 532,000 m³/year, was eliminated. Some other environmental, operational and maintenance advantages of this substitution are: cessation of mud production in the liquid effluent treatment installation; cessation of product consumption associated with the hopper water treatment (44 ton/year); reduction of costs associated with the cleaning of the area.</p> <p>Water stress in hydropower plants is managed through the reservoir dams that allow water stock.</p>
Portugal	Physical: Pollution of water supply	Fines/penalties Low-medium	Water contamination due to oil spill over from transformers.	<p>Current up to 1 year</p> <p>Highly probable</p>	Comply with local legal requirements or company own internal standards, whichever is more stringent	This risk is mitigated through the implementation of best practices, through the existing emergency procedures and through the construction of retention basins.

W3.2c Please list the **inherent water risks** that could generate a **substantive change** in your **business, operations, revenue or expenditure**, the potential impact to **your supply chain** and the strategies to mitigate them

Country And River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy and Details of strategy
Colombia	Increased water scarcity	Supply chain disruption	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	Current up to 1 year	Probable	Medium	Supplier diversification	Costs - Low (1) EDP has diversified fuel sources; (2) EDP has invested strongly on renewable (wind) thus reducing its exposure to fossil fuels.

W4. Water opportunities

W4.1 Does water present strategic, operational or market opportunities that substantively benefit/have the potential to benefit your organization?

Yes

W4.1a Please describe the **opportunities** water presents to your organization and your strategies to realize them

Country or region	Opportunity	Strategy to realize opportunity [500]	Estimated timeframe	Please explain [500]
Portugal	Growth opportunities	EDP is investing in hydropower and in renewable energy.	Current	EDP is heavily investing in hydropower. 5 hydro plants/repowering under construction (+€0.5bn of remaining capex) to be commissioned: Dec-14: Ribeiradio and Baixo Sabor (0.3GW); 2H15: Venda Nova III and Salamonde II (1.0GW); .2H16: Foz Tua (0.3GW) In Brazil there are 3 ongoing hydro projects to start operations in 2015-2018: Jari: 373MW; Cachoeira-caldeirão 219MW and Sao Manoel 700MW. In 2014-2017 EDP will invest 2,4 billion Euro in renewable energy.
Iberia	Improved water efficiency	Preference for closed water refrigeration circuits, with cooling towers.	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 coal plant of Sines they are less water intensive because they use less water thus reducing the dependence on water availability. In Spain the Soto and Castejon power plants have closed water refrigeration circuits, with cooling towers
Portugal	Sale new products services	Reversible hydro power plants play a strategic role because they permit energy storage thus allowing for a better electrical system management.	Current	Energy storage through water potential energy allows EDP to better manage supply/demand. Not only improving the overall service but also generating cash flow.
Worldwide	Sale new products services	EDP has participated in projects to access ecosystem services and by now EDP has already the tools to proceed with an extended and thorough evaluation of the ecosystem services the company provides.	1-5 years	The trend to internalize externalities will compel companies to pay for non-monetized advantages they benefit from, but also to be paid for non-monetized value they give to society.

W5. Water Accounting

W5.1 Please report the **total withdrawal, discharge, consumption and recycled water** volumes across your operations for the reporting period

Water use	Quantity (megaliters)
Total volume of water withdrawn	1 609 452
Total volume of water discharged	1 597 541
Total volume of water consumed	1 608 026
Total volume of recycled water used	-

W5.2 For those facilities exposed to water risks that could generate a substantive change in your business, operations, revenue or expenditure, the number of which was reported in W3.2a, please detail which of the following **water aspects are regularly measured and monitored** and an explanation as to why or why not.

Water aspect	% facilities	Please explain [500]
Water withdrawals – total volumes	100%	The values are fully audited by KPMG using the standard ISAE 3000.
Water withdrawals – volume by sources	100%	The values are fully audited by KPMG using the standard ISAE 3000.
Water discharges – total volumes	100%	The values are fully audited by KPMG using the standard ISAE 3000.
Water discharges – volume by destination	100%	The values are fully audited by KPMG using the standard ISAE 3000.
Water discharges – volume by treatment method	100%	The values are fully audited by KPMG using the standard ISAE 3000.
Water discharge quality data – quality by standard effluent parameters	100%	The values are fully audited by KPMG using the standard ISAE 3000.
Water consumption – total volume	100%	The values are fully audited by KPMG using the standard ISAE 3000.

W5.3 Water withdrawals: for the reporting period, please complete the table below with water accounting data for all facilities included in your answer to W3.2a

Country	River basin	Facility name	Facility reference number	Total water withdrawals (megaliters / year) at this facility	How does the total water withdrawals at this facility compare to the last reporting period?	Please explain the change if substantial

W5.3a Water withdrawals: for the reporting period, please provide withdrawal data for the water sources used for all facilities reported in W5.3

Facility reference number	Surface water	Groundwater (renewable)	Groundwater (non-renewable)	Municipal water	Recycled water	Produced /process water	Waste water	Brackish/salt water

Further information

The facilities presented in 3.2.a) are exposed to water risks since they are hydro power plants that use water to produce electricity in their turbines.

These facilities do not consume water, they use water.

The facilities impact on water is due to its reservoir that transforms the running water river from a lotic into a lentic system.

Taking this into consideration one cannot fulfill the data requested in questions W5.3; W5.4 and W5.5.

W5.4 Water discharge: for the reporting period, please provide the water accounting data for all facilities reported in W5.3

Facility reference number	Total water discharged (megaliters/year) at this facility	How does the total water discharged at this facility compare to the last reporting period?	Please explain the change if substantive

W5.4a Water discharge: for the reporting period, please provide water discharge data by destination for all facilities reported in W5.3

Facility reference number	Surface water	Municipal Treatment Plant	Saltwater	Injection for production / disposal	Aquifer recharge	Storage / waste lagoon

W5.5 Water consumption: for the reporting period, please provide water consumption data for all facilities reported in W5.3

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting period?	Please explain the change if substantive

W5.6 For the reporting period, please provide any available **water intensity values** for your organization's products or services across its operation

Country	River basin	Product name	Product unit	Water unit	Water intensity (Water unit/Product unit)	Water use type	Comment
Portugal	All	Electricity	kWh	M ³	46412 M ³ /kWh	Consumption	
Portugal	All	Electricity	kWh	€	134 M ³ /€	Consumption	
Spain	All	Electricity	kWh	M ³	32813 M ³ /kWh	Consumption	
Spain	All	Electricity	kWh	€	104 M ³ /€	Consumption	
Brazil	All	Electricity	kWh	M ³	17 M ³ /kWh	Consumption	
Brazil	All	Electricity	kWh	€	0,06 M ³ /€	Consumption	
USA	All	Electricity	kWh	M ³	0,44 M ³ /kWh	Consumption	
USA	All	Electricity	kWh	€	0,01 M ³ /€	Consumption	

W5.7 For all facilities reported in W3.2a what proportion of their accounting data has been externally verified?

Water aspect	% verification	What standard was used? [500]
Water withdrawals – total volumes	100	Values fully audited by KPMG -standard ISAE 3000.
Water withdrawals – volume by sources	100	Values fully audited by KPMG -standard ISAE 3000.
Water discharges – total volumes	100	Values fully audited by KPMG -standard ISAE 3000.
Water discharges – volume by destination	100	Values fully audited by KPMG -standard ISAE 3000.
Water discharges – volume by treatment method	100	Values fully audited by KPMG -standard ISAE 3000.
Water discharge quality data – quality by standard effluent parameters	100	Values fully audited by KPMG -standard ISAE 3000.
Water consumption – total volume	100	Values fully audited by KPMG -standard ISAE 3000.
Water recycling / reuse – total volume	100	Values fully audited by KPMG -standard ISAE 3000.

W6. Governance & Strategy

W6.1 Who has the **highest level of direct responsibility** for water within your organization and how frequently are they briefed?

Highest level of direct responsibility for water issues	Frequency of briefings on water issues	Comment [500]
Individual/Sub-set of the Board or other committee appointed by the Board	Scheduled - annual	<p>Water is addressed in several approaches, namely its impact on investments, operation and future business.</p> <p>Investments – Investment in hydro energy always goes through a detailed resource evaluation encompassing scenario analyses (including hydro water availability).</p> <p>Business – the Business plan published in 2014 has been subjected to scenario analyses that already include some water related effects, namely less water availability for hydro projects.</p>

W6.2 Is water management integrated into your business strategy?

Yes.

W6.2a Please choose the option(s) below that best explain how **water** has **positively influenced** your **business strategy**

Influence of water on business strategy	Please explain [500]
Establishment of sustainability goals	The sustainability goals have permitted EDP to operate more efficiently, diminishing its costs and reduction of its exposure to risks such as environmental fees and water stress, among others.
Exploration of water valuation practices	Water evaluation practices will allow EDP in a medium/far future to be paid for its positive externalities.
Water resource considerations are factored into location planning for new operations	All new investments go through a detailed analysis in which all key factors are integrated. Water stress, water regulation is fully considered, among others.
Publicly demonstrated our commitment to water	EDP's public commitment to water is accomplished through its water policy, through the water management working group and through all the activities in which water is safeguarded.
Tighter operational performance standards	Tighter operational performance standards allow costs reduction and reduction of its exposure to risks such as environmental fees and water stress, among others.

W6.2b Please choose the option(s) below that best explains how **water** has **negatively influenced** your **business strategy**

Influence of water on business strategy	Please explain [500]
Other – technological and geographical diversification.	<p>Water is a key issue in hydro generation and it is also important in thermal generation.</p> <p>In Portugal in dry years the losses in hydropower production can reach 5000 GWh. This energy demand must be fulfilled by fossil fuel power plants. At current market prices this can represent about 250 M€.</p> <p>Also in Brazil hydro generation have been experiencing significant losses due to extreme dry years.</p> <p>To mitigate this issue EDP has diversified its assets, technological and geographically.</p>

W6.3 Does your organization have a water policy that sets out clear goals and guidelines for action?

Yes, a publicly available company-wide water policy.

W6.4 How does your organization’s **water-related capital expenditure (CAPEX)** and **operating expenditure (OPEX)** during the most recent reporting period compare to the previous reporting period?

Water spending: % of total CAPEX during this reporting period compared to last reporting period	Water spending: % of total OPEX during this reporting period compared to last reporting period	Motivation for these changes [500]
4 M€ - 0.2%	4 M€ - 0.21%	Soil, subterranean and surface water protection

W7. Compliance

W7.1 Was your organization subject to any penalties and/or fines for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations in the reporting period?

Yes, a significant.

W7.1a Please describe the **penalties** and/or **fines** for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations and your plans for resolving them

Facility name	Incident description	Financial penalty or fine	Incident resolution
Aboño Power plant	In July 2012, there was an accidental leak of fuel oil at the Abono thermal plant owing to a burst pipe in one of the plant's generation units. Despite the rapid intervention of emergency teams, which managed to recover most of the spilled oil, an estimated 10 metric tons of fuel reached the sea via the Abono river. The oil reached a number of beaches and rocky areas on a 13 km stretch of coastline from Cabo Torres to Antromero beach	200 000€	The emergency plan was activated environmental damage prevention measures were taken. Approximately 100 HC Energia employees volunteered to take part in the daily clean-up operations; these were completed in 15 days, although other recovery operations continued. The accident was not classified at the environmental damage level because it did not result in significant damage to the natural resources and services affected, in accordance with the Legislation on Environmental Accountability.

W7.1b Please indicate the total of all penalties and/or fines for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations as a percentage of total operating expenditure (OPEX) compared to last year

Higher.

W8. Targets and initiatives

W8.1 Do you have any company wide targets (quantitative) or goals (qualitative) related to water?

Yes, targets and goals.

W8.1a Please complete the following table with information on **companywide quantitative targets** (ongoing or reached completion during the reporting period) and an indication of progress made.

Category of target	Motivation	Description of target [500]	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
Other – Improvement of water ecological status	Water stewardship	Water ecological status is a main concern of EDP. This concern is more enforced with the coming into force of the Water framework Directive. This aims at preventing further deterioration and; promoting sustainable water use enhancing protection and improvement of the aquatic environment; ensuring reduction of groundwater pollution, and contributing to the mitigation of the effects of floods and droughts.	Other, % increase of fish species that is able to transverse the dam.	2012	2014	
Other – Improvement of water monitoring	Water stewardship	Water monitoring is a first step to improve its management this measure applies to water consumed in hydro power plants. This is a very small amount of water but still is an objective.	Other % of water monitored.	2012	2014	100%
Water pollution prevention	Water stewardship	Ribatejo power plant Replace the use of hydrazine.	% reduction per product	2012	2014	100

W8.1b Please describe any **company wide qualitative goals** (ongoing or reached completion during the reporting period) and your progress in achieving these

Goal	Motivation	Description of goal [500]	Progress [500]
Other – Quantify water footprint	Water stewardship	Companies impact on nature via their direct operations but also through as a result of their whole production chain. In order to access the impact of EDP's activity on water resources EDP is evaluating its water footprint This project is being developed with IST Engineering Institute, Technical University Lisbon.	The report on EDP's water footprint and virtual water is already internally available and already allow the identification of key issues regarding operations and supply chain. The results will be publicly available till the end of 2014.
Other – Quantify virtual water	Water stewardship	Companies impact on nature via their direct operations but also through as a result of their whole production chain. In order to access the impact of EDP's activity on water resources EDP is evaluating its virtual water. This project is being developed with IST Engineering Institute, Technical University Lisbon.	The report on EDP's water footprint and virtual water is already internally available and already allow the identification of key issues regarding operations and supply chain. The results will be publicly available till the end of 2014.
Strengthen links with local community.	Water stewardship and Risk mitigation	EDP has developed a project, ComPro - Communication Plans and Procedures for major Projects, which main objective is the strengthening of the bi-directionality of the communication with stakeholders and the improvement of communication in sustainability and environmental issues. This project is being applied to some. One of the most important activities is the training program. EDP has already trained more than 250 employees.	EDP has already trained more than 250 employees and applied the project to several facilities.
Engagement with public policy makers to advance sustainable water policies and management.	Water stewardship and Risk mitigation	EDP participates in several policy fora, such as BCSD-GT Agua, WBCSD and the Portuguese National Plan for efficient Water use (PNUEA) The main outcomes are: disclosure of EDP positions and interests on water use, management and sustainability.	EDP attends several meetings through the year.
Watershed remediation and habitat restoration, ecosystem preservation.	Water stewardship and Risk mitigation	EDP has sponsored several scientific studies regarding ecological improvement of habitats and rivers. EDP has a Working Group on water related issues that is addressing ecological issues. EDP has a Working Group exclusively dedicated to ecological flows, and the implementation of the WFD.	EDP has supported a national conservation plan for the river lamprey and Brook Lamprey. EDP has supported some research projects: ecological effect of hydrological system on fish communities, an evaluation of biodiversity in temporary ponds, an Atlas of riparian vegetation and a research on biodiversity, the study of endemism and protected species within lagoons and watercourses.

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W9. Please provide the following information for the **person that has signed off (approved)** your CDP water response

CDP asks companies to identify the person that has signed off (approved) the CDP response. This information signals to investors that responsibility is being taken for the response and the information contained therein.

Name	Job title [200]	Corresponding job category
António Pita de Abreu	António Pita de Abreu has the responsibility upon Sustainability issues. He is an engineer with a long time experience having worked many years in generation, distribution and overseas.	Board/Executive board