

American Electric Power Company, Inc. - Water 2018

W0. Introduction

W0.1

(W0.1) Give a general description of 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 5.4 million customers in portions of 11 states. AEP ranks among the nation's largest generators of electricity, owning 26,000 megawatts of generating capacity in the U.S. AEP also owns the nation's largest electricity transmission system, a more than 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.

W-EU0.1a

(W-EU0.1a) Which activities in the electric utilities sector does your organization engage in?

Electricity generation

Transmission

Distribution

W-EU0.1b

(W-EU0.1b) For your electricity generation activities, provide details of your nameplate capacity and the generation for each power source.

	Nameplate capacity (MW)	% of total nameplate capacity	Gross generation (MWh)
Coal – hard	15051	53.62	75861789
Lignite	675	2.4	4603596
Oil	0	0	0
Gas	8554	30.47	11200051
Biomass	0	0	0
Waste (non-biomass)	0	0	0
Nuclear	2278	8.11	18136444
Geothermal	0	0	0
Hydroelectric	977	3.48	775636
Wind	526	1.87	1266544
Solar	5	0.05	24219
Other renewable	0	0	0
Other non-renewable	0	0	0
Total	28076	100	111868384

W0.2

(W0.2) State the start and end date of the year for which you are reporting data.

Start date End date

Reporting year January 1 2017 December 31 2017

W0.3

(W0.3) Select the countries/regions for which you will be supplying data.

United States of America

W0.4

(W0.4) Select the currency used for all financial information disclosed throughout your response.

USD

W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Companies, entities or groups over which operational control is exercised

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

Yes

W0.6a

(W0.6a) Please report the exclusions.

Exclusion**Please explain**

Corporate facilities that house administrative or support functions including, but not limited to, office buildings, warehouses, and maintenance buildings.

Only generation, transmission and distributions facilities are included in the disclosure, since these are the only ones with significant exposure to water issues.

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Important	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.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	Recycled water is used at generation facilities (direct use) and for gas fracking (indirect use as part of supply chain).

W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations	Please explain
Water withdrawals – total	76-99	Only surface water withdrawals from steam electric

	% of sites/facilities/operations	Please explain
volumes		facilities are reported here. Groundwater withdrawals at gas plants are not measured.
Water withdrawals – volumes from water stressed areas	76-99	Only surface water withdrawals from steam electric facilities are reported here. Groundwater withdrawals at gas plants are not measured.
Water withdrawals – volumes by source	76-99	Only surface water withdrawals from steam electric facilities are reported here. Groundwater withdrawals at gas plants are not measured.
Produced water associated with your metals & mining sector activities - total volumes	<Field Hidden>	<Field Hidden>
Produced water associated with your oil & gas sector activities - total volumes	<Field Hidden>	<Field Hidden>
Water withdrawals quality	100%	
Water discharges – total volumes	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 discharges – volumes by destination	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 discharges – volumes by treatment method	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 – by standard effluent parameters	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 discharge quality – temperature	100%	All once-through, non-contact cooling water discharges are monitored.

	% of sites/facilities/operations	Please explain
Water consumption – total volume	76-99	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 recycled/reused	76-99	Recycled or reused water rates are recorded/estimated for steam electric facilities dependent on surface water as part of the company's GRI reporting effort.
The provision of fully-functioning, safely managed WASH services to all workers	100%	

W-EU1.2a

(W-EU1.2a) For your hydroelectric operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations measured and monitored	Please explain
Fulfilment of downstream environmental flows	100%	All AEP hydroelectric projects are operated in accordance with FERC licenses which include requirements for downstream flows. Typically, all AEP facilities are operated as run-of river projects.
Sediment loading	Not monitored	All AEP hydroelectric projects are operated in accordance with FERC licenses which do not require that sediment loading be monitored.
Other, please specify	Not monitored	

W1.2b

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, and how do these volumes compare to the previous reporting year?

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	6790323	Lower	Total water withdrawals are lower due to changes in fleet dispatch and ownership.
Total discharges	6554727	Lower	Total water withdrawals are lower due to changes in fleet dispatch and ownership.
Total consumption	189739	Much lower	Total water consumption is lower due to changes in fleet dispatch and ownership.

W1.2d

(W1.2d) Provide the proportion of your total withdrawals sourced from water stressed areas.

	% withdrawn from stressed areas	Comparison with previous reporting year	Identification tool	Please explain
Row 18 1		About the same	WRI Aqueduct	Number of steam-electric facilities (excludes hydroelectric facilities) in the Mississippi and St Lawrence watersheds that fall within the WRI Aqueduct med-high water risk areas. Proportion of operation affected based on number of withdrawing facilities.

W1.2h

(W1.2h) Provide total water withdrawal data by source.

Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
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	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	6788372	Lower	Value is for the entire AEP steam electric fleet, minus one POWT-dependent facility and several groundwater dependent facilities. It is lower due to changes in fleet dispatch and ownership.
Brackish surface water/seawater	Not relevant	<Field Hidden>	<Field Hidden>	
Groundwater – renewable	Relevant but volume unknown	<Field Hidden>	<Field Hidden>	Water withdrawals from renewable sources of groundwater are not recorded.
Groundwater – non-renewable	Relevant but volume unknown	<Field Hidden>	<Field Hidden>	Water withdrawals from non-renewable sources of groundwater are not recorded.
Produced water	Not relevant	<Field Hidden>	<Field Hidden>	
Third party sources	Relevant	1951	About the same	Water for the Comanche Plant is from the City of Lawton POTW.

W1.2i

(W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	6554727	Lower	Value is for the entire AEP steam electric fleet. It is lower due to changes in fleet ownership and dispatch.
Brackish surface water/seawater	Not relevant	<Field Hidden>	<Field Hidden>	

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Groundwater	Not relevant	<Field Hidden>	<Field Hidden>	
Third-party destinations	Not relevant	<Field Hidden>	<Field Hidden>	

W1.2j

(W1.2j) What proportion of your total water use do you recycle or reuse?

	% recycled and reused	Comparison with previous reporting year	Please explain
Row 1	26-50	About the same	The percentage reported is the proportion of total water use that is met by recycling/reuse. The proportion is calculated as total water recycled/total water recycled + total water withdrawals.

W-EU1.3

(W-EU1.3) Do you calculate water intensity for your electricity generation activities?

Yes

W-EU1.3a

(W-EU1.3a) Provide the following intensity information associated with your electricity generation activities.

Water intensity value	Numerator: water aspect	Denominator: unit of production	Comparison with previous reporting year	Please explain
6795618343	Total water withdrawn	MWh	Higher	Value is for the entire AEP steam electric fleet. It is higher due to changes in fleet ownership and dispatch.

W1.4

(W1.4) Do you engage with your value chain on water-related issues?

Yes, our customers or other value chain partners

W1.4c

(W1.4c) What is your organization's rationale and strategy for prioritizing engagements with customers or other partners in its value chain?

Recycled water is used at generation facilities (direct use) and for gas fracking (indirect use as part of supply chain). Local communities are often involved in discussions regarding water availability, particularly for recreational uses at our hydroelectric and cooling lake impoundments. Other water use sectors (water supply, agriculture) may also be approached during periods of drought. AEP relies on barges to deliver coal. Increasing maintenance on these systems has affected our ability to deliver coal to our power plants on time.

W2. Business impacts

W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts?

Yes

W2.1a

(W2.1a) Describe the water-related detrimental impacts experienced by your organization, your response, and total financial impact.

Country/Region

United States of America

River basin

Other, please specify (Multiple coastal areas of Texas)

Type of impact driver

Physical

Primary impact driver

Severe weather events

Primary impact

Other, please specify (Upset conditions)

Description of impact

Hurricane Harvey impacted oil filled electrical equipment which failed due to high water levels causing oil spills and releases to the environment. Some of the oil spills impacted water and were reported to the appropriate federal and state agencies.

Primary response

Engage with regulators/policymakers

Total financial impact

448000

Description of response

All spills were cleaned up in compliance with environmental regulations. An approximate cost for the cleanup of all Hurricane Harvey related spills is \$ 448,000.

Country/Region

United States of America

River basin

Mississippi River

Type of impact driver

Regulatory

Primary impact driver

Please select

Primary impact

Increased compliance costs

Description of impact

On September 30, 2015, USEPA finalized a rule revising the regulations for the Steam Electric Power Generating category. The rule set strict limits on the discharge of pollutants in flue gas desulfurization (FGD) waste water and prohibited the discharge of bottom ash transport water. In April 2017, EPA announced its intent to reconsider the 2015 Rule and in August 2017 announced a rulemaking to potentially revise the new, more stringent effluent limitations for existing sources in the 2015 Rule that apply to bottom ash transport water and FGD wastewater. The rule deadlines have been temporarily stayed, but the new requirements could affect 12 AEP owned and/or operated facilities and compliance costs would be in the millions of dollars.

Primary response

Engage with regulators/policymakers

Total financial impact

Description of response

The total financial impact is considered to be confidential business information but is believed to be millions of dollars.

Country/Region

United States of America

River basin

Mississippi River

Type of impact driver

Regulatory

Primary impact driver

Please select

Primary impact

Increased capital costs

Description of impact

AEP is committed to operating our facilities in a way that meets or exceeds all regulations and protects public safety and health. This includes operating in full compliance with the EPA's Coal Combustion Residuals (CCR) Rule and ensuring that our coal ash storage sites are not adversely impacting groundwater. The CCR rule established new requirements for how coal ash – the material that is left over after coal is burned to make electricity – is stored at our power plants. While we've previously monitored groundwater at many of our coal ash storage sites, the CCR rule created new requirements to install more wells and test for additional substances at 26 ash storage sites at 12 power plants currently operated by AEP. We completed the first phase of testing and will do additional monitoring and evaluations during 2018. In this first phase, AEP has installed more than 300 new wells to better monitor the quality of groundwater at our plant sites. Multiple groundwater samples from each well were taken to establish a baseline for 21 substances, many of which naturally occur in groundwater. Additional information, including the actual groundwater monitoring data and statistical analysis of the data, can be found at <http://www.aep.com/about/codeofconduct/CCRRule/>

Primary response

Engage with regulators/policymakers

Total financial impact

Description of response

The total financial impact is considered to be confidential business information.

Country/Region

United States of America

River basin

Mississippi River

Type of impact driver

Physical

Primary impact driver

Flooding

Primary impact

Impact on company assets

Description of impact

Due to flooding , generation facility roads (Flint Creek Plant) and outfall structures (Amos Plant) have been damaged. At the Amos Plant, poor drainage has resulted in flooding on the site.

Primary response

Infrastructure maintenance

Total financial impact

250000

Description of response

Total financial impact is unknown, but it cost approximately \$250,000 to repair damaged roads at the Flint Creek Plant.

Country/Region

United States of America

River basin

Mississippi River

Type of impact driver

Physical

Primary impact driver

Flooding

Primary impact

Impact on company assets

Description of impact

During very high rainfall events, floods waters washed out two bridges, which curtailed coal deliveries to the Oklaunion Power Plant. One bridge was not replaced and as a consequence, wastewater must be pumped between ponds creating a spill liability. The railroad bridge to the plant was replaced at cost of approximately \$560,000.

Primary response

Infrastructure maintenance

Total financial impact

560000

Description of response

One bridge was not replaced and as a consequence, wastewater must be pumped between ponds creating a spill liability. The railroad bridge to the plant was replaced at cost of approximately \$560,000.

W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

Yes, fines

W2.2a

(W2.2a) Provide the total number and financial value of all water-related fines.

Row 1

Total number of fines

1

Total value of fines

1400

% of total facilities/operations associated

3

Number of fines compared to previous reporting year

About the same

Comment

The \$1400 fine is so small relative to AEP's annual operating expenses that it is not considered to be significant.

W2.2b

(W2.2b) Provide details for all significant fines, enforcement orders, and/or penalties for water-related regulatory violations in the reporting year, and your plans for resolving them.

Type of penalty

Fine

Financial impact

1400

Country/Region

United States of America

River basin

Mississippi River

Type of incident

Spillage, leakage or discharge of potential water pollutant

Description of penalty, incident, regulatory violation, significance, and resolution

There was a failure to maintain sediment control measures to prevent the contribution of sediment to a local stream and minimize erosion. Measures were taken to remove additional sediment from the diversion and restore it to design specifications. Actions have also been taken to prevent the further infill of sediment into the diversion, to repair the slopes of the diversion to prevent further sediment contribution, and to reduce erosion from water flow by adding additional BMP's.

W3. Procedures

W-EU3.1

(W-EU3.1) How does your organization identify and classify potential water pollutants associated with your business activities in the electric utilities sector that could have a detrimental impact on water ecosystems or human health?

AEP must comply with both water quality-based and steam electric guideline effluent limits as they are implemented in NPDES permits. When applying for such permits, the company completes an NPDES Form 2C application, which includes an assessment of the flows, source of pollution and treatment technologies; production and improvements to reduce pollutants in the

discharge; intake and effluent characteristics; potential discharges not covered by the analysis; biological toxicity testing data; and contract analysis information. Working with the appropriate state agency, AEP determines if there will be a reasonable potential to exceed any water quality standards. These standards are for the protection of both aquatic life and human health.

Typically, metals and metalloids, such as arsenic, copper, mercury and selenium are the potential pollutants of most concern. Thermal discharges are evaluated and conform to the requirements of section 316(a) of the Clean Water Act, which ensures that there is a balanced indigenous community of aquatic organisms protected and maintained within the receiving body of water. The company also complies with all applicable water-related regulatory programs to prevent spills and subsequent impacts.

W-EU3.1a

(W-EU3.1a) Describe how your organization minimizes the adverse impacts of potential water pollutants associated with your activities in the electric utilities sector on water ecosystems or human health.

Potential water pollutant	Description of water pollutant and potential impacts	Management procedures	Please explain
Thermal pollution	AEP operates or owns coal-fired power units that utilize once-through cooling of heated condenser water formed by waste heat in the steam cycle. The potential impacts of heated cooling water on biodiversity range from insignificant to temporarily significant, depending on ambient temperature conditions. During extreme drought events, the heated water can cause a temporary displacement of thermally-sensitive fish species in the immediate area where the thermal discharge mixes with the source water body.	Compliance with effluent quality standards	The potential ecological impacts of this heated water are addressed in each plant's NPDES permit. Many of the AEP plants utilizing once-through cooling have an approved Clean Water Act Section 316(a) variance, which signifies that a state regulatory agency has concluded that a balanced, indigenous biological community will be maintained in the source waterbody despite the discharge of cooling water at temperatures in excess of applicable water quality temperature criteria. Routinely, state agencies require that AEP provide a re-justification of this finding, based on recent water quality and biological studies. AEP voluntarily conducts ecological assessments at some once-through cooled power plants located on the Ohio River as part of an ongoing Ohio River Ecological Research Program.

Potential water pollutant	Description of water pollutant and potential impacts	Management procedures	Please explain
Coal combustion residuals	Two types of ash are produced during the combustion of coal: bottom ash and fly ash. After collection, the fly ash and bottom ash may be managed separately or together in landfills or in wet surface impoundments. If managed in surface impoundments, water is used to sluice the ash to these ponds. Fly ash and bottom ash sluices typically contain heavy metals and inorganic constituents. If present in excessive amounts, these can be harmful to aquatic life or human health.	Compliance with effluent quality standards	Bottom ash and fly ash ponds are used to treat ash sluice water and are primarily settling basins that allow ash constituents and suspended solids to settle out before the transport water reaches the discharge point or is recycled. Some iron co-precipitation also occurs in these ponds, aiding with the removal of pollutants such as arsenic. The control of pond pH also helps to precipitate out metals, such as copper. In some cases, aeration-mixing or treatment chemicals are used to maximize pond effectiveness. The operation of a wet FGD system typically results in the generation of a chloride purge stream, which must be treated to manage pH and solids levels. The treatment process is based on three broad principles: • removal of the bulk of the suspended solids in a primary clarification step, • conversion of constituents into solid precipitates, and • removal of solids remaining after primary clarification, including precipitated solids. Once treated, this effluent is generally directed to a bottom ash pond for further settling before final discharge to a receiving/source water body. All AEP facilities that discharge such effluents have National Pollutant Discharge Elimination System (NPDES) permits that have been issued by the appropriate state agencies. These permits govern the discharge of the treated wastewaters and ensure compliance with all applicable water quality standards. The Clean Water Act requires facilities that discharge process wastewaters into receiving waters to control these discharges according to technology-based effluent guidelines and water quality-based effluent limits specified in NPDES permits. The Steam Electric Effluent Limitation Guidelines (ELGs) specify limits for various pollutants found in

Potential water pollutant	Description of water pollutant and potential impacts	Management procedures	Please explain
			power plant waste waters. These limits are based on the available and economically achievable technologies that can be implemented at steam electric facilities. Monitoring is conducted at each AEP facility to ensure that the discharges comply with these limits.

W3.3

(W3.3) Does your organization undertake a water-related risk assessment?

Yes, water-related risks are assessed

W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Direct operations

Coverage

Full

Risk assessment procedure

Water risks are assessed as a standalone issue

Frequency of assessment

Annually

How far into the future are risks considered?

2 to 5 years

Type of tools and methods used

Databases

Tools and methods used

Regional government databases

Comment

AEP reports extensively on its water use and consumption and associated risks and mitigation efforts in its annual Accountability and GRI reports. 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. State agency or industry groups periodically forecast water demands for their states that may look ahead as far as 50 year

Supply chain

Coverage

Partial

Risk assessment procedure

Water risks are assessed as a standalone issue

Frequency of assessment

Annually

How far into the future are risks considered?

2 to 5 years

Type of tools and methods used

Databases

Tools and methods used

Regional government databases

Comment

When new generation facilities are planned, models are used to forecast the availability of adequate water. 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. Adjustments are made based upon USGS river gauge information and weather forecasts.

Other stages of the value chain

Coverage

None

Risk assessment procedure

<Field Hidden>

Frequency of assessment

<Field Hidden>

How far into the future are risks considered?

<Field Hidden>

Type of tools and methods used

<Field Hidden>

Tools and methods used

<Field Hidden>

Comment

W3.3b

(W3.3b) Which of the following contextual issues are considered in your organization's water-related risk assessments?

	Relevance & inclusion	Please explain
Water availability at a	Relevant,	Water availability is an issue for some western fleet facilities, particularly

	Relevance & inclusion	Please explain
basin/catchment level	sometimes included	those in drought-prone areas.
Water quality at a basin/catchment level	Relevant, always included	The quality of source water is an important issue at all steam-electric generation facilities.[need to address - why you include this information, and why this issue is important to your business - how you assess this contextual issue to be relevant/how relevance is defined - if, and why, the issue is covered for all three stages of your value chain - if the issue is particularly relevant for specific organizational levels - whether both current and emerging issues are included.]
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, sometimes included	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.
Implications of water on your key commodities/raw materials	Relevant, sometimes included	Sufficient river water levels are needed for coal and limestone barges; gas fracking also requires significant quantities of water.
Water-related regulatory frameworks	Relevant, always 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; current 316b, steam electric effluent guidelines, and coal combustion residue regulatory requirements will affect access to, and use of, surface and groundwater.
Status of ecosystems and habitats	Relevant, always 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.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Fully-functioning WASH services are provided to all employees.
Other contextual issues, please specify	Not considered	

W3.3c

(W3.3c) Which of the following stakeholders are considered in your organization’s water-related risk assessments?

	Relevance & inclusion	Please explain
Customers	Relevant, always included	Customers are informed of water issues through the company's annual Corporate Accountability Report, which includes references to the company's GRI and CDP reports. Water use graphics are included in the report.
Employees	Relevant, always included	Employees are informed of water issues through internal communications, the company's annual Corporate Accountability Report, which includes references to the company's GRI and CDP reports.
Investors	Relevant, always 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, sometimes included	Local communities are often involved in discussions regarding water availability, particularly for recreational uses.
NGOs	Relevant, sometimes included	AEP frequently engages NGOs to discuss water-related issues.
Other water users at a basin/catchment level	Relevant, sometimes included	Other water use sectors (water supply, agriculture) may be engaged to address water issues.
Regulators	Relevant, always 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.
River basin management authorities	Relevant, always included	AEP is a member of the Ohio River Valley Sanitation Commission's (ORSANCO) Power Industry Advisory Committee. While the Commission does not address water quantity issues, it does address water quality in the Ohio River. AEP also participates in regional water planning organizations that cover western and northeastern Texas, Arkansas, and the Illinois River watershed.
Statutory special interest groups at a local level	Not considered	
Suppliers	Not	

	Relevance & inclusion	Please explain
	considered	
Water utilities at a local level	Not considered	
Other stakeholder, please specify	Not considered	

W3.3d

(W3.3d) Describe your organization’s process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

AEP has a public policy strategy that focuses on engagement in decisions being made by the U.S. Congress and at the U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (FWS), the Federal Energy Regulatory Commission (FERC), state legislatures and regulatory agencies. We do this to mitigate our risk exposure and to help us achieve our business objectives. AEP is also a member of industry organizations and trade associations (e.g. Utility Water Act Group, Edison Electric Institute) which provide a venue for reviewing potential new water-related regulatory and legislative programs.. For example, AEP is a member of the Ohio River Valley Sanitation Commission's (ORSANCO) Power Industry Advisory Committee. While the Commission does not address water quantity issues, it does address water quality in the Ohio River. AEP also participates in regional water planning organizations that cover western and northeastern Texas, Arkansas, and the Illinois River watershed. Once water-related risks are identified within our direct operations, capital and O&M expenses to comply with water-related regulations are assessed through our RBTO (risk based technology option) process.

Additional information on how AEP identifies, assesses and responds to water-related risks can be found in the company's Corporate Accountability Report.

W4. Risks and opportunities

W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes, both in direct operations and the rest of our value chain

W4.1a

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

AEP’s common stock is publicly traded and the company is subject to the jurisdiction of the Securities and Exchange Commission (SEC). In addition to its regularly filed financial reports, AEP is required advise the SEC and the public within four business days of any event or development which would have a material impact on the companies. Generally these levels range between 5 to 15 percent of certain financial measures (revenues, assets, or income) based on the most recent audited financial statements for the affected company. Developments that have an impact equal to or in excess of the applicable threshold must be reported within four days to the SEC and publicly announced.

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	6	1-25	Six steam electric generation facilities were identified during 2017 as having a medium to high overall water risk as per the WRI Aqueduct tool.

W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive impact on your business, and what is the potential business impact associated with those facilities?

Country/Region

United States of America

River basin

Mississippi River

Number of facilities exposed to water risk

5

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Field Hidden>

% company's annual electricity generation that could be affected by these facilities

1-25

% company's global oil & gas production volume that could be affected by these facilities

<Field Hidden>

% company's total global revenue that could be affected

Unknown

Comment

This response is based on the number of steam-electric facilities utilizing surface water and groundwater withdrawals (excludes hydroelectric facilities) in the Mississippi River watershed that fall within the WRI Aqueduct med-high water risk areas. Proportion of operation affected based on % generation during 2017.

Country/Region

United States of America

River basin

St. Lawrence

Number of facilities exposed to water risk

1

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Field Hidden>

% company's annual electricity generation that could be affected by these facilities

Less than 1%

% company's global oil & gas production volume that could be affected by these facilities

<Field Hidden>

% company's total global revenue that could be affected

Unknown

Comment

This response is based on the number of steam-electric facilities utilizing surface water and groundwater withdrawals (excludes hydroelectric facilities) in the St. Lawrence River watershed that fall within the WRI Aqueduct med-high water risk areas. Proportion of operation affected based on % generation during 2017.

Country/Region

United States of America

River basin

Mississippi River

Number of facilities exposed to water risk

8

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Field Hidden>

% company's annual electricity generation that could be affected by these facilities

51-75

% company's global oil & gas production volume that could be affected by these facilities

<Field Hidden>

% company's total global revenue that could be affected

Unknown

Comment

AEP owns and operates 8 steam electric generation facilities in the Mississippi River watershed with the potential to be impacted by the 2015 steam electric effluent guidelines. The percent of company-wide facilities that these 10 facilities represents is based on the 34 steam electric plants operated by AEP during 2017.

Country/Region

United States of America

River basin

Mississippi River

Number of facilities exposed to water risk

12

% company-wide facilities this represents

26-50

Production value for the metals & mining activities associated with these facilities

<Field Hidden>

% company's annual electricity generation that could be affected by these facilities

51-75

% company's global oil & gas production volume that could be affected by these facilities

<Field Hidden>

% company's total global revenue that could be affected

Unknown

Comment

The EPA's Coal Combustion Residuals (CCR) Rule established new requirements for how coal ash – the material that is left over after coal is burned to make electricity – is stored at our power plants. While we've previously monitored groundwater at many of our coal ash storage sites, the CCR rule created new requirements to install more wells and test for additional substances at 26 ash storage sites at 12 power plants. We completed the first phase of testing and will do additional monitoring and evaluations during 2018. The percent of company-wide facilities that these facilities represent is based on the 33 steam electric plants currently operated by AEP.

Country/Region

United States of America

River basin

Sabine River

Number of facilities exposed to water risk

1

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Field Hidden>

% company's annual electricity generation that could be affected by these facilities

1-25

% company's global oil & gas production volume that could be affected by these facilities

<Field Hidden>

% company's total global revenue that could be affected

Unknown

Comment

The EPA's Coal Combustion Residuals (CCR) Rule established new requirements for how coal ash – the material that is left over after coal is burned to make electricity – is stored at our power plants. While we've previously monitored groundwater at many of our coal ash storage sites, the CCR rule created new requirements to install more wells and test for additional substances at 26 ash storage sites at 12 power plants. One of these facilities is located in the Sabine River watershed. We completed the first phase of testing and will do additional monitoring and evaluations during 2018. The percent of company-wide facilities that this one facilities represents is based on the 33 steam electric plants currently operated by AEP.

Country/Region

United States of America

River basin

Sabine River

Number of facilities exposed to water risk

1

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Field Hidden>

% company's annual electricity generation that could be affected by these facilities

1-25

% company's global oil & gas production volume that could be affected by these facilities

<Field Hidden>

% company's total global revenue that could be affected

Unknown

Comment

AEP owns and operates 1 steam electric generation facilities in the Sabine River watershed with the potential to be impacted by the 2015 steam electric effluent guidelines. The percent of company-wide facilities that this one facility represents is based on the 34 steam electric plants operated by AEP during 2017.

W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Region

United States of America

River basin

Mississippi River

AEP is combining its responses for the Mississippi and St. Lawrence River watersheds.

Type of risk

Physical

Primary risk driver

Increased water scarcity

Primary potential impact

Increased operating costs

Company-specific description

AEP steam electric facilities are exposed to water risks, however, based on the WRI Aqueduct Tool, 6 are located in “stressed” areas within the Mississippi and St. Lawrence watersheds and exposed to risks that could generate a substantive change in business operations. One of these facilities has been sold, however, 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.

Timeframe

Current up to 1 year

Magnitude of potential impact

High

Likelihood

About as likely as not

Potential financial impact

Explanation of financial impact

Unknown at this time.

Primary response to risk

Adopt water efficiency, water re-use, recycling and conservation practices (AEP files water conservation plans in TX)

Description of response

In the past, AEP has participated in research with the Electric Power Research Institute to develop, test and deploy efficient, advanced cooling technologies. It has also examined the benefits that AEP can and has realized while using alternate water supplies or management practices at the Comanche, Oklaunion, Pirkey, and Turk Plants. At Comanche, the use of municipal POTW water in lieu of surface or ground water has allowed the plant to increase generation and for the city to benefit from an income stream. The economic and regulatory value of water diversions at Oklaunion and Pirkey have also been confirmed by EPRI. At Turk, flooding and high TDS concentrations in the Little and Red River basins during 2015 prevented the plant from using the water, necessitating a generation curtailment at a loss of approximately \$8 million. A storage pond was built at a cost of \$2 million to prevent future curtailments, but EPRI has determined that working with the USACE to optimize releases of water from Millwood Reservoir would provide an additional net benefit of nearly \$5 million over building a second storage pond. The local ecosystem and community may also benefit from the watershed solution.

Cost of response

Explanation of cost of response

Unknown at this time.

Country/Region

United States of America

River basin

Mississippi River

AEP has combined its response for the Mississippi and Sabine River watersheds

Type of risk

Regulatory

Primary risk driver

Please select

Primary potential impact

Increased capital costs

Company-specific description

EPA establishes wastewater discharge limits for new and existing power plants that use steam to generate electricity from various fuel sources (coal, oil, gas and nuclear). In November 2015, the agency revised national effluent guidelines and set stricter performance standards that must be achieved at AEP's steam electric generating facilities. The rule was challenged in the U.S. Court of Appeals and, in March 2017, the electric industry filed a Petition for Reconsideration of the rule with EPA. In April 2017, EPA issued a stay of the rule's compliance deadlines and granted reconsideration of several aspects of the rule. In September 2017, EPA finalized a rulemaking that postponed the compliance dates for scrubber wastewater and bottom ash transport water (BATW) discharges. The earliest compliance date for these waste streams is now November 1, 2020, rather than November 1, 2018. EPA will initiate a new rulemaking to address the scrubber wastewater and BATW discharges, which it expects to finalize in 2020. We continue to work with the agency and utility industry groups to help secure reasonable revisions to the guidelines.

Timeframe

1 - 3 years

Magnitude of potential impact

High

Likelihood

Virtually certain

Potential financial impact

Explanation of financial impact

Unknown, but modest (millions of dollars)

Primary response to risk

Increase investment in new technology

Description of response

AEP continues to engage EPA during the development of the revised steam electric effluent guidelines. In addition, it is working with the Electric Power Research Institute to determine the effectiveness of new technologies that would be required to meet the new limits. AEP is conducting pilot studies as well to investigate the effectiveness of the new required technologies.

Cost of response

Explanation of cost of response

Unknown, but modest (millions of dollars)

Country/Region

United States of America

River basin

Mississippi River

AEP has combined its response for the Mississippi and Sabine River watersheds.

Type of risk

Regulatory

Primary risk driver

Please select

Primary potential impact

Increased compliance costs

Company-specific description

AEP's initial CCR sampling data show potential groundwater impacts. The fact that one or more groundwater samples may show higher concentrations of some substances does not mean that the drinking water in the surrounding area is impacted or unsafe. There is still a lot left to learn. We will do additional monitoring and analysis to determine if there are any areas where groundwater outside the immediate site is being affected and if any impacts are coming from the ash storage facility. It's important to remember that samples so far have been taken very close to the ash storage sites where any groundwater impacts would be most significant.

Timeframe

1 - 3 years

Magnitude of potential impact

High

Likelihood

Very likely

Potential financial impact

Explanation of financial impact

Unknown at this time

Primary response to risk

Please select

Description of response

AEP is proactively reaching out and meeting with plant neighbors and community leaders to answer questions about the data collected so far and to discuss next steps. We've begun additional monitoring and evaluation to determine if there is any impact beyond the plant boundaries. If we determine that changes in water quality are coming from one of our ash storage sites, we will put in place a mitigation plan specific to that site to address the changes, including potential closure of the storage site. That process will include the opportunity for public input.

Cost of response

Explanation of cost of response

Unknown at this time.

W4.2a

(W4.2a) Provide details of risks identified within your value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Region

United States of America

River basin

Mississippi River

Mississippi River watershed has been selected, but AEP's value chain extends to many other watersheds across the United States.

Stage of value chain

Supply chain

Type of risk

Reputation & markets

Primary risk driver

Increased stakeholder concern or negative stakeholder feedback

Primary potential impact

Constraint to growth

Company-specific description

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, 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.

Timeframe

1 - 3 years

Magnitude of potential financial impact

High

Likelihood

Very likely

Potential financial impact

Explanation of financial impact

Unknown

Primary response to risk

Please select

Description of response

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, renewables, energy efficiency, nuclear, solar 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.

Cost of response

Explanation of cost of response

unknown

Country/Region

United States of America

River basin

Mississippi River

Mississippi River watershed has been selected, but AEP's value chain extends to many other watersheds across the United States.

Stage of value chain

Supply chain

Type of risk

Regulatory

Primary risk driver

Please select

Primary potential impact

Constraint to growth

Company-specific description

As AEP builds and maintains new and existing infrastructure across our service territory, such as transmission or renewable generation facilities, we are mindful of the potential impacts we might have on wildlife species protected under the Endangered Species Act (ESA), the Migratory Bird Treaty Act and the Bald Eagle and Golden Eagle Protection Act and we take the necessary steps to ensure their protection. These same impacts can apply to our supply chain as well limiting or delaying new sources of fuel, treatment chemicals, or materials needed for the construction of new generation or transmission facilities.

Timeframe

1 - 3 years

Magnitude of potential financial impact

Unknown

Likelihood

Likely

Potential financial impact

Explanation of financial impact

Unknown

Primary response to risk

Please select

Description of response

AEP assists potential commercial-scale customers with environmental due-diligence and other environmentally related activities. AEP also works with its major stakeholders and suppliers to ensure that they comply with all relevant environmental regulations.

Cost of response

Explanation of cost of response

unknown

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity

Other

Primary water-related opportunity

Other, please specify (Transition to renewable energy)

Company-specific description & strategy to realize opportunity

AEP is transitioning to a balanced, diverse portfolio which will help mitigate risk for our customers and shareholders and ensure a more resilient and reliable energy system. We are doing this through our regulated energy companies and through company-owned and long-term contracted renewables. Our competitive renewables businesses plan to invest up to \$1.2 billion in contracted renewables during the next three years. By 2030, our current integrated resource plans project we will add more than 8,000 MW of wind and solar to our regulated portfolio. Between 2018 and 2020, we will invest approximately \$500 million in renewable wind and solar in our

regulated utilities. These investments will reduce our reliance on water-dependent sources of electricity generation. As the grid changes, our resource planning process is changing with it. Once dominated by coal-fueled, water-dependent generating capacity to meet demand, today's resource plans are now largely comprised of wind and solar and natural gas generating resource investments.

Estimated timeframe for realization

>6 years

Magnitude of potential financial impact

High

Potential financial impact

Explanation of financial impact

Billions of dollars in new investments.

W5. Facility-level water accounting

W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, total water accounting data and comparisons with the previous reporting year.

Facility reference number

Facility 1

Facility name (optional)

Amos

Country/Region

United States of America

River basin

Mississippi River

Latitude

33.65436

Longitude

-81.82333

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

45376

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

33468

Comparison of discharges with previous reporting year

Much higher

Total water consumption at this facility (megaliters/year)

11907

Comparison of consumption with previous reporting year

Lower

Please explain

Rainfall and changes in plant dispatch

Facility reference number

Facility 2

Facility name (optional)

Big Sandy

Country/Region

United States of America

River basin

Mississippi River

Latitude

38.17147

Longitude

-82.61406

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

16791

Comparison of withdrawals with previous reporting year

Higher

Total water discharges at this facility (megaliters/year)

6178

Comparison of discharges with previous reporting year

Higher

Total water consumption at this facility (megaliters/year)

10613

Comparison of consumption with previous reporting year

Much higher

Please explain

Conversion to gas and plant dispatch

Facility reference number

Facility 3

Facility name (optional)

Clinch River

Country/Region

United States of America

River basin

Mississippi River

Latitude

36.93333

Longitude

-82.19972

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

12908

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

5014

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

7894

Comparison of consumption with previous reporting year

About the same

Please explain

Facility reference number

Facility 4

Facility name (optional)

Comanche

Country/Region

United States of America

River basin

Mississippi River

Latitude

34.36247

Longitude

-97.97959

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

0

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)

1917

Comparison of discharges with previous reporting year

Higher

Total water consumption at this facility (megaliters/year)

34

Comparison of consumption with previous reporting year

About the same

Please explain

Water from the City of Lawton POTW is used as source water for the Comanche Plant, hence no water withdrawals.

Facility reference number

Facility 5

Facility name (optional)

Conesville

Country/Region

United States of America

River basin

Mississippi River

Latitude

40.18447

Longitude

-81.89191

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

79902

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)

42770

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

37132

Comparison of consumption with previous reporting year

About the same

Please explain

Facility reference number

Facility 6

Facility name (optional)

Darby

Country/Region

United States of America

River basin

Mississippi River

Latitude

39.71389

Longitude

-83.17639

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

0

Comparison of withdrawals with previous reporting year

Much lower

Total water discharges at this facility (megaliters/year)

0

Comparison of discharges with previous reporting year

Much lower

Total water consumption at this facility (megaliters/year)

0

Comparison of consumption with previous reporting year

Much lower

Please explain

Darby is a gas turbine facility and utilizes groundwater, levels of which are not recorded, however, the plant was sold in January 2017 and did not generate electricity for AEP during the reporting time period.

Facility reference number

Facility 7

Facility name (optional)

Mitchell

Country/Region

United States of America

River basin

Mississippi River

Latitude

39.82972

Longitude

-80.81528

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

28850

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)

8550

Comparison of discharges with previous reporting year

Much lower

Total water consumption at this facility (megaliters/year)

20270

Comparison of consumption with previous reporting year

About the same

Please explain

Weather and changes in plant dispatch

Facility reference number

Facility 8

Facility name (optional)

Mone

Country/Region

United States of America

River basin

St. Lawrence

Latitude

40.93139

Longitude

-84.73778

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

Comparison of withdrawals with previous reporting year

Please select

Total water discharges at this facility (megaliters/year)

Comparison of discharges with previous reporting year

Please select

Total water consumption at this facility (megaliters/year)

Comparison of consumption with previous reporting year

Please select

Please explain

Mone is a gas turbine facility and utilizes groundwater, levels of which are not recorded.

Facility reference number

Facility 9

Facility name (optional)

Mountaineer

Country/Region

United States of America

River basin

Mississippi River

Latitude

38.97944

Longitude

-81.93444

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

15751

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)

4026

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

11725

Comparison of consumption with previous reporting year

About the same

Please explain

Facility reference number

Facility 10

Facility name (optional)

Northeastern

Country/Region

United States of America

River basin

Mississippi River

Latitude

36.42619

Longitude

-95.70136

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

5890

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

4554

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

1336

Comparison of consumption with previous reporting year

Lower

Please explain

Changes in plant operation and dispatch. Plant also burns coal to generate electricity.

Facility reference number

Facility 11

Facility name (optional)

Oklaunion

Country/Region

United States of America

River basin

Mississippi River

Latitude

34.12953

Longitude

-99.14285

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

3815

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

0

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

3815

Comparison of consumption with previous reporting year

Lower

Please explain

Oklahoma is a zero discharge facility utilizing evaporation ponds and recycling to eliminate all discharges.

Facility reference number

Facility 12

Facility name (optional)

Pirkey

Country/Region

United States of America

River basin

Sabine River

Latitude

32.50722

Longitude

-94.53333

Primary power generation source for your electricity generation at this facility

Lignite

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

581740

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

518090

Comparison of discharges with previous reporting year

Much lower

Total water consumption at this facility (megaliters/year)

6709

Comparison of consumption with previous reporting year

About the same

Please explain

Weather and changes in plant dispatch can affect water withdrawal, discharge and consumption.

Facility reference number

Facility 13

Facility name (optional)

Rockport

Country/Region

United States of America

River basin

Mississippi River

Latitude

37.92556

Longitude

-87.03722

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

31976

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

10935

Comparison of discharges with previous reporting year

Lower

Total water consumption at this facility (megaliters/year)

21042

Comparison of consumption with previous reporting year

About the same

Please explain

Changes in plant dispatch

Facility reference number

Facility 14

Facility name (optional)

Southwestern

Country/Region

United States of America

River basin

Mississippi River

Latitude

35.10228

Longitude

-98.35228

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

3474

Comparison of withdrawals with previous reporting year

Higher

Total water discharges at this facility (megaliters/year)

1792

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

1682

Comparison of consumption with previous reporting year

Higher

Please explain

changes in plant dispatch

Facility reference number

Facility 15

Facility name (optional)

Turk

Country/Region

United States of America

River basin

Mississippi River

Latitude

33.65436

Longitude

-93.81533

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

9663

Comparison of withdrawals with previous reporting year

Much higher

Total water discharges at this facility (megaliters/year)

980

Comparison of discharges with previous reporting year

Much higher

Total water consumption at this facility (megaliters/year)

8683

Comparison of consumption with previous reporting year

Much higher

Please explain

Changes in plant dispatch

Facility reference number

Facility 16

Facility name (optional)

Weleetka

Country/Region

United States of America

River basin

Mississippi River

Latitude

35.33565

Longitude

-96.13639

Primary power generation source for your electricity generation at this facility

Gas

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

0

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)

0

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

0

Comparison of consumption with previous reporting year

About the same

Please explain

groundwater is used at the facility, levels of which are not recorded.

Facility reference number

Facility 17

Facility name (optional)

Welsh

Country/Region

United States of America

River basin

Mississippi River

Latitude

33.05475

Longitude

-94.84116

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

889722

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

882367

Comparison of discharges with previous reporting year

Lower

Total water consumption at this facility (megaliters/year)

13029

Comparison of consumption with previous reporting year

About the same

Please explain

changes in plant dispatch

Facility reference number

Facility 18

Facility name (optional)

Flint Creek

Country/Region

United States of America

River basin

Mississippi River

Latitude

36.17861

Longitude

-94.73458

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

<Field Hidden>

Total water withdrawals at this facility (megaliters/year)

494042

Comparison of withdrawals with previous reporting year

Higher

Total water discharges at this facility (megaliters/year)

494042

Comparison of discharges with previous reporting year

Higher

Total water consumption at this facility (megaliters/year)

4283

Comparison of consumption with previous reporting year

About the same

Please explain

changes in plant dispatch

W5.1a

(W5.1a) For each facility referenced in W5.1, provide withdrawal data by water source.

Facility reference number

Facility 1

Facility name

Amos

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

45376

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 2

Facility name

Big Sandy

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

16791

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 3

Facility name

Clinch River

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

12908

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 4

Facility name

Comanche

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

1951

Comment

Facility reference number

Facility 5

Facility name

Conesville

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

79902

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 6

Facility name

Darby

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Renewable groundwater is used, but withdrawal levels are not recorded

Facility reference number

Facility 7

Facility name

Mitchell

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

28850

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 8

Facility name

Mone

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Renewable groundwater is used, but withdrawal levels are not recorded

Facility reference number

Facility 9

Facility name

Mountaineer

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

15751

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 10

Facility name

Northeastern

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

5890

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 11

Facility name

Oklaunion

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

3815

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 12

Facility name

Pirkey

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

581740

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 13

Facility name

Rockport

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

31976

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 14

Facility name

Southwestern

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

3474

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 15

Facility name

Turk

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

9663

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 16

Facility name

Weleetka

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Renewable groundwater is used, but withdrawal levels are not recorded

Facility reference number

Facility 17

Facility name

Welsh

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

889722

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

Facility reference number

Facility 18

Facility name

Flint Creek

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

494042

Brackish surface water/seawater

Groundwater - renewable

Groundwater - non-renewable

Produced water

Third party sources

Comment

W5.1b

(W5.1b) For each facility referenced in W5.1, provide discharge data by destination.

Facility reference number

Facility 1

Facility name

Amos

Fresh surface water

33468

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 2

Facility name

Big Sandy

Fresh surface water

6178

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 3

Facility name

Clinch River

Fresh surface water

5013

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 4

Facility name

Comanche

Fresh surface water

1917

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 5

Facility name

Conesville

Fresh surface water

42770

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 6

Facility name

Darby

Fresh surface water

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

groundwater use not recorded

Facility reference number

Facility 7

Facility name

Mitchell

Fresh surface water

8550

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 8

Facility name

Mone

Fresh surface water

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

groundwater use not recorded

Facility reference number

Facility 9

Facility name

Mountaineer

Fresh surface water

4026

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 10

Facility name

Northeastern

Fresh surface water

4554

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 11

Facility name

Oklaunion

Fresh surface water

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

This is a zero discharge facility (Oklaunion).

Facility reference number

Facility 12

Facility name

Pirkey

Fresh surface water

518090

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 13

Facility name

Rockport

Fresh surface water

10935

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 14

Facility name

Southwestern

Fresh surface water

1792

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 15

Facility name

Turk

Fresh surface water

980

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 16

Facility name

Weleetka

Fresh surface water

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

groundwater use not recorded

Facility reference number

Facility 17

Facility name

Welsh

Fresh surface water

882367

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

Facility reference number

Facility 18

Facility name

Flint Creek

Fresh surface water

494042

Brackish surface water/Seawater

Groundwater

Third party destinations

Comment

W5.1c

(W5.1c) For each facility referenced in W5.1, provide the proportion of your total water use that is recycled or reused, and give the comparison with the previous reporting year.

Facility reference number

Facility 1

Facility name

Amos

% recycled or reused

11-25%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 2

Facility name

Big Sandy

% recycled or reused

Less than 1%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 3

Facility name

Clinch River

% recycled or reused

Less than 1%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 4

Facility name

Comanche

% recycled or reused

76-99%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 5

Facility name

Conesville

% recycled or reused

26-50%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 6

Facility name

Darby

% recycled or reused

Not monitored

Comparison with previous reporting year

Please select

Please explain

groundwater use not recorded

Facility reference number

Facility 7

Facility name

Mitchell

% recycled or reused

Less than 1%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 8

Facility name

Mone

% recycled or reused

Not monitored

Comparison with previous reporting year

Please select

Please explain

groundwater use not recorded

Facility reference number

Facility 9

Facility name

Mountaineer

% recycled or reused

26-50%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 10

Facility name

Northeastern

% recycled or reused

11-25%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 11

Facility name

Oklaunion

% recycled or reused

2-10%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 12

Facility name

Pirkey

% recycled or reused

76-99%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 13

Facility name

Rockport

% recycled or reused

11-25%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 14

Facility name

Southwestern

% recycled or reused

51-75%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 15

Facility name

Turk

% recycled or reused

2-10%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 16

Facility name

Weleetka

% recycled or reused

Not monitored

Comparison with previous reporting year

Please select

Please explain

groundwater use not recorded

Facility reference number

Facility 17

Facility name

Welsh

% recycled or reused

76-99%

Comparison with previous reporting year

About the same

Please explain

Facility reference number

Facility 18

Facility name

Flint Creek

% recycled or reused

76-99%

Comparison with previous reporting year

About the same

Please explain

W5.1d

(W5.1d) For the facilities referenced in W5.1, what proportion of water accounting data has been externally verified?

Water withdrawals – total volumes

% verified

76-100

What standard and methodology was used?

Values are verified through FERC reporting

Water withdrawals – volume by source

% verified

76-100

What standard and methodology was used?

Values are verified through NPDES permitting submittals

Water withdrawals – quality

% verified

76-100

What standard and methodology was used?

Plant staff monitor the quality of water as it is used in the steam electric generation process.

Water discharges – total volumes

% verified

76-100

What standard and methodology was used?

Values are verified through NPDES permitting submittals

Water discharges – volume by destination

% verified

76-100

What standard and methodology was used?

Values are verified through NPDES permitting submittals

Water discharges – volume by treatment method

% verified

76-100

What standard and methodology was used?

Values are verified through NPDES permitting submittals

Water discharge quality – quality by standard effluent parameters

% verified

76-100

What standard and methodology was used?

Values are verified through NPDES permitting submittals

Water discharge quality – temperature

% verified

76-100

What standard and methodology was used?

Temperature limits are monitored at all once-thru cooled facilities. Results are submitted to the appropriate state agencies.

Water consumption – total volume

% verified

Not verified

What standard and methodology was used?

Water recycled/reused

% verified

Not verified

What standard and methodology was used?

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?

Yes, we have a documented water policy that is publicly available

W6.1a

(W6.1a) Select the options that best describe the scope and content of your water policy.

	Scope	Content	Please explain
		Commitment to stakeholder awareness and education	
		Acknowledgement of the human right to water and sanitation	
		Commitment to water stewardship and/or collective action	AEP has management systems, policies and environmental experts in place to achieve its goal of zero environmental enforcement actions. The company is proactive in its efforts to protect people and the environment by committing to: maintain compliance with all applicable environmental requirements while pursuing the spirit of environmental stewardship; ensure that people working for or on behalf of AEP understand and integrate environmental responsibilities into their business functions; and support continual improvement of environmental performance and pollution prevention. AEP also locates and develops facilities to minimize any physical impacts to water (spills, wetland impacts, etc.).
Row 1	Company-wide	Recognition of environmental linkages, for example, due to climate change	
		Description of business dependency on water	
		Description of business impact on water	
		Description of water-related performance standards for direct operations	

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?

Yes

W6.2a

(W6.2a) Identify the position(s) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Other, please specify (AEP Policy Comm Board of Directors))	AEP's board and board committees consider water-related issues when reviewing and guiding their business strategy, major plans of action, risk management policies, annual budgets, and budget plans as well as, setting the organization's performance objectives, monitoring implementation and performance, and overseeing major capital expenditures, acquisitions, and divestitures throughout the year.

W6.2b

(W6.2b) Provide further details on the board's oversight of water-related issues.

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Sporadic - as important matters arise	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Providing employee incentives Reviewing and guiding annual budgets	

Frequency that water-related issues are a scheduled agenda item

Governance mechanisms into which water-related issues are integrated

Please explain

Reviewing and guiding business plans

Reviewing innovation/R&D priorities

W6.3

(W6.3) Below board level, provide the highest-level management position(s) or committee(s) with responsibility for water-related issues.

Name of the position(s) and/or committee(s)

Other, please specify (Senior Vice President of Environ. Serv.)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

AEP's Senior Vice President of Environmental 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.

W-FB6.4/W-CH6.4/W-EU6.4/W-OG6.4/W-MM6.4

(W-FB6.4/W-CH6.4/W-EU6.4/W-OG6.4/W-MM6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

Yes

W-FB6.4a/W-CH6.4a/W-EU6.4a/W-OG6.4a/W-MM6.4a

(W-FB6.4a/W-CH6.4a/W-EU6.4a/W-OG6.4a/W-MM6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues?

	Who is entitled to benefit from these incentives?	Indicator for incentivized performance	Please explain
Monetary reward	Board/Executive board		<p>AEP's compensation program is based on the fundamental premise of pay for performance. This compensation can come in several forms including, base pay and incentive pay. AEP offers both annual and long-term incentive programs to reward outstanding performance and achievement of business goals. AEP's business goals include achieving financial goals as well as longer-term strategic goals. Achieving annual financial goals are predicated upon successful execution of AEP's business strategy, which includes proactive deployment of emission abatement measures such as energy efficiency, highly efficient new generation and renewable energy, which reduces our need for water. Furthermore, AEP includes strategic goals which are based on core commitments to AEP's business model that may have less of an immediate financial return as part of its incentive compensation plan. AEP's mission and vision include commitments to culture and business transformation can be found at (https://www.aep.com/about/mission/).</p>
	Corporate executive team	Reduction of water withdrawals	
	Other, please specify (All employees, the CEO and Board)	Reduction of product water intensity	
	All employees, including the CEO and Board can benefit.	Effluent quality improvements	
Recognition (non-monetary)	Board/Executive board		<p>AEP's compensation program is based on the fundamental premise of pay for performance. This compensation can come in several forms including, base pay and incentive pay. AEP offers both annual and long-term incentive programs to reward outstanding performance and achievement of business goals. AEP's business goals include achieving financial goals as well as longer-term strategic goals. Achieving annual financial goals are predicated upon successful execution of AEP's business strategy, which includes proactive deployment of emission abatement measures such as energy efficiency, highly efficient new generation and renewable energy, which reduces our need for water. Furthermore, AEP includes strategic goals which are based on core commitments to AEP's business model that may have less of an immediate financial return as part of its incentive compensation plan. Achievements are recognized through employee notifications, media announcements, meeting</p>
	Corporate executive team	Reduction of water withdrawals	
	Other, please specify (All employees, the CEO and Board)	Reduction of product water intensity	
	All employees, including the CEO and Board	Effluent quality improvements	

Who is entitled to benefit from these incentives? **Indicator for incentivized performance**

Please explain

presentations, and other awards. AEP's mission and vision include commitments to culture and business transformation can be found at (<https://www.aep.com/about/mission/>).

Other non-monetary reward

Please select

Please select

W6.5

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

Yes, direct engagement with policy makers

Yes, trade associations

Yes, funding research organizations

W6.5a

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

Evolving U.S. environmental policy considerations have not changed our plans for complying with all applicable environmental regulations. While some regulations, such as the Disposal of Coal Combustion Residuals from Electric Utilities rule or the Steam Electric Effluent Guidelines, have an unclear path forward, there are many more regulations that we must comply with and new ones that are still being finalized. As the scope and stringency of environmental regulations evolve, we are faced with technical, operational and financial challenges that are common for our industry. These challenges, including uncertainties with timing, scope and magnitude of future environmental regulations, influence our decisions to upgrade or retire generating units. They also affect the planning process for new generation and transmission projects across our industry. AEP's active participation in the development of regulations helps to ensure that new requirements are achievable, based on sound science, consistent with statutory

authority, balanced with other rulemakings, weigh the cost of compliance for customers, and can be implemented in a rational time frame. Compliance is important to us, but we also have a responsibility to our investors who make the required capital investment and to our customers, who will ultimately pay for the implementation of compliance strategies.

W7. Business strategy

W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	5-10	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. AEP's corporate environmental compliance goal, including compliance with water requirements, is a key part of its business strategy.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	5-10	Water quality, availability, use and management are increasingly important sustainability issues for AEP. We are continuing to take steps to reduce our water consumption, improve water quality and address water availability issues as we comply with current regulations and prepare for new ones. Because this issue is so important to AEP, we are evaluating a new sustainability goal to address our water consumption.
Financial planning	Yes, water-related issues are integrated	5-10	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. AEP's corporate

Are water-related issues integrated?	Long-term time horizon (years)	Please explain
--------------------------------------	--------------------------------	----------------

environmental compliance goal, including compliance with water requirements, is a key part of its business strategy.

W7.2

(W7.2) What is the trend in your organization’s water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Water-related CAPEX (+/- % change)	Anticipated forward trend for CAPEX (+/- % change)	Water-related OPEX (+/- % change)	Anticipated forward trend for OPEX (+/- % change)	Please explain
Row 1				This information is not collected by AEP.

W7.3

(W7.3) Does your organization use climate-related scenario analysis to inform its business strategy?

Use of climate-related scenario analysis	Comment
Row 1 Yes	AEP’s scenario planning process accounts for varying assumptions around climate change policy and regulation to plan for a variety of futures, including one with significant restrictions on the use of fossil fuels. AEP has evaluated a number of scenarios related to potential climate regulation through its integrated resource planning process, which evaluates the generation resources required to meet customer demand. The scenarios involved include a variety of assumptions related to underlying carbon policy and the associated pricing impacts that would influence the composition of our generating fleet and subsequently emissions.

Use of climate-related scenario analysis

Comment

Generally the resource planning process has a 15-20 year time horizon, though AEP took a longer approach in setting a 2050 carbon target. As the overwhelming majority of AEP's emissions are associated with fossil generation, the resource planning scenarios capture almost the entirety of AEP's carbon footprint.

W7.3a

(W7.3a) Has your organization identified any water-related outcomes from your climate-related scenario analysis?

Yes

W7.3b

(W7.3b) What water-related outcomes were identified from the use of climate-related scenario analysis, and what was your organization's response?

	Climate-related scenario(s)	Description of possible water-related outcomes	Company response to possible water-related outcomes
Row 1	Other, please specify (Please see response to 7.3)	As a result of running these scenarios, AEP has seen increased value in potential investment in renewable energy with decreased value in continuing to operate fossil generation. As a result, AEP has been able to reduce its emissions by 57% since 2000 and its water use by nearly 33% since 2013. It is anticipated that a reduced reliance on water in the long run will increase resilience.	Looking forward, these scenarios have led AEP to announce plans for adding several thousand megawatts of renewable energy to its system over the next decade and to set a 2050 carbon reduction goal that is consistent with global carbon scenarios. Consistent with this future scenario, water withdrawals and consumption are projected to significantly decline as older fossil generation is retired and replaced with sources such as wind and solar that do not require water for energy production. AEP will continue to monitor future scenarios for issues of water availability and quality.

W7.4

(W7.4) Does your company use an internal price on water?

Row 1

Does your company use an internal price on water?

No, and we do not anticipate doing so within the next two years

Please explain

W8. Targets

W8.1

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals	Targets are monitored at the corporate level	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. In addition to a target of zero environmental enforcement actions, the company undertakes additional water-related activities intended to improve and protect water quality. For example, the company is funding EPRI-related research to improve methods of treating FGD waste waters.

W8.1a

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Target reference number

Target 1

Category of target

Water withdrawals

Level

Site/facility

Primary motivation

Risk mitigation

Description of target

AEP's water use is primarily regulated under environmental statutes such as the Clean Water Act, but it is very much dependent on water availability. The company makes efforts to improve water efficiencies and to recycle water where possible to reduce discharges and mitigate water availability risks. Tracking water withdrawals per MWhr produced is a primary goal. This information has been reported in our GRI submittals since 2010.

Quantitative metric

% reduction per unit of production

Baseline year

2010

Start year

2010

Target year

2017

% achieved

100

Please explain

Target reference number

Target 2

Category of target

Water pollution reduction

Level

Company-wide

Primary motivation

Risk mitigation

Description of target

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. In addition to a target of zero environmental enforcement actions, the company undertakes additional water-related activities intended to improve and protect water quality. For example, the company is funding EPRI-related research to improve methods of treating FGD waste waters.

Quantitative metric

Other, please specify (100% compliance and no violations)

Baseline year

2014

Start year

2014

Target year

2017

% achieved

Please explain

One violation with a fine during 2017.

Target reference number

Target 3

Category of target

Watershed remediation and habitat restoration, ecosystem preservation

Level

Basin level

Primary motivation

Water stewardship

Description of target

A primary AEP goal is to “conduct research on the environmental effects of power generation and energy delivery on water and ecological resources.” AEP has sponsored research on Ohio River fisheries for over 42 years and also participated in the EPRI Ohio River Water Quality Trading Program purchasing some of the first "credits" in this watershed-level program. AEP also values and encourages water conservation and education efforts within our local communities. In October of 2017, the AEP Foundation awarded \$300,000 in grants to the Voinovich School of Leadership and Public Affairs at Ohio University for environmental programs, \$50,000 of which was designated for a watershed education and research program. . While these resources are educational in nature, they are intended to foster students’ awareness and appreciation of ecosystems, specifically with respect to the interconnectivity of watersheds.

Quantitative metric

Please select

Baseline year

1970

Start year

1970

Target year

2017

% achieved

100

Please explain

AEP is a member of the Electric Power Research Institute and has sponsored organizations such as the International Center for the Preservation of Wild Animals Inc. (the Wilds), the Texas State Aquarium Association, and the Ohio University Foundation. These organizations are conducting research on endangered species, environmental conservation, and watershed restoration. A primary AEP goal is to protect water and ecological resources. At the AEP Flint Creek Plant, the Eagle Watch and Nature Trail, which was established in 1999, is a 65-acre area on the upper end of SWEPCO Lake designated by SWEPCO as a nature area open to the public year round. The AEP Flint Creek Eagle Watch Pavilion <https://www.swepco.com/environment/EagleWatch.aspx> received a 2015 Pollinator Advocate Award from the Wildlife Habitat Council.

W9. Linkages and trade-offs

W9.1

(W9.1) Has your organization identified any linkages or tradeoffs between water and other environmental issues in its direct operations and/or other parts of its value chain?

Yes

W9.1a

(W9.1a) Describe the linkages or tradeoffs and the related management policy or action.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Other, please specify (Water-energy nexus)

Description of linkage/tradeoff

AEP fully understands the linkage between water and energy. As a power generator, AEP requires large quantities of water to produce electricity and electricity is needed to acquire, treat and distribute water.

Policy or action

AEP is working with EPRI to study the linkages between water use and electricity generation. In a study of the recent drought in California, it was determined by Dr. Frank Loge of the University of California, that during the recent extended drought in California, the amount of electricity conserved through water conservation exceeded the combined impact of all energy efficiency programs offered by major investor-owned utilities in the state at less than a third of the cost. AEP is working with EPRI to determine if such a study could be done in AEP's service territory and obtain value for its customers.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Other, please specify (Water treatment technologies)

Description of linkage/tradeoff

New wastewater treatment requirements that will result from the revised steam electric effluent guidelines will require the installation of dry bottom ash disposal, FGD wastewater treatment and similar technologies. While it is true that the installation of dry bottom ash disposal requires much less water, it does incur an energy "penalty," as do additional wastewater treatment facilities. These "penalties" can only be met through the generation of additional power, which requires yet more water.

Policy or action

AEP is working closely with state and federal regulators, as well as its own industry groups, such as the Utility Water Act Group and the Electric Power Research Institute, to help shape and influence regulations that are technically sound and have a positive cost-benefit ratio. We are also planning well in advance to ensure that the most water and energy efficient treatment technologies are installed in response to the new regulations.

Linkage or tradeoff

Tradeoff

Type of linkage/tradeoff

Other, please specify (Emission Controls)

Description of linkage/tradeoff

Due to a number of factors related to energy markets, environmental regulations, etc., many coal-fired, steam electric power plants across the country have been retired. Typically, these plants were once-through cooled facilities that withdrew large amounts of cooling water, but consumed very little. With the closure of these plants, water withdrawals for the industry will be dramatically reduced, however, due to a greater reliance on gas-fired generation, which utilizes closed-cycle cooling, water consumption rates, on a per facility basis, will increase.

Policy or action

AEP took major steps forward in 2017 to expand its regulated renewable portfolio throughout its service territory. There are clear environmental benefits associated with these projects. Wind and solar projects not produce carbon emissions and do not require water to generate electricity which is important in regions that are often prone to drought. AEP is transitioning to a balanced, diverse portfolio which will help mitigate risk for our customers and shareholders and ensure a more resilient and reliable energy system. We are doing this through our regulated energy companies and through company-owned and long-term contracted renewables. Between 2018 and 2020, we will invest approximately \$500 million in renewable wind and solar in our regulated utilities. These investments will reduce our reliance on water-dependent sources of electricity generation.

W10. Verification

W10.1

(W10.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1d)?

Yes

W10.1a

(W10.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Disclosure module	Data verified	Verification standard	Please explain
W1. Current state	Though only the first section of the CDP survey has been indicated, all portions of the survey have been verified through an AEP auditing process.	Other, please specify (Institute of Internal Auditors)	AEP auditors followed the standards and guidance of the Institute of Internal Auditors as they conducted the audit of the company's Corporate Accountability Report, from which much of the information used in this response was obtained.

W11. Sign off

W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

W11.1

(W11.1) Provide details for the person that has signed off (approved) your CDP water response.

Job title

Corresponding job category

Row 1 Senior Vice President, Environmental Services Environment/Sustainability manager

W11.2

(W11.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate’s Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

Yes

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

Public or Non-Public Submission I am submitting to

I am submitting my response Public

Investors