Welcome to your CDP Water Security Questionnaire 2021

W0. Introduction

W0.1

(W0.1) Give a general description of and introduction to your organization.

American Electric Power, based in Columbus, Ohio, is focused on building a smarter energy infrastructure and delivering new technologies and custom energy solutions to our customers. AEP's approximately 16,800 employees operate and maintain the nation's largest electricity transmission system of 40,000 miles and more than 223,000 miles of distribution lines to efficiently deliver safe, reliable power to approximately 5.5 million regulated customers in 11 states. AEP also is one of the nation's largest electricity producers with approximately 25,500 megawatts (MW) of generating capacity, including more than 5,500 MW of renewable energy. More than 16,000 MW of renewable energy is interconnected across the U.S. via AEP's transmission network. By 2030, our current resource plans call for our regulated utilities to add up to 5,910 MW of solar, up to 10,685 MW of wind and 2,266 MW of natural gas. We expect renewables will represent approximately 51% of our generating resource mix by 2030. In 2020, AEP's carbon emissions were 74% below 2000 levels (baseline), while SO2 and NOx emissions were reduced 98% and 96%, respectively, during the same timeframe. AEP's family of companies includes utilities AEP Ohio, AEP Texas, Appalachian Power (in Virginia and 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, east Texas and the Texas Panhandle). AEP also owns AEP Energy Supply, which provides innovative competitive energy solutions nationwide. For more information, visit AEPsustainability.com.

W-EU0.1a

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

Electricity generation
Transmission
Distribution
Other, please specify

Smart grids/Demand Response; battery storage; micro grids; coal mining. The response to generation capacity section below is limited to facilities that are operated by AEP. Information is based on AEP operated capacity and gross generation.

W-EU0.1b

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

	Nameplate capacity (MW)	% of total nameplate capacity	Gross electricity generation (GWh)
Coal – hard	12,553	50.87	35,245
Lignite	675	2.74	12,166
Oil			
Gas	7,677	31.11	14,175
Biomass			
Waste (non-biomass)			
Nuclear	2,288	9.27	18,269
Fossil-fuel plants fitted with carbon capture and storage			
Geothermal			
Hydropower	853	3.46	1,121
Wind	525	2.13	1,751
Solar	105	0.43	245
Marine			
Other renewable			
Other non-renewable			
Total	24,676	100	72,972

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, 2020	December 31, 2020

W0.3

(W0.3) Select the countries/areas 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, transmission and distribution operations, warehouses, and maintenance buildings.	Only generation facilities over which AEP exercises operational control are included in this disclosure, since these are the facilities with significant exposure to water issues that can be directly controlled by AEP. This includes our steam electric generating plants (coal, lignite, gas, nuclear) which are our largest users of water. Water use, beyond drinking water, is not generally tracked at our office buildings, transmission and distribution facilities, warehouses, and maintenance buildings. Water use at these facilities is significantly less than that at our steam electric plants. Typically, water is purchased from municipal water supplies or withdrawn from wells for use at these facilities and any associated water risks are generally very low. Under rare circumstances, water pollution incidents may occur at our electric transmission and distribution facilities.

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 (direct use) and for the development of fuel sources, such as gas fracking, coal mining and barge transportation (indirect use). At our steam electric facilities, water is used for cooling, internal processes, air pollution control and sanitation. It is vital that adequate freshwater be available in order to operate our power plants and generate electricity. Adequate water quality is needed to protect generation equipment and to ensure compliance with water quality standards and for general operations. It is important that sufficient water is available to develop fuel sources (coal mining and gas fracking) as well as to support our own barge fleet, as well as the fleets of other suppliers. Our water dependency has decreased and will continue to decrease as the company transitions to less water-dependent sources of electricity, such as wind and solar. It is also essential to supply clean potable (drinking and sanitation) water to our employees.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	Recycled water is used at generation facilities (direct use), particularly at our Comanche Plant in Oklahoma, which uses water from the City of Lawton's POTW (publicly-owned treatment works). It is important that recycled water be available in this part of the country due to the incidence of periodic droughts. Recycled or brackish water is also used for gas fracking (indirect use as part of our supply chain as AEP does not conduct natural gas fracking, which is an important part of AEP's fuel supply portfolio. In some areas, access to freshwater for gas fracking operations is limited, thus encouraging the use of recycled water. This water dependency has decreased and will continue to decrease as the company transitions to less water-dependent sources of electricity, such as wind and solar.

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 volumes	100%	Surface water and groundwater withdrawals from all steam electric facilities (coal, lignite, gas, nuclear) are reported here. A steam-electric power plant is a facility where the electric generator is steam driven. Water is heated using coal, gas or nuclear fuel, to create steam, which spins a turbine and drives an electrical generator. Facility staff acquire the water use information using a variety of methods including pump rating curves, operation time, net MWhs, metered information and pumping rates.
Water withdrawals – volumes by source	100%	Surface water and groundwater withdrawals from all steam electric facilities are reported here. A steam-electric power plant is a facility where the electric generator is steam driven. Water is heated using coal, gas or nuclear fuel, to create steam, which spins a turbine and drives an electrical generator. Facility staff acquire the water use information using a variety of methods including pump rating curves, operation time, net MWhs, metered information and pumping rates.
Water withdrawals quality	100%	The quality of water withdrawals is consistently measured to ensure the proper operation of power plant equipment. For example, the water supply to the AEP Oklaunion Plant is from the Lake Kemp/Lake Diversion system in Texas. When precipitation levels are low, this water can become degraded upstream of the Oklaunion Plant and must be carefully monitored to avoid damaging facility equipment.
Water discharges – total volumes	100%	Surface water discharges from steam electric facilities (coal, lignite, gas, nuclear) are reported here. The discharge volume of each facility is recorded as per state-issued NPDES permit requirements.

Water discharges – volumes by destination	100%	Surface water discharges from steam electric facilities are reported here. The discharge volume of each facility is recorded by outfall location and destination as per state-issued NPDES permit requirements. The destination of water discharges varies by facility and effluent type. For example, at the AEP Rockport Plant in Indiana, the main discharge is to the Ohio River, while landfill leachate is discharged to Honey Creek, a tributary of the Ohio River.
Water discharges – volumes by treatment method	100%	Surface water discharges from steam electric facilities (coal, lignite, gas, nuclear) are reported here. The discharge volume of each facility is recorded by treatment method as per state-issued NPDES permit requirements. For example, the methods used to treat the scrubber blowdown at the AEP Mountaineer Plant in West Virginia are described in NPDES permit renewal applications, modifications, and other documents submitted to the state.
Water discharge quality – by standard effluent parameters	100%	Surface water discharges from steam electric facilities (coal, lignite, gas, nuclear) are reported here. The discharge quality of each facility is recorded by standard effluent parameters (i.e. pH) as per NPDES permit requirements. For example, at the AEP Amos Plant in West Virginia, the main discharge to the Kanawha River is monitored weekly for flow, twice per month for pH, total suspended solids, copper, mercury, aluminum, and selenium, monthly for temperature, quarterly for other metals, ammonia, oil and grease, total residual chlorine, and nitrate/nitrite, and twice per year for chronic aquatic toxicity.
Water discharge quality – temperature	100%	While water discharge temperature reporting is not always required, it is measured 100% of the time at those facilities where required by state or federal regulation. All once-through, non-contact cooling water discharges are monitored.
Water consumption – total volume	100%	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 and the reported water withdrawal value.

Water recycled/reused	76-99	At different facilities, water is reused and recycled in different ways, leading to variable methods and frequency of measurement depending on the facility. Water is also recycled at many of the western plants that are on cooling water reservoirs (Comanche, Flint Creek, Knox Lee, Lieberman, Lone Star, Pirkey, Welsh and Wilkes). These reservoirs were specifically built to be both the source and receiving water body for the cooling water used at these plants. Assuming negligible loss of water due to evaporation, these facilities “recycle” nearly 100% of the water that they withdrawal. Since the cooling lakes are typically large, open bodies of water, they also provide public fishing and recreational boating. 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%	Employees at all of our facilities are provided with access to clean drinking water, sanitary facilities and solid waste management, however, such access is not provided at unmanned facilities, such as our solar farms. Typically, municipal water, well water or bottled water is provided and each of these delivery methods is required to meet safe drinking water requirements. For example, at AEP locations with non-transient non-community water systems, we are required to report water quality (e.g. bacteria and nitrate) as dictated by state and federal drinking water regulations. We recognize that climate change can affect access to water. To that end, we have begun an Environmental Justice initiative which reaffirms our commitment to engaging with stakeholders to incorporate environmental and social justice into the management of existing and planned facilities, programs and services. This includes access to appropriate water supplies in the communities in which we operate.

W-EU1.2a

(W-EU1.2a) For your hydropower 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 Federal Energy Regulatory Commission (FERC) licenses, which include requirements for downstream flows. Typically, all AEP facilities are operated as run-of river projects. On average, less than half of the mean annual river flow passes through these projects every year. This difference is due to the fact that at times, only a portion of the river flow goes through the hydroelectric turbines. The remaining water flows over the dam spillways or through lock chambers on navigable rivers. During 2020, over 46 billion cubic meters of water passed through our hydroelectric turbines.
Sediment loading	100%	All AEP hydroelectric projects are operated in accordance with Federal Energy Regulatory Commission (FERC) licenses, which require that sediments be monitored during the relicensing process. In addition, we conduct sediment testing every 10 years at our Mottville project and we recently tested the sediments at our Elkhart project.
Other, please specify	100%	AEP conducts water quality and biological monitoring at its hydroelectric facilities as required by NPDES permits or to meet FERC relicensing requirements. Permit-required monitoring varies between facilities. At our Virginia and Ohio-based projects, monitoring is limited to parameters such as flow, temperature and pH. In West Virginia, monitoring requirements are more extensive and include the collection of samples for metal testing. At our Smith Mountain and Claytor projects, we perform ongoing monitoring studies for dissolved oxygen, temperature and vegetation. In addition, at the Claytor project, caged mussels were reared in 2020 in partnership with the Virginia Department of Wildlife Resources and were

		deployed in 2021 in response to a fresh water mussel adaptive management plan. We are also in the process of relicensing the Racine, Constantine, Niagara and Byllesby-Buck projects. Studies have been completed for Constantine and studies are on-going at the Niagara and Byllesby-Buck projects. Ongoing studies are also implemented at some of our northern hydroelectric projects. For example, downstream water quality monitoring is required at the Mottville project every five years and fish tissue / reservoir sediment monitoring is required every ten years. In addition, surveys for purple loosestrife and Eurasian water milfoil (invasive aquatic plants) are conducted in the Mottville, Constantine and Buchanan reservoirs.

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	5,569,106	About the same	Total water withdrawals during 2020, which includes water from the City of Lawton's Publicly Owned Treatment Works (POTW) and groundwater, were about 1% more than those during 2019 due to changes in fleet dispatch, retirements and ownership. For year to year comparisons, AEP is defining the thresholds based on peer utility CDP submissions. They are as follows: more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher.'
Total discharges	5,403,941	About the same	Total water discharges during 2020 were about 1% more than those during 2019 due to changes in fleet dispatch and weather. For year to year comparisons, AEP is defining the thresholds as follows: more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more

			is 'higher' and greater than 50% more is 'much higher.'
Total consumption	194,590	About the same	Total water consumption during 2020 was about 16% more than during 2019 due to changes in plant operation, fleet dispatch and weather. For year to year comparisons, AEP is defining the thresholds as follows: more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher.' While close, the total consumption value is not the simple difference between water withdrawal and water discharges (165,165 MegL/yr). This is due to rainfall events and plant operations that can result in higher discharges, but not affect overall plant water consumption, which is a nominal value based on plant water balance diagrams and actual water withdrawals.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	1-10	Much lower	WRI Aqueduct	The percentage of water withdrawn from areas with water stress was based on steam-electric facilities (excluding hydroelectric facilities) in the Mississippi, Sabine and St Lawrence watersheds, that fell within the WRI Aqueduct med-high water risk areas for water quantity. The WRI analysis was modified to use the settings for the electric power industry, which places a weighting of 90+% on water availability (i.e. quantity). Four facilities fell into this category, however, one does not use water and was

					excluded from the analysis. The three remaining facilities, Conesville, Dresden, and Oklaunion , withdrew a combined 34,460 MegL of water during 2020. During 2019, four facilities fell into this category with a combined total water withdrawal of 91,387 MegL, which resulted in a much lower percentage of water being withdrawn from water stressed areas during 2020. This difference was primarily due to less water use at the Conesville and Oklaunion facilities, which were retired during 2020. For year to year comparisons, AEP is defining the thresholds as follows: more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher.'

W1.2h

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	5,562,475	About the same	There was a 1% increase in the amount of water withdrawn from freshwater sources during 2020, which we consider to be a negligible change. This value is for the entire AEP steam electric fleet, minus our Comanche Plant, which uses water from the City of Lawton's Publicly Owned Treatment Works (POTW)

				and several groundwater dependent facilities. It is about the same, but slightly higher due to changes in fleet dispatch, retirements and ownership. For example, less water was used at the Conesville, Flint Creek, and Wilkes Plants, but more water was used at the Amos, Cook, Knox Lee and Welsh Plants during 2020 than during 2019. For year to year comparisons, AEP is defining the thresholds as follows: more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher.'
Brackish surface water/Seawater	Not relevant			AEP does not withdraw surface water from any brackish or seawater sources.
Groundwater – renewable	Relevant	5,475	About the same	There was a 22% reduction in the amount of water withdrawn from renewable ground water sources during 2020, which we consider to be about the same, as it is less than a 25% change. It is lower due to changes in fleet dispatch.
Groundwater – non-renewable	Not relevant			AEP does not use any groundwater from "non-sustainable" sources.
Produced/Entrained water	Not relevant			AEP does not use any 'produced' or 'entrained' water.
Third party sources	Relevant	1,156	About the same	Water for the Comanche Plant is sourced from the

				City of Lawton Publicly Owned Treatment Works (POTW). It is 2% higher (or about the same) due to changes in weather and facility dispatch. We do not consider this to be a significant change.

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	5,403,941	About the same	There was a 1% increase in the amount of water discharged to freshwater sources during 2020, a difference we consider to be negligible. The discharge value is for the entire AEP steam electric fleet (coal, lignite, gas, nuclear). It is slightly higher due to changes in fleet ownership and dispatch. For example, less water was used at the Conesville, Flint Creek, and Wilkes Plants, while more water was used at the Amos, Cook, Knox Lee and Welsh Plants during 2020. For year to year comparisons, AEP is defining the thresholds as follows: more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher.'
Brackish surface water/seawater	Not relevant			AEP does not own or operate any water-dependent generation facilities that are located on brackish or seawater sources of water.

Groundwater	Not relevant			AEP does not inject waste water into any groundwater aquifers.
Third-party destinations	Not relevant			While the disposal of some waste water is handled by AEP contractors, the amount is minimal and not recorded.

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Not relevant				
Secondary treatment	Relevant	899	This is our first year of measurement	Less than 1%	One AEP facility (Mountaineer Plant) utilizes secondary treatment to remove metals and metalloids, such as mercury and selenium, through a phycial-chemical process, followed by biological treatment. Percent of volume is based on the total volume of effluents

					treated by AEP.
Primary treatment only	Relevant	3,125,588	This is our first year of measurement	61-70	The majority of AEP waste waters receive primary treatment before being discharged. This includes the physical removal of suspended solids through settling in treatment ponds or, in the case of facilities that utilize cooling towers, there is sedimentation in the base of the towers. Preliminary treatment does occur at all facility water intake structures through the removal of large debris by trash racks, rotating intakes screens, or wedge-wire screens. Percent of volume is

					based on the total volume of effluents treated by AEP.
Discharge to the natural environment without treatment	Not relevant				
Discharge to a third party without treatment	Not relevant				
Other	Relevant	2,277,455	This is our first year of measurement	41-50	For AEP "other treatment" primarily involves chlorination for biofouling control within the plant systems, but not for disinfection of the discharge. Discharges of cooling water must adhere to strict state and federal thermal limits necessary to assure the protection and propagation of the waterbody's balanced,

					indigenous population of shellfish, fish and wildlife. As a result, plant operations and treatment methods are adjusted as necessary to ensure that these standards are met prior to any discharges. This mainly applies to our once-thru cooling water discharges, primarily to lakes (Lake Michigan for Cook Plant and cooling lakes for Flint Creek, Knox Lee, Lieberman, Pirkey, Welsh and Wilkes Plants). Percent of volume is based on the total volume of effluents treated by AEP.

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 (m3)	Numerator: water aspect	Denominator	Comparison with previous reporting year	Please explain
82.74	Total water withdrawals	MWh	About the same	Value is for steam electric facilities owned and operated by AEP (m3/netMWh). It is 20% higher or about the same as our 2019 reported value of 68.92 m3/net MWh.
2.89	Total water consumption	MWh	Higher	Value is for steam electric facilities owned and operated by AEP (m3/ MWh). It is 38% higher than our 2019 value of 2.1 m3/net MWh. This was likely due to imbedded water use regardless of whether or not a unit is generating electricity.
71.8	Total water withdrawals	Other, please specify Total net MWh for the entire AEP generation fleet, including steam electric, wind, solar and hydroelectric	About the same	Value is for the entire AEP generation fleet, including steam electric, wind, solar and hydroelectric (m3/net MWh). This is 12% higher than the value reported for 2019. This was likely due to imbedded water use regardless of whether or not a unit is generating electricity. Despite this slightly higher intensity value for 2020, we anticipate that the water intensity of our generation fleet will become lower as we continue to expand our wind and solar generation fleet.

W1.4

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

Yes, our suppliers

W1.4a

(W1.4a) What proportion of suppliers do you request to report on their water use, risks and/or management information and what proportion of your procurement spend does this represent?

Row 1

% of suppliers by number

26-50

% of total procurement spend

Unknown

Rationale for this coverage

Within our western footprint, AEP has a relationship with each of our contracted water suppliers. For many, it is a close relationship to address multiple water issues within the water basin of concern. We have a relationship with the Corps of Engineers at the project offices for Lake O' the Pines and Millwood, as well as the Little Rock District and the Fort Worth District. We are also active in regional water and flood planning and employees serve on the statewide Water Conservation Advisory Council. We also periodically meet with the Caddo Lake Institute. Except for the City of Lawton, OK, most of these engagements concern water quantity.

With regards to water quality, AEP engages with the City of Lawton in Oklahoma, which supplies water to the AEP Comanche Plant through its municipal POTW. In the past, AEP has had to discuss the quality of this water to ensure its suitability for use in a power plant. We also engage with the City of Gentry, which discharges its treated wastewater into Flint Creek's primary ash pond. This is done in lieu of directly discharging to Little Flint Creek, however, this wastewater can cause problems due to nutrients that can produce algae blooms, creating compliance problems for AEP. The discharge of the ash pond is directed to SWEPCO Lake, which is the cooling pond for the plant. Being a once-through cooled system, the water in the lake, and consequently the water discharged from the ponds, is recycled multiple times, reused within the plant, and then discharged again into the lake. It is therefore imperative that this water be suitable for use.

The percent of procurement spend for our water supplies has not been determined.

Impact of the engagement and measures of success

These relationships are very important in maintaining our access to sufficient quantities of water. For example, the Northeast Texas Municipal Water District has been granted the water rights in the conservation pool by the State of Texas in Lake O' the Pines, which is a Corps facility. The water intakes for the AEP Welsh and Wilkes Plants are located on Lake O' the Pines and we have been granted an easement from the Corps for the water withdrawals. Another example is the granting of an intra-basin water transfer permit by the State of Arkansas for the transfer of water to SWEPCO Lake,

which supplies water to the AEP Flint Creek Plant.

We have met with the City of Lawton to begin the contract renewal process and we will be emphasizing the quality of the water which they supply from their POTW to the AEP Comanche Plant. The city is working to ensure a continued supply of good quality water. With regards to the Flint Creek Plant and the City of Gentry, AEP is planning to initiate a sampling program to determine if the city's effluent contains elevated levels of metals, specifically cyanide and mercury, which could affect AEP's compliance program. AEP has had discussions with the city about these potential problems and looks forward to continued cooperation.

Comment

W1.4b

(W1.4b) Provide details of any other water-related supplier engagement activity.

Type of engagement

Onboarding & compliance

Details of engagement

Requirement to adhere to our code of conduct regarding water stewardship and management

% of suppliers by number

76-100

% of total procurement spend

Unknown

Rationale for the coverage of your engagement

It is important that AEP do business with environmentally responsible companies. Our stakeholders expect this, as do the communities in which we serve.

Impact of the engagement and measures of success

AEP implemented a Supplier Code of Conduct in 2020 that includes environmental compliance. This was communicated directly to all suppliers and is an addendum to the terms and conditions of all contracts. We also insist on environmental compliance within our fuel supply chain. For example, while not specific to water, AEP has language in its master coal agreements to ensure environmental compliance among its coal suppliers. The language requires, “Compliance with Applicable Law – Seller and Buyer shall make good faith efforts to comply with the provisions of all federal, state, local, and other governmental laws and any applicable orders, rules and/or regulations, or any amendments or supplements thereto, which have been, or may at any time be, issued by a governmental agency.” With regards to our gas suppliers, AEP does not specifically engage them on water related issues, however, they are heavily vetted and scrutinized

by the company's Credit Risk organization and, for the most part, consist of large oil/gas producers, large financial institutions and other utilities. An unfavorable environmental record would impact their financial statements and AEP's decision to continue to work with them.

With regard to the AEP River Transportation organization and its water-related value chain, we belong to and support, two organizations, 1) the American Waterways Operators or AWO, and 2) the Waterways Council, Inc., or WCI. The AWO collaborates with the Coast Guard on our industry's rules and regulations. We are now an "inspected" industry and for our fleet of five boats, we have four Certificate of Inspections and will be getting the last one later in 2021. The WCI collaborates with the Army Corps of Engineers and seeks funding for infrastructure, such as locks and dams. The AEP River Transportation organization always strives for environmental excellence (i.e. no spills) and follows all applicable rules and regulations. As of July 6, 2021, it has gone 768 days since its last fuel spill.

Comment

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 the total financial impact.

Country/Area & River basin

United States of America
Mississippi River

Type of impact driver & Primary impact driver

Regulatory
Regulatory uncertainty

Primary impact

Increased cost of capital

Description of impact

AEP is subject to extensive federal, state and local environmental statutes, rules and regulations relating to water quality. A majority of the electricity generated by the AEP

System is produced by the combustion of fossil fuels. The discharge and disposal of solid waste (including coal-combustion residuals or “CCRs” resulting from fossil generation) is subject to increased regulations, controls and mitigation expenses. Compliance with these legal requirements requires AEP to commit significant capital toward environmental monitoring, installation of pollution control equipment, disposal and permits at AEP facilities and could cause AEP to retire generating capacity prior to the end of its useful life. Costs of compliance with environmental statutes and regulations could reduce future net income and negatively impact financial condition, especially if CCR waste and/or discharge obligations are tightened, more extensive operating and/or permitting requirements are imposed or additional substances become regulated. Although AEP typically recovers expenditures for pollution control technologies, replacement generation, undepreciated plant balances and associated operating costs from customers, there can be no assurance in the future that AEP will recover these costs. Failure to do so could harm the company's financial condition. https://www.aep.com/environment/ccr

Primary response

Comply with local regulatory requirements

Total financial impact

1,000,000,000

Description of response

AEP has a substantial capital investment program and incurs additional operational costs to comply with environmental control requirements. Additional investments and operational changes will be made in response to existing and anticipated requirements to reduce emissions from fossil generation, rules governing the beneficial use and disposal of coal combustion by-products, clean water rules and renewal permits for certain water discharges. The rules and proposed environmental controls will have a material impact on AEP System generating units. Management continues to evaluate the impact of these rules, project scope, and technology available to achieve compliance. During 2020, the AEP System included approximately 25,000 MWs of owned generating capacity, of which approximately 13,000 MWs were coal-fired. This value is reduced from previous years due to plant and unit retirements. Management continues to refine the cost estimates of complying with these rules and other impacts of the environmental proposals on fossil generation. Based upon management estimates, AEP’s future investment to meet these existing and proposed requirements ranges from approximately $500 million to $1 billion through 2026.

Country/Area & River basin

United States of America
Mississippi River

Type of impact driver & Primary impact driver

Physical
Drought

Primary impact

Reduction or disruption in production capacity

Description of impact

Due to a mild / flash drought in the fall of 2019 and winter of 2020, the AEP Welsh Plant cooling lake level dropped 3.5 feet, with no supplemental water available for makeup due to having lost the power feed to the supplemental pump station. If lake levels had dropped another 1-2 feet, there may have been operational issues for once through cooling water to the condenser. Rains during late January and February 2020 resolved the issue.

Primary response

Other, please specify

Had rainfall not been received, the plant would have had to install a supplemental power feed to the supplemental pump station on an emergency basis or used temporary pumps to withdraw water from the supplemental source.

Total financial impact

0

Description of response

A new permanent power feed has been installed and the supplemental pump station is fully operable for the next dry period.

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, enforcement orders or other penalties but none that are considered as significant

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

3,000

% of total facilities/operations associated

4

Number of fines compared to previous reporting year

Higher

Comment

During 2020, AEP was subject to two water-related enforcement actions, one at our Big Sandy Plant and the other with our Clinch River-Clintwood Telecom Line Project. For the telecom line event, a Virginia Marine Resources Commission (VMRC) permit was obtained for the project, but an internal review revealed that the line route had been changed. At the time of the change, the contractor believed that the new sites did not trigger the VMRC permit threshold for the size of the affected watershed, however an AEP review found that the threshold was exceeded. The VMRC levied a "civil charge" of $3,000 in lieu of pursing more formal enforcement.

At the AEP Big Sandy Plant, total suspended solids (TSS) limits were exceeded on July 30, 2020, and a Notice of Violation was issued with no fine. On August 4, 2020, TSS levels returned to levels within permit limits. Subsequent to the event, our standard work process has been revised to prevent a similar circumstance.

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. In addition, AEP participates in voluntary efforts to protect certain watersheds, such as the Caddo Lake watershed, a Ramsar Convention designated wetland area. The Caddo Lake Ramsar wetland area is one of only 26 such sites in the United States. In Arkansas, AEP is involved in the Illinois River Watershed Partnership, which has increased its efforts to plant trees and bushes to stabilize riverbanks. Last year, the AEP Foundation presented the Partnership with a $200,000 grant to support environmental education through 2021. In 2020, AEP joined the Electric Power Research Institute's Ohio River Interest Group. This will enable AEP to remain informed about Ohio River issues, such as invasive species, algal blooms, fish passage and endangered species management. AEP also conducts water quality and biological monitoring at its hydroelectric facilities as required by NPDES permits or to meet FERC relicensing requirements. At our Virginia and Ohio-based

projects, monitoring targets parameters such as flow, temperature and pH. In West Virginia, monitoring requirements are more extensive and include the collection of samples for metal testing. At our Smith Mountain and Claytor projects, we perform on-going monitoring for dissolved oxygen and temperature. In addition, at the Claytor project, caged mussels are being reared and deployed in response to a fresh water mussel adaptive management plan. On-going studies are also implemented at some of our northern hydroelectric projects. For example, downstream water quality monitoring is required at the Mottville project every five years and fish tissue / reservoir sediment monitoring is required every ten years.

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 steam electric 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. 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.
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	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

	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.		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. AEP no longer operates any fly ash ponds as all fly ash management has been converted to "dry" systems. In response to proposed and final regulations governing the disposal and beneficial re-use of fly ash and bottom ash created from coal-fired generating units, AEP is considering plans to upgrade or close and replace these existing facilities and conduct any required remedial actions. 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 waste waters 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 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?

1 to 3 years

Type of tools and methods used

Databases

Tools and methods used

Regional government databases

Comment

AEP reports extensively on its water use, consumption and associated risks and mitigation efforts in its annual Corporate Accountability and GRI reports. Data on water use is collected on a per-plant basis in response to the annual FERC and GRI reporting questions. AEP also uses the WRI Aqueduct Tool to annually assess water stress among its steam-electric facilities in the Mississippi, Sabine and St Lawrence watersheds. The WRI analysis is modified to use the settings for the electric power industry, which places a weighting of 90+% on water availability (i.e. quantity). Discharge data is 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 years.

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?

1 to 3 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 hydroelectric operations, most facilities operate as run-of-river and thus are operated to match water inflows. Adjustments are made based upon USGS river gauge information and weather forecasts.

Other stages of the value chain

Coverage

None

Comment

We have no other value chain risk assessment issues on which to report.

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 basin/catchment level	Relevant, sometimes included	Water availability is an issue for some western fleet facilities, particularly those in drought-prone areas. For example, in the past, the AEP Turk Plant has experienced several density intrusion events, during which highly turbid water with a high total dissolved solids concentration, backs up into the plant surface water supply, forcing the plant to utilize make-up water stored in ponds. The Corps of Engineers manages the local watershed and occasionally has created situations which have allowed these events to occur. AEP has engaged with the Corps to discuss its management of the watershed to avoid these situations.
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 as it affects our ability to use it for generation, treatment processes and to comply with discharge effluent standards. For example, AEP has engaged with the City of Lawton in Oklahoma, which supplies water to the AEP Comanche Plant through its municipal POTW. In the past, AEP has had to discuss the quality of this water to ensure its suitability for use in the power plant.
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, though AEP does not participate in gas fracking.
Water-related regulatory frameworks	Relevant, always included	Regulatory compliance is a corporate goal for all facilities and new or ongoing regulatory initiatives require ongoing risk assessments. For example, in 2014, the US EPA

		issued a final rule setting forth standards for existing power plants to reduce mortality of aquatic organisms impinged or entrained in facility cooling water systems. Compliance timeframes are established by the permit agency through each facility's NPDES permit and have been incorporated into permits at some AEP facilities. As another example, in 2015, US EPA issued a final rule revising effluent limitation guidelines for generating facilities. The rule established limits on FGD wastewater, fly ash and bottom ash transport water and flue gas mercury control wastewater to be imposed as soon as possible after November 2018 and no later than December 2023. These requirements would be implemented through each facility's NPDES permit. In 2017, the Federal EPA announced its intent to reconsider and potentially revise the standards for FGD wastewater and bottom ash transport water. The Federal EPA postponed the compliance deadlines for those wastewater categories to be no earlier than 2020, to allow for reconsideration. On October 13, 2020, the EPA finalized revisions to the guidelines for existing generation facilities. The rule became effective on December 14, 2020, and focuses on FGD wastewater and bottom ash transport water. AEP is assessing technology additions and retrofits to comply with the rule and the impacts of the EPA's recent actions on facilities' wastewater discharge permitting. As a final example, in 2015, US EPA and the U.S. Army Corps of Engineers jointly issued a final rule to clarify the scope of the regulatory definition of "waters of the United States" in light of recent U.S. Supreme Court cases. Various parties challenged the 2015 rule in different U.S. District Courts, which resulted in a patchwork of applicability of the 2015 rule and its predecessor. In December 2018, the Federal EPA and the U.S. Army Corps of Engineers proposed a replacement rule. In September 2019, the EPA repealed the 2015 rule. A final rule was issued in January 2020, which limits that scope of CWA jurisdiction to four categories of waters, and clarifies exclusions for ground water, ephemeral streams, ditches, artificial ponds and waste treatment systems. Based on these examples, the importance of ongoing risk assessment by AEP is illustrated.
Status of ecosystems and habitats	Relevant, always included	Compliance with all water quality standards at all facilities is a corporate mandate; 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. Water is important to power production, but it is also essential for agriculture, drinking water and wildlife. In addition to planning for water needs, the states of Texas and Arkansas have initiatives to protect watersheds in which AEP participates. For example, in Texas, AEP participates in a state-mandated effort to quantify necessary environmental flows for streams and rivers. Environmental flows are the properties of water flow that strengthen or support aquatic ecosystems and human livelihood. In addition, AEP participates in voluntary efforts to protect the watershed of Caddo Lake, a Ramsar Convention designated wetland area. The Caddo Lake Ramsar wetland area is one of only 26 such sites in the United States. In Arkansas, AEP is involved in the Illinois River Watershed Partnership, which has increased its efforts to plant trees and bushes to stabilize riverbanks. Recently, the AEP Foundation presented the Partnership with a $200,000 grant to support environmental education through 2021. In 2020, AEP joined the Electric Power Research Institute's Ohio River Interest Group. This will enable AEP to remain informed about Ohio River issues, such as invasive species, algal blooms, fish passage and endangered species management.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Fully-functioning WASH services are provided to all employees. AEP is committed to 100% compliance with requirements regarding employee safety and health. This commitment aligns with the United Nations Sustainability Development Goals of providing clean water and sanitation. We make sure that all of our employees are provided with access to clean drinking water and sanitary facilities.
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	At AEP, our goal is to provide world-class service while creating positive, lasting relationships with our customers. We are doing this by meeting our customers in the communication channel of their choice while providing solutions that make it convenient to

		do business with us. 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 reports.
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. An engaged, collaborative and empowered workforce improves morale and drives continuous improvement. To measure our engagement progress, AEP conducts an annual employee culture survey through Gallup, Inc. This survey includes questions about “doing the right thing” and complying with all rules and regulations. In 2019, AEP achieved notable improvement in nearly every survey question. AEP’s grand mean engagement score is in the 87th percentile, compared to Gallup’s overall company database.
Investors	Relevant, always included	Investors are informed of water issues through the company's annual 10K report and Corporate Accountability Report, which includes references to the company's GRI and CDP reports. Our priority is to maintain and operate a safe and reliable grid that is resilient and adaptive. Our generation, transmission and distribution system investments directly affect our customers and shareholders. These investments must coexist with regulation and policy considerations, such as environmental requirements and affordability. As our generation portfolio becomes more decentralized and the company transitions to more renewables and distributed energy resources, it is imperative that regulations evolve to meet the demands of today’s customer preferences. We must perform this transformation in a reliable and deliberate manner for our customers while managing the financial risk for our shareholders.
Local communities	Relevant, always included	Local communities are often involved in discussions regarding water availability, particularly for recreational uses. Investing in local communities is very important to AEP. For example, since 2003 the land closest to the water at the AEP Smith Mountain hydroelectric reservoir has been managed under a Shoreline Management Plan (SMP) approved by the FERC, which has regulatory authority over the project. The goal of the plan is to protect the scenic, recreational and environmental qualities of the lakes. Specifically, the plan addresses subjects like marinas, boat slips, and installation of erosion controls like rip-rap and shoreline vegetation as well as guidelines on constructing or maintaining docks, among other things. We

		work with the local community to try to achieve a plan that supports the best interests of the lake and the lake community. We also collaborate with others through the regional water planning groups in Texas to plan for adequate future supplies. Our water conservation plans describe how water is used at our generation facilities, demonstrating a commitment to water conservation in the relevant watersheds. We are also subject to shared potential reductions in our contracted water use through drought contingency plans for the Welsh, Pirkey, Wilkes, and Knox Lee Power Plants. We are subject to water use reductions at our Oklaunion Power Plant, but during periods of severe drought, AEP is the only user of the water due to its poor quality (high salinity).
NGOs	Relevant, always included	AEP engages NGOs to discuss water-related issues. For example, when AEP was seeking permitting for the Turk Plant in Arkansas, we engaged with Ducks Unlimited. When siting new facilities, such as transmission, we engage local NGOs and regulatory agencies when these projects have the potential to impact water bodies.
Other water users at a basin/catchment level	Relevant, always included	Other water use sectors (water supply, agriculture) may be engaged to address water issues. For example, we serve on the Texas Water Development Board's Water Conservation Advisory Council, which advises the legislature on the status of agricultural, municipal, institutional, and industrial water conservation issues and recommends water conservation improvement projects.
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. For example, AEP has corresponded extensively with USEPA on the development of the steam electric guidelines or ELG rules, submitting numerous comments on the cost effectiveness and efficacy of proposed water treatment technologies. More recently, we have shared our concerns with the EPA Office of Management of Budget.
River basin management authorities	Relevant, always included	AEP participates in the Ohio River Valley Sanitation Commission's (ORSANCO) Power Industry Advisory Committee through our representation on various industry groups (Ohio Electric Utility Institute and the Electric Power Research Institute). For example, we have recently become a funding member of the EPRI Ohio River Basin Interest Group, which will review and follow issues important to the electric power industry with facilities on the river. 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, as well as the Cypress River Basin and Sulphur River Basin Authorities.
Statutory special interest groups at a local level	Relevant, sometimes included	AEP is specifically required to meet with any groups or individuals with an interest in historic resources if such resources will be impacted by a new generation or transmission project. For example, we consult with historic preservation and natural resources groups and Native American tribes by soliciting comments via letters and through meetings to request and consider their inputs to minimize impacts.
Suppliers	Relevant, sometimes included	As mentioned above, AEP engages with the City of Lawton in Oklahoma, which supplies water to the AEP Comanche Plant through its municipal POTW. In the past, AEP has had to discuss the quality of this water to ensure its suitability for use in a power plant. We have met with the City to begin the contract renewal process and we will be emphasizing the quality of the water which they supply from their POTW to the AEP Comanche Plant. The city is working to ensure a continued supply of good quality water.
Water utilities at a local level	Relevant, sometimes included	When water supplies are potentially affected by outside spill events, AEP will communicate with local water utilities and assess the need to temporarily seek alternate sources of water or implement remedial measures.
Other stakeholder, please specify	Relevant, sometimes included	On several occasions, we have met with the Osage Nation Minerals Council to discussion both new and updated transmission line projects.

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.

As described in sections 3.3a, b and c, AEP uses a variety of methods and tools to identify and assess water-related risks, issues and affected stakeholders. This is done for all steam-electric facilities and at all levels of supply chain management. Long-term issues are considered as illustrated by our assessment of water-dependent facilities and their retirement dates, which are dependent upon water-related regulations. At the tactical level, decisions are made on the basis of our risk-based technology option evaluations (RBTOs), which assess our anticipated compliance options and their costs. AEP always works to ensure the implementation of the most efficient and cost-effective water treatment strategies and technologies. At the operational

level, we implement a continuous improvement process to continually look for efficiencies and improvements.

With regards to sustainable water use, climate change has been identified as a top issue of engagement with many of our stakeholders. To that end, AEP recently completed a year-long effort to analyze, among other issues, the risks to our company, as well as to our infrastructure and people, from a changing climate. The results of this analysis can be found in our report, “Powering Forward to Net-Zero, AEP’s Climate Impact Analysis.” Key takeaways from this analysis were as follows:
· Our analysis showed that investments to harden and build resilience and reliability into the system are essential and having a positive impact.
· Weather extremes are becoming noticeably more severe.
· AEP’s geographic diversity provides a hedge against physical extremes in many climate-related variables because the impacts tend to be local or regional and can vary greatly by location.
· An analysis of heavy rain events at six AEP coal-fueled power plants across our service territory showed that subtle changes are occurring over time and that the weather extremes, like Hurricanes Harvey and Laura, may be more intense.

The project included three focus areas, 1) transition risk, 2) physical risks and opportunities, and 3) the socioeconomic aspect of coal plant retirements, and involved a diverse team of more than 50 people, representing all parts of the company including engineers; resource planners; meteorologists; and experts in generation, transmission, distribution, legal, air quality and environmental, along with enterprise risk and insurance, investor relations, economic development, customer solutions, and corporate sustainability, among others. AEP’s internal team conducted the analysis and modeled potential scenarios. In addition, we consulted with numerous external resources, reports and studies, and climate expertise to further inform our analysis. In addition to modeling three scenarios, we evaluated the advancement of new and emerging technologies; public policy and regulatory changes that could influence our actions; the pace of transition; and risk mitigation strategies to make the electric grid more resilient. We conducted desk research, benchmarking and interviews to frame our approach, capture legacy knowledge and identify best practices and potential new business opportunities. This report is aligned with the Task Force for Climate-related Financial Disclosure (TCFD) framework, which is emerging as the preferred approach for reporting on climate risk management. We also referenced the Fourth National Climate Assessment, among other climate-related documents.

AEP also engages in the legislative and regulatory process associated with the U.S. Congress, 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, among others. 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. AEP is also involved with the Ohio River Valley Sanitation Commission's (ORSANCO) through our memberships with the Ohio Electric Utility Institute and the Electric Power Research Institute's Ohio River Interest Group. 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 10K and 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 to 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	11	26-50	Eleven steam electric generation facilities (coal, lignite, gas, nuclear) have been identified during Jan 1 - Dec 31, 2020 as having a medium to high overall water risk as per the WRI Aqueduct tool or due to exposure to water-related regulatory compliance programs (ELG and CCR rules). This represents 41% of our steam electric fleet or 20% of all generation

			facilities operated by AEP (steam electric, hydro, wind and solar).

W4.1c

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

Country/Area & River basin

United States of America
Mississippi River

Number of facilities exposed to water risk

3

% company-wide facilities this represents

1-25

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

1-25

% company's total global revenue that could be affected

Less than 1%

Comment

This response is based on the number of steam-electric facilities utilizing surface water and groundwater withdrawals (excludes renewable facilities) in the Mississippi River watershed that fall within the WRI Aqueduct med-high water risk areas. These are the Conesville, Dresden, and Oklaunion Plants. The percentage of company-wide facilities and annual electricity generation that could be affected is based on the AEP steam electric fleet (excludes wind, solar and hydroelectric). The percent of total global revenue that could be affected is assumed to be less than 1%. In previous years, the Weleetka Plant had been listed, however, it was assumed that ground water was used to generate electricity. The Weleetka facility does not use surface water or ground water, therefore, it will no longer be assessed and included in this report.

Country/Area & River basin

United States of America
Mississippi River

Number of facilities exposed to water risk

7

% company-wide facilities this represents

1-25

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

26-50

% company's total global revenue that could be affected

Unknown

Comment

AEP owns and operates seven steam electric generation facilities in the Mississippi River watershed with the potential to be impacted by the 2015 and 2020 steam electric effluent guidelines. The percentage of company-wide facilities and annual electricity generation that could be affected is based on the 27 steam electric facilities operated by AEP during 2020.

Country/Area & River basin

United States of America
Mississippi River

Number of facilities exposed to water risk

9

% company-wide facilities this represents

26-50

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

26-50

% 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 coal-fired power plants. We completed the first phase of testing and did additional monitoring and evaluations during 2020. The percentage of company-wide facilities and annual electricity generation that could be affected is based on the 27 steam electric facilities operated by AEP during 2020. All of our activities related to this are posted to a public website -- https://www.aep.com/environment/ccr

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Country/Area & River basin

United States of America
Sabine River

Number of facilities exposed to water risk

1

% company-wide facilities this represents

1-25

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

1-25

% company's total global revenue that could be affected

Less than 1%

Comment

AEP owns and operates one steam electric generation facility in the Sabine River watershed (Pirkey Plant) with the potential to be impacted by the 2015 and 2020 steam electric effluent guidelines and the EPA's Coal Combustion Residuals (CCR) Rule. The percentage of company-wide facilities and annual electricity generation that could be affected is based on the 27 steam electric facilities operated by AEP during 2020.

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/Area & River basin

United States of America
Mississippi River

Type of risk & Primary risk driver

Physical
Flooding

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, three that utilize surface or ground water are located in "stressed" areas within the Mississippi watershed and exposed to risks that could generate a substantive change in business operations. This could be a future business risk because of the need for water to produce electricity. AEP is subject to physical and financial risks

associated with climate change. Physical risks to these facilities from climate change may include changes in weather conditions, such as changes in precipitation and extreme weather events, including severe drought and storms.

Timeframe

Current up to one year

Magnitude of potential impact

Medium-high

Likelihood

More likely than not

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

18,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

Extreme weather conditions in general require more system backup, adding to costs, and can contribute to increased system stress, including service interruptions. Weather conditions outside of the AEP service territory could also have an impact on revenues. AEP buys and sells electricity depending upon system needs and market opportunities. Extreme weather conditions creating high energy demand on AEP's own and/or other systems may raise electricity prices as AEP buys short-term energy to serve AEP's own system, which would increase the cost of energy AEP provides to customers. Severe weather and weather-related events impact AEP's service territories, primarily when thunderstorms, tornadoes, hurricanes, fires, floods and snow or ice storms occur. Changes in precipitation resulting in droughts, water shortages or floods could adversely affect operations, principally the fossil fuel generating units. A negative impact to water supplies due to long-term drought conditions or severe flooding could adversely impact AEP's ability to provide electricity to customers, as well as increase the price they pay for energy. The availability, quantity and quality of water is highly dependent on weather and the environment. When these are out of balance, there can be operational risks for AEP. For example, an analysis of rainfall trends in northeast Texas shows that heavy rainfall events have increased the average annual rainfall amount over the past 20 years. Another analysis of rainfall trends over the past 20 years in Huntington, West Virginia, shows an increase in annual precipitation amounts and supports research claims that heavy rainfall events are increasing in the Ohio Valley.

AEP may not recover all costs related to mitigating these physical and financial risks, but it did recover $18 million from its property insurance carriers due to ensured losses

caused by Hurricane Harvey. To the extent climate change impacts a region's economic health, it may also impact revenues. AEP's financial performance is tied to the health of the regional economies AEP serves.

Primary response to risk

Other, please specify

Update and improve reliability and resilience of the electric grid

Description of response

AEP will be taking many actions to mitigate the effects of weather-related flooding. For example, we will be monitoring the evolution of floodplain maps due to climate change and are prioritizing higher risk substations for remedial action, as the cost of moving all of them in the near term is prohibitive. To understand the risk of storm surge and flooding along coastal Texas, we overlaid our substations in the Corpus Christi area over a storm surge map using the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model developed by the National Weather Service (NWS) to estimate storm surge heights. We modeled how a Category 4 hurricane creates storm surge in this area. The exercise indicated four substations vulnerable to storm surge and flooding in a Category 4 hurricane. In the future, the location of new facilities will take into consideration elevation and road access during flood conditions, with the intent of locating outside of areas most vulnerable to severe flooding. We have also developed a process for prioritizing mitigation strategies for at-risk facilities. A 2020 review of existing AEP stations identified that there are nearly 260 substations located within a 100-year flood plain.

AEP has also 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. The economic and regulatory value of water diversions at Oklaunion, one of the facilities listed in the WRI Aqueduct analysis as possibly subject to water stress, has also been confirmed by EPRI.

Cost of response

26,700,000,000

Explanation of cost of response

AEP plans to invest $26.7 billion from 2021 through 2025 in transmission and distribution investments to update and improve reliability and resilience of the grid.

Country/Area & River basin

United States of America
Mississippi River

Type of risk & Primary risk driver

Regulatory

Regulation of discharge quality/volumes

Primary potential impact

Increased compliance 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. In September 2017, EPA finalized a rulemaking that postponed the compliance dates for scrubber wastewater and bottom ash transport water (BATW) discharges. EPA has initiated a new rulemaking to address the scrubber wastewater and BATW discharges, which it finalized on October 13, 2020. The rule became effective on December 14, 2020, and focuses on FGD wastewater and bottom ash transport water. In 2015, the Federal EPA published a final rule to regulate the disposal and beneficial re-use of CCR, including fly ash and bottom ash created from coal-fired generating units and FGD gypsum generated at some coal-fired plants. The rule applies to active CCR landfills and surface impoundments at operating electric utility or independent generation facilities. The rule imposes construction and operating obligations, including location restrictions, liner criteria, structural integrity requirements for impoundments, operating criteria and additional groundwater monitoring requirements to be implemented on a schedule spanning an approximate four-year implementation period. In 2018, some of AEP's facilities were required to begin monitoring programs to determine if unacceptable groundwater impacts will trigger future corrective measures. Because AEP currently uses surface impoundments and landfills to manage CCR materials at generating facilities, significant costs will be incurred to upgrade or close and replace these existing facilities and conduct any required remedial actions.

Timeframe

4-6 years

Magnitude of potential impact

High

Likelihood

Virtually certain

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure - minimum (currency)

500,000,000

Potential financial impact figure - maximum (currency)

1,000,000,000

Explanation of financial impact

AEP management continues to refine the cost estimates of complying with air and water quality standards and other impacts of environmental
proposals. The estimated financial impacts will change depending on the timing of the new requirements and whether or not US EPA provides flexibility in the final rules. These cost estimates will also change based on: (a) the states' implementation of these regulatory programs, (b) additional rulemaking activities in response to court decisions, (c) the actual performance of the pollution control technologies installed on the units, (d) changes in costs for new pollution controls, (e) new generating technology developments, (f) total MWs of capacity retired, replaced or sold, including the type and amount of such replacement capacity and (g) other factors. Management's current ranges of estimates of new major environmental investments beginning in 2020 through 2026, ranges from $500 million to $1 billion. Note that these costs are not exclusive to water-related requirements, but include those associated with air, water and waste requirements.

Primary response to risk

Increase investment in new technology

Description of response

The cost of complying with applicable environmental laws, regulations and rules is expected to be material to the AEP System. AEP management is assessing technology additions and retrofits to comply with the rule and the impacts of the US EPA's recent actions on facilities' wastewater discharge permitting. AEP continues to engage US EPA during the development of the revised steam electric effluent guidelines and CCR requirements. In addition, AEP continues working with the Electric Power Research Institute to determine the effectiveness of new technologies that would be required to meet the new limits.

Cost of response

595,000,000

Explanation of cost of response

Investments related to improving AEP System plants' environmental performance and compliance with air and water quality standards during
2017, 2018, 2019 and 2020 are as follows: 2017 - $136 million, 2018 - $116 million, 2019 - $167 million, 2020 - $176 million (total of $595 million). These investments include both environmental as well as other related spending. Estimated construction expenditures are subject to periodic review and modification and may vary based on the ongoing effects of regulatory constraints, environmental regulations, business opportunities, market volatility, economic trends and the ability to access capital. In addition to the amounts set forth above, AEP expects to make substantial investments in future years in connection with the modification and addition at generation plants' facilities for environmental quality controls. Such future investments are needed in order to comply with air and water quality standards that have been adopted and have deadlines for compliance after 2019 or have been proposed and may be adopted.

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/Area & River basin

United States of America
Mississippi River

Stage of value chain

Supply chain

Type of risk & Primary risk driver

Reputation & markets
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 impact

Low

Likelihood

Very likely

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

The financial impact of future restrictions on shale gas, which could lead to increased costs for this important fuel source, has not been estimated due to the inability to predict future regulatory and financial policies.

Primary response to risk

Supplier engagement
Other, please specify
Supplier diversification

Description of response

AEP is transitioning its generation fleet to take advantage of the benefits of shale gas and lower cost renewables. To ensure 24/7 grid reliability, we rely on 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

4,900,000,000

Explanation of cost of response

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. Our goal is to increase regulated renewable energy on our system by approximately 8,000 MW by 2030. AEP plans to invest $2.8 billion in regulated renewable generation and $2.1 billion in competitive, contracted renewable projects from 2021 through 2025.

Country/Area & River basin

United States of America
Mississippi River

Stage of value chain

Supply chain

Type of risk & Primary risk driver

Regulatory
Regulatory uncertainty

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 impact

Unknown

Likelihood

Likely

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

Unknown

Primary response to risk

Supplier engagement
Promote greater due diligence among suppliers

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

Resilience

Primary water-related opportunity

Other, please specify

Transition to renewable energy

Company-specific description & strategy to realize opportunity

A resilient electric grid starts with a system that is designed and built to withstand high winds, powerful storms, and other disruptions that could cause customer outages. AEP has a long history of investing in the grid to make it more reliable, resilient and secure and has focused resources to strengthen the grid's resilience and enhance reliability for customers.

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. In the past decade, AEP has retired or sold nearly 13,500 MW of coal-fueled generation, and we recently announced plans to retire an additional 1,633 MW of coal generation by 2028. Between 2010 and 2030, AEP will have cut its coal-fueled generating capacity by approximately 74%. We have also ramped up our clean energy portfolio with more than 5,200 MW of total renewables, extended the life of our carbon-free nuclear units, and invested $31.4 billion to modernize the transmission and distribution systems. Through 2019, AEP reduced its carbon emissions profile by 65%, putting us well on our way to our goal of reducing our carbon footprint by 70% by 2030.

By 2030, we project renewables will represent approximately 40% of our generation capacity. 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, solar and natural gas generating resource investments.

Estimated timeframe for realization

4 to 6 years

Magnitude of potential financial impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

4,900,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact

AEP plans to invest $2.8 billion in in regulated renewable generation and $2.1 billion in competitive, contracted renewable projects from 2021 through 2025. As we shift to cleaner resources such as wind and solar, we realize that there are human and economic impacts. These include a loss of jobs at the fossil-fueled plants and in the broader economy, tax payments that support public services, including education, and economic activity that is supported by the plant's ecosystem. On average, a typical coal-fueled power plant operated by AEP generates $160 million in regional economic activity, $63 million in labor income, and supports more than 700 regional jobs annually. Our analysis shows that plant operations also stimulate significant activity in external supply chains. The most important action we can take is to notify the local community of a plant closure as soon as possible. In some cases, we provide economic support to help a community with the transition. When Big Sandy Unit 2 retired, Kentucky Power agreed to contribute $233,000 per year for five years to help the region transition and attract new industry.

Type of opportunity

Products and services

Primary water-related opportunity

Other, please specify

Develop new services that support the clean energy transition

Company-specific description & strategy to realize opportunity

As AEP reduces its reliance on fossil-fuels and water-dependent electricity generation, there will be opportunities to invest in new technologies and resources and develop new services that support the clean energy transition, optimize operations, and meet emerging customer demands. Massive amounts of renewable energy will require additional transmission investment to move the energy and manage its intermittent production. Other opportunities include reduced water usage and consumption with coal plant retirements, particularly in high-stress regions, use of low-to-no carbon emitting generation resources, and development and/or expansion of low-emission goods and services. Benefits include increased demand and revenues, customer satisfaction, reduced operating costs, reduced exposure to rule market pricing, enhance reputation and brand, increased market valuation through resilience planning and supply chain reliability and ability to operate under various conditions.

Estimated timeframe for realization

4 to 6 years

Magnitude of potential financial impact

High

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact

While we are unable to provide a financial estimate, we expect that tens of billions of dollars in capital investments will be needed for new, clean energy infrastructure. This represents a significant opportunity to reduce carbon emissions, provide stable energy costs, and grow corporate earnings while also helping to insulate customers from variable costs associated with fossil fuels.

W5. Facility-level water accounting

W5.1

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

Facility reference number

Facility 1

Facility name (optional)

Amos

Country/Area & River basin

United States of America
Mississippi River

Latitude

38.47306

Longitude

-81.82333

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

33,817

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

33,817

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

9,604

Comparison of total discharges with previous reporting year

Much lower

Discharges to fresh surface water

9,604

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

24,213

Comparison of total consumption with previous reporting year

Much higher

Please explain

For year to year comparisons, AEP is defining the thresholds as follows: more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher.' This definition applies to all water use comparisons for the AEP generation fleet. For this particular facility (Amos Plant), changes in water withdrawals, discharges and consumption are due to changes in plant operation, weather and plant dispatch.

Facility reference number

Facility 2

Facility name (optional)

Conesville

Country/Area & River basin

United States of America
Mississippi River

Latitude

40.18447

Longitude

-81.89191

Located in area with water stress

Yes

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

27,397

Comparison of total withdrawals with previous reporting year

Much lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

26,716

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

662

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

14,655

Comparison of total discharges with previous reporting year

Much lower

Discharges to fresh surface water

14,655

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

12,723

Comparison of total consumption with previous reporting year

Much lower

Please explain

Based on AEP's water use comparison definitions (more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher'). For this particular facility (Conesville Plant), changes in water withdrawals, discharges and consumption are due to changes in plant operation, as the facility was retired during 2020.

Facility reference number

Facility 3

Facility name (optional)

Dresden

Country/Area & River basin

United States of America
Mississippi River

Latitude

40.09273

Longitude

-82.0151

Located in area with water stress

Yes

Primary power generation source for your electricity generation at this facility

Gas

Total water withdrawals at this facility (megaliters/year)

4,362

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

4,358

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

4.6

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

903

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

903

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

3,460

Comparison of total consumption with previous reporting year

About the same

Please explain

Based on AEP's water use comparison definitions (more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher'), there were no significant differences in water use at this facility.

Facility reference number

Facility 4

Facility name (optional)

Flint Creek

Country/Area & River basin

United States of America
Mississippi River

Latitude

36.17861

Longitude

-94.73458

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

465,710

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

465,701

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

8.5

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

465,708

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

465,708

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

3,473

Comparison of total consumption with previous reporting year

About the same

Please explain

Weather and changes in plant dispatch can affect water use at each facility. Note that while the water withdrawal and discharge for this facility are roughly the same, water is still consumed. This is due to the way in which the values are estimated, which does not account for rainwater. Consumption is not estimated as a simple difference between water withdrawals and discharges, but is instead based on water flow diagrams and nominal flows. However, based on AEP's water use comparison definitions (more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher'), there were no significant differences in water use at this facility.

Facility reference number

Facility 5

Facility name (optional)

Mitchell

Country/Area & River basin

United States of America
Mississippi River

Latitude

39.82972

Longitude

-80.81528

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

13,762

Comparison of total withdrawals with previous reporting year

Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

13,743

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

18

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

4,083

Comparison of total discharges with previous reporting year

Lower

Discharges to fresh surface water

4,083

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

9,679

Comparison of total consumption with previous reporting year

Lower

Please explain

Based on AEP's water use comparison definitions (more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher'). For this particular facility (Mitchell Plant), changes in water withdrawals, discharges and consumption are due to changes in plant operation, weather and dispatch.

Facility reference number

Facility 6

Facility name (optional)

Mountaineer

Country/Area & River basin

United States of America
Mississippi River

Latitude

38.97944

Longitude

-81.93444

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

Comparison of total withdrawals with previous reporting year

Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

11,762

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

1,527

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

4,179

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

4,179

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

8,884

Comparison of total consumption with previous reporting year

About the same

Please explain

Based on AEP's water use comparison definitions (more than 50% less is ‘much lower,’ 25%-50% less is ‘lower,’ plus or minus 25% is ‘about the same,’ 25%-50% more is ‘higher’ and greater than 50% more is ‘much higher’). For this particular facility

(Mountaineer Plant), changes in water withdrawals, discharges and consumption are due to changes in plant operation, weather and dispatch.

Facility reference number

Facility 7

Facility name (optional)

Northeastern

Country/Area & River basin

United States of America
Mississippi River

Latitude

36.42619

Longitude

-95.70136

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

5,225

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

5,225

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

2,327

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

2,327

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

2,898

Comparison of total consumption with previous reporting year

About the same

Please explain

Weather and changes in plant dispatch can affect water use at each facility. Based on AEP's water use comparison definitions (more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher'). For this particular facility (Northeastern Plant), there were no significant differences in water use.

Facility reference number

Facility 8

Facility name (optional)

Oklaunion

Country/Area & River basin

United States of America
Mississippi River

Latitude

34.12953

Longitude

-99.14285

Located in area with water stress

Yes

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

2,701

Comparison of total withdrawals with previous reporting year

Much lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

2,701

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

2,701

Comparison of total consumption with previous reporting year

Much lower

Please explain

Oklaunion is a zero discharge facility utilizing evaporation ponds and recycling to eliminate all discharges. The facility was retired during 2020, therefore, its water use was much lower.

Facility reference number

Facility 9

Facility name (optional)

Pirkey

Country/Area & River basin

United States of America
Sabine River

Latitude

32.50722

Longitude

-94.53333

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

Lignite

Total water withdrawals at this facility (megaliters/year)

491,092

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

491,080

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

12.6

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

472,973

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

472,973

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

35,614

Comparison of total consumption with previous reporting year

About the same

Please explain

Based on AEP's water use comparison definitions (more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher'), there were no significant differences in water use at this facility.

Facility reference number

Facility 10

Facility name (optional)

Rockport

Country/Area & River basin

United States of America
Mississippi River

Latitude

37.92556

Longitude

-87.03722

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

10,657

Comparison of total withdrawals with previous reporting year

Much lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

7,687

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

2,969

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

3,644

Comparison of total discharges with previous reporting year

Much lower

Discharges to fresh surface water

3,644

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

7,013

Comparison of total consumption with previous reporting year

Much lower

Please explain

Based on AEP's water use comparison definitions (more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher'). For this particular facility (Rockport Plant), changes in water withdrawals, discharges and consumption are due to changes in plant operation, weather and dispatch.

Facility reference number

Facility 11

Facility name (optional)

Welsh

Country/Area & River basin

United States of America
Mississippi River

Latitude

33.05475

Longitude

-94.84116

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

Coal - hard

Total water withdrawals at this facility (megaliters/year)

844,383

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

844,382

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

1.65

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

786,931

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

786,931

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

66,988

Comparison of total consumption with previous reporting year

Much higher

Please explain

Based on AEP's water use comparison definitions (more than 50% less is 'much lower,' 25%-50% less is 'lower,' plus or minus 25% is 'about the same,' 25%-50% more is 'higher' and greater than 50% more is 'much higher'), water withdrawals and discharges were about the same, but water consumption was "much higher," at this facility. This was due to a review of the plant water balance to create a better estimate of water consumption.

W5.1a

(W5.1a) 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

76-100

What standard and methodology was used?

Water consumption values are verified through an internal audit process which is conducted by AEP during the development of its Corporate Accountability Report. Each water value must be supported by documentation, which is reviewed by an auditor and approved by the Director of the Water and Ecological Resource Department.

Water recycled/reused

% verified

76-100

What standard and methodology was used?

Water recycling/reuse values are verified through an internal audit process which is conducted by AEP during the development of its Corporate Accountability Report. Each water value must be supported by documentation, which is reviewed by an auditor and approved by the Director of the Water and Ecological Resource Department.

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
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Company water targets and goals Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Commitment to safely managed Water, Sanitation and Hygiene (WASH) in the workplace Acknowledgement of the human right to water and sanitation Recognition of environmental linkages, for example, due to climate change	Water use is an important issue for AEP and we are taking steps to reduce our water consumption, improve water quality and address water availability. Currently, about 90% of the power generated by AEP requires water. AEP meets all water quality standards while discharging billions of gallons of wastewater per day. Water is also essential for agriculture, drinking water and economic growth; therefore, we work to protect water availability within watersheds. Our facilities are subject to a variety of regulatory requirements. Our goal is zero violations and zero enforcement actions. AEP uses metrics tied to incentive compensation to encourage self-reporting of events and to improve environmental performance. AEP has developed sustainability goals, which focus on issues such as climate change, carbon risk, energy efficiency, and renewable energy. Our carbon reduction goals will result in less water use as the company increases its renewable generation capacity. AEP participates in collaborative industry research, particularly with the Electric Power Research Institute (EPRI), to find better ways to manage its use of water. AEP extensively reports on its usage and management of water through both required and voluntary reporting efforts, such as the U.S. Energy Information Administration and the Global Reporting Initiative. As AEP continues to diversify its generating portfolio and retire coal generation capacity, our water use will continue to decrease. AEP provides potable water for each employee that is sufficient and continuous for personal and domestic uses, is safe and free of hazards, is of an acceptable color, smell and taste, and is physically accessible within the workplace. AEP agrees that climate change is a significant issue. In 2019, climate change was assessed using AEP's risk management framework and added to the summary view of risks reported to the Risk Executive Committee and the Audit

			Committee of the Board of Directors. In 2020, AEP released its report, “Powering Forward to Net-Zero, AEP’s Climate Impact Analysis,” which describes our year-long effort to analyze the risks to AEP, its customers, and the communities it serves, from climate change and related water risks. The report is aligned with the Task Force for Climate related Financial Disclosure (TCFD) framework, which is emerging as the preferred approach for reporting on climate risk management, and describes AEP's plans and policies to address the issues.

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) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Other, please specify AEP Board of Directors	AEP’s Board of Directors understands the importance of climate change and water-related issues and their significance to our employees, customers, investors and other stakeholders. Water-related issues are considered as part of environmental performance and compliance when reviewing and guiding our 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. The AEP Board Committee on Directors and Corporate Governance oversees climate change risks, sustainability reporting, political and shareholder engagement, and its corporate compliance program. The Audit Committee oversees internal controls and compliance risks, including those related to climate. The Policy Committee invites external experts to meet with the Board on policy issues, including climate change. The Finance Committee makes recommendations regarding investments with respect to renewables and other non-carbon emitting, water-independent assets.

W6.2b

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

	Frequency that water-related issues are a	Governance mechanisms into which water-related	Please explain

	scheduled agenda item	issues are integrated	
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Providing employee incentives Reviewing and guiding business plans Reviewing and guiding risk management policies Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Setting performance objectives	In response to environmental issues and in connection with its assessment of AEP's strategic plan, the Board of Directors continually reviews risks posed by new environmental rules and requirements that could accelerate the retirement of coal-fired and water-dependent generation assets. The Board of Directors is informed of any new environmental regulations and proposed regulation or legislation that would significantly affect AEP. The Board's Committee on Directors and Corporate Governance oversees AEP's annual Corporate Accountability Report, which includes information about AEP's environmental, social, governance and financial performance. The AEP Board of Directors is engaged on all major projects, including those that are water-related, such as compliance with new Steam Electric Effluent Guidelines (ELGs) or the Coal Combustion Residual (CCR) requirements. In addition, if any water issues are ever determined to be a high risk to the company, those would be presented and discussed. This occurs on a periodic basis. At AEP, we have strong governance to support sustainability and ESG performance, ensuring alignment with corporate strategies. Our Board of Directors works closely with our executive team to ensure that performance, innovation, ethics and service standards are met. Through AEP's Enterprise Sustainability Council (ESC) – with oversight from executive management and the Committee on Directors and Corporate Governance of the Board of Directors – we have clear guidance on our ESG responsibilities for sustainable business development. ESC members, who represent all aspects of AEP's business, serve as strategic ambassadors, providing guidance and support to ensure the success of AEP's sustainable development strategy. The ESC is also responsible for monitoring the progress of AEP's sustainability goals. In addition to the ESC, the Committee on Directors and Corporate Governance of the Board of Directors reviews the annual Corporate Accountability Report and monitors AEP's ESG

			performance. The Committee provides feedback and develops the Board Statement supporting AEP's commitment to sustainable business development and performance accountability. We established a cross-functional ESG Team to monitor new and emerging ESG issues and develop strategies for responding to them. Because ESG performance is also a business risk, AEP added it to our risk summary report, and we are integrating it with our corporate strategy. We continue to engage in industry efforts, such as the Edison Electric Institute (EEI) ESG/Sustainability Committee and the Electric Power Research Institute (EPRI) to influence standardized disclosure for the electric utility industry. We are mapping our disclosure to the Task Force for Climate-related Financial Disclosure (TCFD) and to the Sustainability Accounting Standards Board (SASB) framework. Materiality also matters when disclosing performance. Water is one of AEP's priority sustainability environmental issues.

W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

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

Chief Executive Officer (CEO)

Responsibility

Other, please specify

At the Chief Executive Officer level, all financial and environmental risks are assessed and managed.

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

The CEO is engaged on all major projects, including those that are water-related, such as compliance with new Steam Electric Effluent Guidelines or the Coal Combustion Residual requirements. This also includes climate and water-related issues when reviewing and guiding the company's business strategy, major plans of action, risk management policies, annual budgets, and budget plans, as well as setting the organization's performance objectives, overseeing major capital expenditures, acquisitions, and divestitures throughout the year.

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

Other, please specify

Executive Vice President of Generation

Responsibility

Other, please specify

Assessing and managing all environmentally-related risks and opportunities

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

AEP's Executive Vice President of Generation has direct responsibility for all generation and related environmental 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. This would include issues such as the new steam electric effluent guidelines or environmental compliance.

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

Other, please specify

Vice President of Environmental Services

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 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.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	Yes	

W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Please explain
Monetary reward	Board/Executive board Corporate executive team Other, please specify All employees, the CEO and Board	Reduction of water withdrawals Improvements in efficiency - direct operations Improvements in waste water quality - direct operations Implementation of employee awareness campaign or training program	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/).
Non-monetary reward	Board/Executive board Corporate executive team Other, please specify All employees, the CEO and Board	Reduction of water withdrawals Improvements in efficiency - direct operations Improvements in waste water quality - direct operations Implementation of employee awareness campaign or training program	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 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/).

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 the path forward for some regulations, such as the Disposal of Coal Combustion Residuals from Electric Utilities rule or the Steam Electric Effluent Guidelines, is becoming clearer, there are many others 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.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?

Yes (you may attach the report - this is optional)

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. As a part of this commitment, we provided over one million dollars of funding to the Electric Power Research Institute during 2019 in support of water-related research, focusing on ecosystem risk and resiliency, water quality, strategic sustainability science, and water treatment technologies.
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 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?

Row 1

Water-related CAPEX (+/- % change)

256

Anticipated forward trend for CAPEX (+/- % change)

109

Water-related OPEX (+/- % change)

82

Anticipated forward trend for OPEX (+/- % change)

-42

Please explain

From 2020 to 2021 the water-related CAPEX increase is estimated to be 256%. From 2021 to 2022 we anticipate a year over year CAPEX increase of 109%. These are based on current planning assumptions and final decisions have not been made. There are several projects that drive these numbers that are pending testing, technology studies, regulatory outcomes, and / or business evaluations. It was estimated that from 2019 to 2020, AEP's water-related OPEX increased 82%. Examples of water-related OPEX include permit renewals, water quality testing, consulting services, surface and groundwater monitoring, and regulatory compliance support. A decline of 42% in OPEX is estimated for 2021, based on the first six months of budget information. Estimates are based on expenses for the steam electric fleet that was operated or supported by AEP during 2019, 2020 and 2021. The declining trends are indicative of plant retirements and ownership transfers.

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	In 2020, AEP completed a climate scenario risk analysis. The scenarios were consistent with the Paris Agreement. In addition to modeling plausible pathways to a low-carbon future, AEP also examined the potential physical impacts and social aspects related to retiring coal units in our fleet. Our analysis was guided by the TCFD framework, setting specific parameters related to geography and macro-economic variables. Also in accordance with TCFD, we developed assumptions related to technology development and deployment, energy mix, price of key commodities or inputs, timing of potential impacts, and potential policy changes. The developed scenarios represented a unique approach to examine potential carbon emissions and generating fleet changes over time. With increased constraints on carbon emissions , water-independent, renewable energy, dominated the future energy portfolio. The study also revealed transition opportunities which will be used to guide future business decisions.

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 scenarios and models applied	Description of possible water-related outcomes	Company response to possible water-related outcomes
Row 1	Other, please specify Please see response to 7.3	In 2020, we completed our analysis of how climate-related risks and opportunities may play out under different scenarios, the potential impact they could have on our company, and the new business opportunities they may provide. As part of the analysis, we reviewed a climate-related water risk study done by EPRI. The assessment identified potential risks to: (1) thermal generation, (2) hydroelectric generation, (3) land-based renewable generation and (4) transmission and distribution facilities. These risks may result from projected	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

		reductions in water availability (e.g., for hydroelectric or once-through cooling), increased water temperatures (e.g., decrease in cooling efficiency, inability to meet discharge permit conditions) and decreased water quality (e.g., from increased transport of sediment and dissolved solids). The report noted key water-related impacts to the AEP system that would primarily occur in the Midwest, Southeast and Southern Plains areas. The potential changes in water quality, availability, temperature and quantity identified by EPRI extend beyond generation facilities. For example, we might need to take mitigating actions to stabilize a stream bank if we were relocating or siting new transmission or distribution infrastructure in an area at risk for this type of erosion. We also reviewed the impacts of flooding and will need to take the location of new facilities into consideration, locating them outside of areas most vulnerable to severe flooding.	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, but we are currently exploring water valuation practices

Please explain

When renegotiating water rates, AEP will consider costs other than those directly related to market prices. For example, AEP pays a premium to have a firm water supply that is available even during the most intense drought for its Oklaunion Plant. When renewing the existing contract for grey water at our Comanche Plant, AEP will consider, among other issues, the difficulties that the City of Lawton will have in providing effluent that meets state and federal discharge limits. When renegotiating Flint Creek's water contract, AEP agreed to make improvements to the municipal system to insure adequate downstream flows. The company also accepted an increase in the water rate as a "good neighbor" policy. One last example involves the state of Texas, which allows

water rights to be placed into a "trust" to be used for environmental purposes. This gives water right owners a unique option on how to manage their unused water rights.

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 Business level specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	AEP's water use is closely related to its generation portfolio and fleet of steam electric facilities. AEP has developed sustainability goals, which focus on issues such as climate change, carbon risk, energy efficiency, and renewable energy. The carbon reduction and renewable energy goals will result in less water use and water intensity as the company meets these goals. Water use itself is primarily regulated under environmental statutes, such as the Clean Water Act. In addition to a target of zero environmental enforcement actions, the company undertakes water-related activities to improve and protect water quality. It also implements stewardship projects to improve and protect watersheds. For example, employees at the Flint Creek in Arkansas have grown 1,000 tree seedlings every year for the primary purpose of providing them to the Illinois River Watershed Partnership (IRWP).The IRWP is a non-profit organization that provides riparian landowners the opportunity to partner on projects to improve the river-side habitat and reduce riverbank erosion. In 2019, we again grew 1,000 seedlings for IRWP, but, due to a surplus of trees, there are tentative plans to have other local entities plant along waterways. AEP has been a board member or an executive officer of the IRWP for over 10 years and the AEP Foundation donated $200K for environmental education purposes to IRWP in 2020. More information is available at http://irwp.org

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

Product water intensity

Level

Company-wide

Primary motivation

Climate change adaptation and mitigation strategiess

Description of target

The carbon reduction and renewable energy goals will result in less water use. In 2019, we revised our carbon emission reduction goals due to achieving significant emission reductions ahead of schedule. Our new 2030 goal is to reduce CO2 emissions by 70% from a 2000 baseline. Through 2020, we achieved a 74% reduction in carbon emissions from our 2000 baseline. Our progress has been quicker than expected primarily due to lower utilization of coal generation accelerated by falling energy prices caused by low natural gas prices and the growth of subsidized renewables with zero fuel cost. We expect our 2050 goal to exceed an 80% reduction and achieve larger reductions – with an aspiration of zero emissions. Since 2011, AEP has retired or sold more than 13,500 MW of coal-based generation and within the next 10 years, we plan to retire an additional 4,264 MW, representing billions of gallons of water withdrawals per year.

Quantitative metric

Other, please specify

Percent reduction of carbon emissions

Baseline year

2000

Start year

2011

Target year

2030

% of target achieved

74

Please explain

Through 2020, we achieved a 74% reduction in carbon emissions from our 2000 baseline. In April 2019, we acquired Sempra Renewables, LLC and its 724 MW of operating wind generation, including a battery storage asset. The deal included seven operating wind farms in Colorado, Hawaii, Indiana, Kansas, Michigan, Minnesota and Pennsylvania, all with long-term power purchase agreements in place for 100% of the energy produced. In July 2019, we completed the purchase of 75% stake (227 MW) of the Santa Rita East Wind Project near San Angelo, Texas. In 2020, AEP subsidiaries

received approvals needed to acquire 1,485 MW of new wind generation being built in Oklahoma. The approximately $2 billion investment will deliver clean, water-free, renewable energy to customers in Arkansas, Louisiana and Oklahoma . At the same time, since 2013, we have reduced our surface water use by nearly 45% and our surface water consumption by 56%.

Target reference number

Target 2

Category of target

Water pollution reduction

Level

Company-wide

Primary motivation

Risk mitigation

Description of target

An Environmental Performance Index (EPI) was established to set annual goals related to opacity, water discharge permits and oil and chemical spills at our generating facilities. In the past, the EPI tracked only events where we had immediate and significant control. Incentive compensation within the Generation group is also tied to EPI performance. In 2017, the EPI was expanded to include all reported events specific to National Pollutant Discharge Elimination System (NPDES) permit expectations and spill events. We set annual targets focusing on continuous improvement as we strive for zero enforcement actions and zero events. With significant changes made in recent years to the number of generating units we manage, a new baseline was established for 2020, based on the previous three years of performance.

Quantitative metric

Other, please specify

100% compliance and no violations

Baseline year

2017

Start year

2017

Target year

2020

% of target achieved

Please explain

Two water-related notice of violations were received by AEP for incidents that occurred during 2020. Despite these violations, AEP achieved a compliance rate of >99% based on the number of potential violations that could occur during the year. Hundreds of samples are collected at steam electric facilities subject to this target and there are hundreds, if not thousands, of opportunities to violate a regulatory requirement (i.e. failure to sample, failure to report, failure to comply with limits, failure to properly report or remediate).

W8.1b

(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.

Goal

Other, please specify

In 2018, AEP announced Corporate Sustainability Goals

Level

Company-wide

Motivation

Commitment to the UN Sustainable Development Goals

Description of goal

In 2018, AEP publicly announced our Corporate Sustainability Goals in parallel with our carbon reduction goals. Our sustainability goals are guided by AEP's Strategic Framework for Sustainable Development, which provides context and a roadmap to implement throughout our value chain. We support our goals with metrics and methodologies to measure performance against our business plan and across our operations. The goals were developed to ensure we effectively assess and communicate the return on investment (ROI) and shared value we create for AEP and all our stakeholders. We mapped our sustainability goals to the United Nations Sustainable Development Goals (SDGs) to further demonstrate how we create shared value for our business and society. In 2020, we issued our first goals report that shows the linkage of performance to the SDGs. This report includes an update on our sustainability goals and commitments reflecting year-end 2019 performance. At AEP, we understand the importance of providing clear, accurate and consistent data and information in a timely manner. AEP's Sustainability Goals reflects our commitment to transparency by proactively sharing data and information about our sustainability goals, strategy and environmental, social and economic performance. (AEP' Sustainability Goals for the Future; 2019 Performance Update -- http://www.aepsustainability.com/performance/report/docs/2019-AEPs%20Sustainability%20Goals%20For%20The%20Future_Brochure%20(005).pdf

Baseline year

2018

Start year

2019

End year

2020

Progress

Please refer to the report, "AEP's Sustainability Goals for the Future - 2019 Performance Update" at link to report at http://www.aepsustainability.com/performance/report/docs/2019-AEPs%20Sustainability%20Goals%20For%20The%20Future_Brochure%20(005).pdf

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

Yes

W9.1a

(W9.1a) 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 thorough 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.

W10. 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.

W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Vice President Environmental Services	Other C-Suite Officer

W10.2

(W10.2) 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

	I am submitting to	Public or Non-Public Submission
I am submitting my response	Investors	Public

Please confirm below

I have read and accept the applicable Terms