

Module: Introduction

Page: W0. Introduction

W0.1

Introduction

Please give a general description and introduction to your organization.

American Electric Power (AEP) has been providing electric service for more than 100 years and is one of the largest electric utilities in America, serving more than 5.3 million customers in portions of 11 states. AEP ranks among the nation's largest generators of electricity, owning nearly 38,000 megawatts of generating capacity in the U.S. AEP also owns the nation's largest electricity transmission system, a nearly 40,000-mile network that includes more 765 kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP's transmission system directly or indirectly serves about 10 percent of the electricity demand in the Eastern Interconnection, the interconnected transmission system that covers 38 eastern and central U.S. states and Eastern Canada, and approximately 11 percent of the electricity demand in ERCOT, the transmission system that covers much of Texas. AEP's utility units operate as AEP Ohio, AEP Texas, Appalachian Power (in Virginia, West Virginia), AEP Appalachian Power (in Tennessee), Indiana Michigan Power, Kentucky Power, Public Service Company of Oklahoma, and Southwestern Electric Power Company (in Arkansas, Louisiana and east Texas). AEP's headquarters are in Columbus, Ohio.

W0.2

Reporting Year

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

Period for which data is reported

Tue 01 Jan 2013 - Tue 31 Dec 2013

W0.3**Reporting Boundary**

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

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 which are not included in your disclosure?

Yes

W0.4a**List of Exclusions**

Please report the exclusions in the following table

Exclusion	Please explain why you have made the exclusion
Corporate and distribution facilities.	Only generation facilities and river operations are included in the disclosure, since these are the only ones with significant exposure to water issues.

Further Information

Module: Current State

Page: 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	Adequate water quantity is needed for electric generation facilities and for barge operations; adequate water quality is needed to ensure compliance with water quality standards and for general operations
Direct use: sufficient amounts of recycled, brackish and/or produced water available for use across your own operations	Important	Recycled water is used at generation facilities
Indirect use: sufficient amounts of good quality freshwater available for use across your value chain	Vital for operations	Adequate water quantity is needed for coal and limestone barges, coal mining, gas fracking, etc.
Indirect use: sufficient amounts of recycled, brackish and/or produced water available for use across your value chain	Important	Recycled water is used for gas fracking, mining, etc

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

W1.2a

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?

When new generation facilities are planned, models are used to forecast the availability of adequate water. For example, such assessments were conducted prior to the construction of the Turk and Stall plants. Electric generation forecasts are also used to predict the need for water. For AEP hydro operations, most facilities operate as run-of-river and thus are operated to match inflow. Therefore, water availability to determine future generation is not forecasted. Adjustments are made based upon USGS river gauge information. If weather forecasts indicate the potential for a significant rain event three to seven days out, those forecasts will be followed and plans will be made to modify plant operations to adapt to the expected increases in inflow and, at a few plants, provide mitigation to downstream flooding potential.

W1.2b

What is the main reason for not having evaluated how water quality and water quantity affects /could affect the success (viability, constraints) of your organization's growth strategy, and are there any plans in place to do so in the future?

Main reason	Current plans	Timeframe until evaluation	Comment
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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
United States of America	Mississippi	Physical-Drought	Transport disruption	Low water levels in the Mississippi River during 2013 prevented loading of barges to the appropriate draft and delayed scheduled delivery of commodities.		Infrastructure maintenance	
United States of America	Mississippi	Physical-Drought	Higher operating costs	Low water levels made it necessary to dredge intake canals, etc., to provide adequate access to cooling water.		Infrastructure maintenance	
United States of America	Mississippi	Physical-Flooding	Property damage	January 2013 river flows exceeded 40,000 cfs, overtopping the dams and powerhouses at two hydroelectric facilities, resulting in excess of two-million dollars in damages. At other facilities located on the St. Joseph River (IN, MI), the Ohio River (OH), and the Kanawha River (WV), river flows had been high enough to cause a reduction in generation.	\$2 million	Infrastructure maintenance	Equipment repair.
United States of America	Mississippi	Physical-Drought	Other: Altered plant operating conditions.	AEP's Oklaunion plant is experiencing an historic drought. The plant continues to divert surface water for makeup to its cooling tower, but other water users are now prohibited from diverting as part of an enacted drought contingency plan or due to water quality degradation. The plant is designed to utilize the degraded water more effectively than other users from the reservoir system. AEP is also investigating alternative water sources.		Engagement with other stakeholders in the watershed	AEP is investigating alternative water sources.

W1.3b

Please choose the option below that best explains why you do not know if your organization experienced any detrimental impacts related to water in the reporting period and any plans you have to investigate this in the future

Primary reason	Future plans
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Further Information

Module: Risk Assessment

Page: 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

Water risk assessments undertaken independently of other risk assessments incorporating both direct operations and supply chain

W2.1a

You may provide additional information about your approach to assessing water risks here

AEP reports extensively on its water use and consumption and associated risks and mitigation efforts in its annual GRI report (http://www.aepsustainability.com/fastfacts/docs/2014_GRI-updated_5-30-14.pdf). Data on water use are collected on a per plant basis in response to the annual FERC and GRI reporting questions. Discharge data are collected from NPDES discharge monitoring reports, which are also compiled on a per plant basis.

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
Annually	Facility	Varies from 1 to 2 yrs during drought conditions.
Annually	Region	Texas requires 5 and 10 yr. water conservation goals in company water conservation plans.
Periodically	Region	State agency or industry groups periodically forecast water demands for their states that may look ahead as many as 50 yrs. Texas and Indiana have undertaken such reviews.
Periodically	Region	Texas updates its regional and state water plans every 5 years.

W2.3

Please state the methods used to assess water risks

Method
WRI Aqueduct
Regional government databases
Internal company knowledge

W2.4

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

Issues	Choose option	Please explain
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Issues	Choose option	Please explain
Current water availability and quality parameters at a local level	Relevant, included for some facilities/suppliers	Water availability is an issue for some western fleet facilities, particularly those in drought-prone areas.
Current water regulatory frameworks and tariffs at a local level	Relevant, included for some facilities/suppliers	Regulatory compliance is a corporate goal for all facilities; during drought conditions, the lack of water can make it difficult to fully utilize water rights.
Current stakeholder conflicts concerning water resources at a local level	Relevant, included for some facilities/suppliers	During drought conditions, the lack of water can make it difficult to fully utilize water rights; in addition, concerns about threatened and endangered species can limit access to water.
Current implications of water on your key commodities/raw materials	Relevant, not yet included	Sufficient water river water levels are needed for coal and limestone barges; gas fracking also requires significant quantities of water.
Current status of ecosystems and habitats at a local level	Relevant, included	Compliance with all water quality standards at all facilities is a corporate goal; construction projects can be limited or curtailed due to wetland or threatened or endangered species impacts, which are very much a concern of many stakeholder groups.
Estimates of future changes in water availability at a local level	Relevant, included for some facilities/suppliers	Water availability is expected to become a growing issue for some western fleet facilities, particularly those in drought-prone areas.
Estimates of future potential regulatory changes at a local level	Relevant, included	Regulatory compliance is a corporate goal for all facilities; during drought conditions, the lack of water can make it difficult to fully utilize water rights; future EPA regulations (316(b); stream electric effluent guidelines) will have impacts on access to water.
Estimates of future potential stakeholder conflicts at a local level	Relevant, included for some facilities/suppliers	During drought conditions, the lack of water can make it difficult to fully utilize water rights; in addition, concerns about threatened and endangered species can limit access to water. These issues are expected to grow in the near future.
Estimates of future implications of water on your key commodities/raw materials	Relevant, not yet included	Sufficient water river water levels are needed for coal and limestone barges; gas fracking also requires significant quantities of water.
Estimates of future potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Compliance with all water quality standards at all facilities is a corporate goal; construction projects can be limited or curtailed due to wetland or threatened or endangered species impacts, which are very much a concern of many stakeholder groups and expected to grow in the future.
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 WRI Aqueduct and the US Drought Monitor maps were used to assess water availability for the AEP fleet, particularly those in the western part of the country.
Scenario analysis of regulatory and/or tariff changes at a local level	Not evaluated	scenario analysis not done
Scenario analysis of stakeholder conflicts concerning water resources at a local level	Not evaluated	scenario analysis not done
Scenario analysis of implications of water on your key commodities/raw materials	Not relevant, included	scenario analysis not done

Issues	Choose option	Please explain
Scenario analysis of potential changes in the status of ecosystems and habitats at a local level	Relevant, not yet included	scenario analysis not done
Other	Not evaluated	

W2.4a

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

Stakeholder	Choose option	Please explain
Customers	Not evaluated	
Employees	Not evaluated	
Investors	Relevant, included	Investors are informed of water issues through the company's annual Corporate Accountability Report, which includes references to the company's GRI and CDP reports.
Local communities	Relevant, included for some facilities/suppliers	Local communities are often involved in discussions regarding water availability, particularly for recreational uses in the western fleet service territory.
NGOs	Relevant, included	AEP frequently engages NGOs to discuss water-related issues (TNC, others)
Other water users at a local level	Relevant, included	Local communities are often involved in discussions regarding water availability, particularly for recreational uses in the western fleet service territory. Other water use sectors (water supply, agriculture) may also be involved in these discussions.
Regulators at a local level	Relevant, included	It is a corporate goal to always comply with water quality standards and the company works with local, state and federal regulators to achieve this goal.
Statutory special interest groups at a local level	Not evaluated	
Suppliers	Not evaluated	
Water utilities/suppliers at a local level	Not evaluated	
Other	Not evaluated	

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 %	Rationale for this coverage
76-100		Many critical suppliers are queried on their water use. Potential solutions, as well as the need for possible assistance, are identified. As part of our RFP process, AEP requests that bidders provide information on their internal recycling and conservation programs. This question, as well as others on third party reviews and sustainability program involvement, identifies to AEP those suppliers with robust water sustainability programs and those who appear to have minimal programs.

W2.5b

Please choose the option that best explains why you do not require your key suppliers to report on their water use, risks and management

Primary reason	Please explain
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Further Information

Module: Implications

Page: 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

Capital and O&M expenses to comply with water-related regulations; closure of facilities and load curtailment at others in response to water-related regulations or water stressors (scarcity, flooding, etc.).

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
United States of America	Mississippi	17	Other: Number of steam-elec facilities	41-50

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	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Mississippi	Reputational-Community opposition	Constraint to future growth	The 17 hydroelectric projects that AEP operates can be affected by climate changes, but the bigger risk is the growth in development and recreation occurring on shorefronts downstream of these facilities. Recreational development	Current-up to 1 year	Probable	Low	Alignment of public policy positions with water stewardship goals	Low	We understand the recreational and lifestyle value of having access to the waterfront and we work with states to pass ordinances that provide the benefits of those values, but also protect future development along

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				impacts the quality of riparian habitats and AEP is often required to mitigate these impacts as a condition of operating licenses. In addition, AEP must provide recreational facilities, such as fishing access and boat ramps, as a condition of operating licenses.						shorefronts where there are hydroelectric projects.
United States of America	Mississippi	Physical-Increased water scarcity	Higher operating costs	AEP steam electric facilities are exposed to water risks, however, based on the WRI Aqueduct Tool and US Drought maps, 17 are located in water "stressed" areas and exposed to risks that could generate a substantive change in	Current-up to 1 year	Probable	High	Increased investment in new technology		AEP participated in a research project with the Electric Power Research Institute to develop, test and deploy efficient, advanced cooling technologies. In addition, we are participating in a water use

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				<p>business operations. Increasing demand for water can create uncertainties and pressure on the power sector. This could be a future business risk because of the need for water to produce electricity and an expected increase in the need for water in areas in which we operate.</p>						<p>study in the Cypress and Sulphur River basins. As a general rule, we apply a water consumption metric of 0.35 gal/kwh for once-thru cooled facilities and 0.70 gal.kwh for closed cycle facilities; for simple cycle, fossil steam turbines w/once-thru cooling, a water use metric of 20,000 to 50,000 gal/MWH is followed; there is a focus on maximizing operating efficiency, which in turn helps reduce the amount of water that is used for cooling and other</p>

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										<p>purposes. We also consider water consumption in evaluating pollution control technology. For example, a “wet” SO2 scrubber will consume more water than a “dry” scrubber. We are investigating opportunities to reduce water use as we design new facilities; for example, wet fly ash disposal facilities are being converted to dry fly ash operations ,which will result in significant water use reductions.</p>
United States of America	Mississippi	Regulatory-Increased difficulty in obtaining	Other: lost revenue	AEP operates 17 hydroelectric projects and at times, regulatory	Current-up to 1 year	Probable	Low	Comply with local legal requirements or company	Low	Fish populations in the hydroelectric

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
		operations permit		agencies require the implementation of practices to allow fish passage at hydroelectric projects. For example, water must often be allowed to pass over the dam at the AEP Buchanan hydroelectric project (Michigan), to allow the passage of fish during certain times of the year. Such a passage reduces the ability of the project to produce electricity at a cost to the company.				own internal standards, whichever is more stringent		project reservoirs are often monitored to assess their health. Surveys are also conducted at many projects to determine the status of threatened and endangered species.
United States of America	Mississippi	Regulatory-Mandatory water efficiency, conservation, recycling or	Higher operating costs	In Texas, AEP operates six steam electric facilities within the Sabine and Mississippi River	Current-up to 1 year	Highly probable	Low	Comply with local legal requirements or company own internal standards,	Low	AEP annually files a Water Conservation Plan for power plants located in the state of

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
		process standards		basins. The installation of required efficiencies at the western facilities results in capital and O&M expenses.				whichever is more stringent		Texas and installs required water efficiency devices. Examples include water reuse devices, low flow fixtures, air cooled generators, water recirculation devices, reverse osmosis units, ultra filters and dry ash conveyance.
United States of America	Mississippi	Regulatory-Regulation of discharge quality/volumes leading to higher compliance costs	Higher operating costs	AEP operates 35 steam electric facilities and the production of electricity can affect the quality of surface water and groundwater through precipitation runoff, infiltration and collection of wastewater for treatment. States protect surface	Current-up to 1 year	Highly probable	High	Increased investment in new technology	High	We have invested heavily in water treatment systems to ensure we comply with our NPDES permits and we have an extensive groundwater monitoring program to help us detect adverse

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				waters through a National Pollutant Discharge Elimination System (NPDES) permit process. Exceedances of permit effluent limits can result in violations and fines. Required treatment systems cost millions of dollars.						impacts to water quality. Our design and construction practices for new landfills typically include composite liners, leachate collection systems and groundwater monitoring wells. We proactively added an additional synthetic liner to the landfill that serves the John W. Turk, Jr., ultra-supercritical coal plant in southwest Arkansas. This will bring the design up to the level included in the EPA's proposed coal combustion residuals rule
United	Mississippi	Regulatory-	Higher	EPA is proposing	1-3 years	Highly	High	Increased	High	We agree that

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
States of America		Unclear and/or unstable regulations on water allocation and wastewater discharge	operating costs	new regulations that will govern cooling water intake structures and the installation of water treatment technologies at power plants. Due to the uncertainty of meeting the standards, AEP may need to install new technologies to meet a water intake velocity standard and water treatment standards, both of which could cost tens of millions of dollars per affected facility.		probable		investment in new technology		appropriate and cost-effective measures can be taken to reduce impacts to aquatic life from cooling water intake structures but believe that, for many plants, the impacts are small. The U.S. Supreme Court has confirmed that EPA may take costs and benefits into consideration when developing these standards. Due to the uncertainty of meeting the fish mortality standard, AEP will likely implement new technologies to meet a 0.5 fps water intake velocity standard. We

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										strongly believe the EPA needs to weigh carefully the costs and benefits of any proposal. The agency has finalized a rule that lays out a process for a site-specific review of technology choices. With regards to the anticipated new effluent guidelines, AEP is installing new water treatment technologies now and is allowing room for additional installations if required to do so in the future.
United States of America	Mississippi	Regulatory-Statutory water withdrawal limits/changes to water allocation	Higher operating costs	In Texas, AEP operates six steam electric facilities. Water is critical to their operation for	Current-up to 1 year	Probable	Medium	Increased investment in new technology	High	AEP is installing more water efficient devices where it is appropriate. For example,

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				<p>steam production and plant cooling purposes. Mandatory limits on water withdrawals would require the installation of expensive water-saving technologies, such as dry scrubbers, dry cooling towers or dry ash disposal.</p>						<p>AEP will be installing "dry" pollution control systems at some facilities to comply with new air emissions control requirements. With regards to the Texas water issue, AEP is working with the Electric Power Research Institute to assess water conservation technologies for power plants in the state. The purpose of this study was to apply the results to the Texas generation fleet to determine regulatory constraints regarding water withdrawal and consumption rates and to</p>

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										develop a water sharing agreement that meets sustainability goals with minimal economic impact.
United States of America	Mississippi		Delays in permitting	AEP power plants can withdraw billions of gallons of water per day. Such withdrawals can stress aquatic systems. While such impacts are rare and most of the water is returned to the system, the general public often believes that power plant operations have a negative impact on water bodies. The public can object to permits for new or existing facilities. Delays in obtaining permits	Current-up to 1 year	Probable	High	Engagement with public policy makers		Water quality, use and management are important issues to our industry. While our industry faces new rules related to the Clean Water Act, we are proactively taking steps to reduce our water consumption, improve water quality and address availability issues in drought-prone regions.

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				incur additional costs. Associated legal expenses can become significant.						

W3.2c

Please list the inherent 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	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Mississippi	Physical-Inadequate infrastructure	Higher operating costs	More than half of the operational lock chambers run by the U.S. Army Corps of Engineers on inland waterways are over 50 years old. AEP relies on barges to deliver	Current-up to 1 year	Probable	High	Infrastructure investment	High	The U.S. Army Corps of Engineers, which maintains and operates the inland waterways, recognizes the problems but has not received adequate funding

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				coal. Increasingly, broken and undependable locks raise our costs and affect our ability to deliver to our customers on time. For example, coal delivery costs increased \$1.7 million as a result of failure of just one facility in 2010.						from Congress to address them. AEP supports adoption of the Inland Waterways Capital Development Plan, which would include a 30 percent to 45 percent increase in the fuel tax we pay for our barge operations to fund capital improvements over a 20-year period. We will continue to advocate on its behalf.
United States of America	Mississippi	Regulatory-Regulatory uncertainty	Constraint to future growth	The development of shale gas has made natural gas an economically viable fuel source for AEP generating units; however, the drilling of these gas wells requires large amounts of water. During these operations,	1-3 years	Probable	High	Supplier diversification		AEP is transitioning its generation fleet to take advantage of the benefits of shale gas; however, it will maintain a balanced portfolio that utilizes several energy sources, including coal, gas,

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				there is a risk of contaminating local underground sources of drinking water. Improper discharge of waste waters can also negatively impact surrounding surface waters. As a result, regulators are considering restrictions, which would lead to increased costs for this important fuel source.						renewables, energy efficiency, nuclear, and hydro. Maintaining a balanced generation portfolio helps to minimize the impacts of a changing energy infrastructure. If shale gas development is slowed, it could affect the electric sector's reliance on gas and create price volatility for customers and potentially affect system reliability.

W3.2d

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your direct operations that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain
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W3.2e

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your supply chain that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain
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W3.2f

Please choose the option that best explains why you do not know if your organization is exposed to water risks that could generate a substantive change in your business operations, revenue or expenditure and discuss any future plans you have to assess this

Primary reason	Future plans
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Further Information

Page: W4. Water Opportunities

W4.1

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

No

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	Estimated timeframe	Please explain
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W4.1b

Please choose the option that best explains why water does not present your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain
Other: Increased operating costs.	Water-related issues generally require the implementation of water recycling, the use of alternate water sources, water minimization programs, water treatment technologies, and conversion to dry fly ash and bottom ash disposal practices to minimize the withdrawal and consumption of water. These practices are financially expensive, costing tens of millions of dollars, and do not contribute to any revenue stream. In fact, they result in quite the opposite, increasing capital and O&M expenses.

W4.1c

Please choose the option that best explains why you do not know if water presents your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain

Further Information

Module: Accounting

Page: W5. Water Accounting (I)

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	10153859
Total volume of water discharged	9715836
Total volume of water consumed	438343
Total volume of recycled water used	3388437

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	% of facilities	Please explain
Water withdrawals- total volumes	76-100	
Water withdrawals- volume by sources	76-100	Only surface water withdrawals from steam electric facilities are reported here, however, groundwater withdrawals are recorded at all generation facilities.
Water discharges- total volumes	76-100	
Water discharges- volume by destination	76-100	
Water discharges- volume by treatment method	76-100	Only surface water discharges from steam electric facilities are reported here, but the discharge volume of each facility is recorded by treatment method as per NPDES permit requirements.
Water discharge quality data- quality by standard effluent parameters	76-100	Only surface water discharges from steam electric facilities are reported here, but the discharge quality of each facility is recorded by standard effluent parameters (i.e. pH) as per NPDES permit requirements.
Water consumption- total volume	76-100	Only surface water discharges from steam electric facilities are reported here and water consumption is not a required measurement, however, it is estimated based on facility design flows.
Water recycling/reuse-total volume	76-100	Only surface water discharges from steam electric facilities are reported here and water recycling/reuse is not a required measurement, however, it is estimated, based on facility design flows.

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

Facility reference number	Country	River basin	Facility name	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
Facility 1	United States of America	Mississippi	Big Sandy	7842	About the same	
Facility 2	United States of America	Mississippi	Comanche	53398	Higher	Changes in fleet dispatch.
Facility 3	United States of America	Mississippi	Conesville	79198	Lower	Changes in fleet dispatch.
Facility 4	United States of America	Mississippi	Dresden	2076	Higher	Changes in fleet dispatch.
Facility 5	United States of America	Mississippi	Flint Creek	419988	About the same	
Facility 6	United States of America	Mississippi	Glen Lyn	166969	About the same	
Facility 7	United States of America	Mississippi	Lone Star	1964	Lower	Changes in fleet dispatch.
Facility 8	United States of America	Mississippi	Muskingum River	452190	About the same	
Facility 9	United States of America	Mississippi	Northeastern	219127	Higher	Changes in fleet dispatch.
Facility 10	United States of America	Mississippi	Oklaunion	9529	About the same	
Facility 11	United States of America	Mississippi	Picway	11703	Higher	Changes in fleet dispatch.
Facility 12	United States of America	Mississippi	Riverside	6876	About the same	
Facility 13	United States of America	Mississippi	Southwestern	30896	Higher	Changes in fleet dispatch.
Facility 14	United States of America	Mississippi	Tulsa	35092	Higher	Changes in fleet dispatch.
Facility 15	United States of America	Mississippi	Turk	7063	Lower	Changes in fleet dispatch.
Facility 16	United States of	Mississippi	Waterford	3864	About the same	

Facility reference number	Country	River basin	Facility name	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
	America					
Facility 17	United States of America	Mississippi	Welsh	1444597	About the same	

Further Information

Only facilities determined through use of WRI Aqueduct or US Drought Monitor maps to be in areas of moderate to severe drought or under medium to high water stress (withdrawal vs available flow) were listed. Hydroelectric and river operation facilities were excluded from this analysis.

Page: W5. Water Accounting (II)

W5.3a

Water withdrawals: for the reporting period, please provide withdrawal data, in megaliters per year, 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	Wastewater	Brackish/salt water
Facility 1	7842							
Facility 2	53398							
Facility 3	79198							
Facility 4	2076							
Facility 5	419988							

Facility reference number	Surface water	Groundwater (renewable)	Groundwater (non-renewable)	Municipal water	Recycled water	Produced/process water	Wastewater	Brackish/salt water
Facility 6	166969							
Facility 7	1964							
Facility 8	452190							
Facility 9	219127							
Facility 10	9529							
Facility 11	11703							
Facility 12	6876							
Facility 13	30896							
Facility 14	35092							
Facility 15	7063							
Facility 16	3864							
Facility 17	1444597							

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
Facility 1	2720	About the same	
Facility 2	52469	Higher	Changes in fleet dispatch.
Facility 3	42393	Lower	Changes in fleet dispatch.
Facility 4	429	Higher	Changes in fleet dispatch.
Facility 5	415705	About the same	
Facility 6	166879	About the same	

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
Facility 7	1961	Lower	Changes in fleet dispatch.
Facility 8	450583	About the same	
Facility 9	83542	Higher	Changes in fleet dispatch.
Facility 10	0	About the same	
Facility 11	11713	Higher	Changes in fleet dispatch.
Facility 12	6742	About the same	
Facility 13	15258	Higher	Changes in fleet dispatch.
Facility 14	15928	Higher	Changes in fleet dispatch.
Facility 15	306	Lower	Changes in fleet dispatch.
Facility 16	740	About the same	
Facility 17	1431568	About the same	

W5.4a

Water discharge: for the reporting period, please provide water discharge data, in megaliters per year, 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
Facility 1	2720					
Facility 2	52469					
Facility 3	42393					
Facility 4	429					
Facility 5	415705					
Facility 6	166879					
Facility 7	1961					

Facility reference number	Surface water	Municipal Treatment Plant	Saltwater	Injection for production/disposal	Aquifer recharge	Storage/waste lagoon
Facility 8	450583					
Facility 9	83542					
Facility 10	0					
Facility 11	11713					
Facility 12	6742					
Facility 13	15285					
Facility 14	15928					
Facility 15	306					
Facility 16	740					
Facility 17	1431568					

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
Facility 1	5123	About the same	
Facility 2	929	Higher	Changes in fleet dispatch.
Facility 3	36805	Lower	Changes in fleet dispatch.
Facility 4	1646	Higher	Changes in fleet dispatch.
Facility 5	4283	About the same	
Facility 6	90	About the same	
Facility 7	3	About the same	
Facility 8	1607	About the same	

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting period?	Please explain the change if substantive
Facility 9	135585	Higher	Changes in fleet dispatch.
Facility 10	9529	About the same	
Facility 11	0	About the same	
Facility 12	134	About the same	
Facility 13	15610	Higher	Changes in fleet dispatch.
Facility 14	19165	Higher	Changes in fleet dispatch.
Facility 15	6757	Lower	Changes in fleet dispatch.
Facility 16	3124	About the same	
Facility 17	13029	About the same	

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
United States of America	Mississippi	electricity	Other: MWH	Liters	4929	Other: 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?
Water withdrawals- total volumes	76-100	FERC reporting
Water withdrawals- volume by sources	76-100	NPDES permitting
Water discharges- total volumes	76-100	NPDES permitting
Water discharges- volume by destination	76-100	NPDES permitting
Water discharges- volume by treatment method	76-100	NPDES permitting
Water discharge quality data- quality by standard effluent parameters	76-100	NPDES permitting
Water consumption- total volume	Not verified	
Water recycling/reuse-total volume	Not verified	

Further Information

Module: Response

Page: W6. Governance and 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
Other Manager/Officer	Other:	AEP's Director of Water and Ecological Resource Services has direct responsibility for water quality and quantity issues within the company. He is briefed on all water-related issues as they arise and is regularly kept apprised on a regular basis, not less than every other week.

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
Greater due diligence	AEP's corporate environmental compliance goal, including compliance with water requirements, is a key part of its business strategy. Potential changes to water regulatory programs have, for many years, been included in the company's long-term capital forecast, which includes our best assessment of the financial exposure due to water-related issues. This forecast is incorporated into our business strategy and communicated to the investment community.
Water management incentives established	AEP's corporate environmental compliance goal, including compliance with water requirements, is a key part of its business strategy.

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
Closure of operations	Partially due to the future impact of water-related regulations (316(b) and steam electric effluent guidelines), facilities will be prematurely retired.
Increased capital expenditure	Due to the future impact of water-related regulations (316(b) and steam electric effluent guidelines), water-treatment or water intake facilities will need to be retrofitted or installed.

W6.2c

Please choose the option that best explains why your organization does not integrate water management into its business strategy and discuss any future plans to do so

Primary reason	Please explain

W6.3

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

Yes, a water policy for select facilities only

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-related spending: % of total CAPEX during this reporting period compared to last reporting period	Water-related spending: % of total OPEX during this reporting period compared to last reporting period	Motivation for these changes
		This information is not collected by AEP.

Further Information

Page: 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?

No

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	Currency	Incident resolution

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

Further Information

Page: 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 company wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
Water pollution prevention	Risk mitigation	AEP does not have a policy related to water use. AEP's water use is primarily regulated under environmental statutes such as the Clean Water Act. As such, AEP's formal environmental policy applies and acts	Other: 100% compliance and no violations.			

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
		as AEP's water policy. In addition to this policy of operating in compliance at all times, the company does undertake additional water-related activities intended to improve and protect water quality, address availability and reduce consumption.				
Absolute reduction of water withdrawals	Risk mitigation	AEP does not have a policy related to water use. AEP's water use is primarily regulated under environmental statutes such as the Clean Water Act. As such, AEP's formal environmental policy applies and acts as AEP's water policy. The company does make efforts to improve water efficiencies and to recycle water where possible to reduce discharges and mitigate water availability risks.	Other: no quantified goal established			

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	Progress
Watershed remediation and habitat restoration, ecosystem preservation	Water stewardship	Ohio River Water Quality Trading Project	In 2013, AEP completed the transaction of nutrient trades, which were "retired" and donated as stewardship trades.

W8.1c

Please explain why you do not have any water-related targets or goals and discuss any plans to develop these in the future

Further Information

Module: Sign Off

Page: Sign Off

W9.1

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

Name	Job title	Corresponding job category
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Further Information

The following have signed off (approved) this CDP response: John McManus, Vice President, Environmental Services Sandy Nessing, Managing Director, Sustainability & ESH Design & Strategy

CDP