

Welcome to your CDP Climate Change Questionnaire 2019

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

American Electric Power (AEP) has been providing electric service for more than 100 years and is one of the largest electric utilities in America, serving 5.4 million regulated customers in portions of 11 states. AEP ranks among the nation's largest generators of electricity, with approximately 32,000 megawatts of diverse generating capacity in the U.S., including nearly 5,300 MW of renewable energy. AEP also owns the nation's largest electricity transmission system, a more than 40,000-mile network that includes more 765-kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP's transmission system directly or indirectly serves about 10 percent of the electricity demand in the Eastern Interconnection, the interconnected transmission system that covers 38 eastern and central U.S. states and eastern Canada, and approximately 11 percent of the electricity demand in ERCOT, the transmission system that covers much of Texas. In addition, AEP's transmission system provides the pathway for approximately 11,900 MW of renewable energy to serve customers across the United States. AEP's utility units operate as AEP Ohio, AEP Texas, Appalachian Power (in Virginia, West Virginia), AEP Appalachian Power (in Tennessee), Indiana Michigan Power, Kentucky Power, Public Service Company of Oklahoma, and Southwestern Electric Power Company (in Arkansas, Louisiana and east Texas). AEP's headquarters are in Columbus, Ohio.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Row 1	January 1, 2018	December 31, 2018	No

C0.3

(C0.3) Select the countries/regions for which you will be supplying data.

United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Equity share

C-EU0.7

(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.

Row 1

Electric utilities value chain

Electricity generation

Transmission

Distribution

Other divisions

Smart grids / demand response

Battery storage

Micro grids

Coal mining

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board Chair	Due to the carbon intensive nature of our business, AEP's Chairman, President and CEO is directly responsible for managing AEP's response to climate change risk. As Chair of the Board of Directors, he has direct oversight over corporate strategy,

	<p>structure and management. The Committee on Directors & Corporate Governance of AEP's Board of Directors (led by the Board's Lead Director) has oversight over sustainability performance reporting, which includes the company's strategy for addressing climate change, and provides input and guidance to management on selected issues. The board holds management accountable for sustainability and financial performance, as described in a board statement that we publish every year online (http://aepsustainability.com/about/report/board.aspx) and in our annual Corporate Accountability Report (http://aepsustainability.com). The board receives semi-annual updates on our progress, although discussion occurs throughout the year.</p>
<p>Director on board</p>	<p>Due to the carbon intensive nature of our business, AEP's Board of Directors is directly responsible for managing AEP's response to climate change risk. The Chair of the Board of Directors, he has direct oversight over corporate strategy, structure and management. The Committee on Directors & Corporate Governance of AEP's Board of Directors has oversight over sustainability performance reporting and environmental performance, which includes the company's strategy for addressing climate change, and provides input and guidance to management on selected issues. The board holds management accountable for sustainability and financial performance, as described in a board statement that we publish every year online (http://aepsustainability.com/about/report/board.aspx) and in our annual Corporate Accountability Report (http://aepsustainability.com). The board receives formal semi-annual updates on our progress, although discussion occurs throughout the year.</p>

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
<p>Scheduled – some meetings</p>	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives 	<p>AEP's board and board committees consider climate-related issues when reviewing and guiding their business strategy, major plans of action, risk management policies, annual budgets, and budget plans as well as, setting the organization's performance objectives, monitoring implementation and performance, and overseeing major capital expenditures, acquisitions, and divestitures throughout the year.</p>

	Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	
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C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	As important matters arise

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

AEP's CEO and CFO are members of the Executive Council which is a group of AEP's top executives that meet monthly to discuss all major business decisions affecting AEP's operations, employees and customers. Climate related issues are often discussed in these meetings, including climate policy risks and opportunities as well as stakeholder engagement on climate issues. The Executive Council also reviews AEP's Corporate Accountability Report before it is presented to the Board of Directors.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Monetary reward

Activity incentivized

Other, please specify

Climate Risk and Opportunity Mgmt

Comment

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. Nine percent of annual incentive compensation is tied to performance related to investing in infrastructure for the benefits of our customers, including transmission and distribution, investments to make the grid more resilient as well as increasing our renewable portfolio. This incentive is tied directly to AEP's clean energy transition strategy. 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. 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 as well as its voluntary emission reduction commitment (<https://www.aep.com/about/mission/>).

Who is entitled to benefit from these incentives?

Corporate executive team

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction project

Comment

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. 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 as well as its voluntary emission reduction commitment (<https://www.aep.com/about/mission/>).

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	0	3	
Medium-term	3	10	
Long-term	10	50	

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	AEP constructs and owns assets with long useful lives that require risk to be evaluated over a long time horizon.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

Our Enterprise Risk Management group, led by our chief risk officer, is responsible for developing the collective risk assessment of the company. This group gathers and analyzes information from functional business units at all levels of the company and reports to the Risk Executive Committee, which consists of members of the executive management team and functional unit representatives. The Risk Executive Committee makes recommendations to business unit leaders for risk mitigation, where appropriate, and monitors and reports findings/results to the Audit Committee of the AEP Board of Directors. Climate change risk is considered a major and material issue for AEP. Commensurate with risk identification and management, is opportunity identification and management. These opportunities are often directly linked to risk and are subject to similar monitoring and review.

Risks and opportunities are generally identified by senior management or key subject matter experts, which can be found at all levels of the company. The risk could be as small as identification of a small generating unit (asset) issue that could lead to increased emissions or an opportunity for investment to reduce emissions. At the company level, public policy development is closely monitored because regulation of carbon emissions would have implications across our entire business. The information on these risks and opportunities flow up to and through the management chain to senior executives and the Board of Directors as topics and issues that are perceived to be relevant or significant and follows AEP's risk management processes. AEP's Corporate Accountability Report development process serves as a main conduit for presenting these risks both internally and externally so that they are appropriately characterized. The Corporate Accountability Report also helps to foster collaborative discussions amongst AEP's stakeholders and help AEP shape its public image on climate and environmental issues. (www.AEPsustainability.com) Risks and opportunities are prioritized based on both qualitative and quantitative analysis. Qualitative analysis includes monitoring public and political sentiment on climate change policy on the local, state and federal level as well as reviewing scientific literature related to potential climatic impacts. Quantitative analysis includes performing a variety of economic and financial analysis to assess potential future outcomes with varying levels of constraints being placed on carbon emissions. AEP has a long history of measuring and verifying its emissions as well as using a carbon price within its resource planning process to aid in quantification. These data points, coupled with sensitivity analysis and scenario exploration, provide a framework for climate risk identification and mitigation. This prioritization helps both Enterprise Risk Management and Investment approvals that focus their efforts on what is most relevant to our operations. Generally speaking, the greatest climate-related risk comes from coal-fired facilities which have higher CO₂ emissions per unit of electrical output. AEP's Board of Directors, on occasion, has requested management to provide additional in-depth analysis of climate-related risks as particular issues have become increasingly relevant. Key risks and opportunities associated with carbon-related impacts undergo constant evaluation by technical and policy experts within AEP.

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	The U.S. EPA has begun to regulate GHG emissions through the Clean Air Act (CAA) through its Prevention of Significant Deterioration / New Source Review (PSD/NSR) programs and New Source Performance Standards for GHGs for new and existing sources. These regulations affect AEP's operations.
Emerging regulation	Relevant, always included	Changes to regulations, such as the GHG regulations established under the Clean Air Act have the ability to affect AEP's operations and financial performance in the future.
Technology	Relevant, always included	The cost and availability of various low- and no-carbon energy technologies will play a large role in AEP's emissions and risk profile going forward.
Legal	Relevant, always included	Legal challenges involving regulations, particularly those governing GHG emissions, have the potential to change regulatory frameworks.
Market	Relevant, always included	Market dynamics shape the way AEP produces and delivers energy as well as AEP's emission profile.
Reputation	Relevant, always included	Customers and other stakeholders are increasingly considering AEP's carbon footprint in evaluations.
Acute physical	Relevant, always included	Given the exposed nature of AEP's infrastructure, physical risks from natural forces are always assessed and reevaluated as additional information is obtained.
Chronic physical	Relevant, always included	AEP has evaluated the potential impact of long-term changes of temperature on demand for electricity.
Upstream	Relevant, always included	Changes in law, regulation or market dynamics affecting suppliers (particular those associated with fuel or technology supply) are considered when making strategic business and purchasing decisions.
Downstream	Relevant, always included	Customer preferences, including those related to environmental performance and cost, are one input that is considered in making strategic business decisions.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

Risks and opportunities are generally identified by senior management or key subject matter experts, which can be found at all levels of the company. The risk could be as small as identification of a small generating unit (asset) issue that could lead to increased emissions or an opportunity for investment to reduce emissions. At the company level, public policy development is closely monitored because regulation of carbon emissions would have implications across our entire business. The information on these risks and opportunities flow up to and through the management chain to senior executives and the Board of Directors as topics and issues that are perceived to be relevant or significant and follows the risk management processes outlined previously. AEP's Corporate Accountability Report development process serves as a main conduit for presenting these risks both internally and externally so that they are appropriately characterized. The Corporate Accountability Report also helps to foster collaborative discussions amongst AEP's stakeholders and help AEP shape its public image on climate and environmental issues. (www.AEPsustainability.com) Risks and opportunities are prioritized based on both qualitative and quantitative analysis. Qualitative analysis includes monitoring public and political sentiment on climate change policy on the local, state and federal level as well as reviewing scientific literature related to potential climatic impacts. Quantitative analysis includes performing a variety of economic and financial analysis to assess potential future outcomes with varying levels of constraints being placed on carbon emissions. AEP has a long history of measuring and verifying its emissions as well as using a carbon price within its resource planning process to aid in quantification. These data points, coupled with sensitivity analysis and scenario exploration provide a framework for climate risk identification and mitigation. This prioritization helps both Enterprise Risk Management and Investment approvals that focus their efforts on what is most relevant to our operations. Generally speaking, the most climate-related risk is generated from coal-fired facilities which have higher CO₂ emissions per unit of electrical output. AEP's Board of Directors, on occasion, has requested management to provide additional in-depth analysis of climate-related risks as particular issues have become increasingly relevant. Key risks and opportunities associated with carbon-related impacts undergo constant evaluation by technical and policy experts within AEP. A case study for evaluation of climate risk and opportunity is provided by AEP's recent proposal to own 1,485 MW of new wind in the south-central US. The project was proposed by AEP after assessing the value provided by using a no-carbon energy source to displace fossil emissions and the opportunity to do so with a net customer cost savings. (news release: <https://www.aep.com/news/releases/read/1600/AEP-Seeks-to-Add-1485-MW-of-New-Wind-Generation-from-Three-Wind-Facilities-in-Oklahoma>)

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Increased pricing of GHG emissions

Type of financial impact

Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

Regulations that impose a cost of GHGs either through a cap-and-trade program or a carbon tax would result in additional operational costs.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-low

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)

0

Potential financial impact figure – maximum (currency)

1,000,000,000

Explanation of financial impact figure

A hypothetical carbon tax of ~\$15/ton would result in \$1 billion per year in additional tax expenditures with AEP's current CO2 annual emission profile of ~70 million metric tons.

The actual tax level could vary and other carbon pricing mechanisms, such as a cap-and-trade system with free allocation of allowances could mitigate the financial impact significantly. Additionally, for AEP's cost-of-service regulated operating subsidiaries, it is assumed that most of the financial impact would be passed directly on to customers.

Management method

AEP has actively managed its GHG profile for more than decade, aggressively investing in renewable energy and energy efficiency while retiring older and less efficient coal-fired generators. Current emissions levels have decreased by 59% as compared to year 2000 levels (AEP's baseline year for its carbon goals). AEP plans to continue to manage its emission profile downward. Additionally, AEP is an active participant in all dialogue surrounding future carbon pricing and regulation to reduce financial/regulatory implications.

Cost of management

2,000,000

Comment

Management cost is an approximation of man-hours associated with issue management and does not include emission abatement activities.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Technology: Substitution of existing products and services with lower emissions options

Type of financial impact

Reduced demand for products and services

Company- specific description

AEP has increasingly seen customers look to deploy low- or no-carbon generation resources as a means of supplanting, replacing, or offsetting electricity provided by AEP. Deployment of customer-sited generation or distributed resources decreases AEP's overall net load, resulting in shifts in operating costs between customers and potentially stifling the demand for more efficient utility-scale renewable generation.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-low

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)

0

Potential financial impact figure – maximum (currency)

175,000

Explanation of financial impact figure

Approximate financial impact is based on a single customer utilizing a 1 MW solar system with 25% capacity factor to reduce their electric demand, which would be \$80/MWh normally. The actual potential impact will vary by the number of customers seeking alternative solutions. In cost-of-service jurisdictions, some of the lost revenue would be eligible for collection through increased customers rates.

Management method

AEP is actively pursuing developing utility-scale and community-scale distributed resources which provide our customers with a more cost effective solution in utilizing low- and no-carbon energy. AEP is also actively engaged in regulatory efforts and pilot programs to allow for AEP investment in innovative technologies at or near the grid edge.

Cost of management

10,000,000

Comment

Management cost is an approximation of man-hours associated with customer, public policy and regulatory issue management and engagement and does not count direct expenditures to provide customers with lower-carbon energy solutions.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Mandates on and regulation of existing products and services

Type of financial impact

Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

As a regulated utility company, AEP faces a number of regulations and mandates regarding the type of service it provides to customers. These include mandates on the amount of renewable energy provided and targets related to pursuing energy efficiency. In situations where renewable energy or energy efficiency is not cost effective, the ultimate cost to consumers of electricity is higher.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium-low

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 figure

In 2018, energy efficiency programs were credited with more than 1 million megawatt hours (MWh) of energy reduction and more than 270 megawatts (MW) of demand reduction, with associated program costs of approximately \$165 million.

Management method

AEP actively engages state regulators and third party vendors to ensure energy efficiency and renewable energy programs are initiated and deployed in the most cost-effective manner possible.

Cost of management

165,000,000

Comment

Energy efficiency program and management costs are directly collected from AEP's customers. In addition to demand and consumption reductions, AEP's energy efficiency programs also resulted in 525,189 metric tons of avoided CO2 emissions.

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Market: Changing customer behavior

Type of financial impact

Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

AEP has increasingly seen customers look to deploy low- or no-carbon generation resources as a means of supplanting, replacing, or offsetting electricity provided by AEP. Deployment of customer-sited generation or distributed resources decreases AEP's overall net load, resulting in shifts in operating costs between customers and potentially stifling the demand for more efficient utility-scale renewable generation.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

175,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Approximate financial impact is based on a single customer utilizing a 1 MW solar system with 25% capacity factor to reduce their electric demand. The actual potential impact will vary by the number of customers seeking alternative solutions. In cost-of-

service jurisdictions, some of the lost revenue would be eligible for collection through increased customer rates. Alternatively, costs could be incurred by supplying customers with utility-scale renewables.

Management method

AEP is actively pursuing developing utility-scale and community-scale distributed resources which provide our customers with a more cost-effective solution in utilizing low and no-carbon energy. AEP is also actively engaged in regulatory efforts and pilot programs to enable AEP investment in innovative technologies at or near the grid edge. AEP also is actively engaging with customers and investors to educate them on AEP's emission reduction progress to date and plans for the future.

Cost of management

10,000,000

Comment

Management cost is an approximation of man-hours associated with customer, public policy and regulatory issue management and engagement and does not include direct expenditures to provide customer with lower-carbon energy solutions.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient modes of transport

Type of financial impact

Increased production capacity, resulting in increased revenues

Company-specific description

AEP is actively pursuing opportunities for electrification, including those related to the transport sector. With electrification of the transport sector, AEP's sales will increase resulting in additional revenues as well as the ability to potentially invest additional capital into AEP's system.

Time horizon

Long-term

Likelihood

Very likely

Magnitude of impact

High

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)

0

Potential financial impact figure – maximum (currency)

100,000,000

Explanation of financial impact figure

A 1% increase in electricity sales due to electrification of the transport sectors has the potential to increase AEP's annual revenues by over 100,000,000 per year.

Strategy to realize opportunity

AEP has partnered with the Electric Power Research Institute (EPRI) on Electrification Research and Development and has conducted outreach to a number of customers. Additionally, AEP Ohio is deploying vehicle charging technology through the Smart Columbus initiative which aims to support a 21st century smart transportation system. This initiative includes \$10 million for charging infrastructure. In 2018, AEP also signed on as a partner to the Transportation Electrification Accord, which is supported by the auto industry, environmental groups, companies, utilities and others. AEP's electric transportation strategy includes five pillars:

1. Education and outreach -- proactive engagement
2. Leading by example -- we are integrating EVs into AEP's fleet and now operate one of the largest workplace charging programs in the U.S.
3. Increase off-peak load -- deploy residential solutions to move charging to off-peak hours and design/deploy a customer fleet charging solution
4. Improve public infrastructure -- design and deploy customer workplace charging stations and advise/support municipalities
5. Get the rules right -- advocate for public policies that support increased EV sales and access to charging infrastructure

AEP was instrumental in industry research and use of standards and methodologies created by EPRI to figure out how to deploy a network of vehicle charging stations at workplace in an economical and scalable way.

Cost to realize opportunity

200,000

Comment

Cost is only reflective of AEP's annual expense for EPRI Electrification R&D work.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resilience

Primary climate-related opportunity driver

Other

Type of financial impact

Increased revenue through new products and services related to ensuring resiliency

Company-specific description

For more than a century, AEP has invested to ensure its system is reliable and resilient. However, as the generation fleet transitions to lower carbon and intermittent resources and other infrastructure ages, additional capital investment is needed for resiliency. Additionally, public discourse about climate-related weather events has also prompted public interest in resiliency investment. AEP's investments in grid resiliency go hand-in-hand with grid modernization.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium

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)

0

Potential financial impact figure – maximum (currency)

1,245,000,000

Explanation of financial impact figure

Assuming a 50/50 debt/equity ratio and an ROE of 10% AEP will earn an annual return of \$1,245,000,000 off of its \$24.9 billion investment in its transmission and distribution systems in 2019-2023.

Strategy to realize opportunity

AEP works with various regulatory bodies and transmission organizations to ensure customers can be provided with reliable, resilient and affordable electricity through robust planning efforts. One recent venture, the \$347-million Greentown-to-Reynolds Transmission Project in Indiana, went into service on June 25, 2018. The Greentown-to-Reynolds Project links Duke Energy's Greentown Station (near Kokomo) with the Northern Indiana Public Service Company (NIPSCO) Reynolds Station (north of Lafayette). This project includes approximately 70 miles of 765-kilovolt (kV) transmission lines and facilities, and provides a new major route for power in Indiana. It was one of 17 priority projects mandated by MISO to improve grid reliability, ensure access to regional sources of competitively-priced power and provide additional energy to the area. This project is an example of the investments AEP is making to modernize the grid.

Learn more about Distribution modernization at AEP --

<http://aepsustainability.com/energy/grid-modernization/distribution/>

Learn more about Transmission modernization at AEP --

<http://aepsustainability.com/energy/grid-modernization/transmission/>

Cost to realize opportunity

24,900,000,000

Comment

AEP's total planned investment in its transmission and distribution systems during 2019-2023 is \$24.9 billion.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Type of financial impact

Returns on investment in low-emission technology

Company-specific description

AEP has the opportunity to invest over the next decade in renewable energy projects to reduce the utilization of fossil fuel generation and lower AEP's carbon footprint. AEP earns a return on shareholder equity in exchange for capital investment. For example, AEP announced its intent to seek regulatory approval to purchase three wind projects, totaling 1,485 MW, that are currently under development in Oklahoma. The proposed nearly \$2 billion investment, inclusive of all costs, would save customers of SWEPCO and PSO approximately \$3 billion, net of cost, over 30 years. (project press release -- <https://www.aep.com/news/releases/read/1600/AEP-Seeks-to-Add-1485-MW-of-New-Wind-Generation-from-Three-Wind-Facilities-in-Oklahoma>)

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

135,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

AEP's total planned investment in renewable energy during 2020-2023 is approximately \$2.7 billion. Assuming a 50/50 debt/equity ratio and an ROE of 10% AEP will earn an annual return of \$135,000,000 off this investment

Strategy to realize opportunity

AEP is actively pursuing development of renewable resources both within its regulated footprint and through its competitive AEP Energy Partners subsidiary, AEP Renewables. This is as a foundational piece of AEP's message to potential investors.

Cost to realize opportunity

2,700,000,000

Comment

Cost is total capital investment which will be collected from customers.

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted	Many of AEP's customers are increasingly seeking energy from cleaner energy sources. As a result AEP plans to add 5,570 MW of regulated renewable generation to its system through 2025. This represents billions of dollars in investment on which AEP is eligible to earn a return on.
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	Increased use of low- and no-carbon generation have reduced the demand for coal causing pricing to decrease. While decreased prices translate into lower electricity costs, some coal suppliers have either been forced into bankruptcy or have had to shut in production.
Adaptation and mitigation activities	Impacted	Emission mitigations activities have taken place across AEP's operations for a number of years. AEP was a founding member of the Chicago Climate Exchange, has been subject to a number of renewable portfolio mandates and has taken voluntary actions to reduce its emissions profile. As such AEP has reduced its carbon footprint by 59% since 2000 (AEP's baseline year for its carbon goals). Consequently, AEP's exposure to climate change is much less significant and continues to decline.
Investment in R&D	Impacted	AEP is a long time member of EPRI, which conducts research and development on a variety of electric sector topics including climate change response, renewable energy, carbon capture and electrification. AEP spends millions of dollars each year to support these programs to ensure we can adequately mitigate climate change risks and seize on climate change opportunities.
Operations	Impacted	Deployment of renewable resources has supplanted the need for other types generation and in some cases has caused congestion on the transmission grid. This has changed and will continue to change how AEP operates dispatchable generation assets.
Other, please specify	Impacted	AEP's 59% carbon emission reduction since 2000 has resonated favorably with both investors and stakeholders as it shows AEP can be environmentally and fiscally responsible at the same time.

C2.6

(C2.6) Describe where and how the identified risks and opportunities have been factored into your financial planning process.

	Relevance	Description
--	-----------	-------------

Revenues	Impacted	Lost revenues due to customers seeking their own renewable energy sources as well as increased demand for electricity for electric vehicles factor into AEP's planning, along with a host of other carbon related factors.
Operating costs	Impacted	Investment in renewable energy reduces both operating costs and variability in operating costs relative to fossil sources.
Capital expenditures / capital allocation	Impacted	AEP recognizes that carbon emissions are a potential risk within it's operations and has taken distinct measures to plan for this risk including use of a carbon price in the resource planning process. The bulk of AEP's capital over the next three years allocated towards "wires" businesses which are emissions free. Capital investment plans towards new generation is 100 percent focused on low-carbon or no-carbon generation sources.
Acquisitions and divestments	Impacted	AEP considers carbon risk and carbon pricing in all acquisition and divestment reviews.
Access to capital	Impacted	AEP's investors have increasingly been inquiring about climate change planning. As such, to ensure AEP has adequate access to capital, AEP has proactively addressed climate change risk in its annual Corporate Accountability Report and, in 2018, released a dedicated climate reported titled "American Electric Power: Strategic Vision for a Clean Energy Future." Report link: https://www.aep.com/Assets/docs/AEP2018CleanEnergyFutureReport.pdf
Assets	Impacted	AEP's asset investment strategy is impacted both by the resources planning process, which includes a carbon price as well as internal prioritization which can capture other risks, such as those created by stranded assets.
Liabilities	Not yet impacted	AEP is working to reduce future potential liabilities from assets being stranded should they need to be taken out of service prior to their book life due to carbon regulation. This process includes careful review of all capital investments for prudence and focus on asset preservation through operational excellence.
Other	Impacted	AEP actively discusses its clean energy future, including risk management and governance, with a variety of stakeholders as a means of building trust and the AEP brand.

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

Yes, qualitative and quantitative

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b) Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

Yes

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

As an electric utility, AEP is in the business of converting a variety of forms of energy into useful electricity for consumption by residential, commercial and industrial users. Based on economics and geography of our service territory, AEP has historically been a large consumer of fossil fuels and thus a large emitter of greenhouse gases. Given the quantity of our carbon emissions, AEP has been at the forefront of political dialogue and innovation related to climate change response. Recognizing the risk created by potential limits on carbon emissions, AEP has taken a number of actions to reduce its emission footprint over the past 20 years. These activities included being a founding member of the voluntary Chicago Climate Exchange, an early investor in renewable energy and emission offset activities, and developing a pilot-scale carbon capture and sequestration system. Additionally, AEP has been actively investing in energy efficiency activities to further reduce our carbon footprint. As a result of these activities and other factors, AEP has reduced its carbon footprint by 59 percent since 2000 (AEP's baseline year for its current carbon goals). Additionally, coal, which once represented 70 percent of our generating capacity, now only represents 46 percent as our business has shifted to lower carbon sources of energy.

Through the Chicago Climate Exchange, AEP set its first carbon reduction goal in 2003, with a commitment to reduce or offset GHG emissions by 1 percent in 2003, 2 percent in 2004, 3 percent in 2005 and 4 percent in 2006 below baseline emission levels (an average of 1998-2001 annual emissions). The reductions were cumulative and, in 2005, AEP extended its commitment to achieve further reductions during 2007-2010, reaching an annual target of 6 percent by 2010. AEP exceeded this goal, achieving a reduction or offset of more than 70 million metric tons of CO₂. and, in 2011, set a new goal to reduce GHG emissions an additional 10 percent by 2020 from 2010 levels. Again, AEP exceeded this goal. In 2018, AEP set its third carbon reduction goals -- a reduction of 60 percent by 2030 and 80 percent by 2050

(from a 2000 baseline). At the end of 2018, AEP had already achieved a 59 percent reduction against its 2030 goal. Consequently, in 2019, the company is planning to revise this goal. These goals reflect AEP's business strategy to continue to reduce emissions over time as renewable energy is added to our system and as additional coal-fired generation is retired as it nears the end of its useful life.

Consistent with our climate goals and strategy and in acknowledgment of the risks associated with a continued reliance on large amounts of fossil generation, in 2019 AEP announced the North Central Project, a combination of wind farms with a total of 1,485 MW of capacity representing a capital investment of ~\$2 billion. See news release -- <https://www.aep.com/news/releases/read/1600/AEP-Seeks-to-Add-1%2C485-MW-of-New-Wind-Generation-from-Three-Wind-Facilities-in-Oklahoma>

C3.1d

(C3.1d) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenarios	Details
Other, please specify AEP internal	AEP’s risk management and scenario planning processes account for varying assumptions around climate change policy and regulation to plan for a variety of futures, including one with significant restrictions on the use of fossil fuels. AEP has evaluated a number of scenarios related to potential climate regulation through its integrated resource planning process, which evaluates the generation resources (energy and capacity) required to meet customer demand. The scenarios include a variety of assumptions related to underlying carbon policy and the associated pricing impacts that would influence the composition of our generating fleet and subsequently emissions. The scenarios were based on plausible scenarios related to carbon regulation and associated commodity pricing. Generally the resource planning process has a 15-20 year time horizon, though AEP took a longer approach in setting a 2050 carbon target. As the overwhelming majority of AEP’s emissions are associated with fossil generation, the resource planning scenarios capture almost the entirety of AEP’s carbon footprint. As a result of running these scenarios over the years, AEP has seen increased value in potential investment in renewable energy while decreased value in continuing to operate fossil generation. Consequently, AEP has been able to reduce its emissions by 59% since 2000 showing a pronounced influence on our business strategy. 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.

C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e

(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e) Disclose details of your organization's low-carbon transition plan.

In mid-2017, in response to ongoing engagement with various stakeholders, AEP began to develop new intermediate and long-term carbon reduction goals. AEP's new intermediate goal is to reduce carbon dioxide emissions from AEP generating facilities by 60 percent from 2000 levels by 2030. In the longer term, AEP anticipates reducing carbon dioxide emissions from AEP generating facilities by 80 percent from 2000 levels by 2050. These goals reflect our current business strategy and are based on the output of our integrated resource plans, which are designed to map out an appropriate mix of generation resources to meet energy and capacity needs at reasonable costs for our customers. In addition to being consistent with AEP's current resource plans, these goals are consistent with the intent to limit the global average temperature rise to less than 2 degrees Celsius above pre-industrial times. Although the United States is not a party to the Paris Climate Accord, stakeholders continue to use the 2 degree target as a framework for evaluating carbon reduction plans. A combination of factors gives us confidence in our ability to achieve these reductions, including an aging coal fleet, resource plans that are increasingly more diverse, our growing investments in clean energy and the potential of new and emerging technologies to make the power system more efficient, decentralized, fully integrated and digitized.

Our first obligation is to serve our customers with safe, reliable, affordable electricity and to maintain the reliability and resiliency of the grid. Our long-term commitment to reduce CO₂ emissions reflects the current direction of our resource plans to meet those needs. It's important to note that AEP's goals could change over time as electrification accelerates and technologies mature. For example, it is possible that we could exceed our goals if technology, such as large-scale battery storage or carbon capture and storage, matures faster. Our goals could also be impacted if electrification of the transportation sector (or other high carbon intensity industries) accelerates and demand for electricity increases beyond what could be met with additional carbon-free resources. However, this increased use of electricity would still provide a net economy-wide reduction in carbon emissions, as some fossil fuel use from other sectors would be eliminated. After 2030, emissions reductions will continue to occur as most of our coal-fueled generating units reach the expected end of their useful lives, which is typically around 60 years of age. As these units are retired, they will be replaced with cleaner forms of generation, including renewables and highly efficient natural gas. While natural gas does produce CO₂ emissions, its carbon footprint is significantly lower than that of coal. AEP does not anticipate building new coal units. However, if technological (e.g., carbon capture) and economic barriers are overcome, that could possibly change.

AEP is also active in deploying energy efficiency and renewable energy as part of its clean energy transition. AEP's renewable portfolio includes 5,272 MW of wind and solar today, and

by 2030, our current resource plans include the addition of up to another 4,066 MW of solar and 5,050 MW of wind. AEP's future proposals to add specific generation resources will depend on a number of factors, including economics and customer demand, and must be approved by AEP's state and federal regulatory commissions.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Scope

Scope 1

% emissions in Scope

99

Targeted % reduction from base year

10

Base year

2010

Start year

2010

Base year emissions covered by target (metric tons CO₂e)

134,000,000

Target year

2020

Is this a science-based target?

No, but we are reporting another target that is science-based

% of target achieved

100

Target status

Achieved

Please explain

As our 2020 target has been already achieved, in early 2018 we developed new climate targets. In 2018, AEP achieved a 59 percent reduction in carbon emissions from its 2000 baseline. The company plans to revise its 2030 goal in 2019 since we achieved it nearly a decade ahead of schedule.

Target reference number

Abs 2

Scope

Scope 1

% emissions in Scope

99

Targeted % reduction from base year

80

Base year

2000

Start year

2018

Base year emissions covered by target (metric tons CO2e)

167,000,000

Target year

2050

Is this a science-based target?

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

% of target achieved

74

Target status

Underway

Please explain

In mid-2017, in response to ongoing engagement on these issues with various stakeholders, AEP began to develop new intermediate and long-term carbon reduction goals. AEP's new intermediate goal is to reduce carbon dioxide emissions from AEP generating facilities by 60 percent from 2000 levels by 2030. In the longer term, AEP

anticipates reducing carbon dioxide emissions from AEP generating facilities by 80 percent from 2000 levels by 2050. These goals reflect our current business strategy and are based on the output of our integrated resource plans, which are designed to plan for an appropriate mix of generation resources to meet energy and capacity needs at reasonable costs for our customers.

In addition to being consistent with AEP's current resource plans, these goals are consistent with the intent to limit the global average temperature rise to less than 2 degrees Celsius above pre-industrial times. Although the United States is not a party to the Paris Climate Accord, stakeholders continue to use the 2 degree target as a framework for evaluating carbon reduction plans.

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	6	
To be implemented*	3	16,000,000
Implementation commenced*	4	525,000
Implemented*	2	18,000,000
Not to be implemented		

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative type

Low-carbon energy installation

Description of initiative

Solar PV

Estimated annual CO₂e savings (metric tonnes CO₂e)

4,400,000

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

0

Investment required (unit currency – as specified in C0.4)

4,500,000,000

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

AEP's operating companies currently having integrated resource plans indicating the development of 4,066 MW of new solar by 2030 to serve AEP customers. Based on AEP's current carbon intensity, this could potentially displace approximately 4.4 million metric tons of CO₂ per year by 2030. These investments are subject to regulatory approval and the amount undertaken could change over time.

Initiative type

Low-carbon energy installation

Description of initiative

Wind

Estimated annual CO₂e savings (metric tonnes CO₂e)

11,800,000

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

7,500,000,000

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

AEP's operating companies currently having integrated resource plans indicating the development of 5,050 MW of wind by 2030 to serve AEP customers. Based on AEP's current carbon intensity, this could potentially displace approximately 11.8 million metric tons of CO₂ per year by 2030. These investments are subject to regulatory approval and the amount undertaken could change over time.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Compliance with regulatory requirements/standards	Since our electric rates are regulated, we are only allowed to pass along costs to customers for activities that are deemed to be economically prudent or mandated by law. EPA regulations governing emissions from existing electric generators could drive significant investment in the future.
Employee engagement	Employees are actively engaged in forums, regular communications, contests and opportunities to identify and promote energy efficiency activities and technology development. These actions included many related to process efficiency and renewable technologies, directly reducing CO ₂ production.
Internal price on carbon	AEP utilizes an internal price of carbon in all generation planning decisions, which influences and encourages investment in low-carbon generation and divestment of high-carbon generation.
Partnering with governments on technology development	AEP has partnered with the government on various technology development initiatives including carbon capture and storage development and smart grid deployment.
Dedicated budget for energy efficiency	Each of AEP's subsidiaries has an Energy Efficiency Manager that has a budget dedicated to energy efficiency programs in the company's jurisdiction. Results vary by jurisdiction. In 2018, AEP invested approximately \$165 million in energy efficiency and demand response initiatives and has more than 100 energy efficiency and

	demand response programs in place across its service territory. As a result the AEP system reduced consumption by greater than 1 million MWh and demand by more than 270 MW.
Financial optimization calculations	All AEP investments are optimized using a carbon price and other assumptions related to regulatory risk, including those presented by carbon.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Product

Description of product/Group of products

In some jurisdictions AEP operating companies or affiliates market 100% renewable electricity, which represents a zero carbon product.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify
 renewable energy credit verification

% revenue from low carbon product(s) in the reporting year

0

Comment

Not currently a major source of revenue

Level of aggregation

Product

Description of product/Group of products

AEP has begun to invest in electric vehicle charging infrastructure which will allow for additional vehicle electrification and avoided transport emissions. Additionally, AEP is

encouraging customers to look at electrification of other processes to reduce cost and avoid emissions. See more here: <http://www.aepsustainability.com/energy/beneficial-electrification/>

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify
avoided emissions not calculated

% revenue from low carbon product(s) in the reporting year

0

Comment

Not currently a major source of revenue, but anticipated to grow.

C-EU4.6

(C-EU4.6) Describe your organization's efforts to reduce methane emissions from your activities.

AEP actively manages its facilities to ensure that any air emissions are limited, particularly in the case of methane which is a source of fuel for our gas fired facilities. As this fuel carries a cost, we make every effort to ensure that it is 100% combusted in the electric generation process to provide value to our customers. AEP estimates that direct methane emissions from natural gas infrastructure are negligible.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1, 2010

Base year end

December 31, 2010

Base year emissions (metric tons CO₂e)

140,917,311

Comment

Over 99% of the GHG emissions reported for Scope 1 in the base year of 2010 are adapted from US EPA's Mandatory Greenhouse Gas Reporting Rule (40CFR part 98). Scope 2 was re-evaluated for 2010 but AEP was a net seller of electricity and hence had no Scope 2 emissions. Both Scope 1 & Scope 2 emissions were developed using The Greenhouse Gas Protocol standards.

Scope 2 (location-based)

Base year start

January 1, 2010

Base year end

December 31, 2010

Base year emissions (metric tons CO₂e)

0

Comment

Scope 2 (market-based)

Base year start

January 1, 2010

Base year end

December 31, 2010

Base year emissions (metric tons CO₂e)

0

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

US EPA Mandatory Greenhouse Gas Reporting Rule

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO₂e?

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

75,361,246

Start date

January 1, 2018

End date

December 31, 2018

Comment

EPA Continuous Emission Monitoring System (CEMS) Relative Accuracy Tests Audits (RATA) procedures certify monitors to only +/- 15%. From the attached spreadsheet of individual CO₂ RATA results (2018_QA_RataSummary.xlsx), AEP CEMS averaged +/- 1.93% in 2018. These emissions are shared with US EPA and thus are verified to comply with federally enforceable emission limits.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

Location Based Uncertainty:

Operating company purchases and sales (for resale) are from FERC Form 1 reports and are considered high quality. Net purchases are converted to emissions using EPA's eGRID 2016 regional emission rates.

Market Based Uncertainty:

Operating company purchases and sales (for resale) are from FERC Form 1 reports and are considered high quality. Purchase Power Agreements from specific natural gas sources have specific emission rates assigned to them. Purchase Power Agreements for renewable sources (wind, solar and hydroelectric, net of REC sales) are removed from the remaining purchases before applying EPA's eGRID 2016 regional emission rates. Operating company specific emission rates are used to calculate sale-for-resale emissions which are subtracted from emissions from purchased electricity for internal use.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO₂e?

Reporting year

Scope 2, location-based

15,739,423

Scope 2, market-based (if applicable)

14,479,514

Start date

January 1, 2018

End date

December 31, 2018

Comment

Location-based Scope 2 emissions use operating company net purchases (net of sale-for-resale) and regional eGRID2016 CO₂, CH₄ and N₂O emission rates (the most current available). Market-based Scope 2 emissions account for dedicated renewable purchases, specific PPAs, and operating company emission rates for sale-for-resale.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source

Kerosene fueled torpedo heaters (mobile)

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not relevant

Explain why this source is excluded

EPA's 40 CFR Part 98 does not require that CO₂e emissions be reported for mobile torpedo heaters. AEP emissions for these sources have been estimated at less than 2,000 metric tons.

C6.5

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

1,029,433

Emissions calculation methodology

Quality of major consumables used in the generation of electricity entered into CDP calculation spreadsheets and raw material production emission rates from value chain partners.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Explanation

Key power generation consumables data is available. In discussions with the purchasing department, it was determined that AEP does not currently have a way to collect meaningful corporate data on goods and services other than power generation consumables.

Capital goods

Evaluation status

Relevant, not yet calculated

Explanation

In discussions with the purchasing department, it was determined that AEP does not currently have a way to collect meaningful corporate data on capital good purchases.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

5,024,535

Emissions calculation methodology

Quantity of fuel consumed multiplied by life cycle production emission factors from Worldwatch Institute

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Explanation

Publically available life cycle analysis of delivered coal and natural gas was used to estimate upstream energy use.

Upstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Explanation

Fuel and material transportation is already included in the life cycle analysis used for other category.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

0

Emissions calculation methodology

Quantity of non-organic waste sent to landfill used in EPA's WARM model. The value is actually negative (-1,468,064 metric tons CO₂e) due to recycling of metal and the beneficial reuse of Coal Combustion Products (ash).

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Explanation

Hazardous waste disposed and electronic equipment recycled (producing a negative emission according to EPA WARM model). The actual number of -1,468,064 metric tons CO₂e could not be entered.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

26,805

Emissions calculation methodology

Internal records of business travel were kept for air travel, rental cars, hotel stays, employee vehicle miles for business travel, and corporate jets. Travel agency emission numbers were used when supplied. Otherwise EPA Climate Leaders emission factors were used. Details are contained in the attached spreadsheet: AEP 2018 System GHG Profile (GRI) v1.xlsx.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

30

Explanation

All forms of business travel including hotel stays. Travel agent provided CO2 emission estimates for travel booked through them.

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

43,519

Emissions calculation methodology

The details of data used and assumptions can be found on the "Commuting" tab of the attached spreadsheet in section CC8-Emission Data: AEP 2018 System GHG Profile (GRI) v1.xlsx

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Explanation

Detailed study of average distance traveled by employees from their home address to their work address from human resource records.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Explanation

Any meaningful leased equipment fuel consumption is captured by corporate fuel purchase records in scope 1.

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Explanation

The transportation and distribution of electricity (Transmission & Distribution losses) is already captured by scope 1.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Explanation

Electricity is not "processed" by the customer.

Use of sold products

Evaluation status

Not relevant, explanation provided

Explanation

The use of electric energy does not cause any further GHG emissions.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Explanation

Electricity requires no end of life treatment.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Explanation

Any meaningful leased equipment fuel consumption is captured by corporate fuel purchase records in scope 1.

Franchises

Evaluation status

Not relevant, explanation provided

Explanation

No franchises.

Investments

Evaluation status

Not evaluated

Explanation

Other (upstream)

Evaluation status

Not evaluated

Explanation

Other (downstream)

Evaluation status

Not evaluated

Explanation

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO₂e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.005623

Metric numerator (Gross global combined Scope 1 and 2 emissions)

91,100,669

Metric denominator

unit total revenue

Metric denominator: Unit total

16,200,000,000

Scope 2 figure used

Location-based

% change from previous year

5.6

Direction of change

Decreased

Reason for change

Reduced generation, fuel switch to lower emitting fuel, increased electric rates, and sale of Ohio generating assets.

Intensity figure

0.8293

Metric numerator (Gross global combined Scope 1 and 2 emissions)

91,100,669

Metric denominator

megawatt hour generated (MWh)

Metric denominator: Unit total

109,847,722

Scope 2 figure used

Location-based

% change from previous year

3.29

Direction of change

Increased

Reason for change

Increased external purchases of electricity.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO ₂ e)	GWP Reference
CO ₂	74,661,649	IPCC Fifth Assessment Report (AR5 – 100 year)

CH4	225,741	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	310,447	IPCC Fifth Assessment Report (AR5 – 100 year)
SF6	163,408	IPCC Fifth Assessment Report (AR5 – 100 year)

C-EU7.1b

(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 SF6 emissions (metric tons SF6)	Gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives	0	0	6.95	163,408	
Combustion (Electric utilities)	74,451,007	7,996	0	74,984,144	
Combustion (Gas utilities)	0	0	0	0	
Combustion (Other)	210,642	66	0	213,694	
Emissions not elsewhere classified	0	0	0	0	

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	75,361,246

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By activity

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Stationary Combustion	74,984,144
Mobile Sources	213,694
Fugitive Emissions	163,408

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment
Electric utility generation activities	75,048,252	Added approximately 32% of mobile sources (associated with generation) to the Stationary Combustion. No fugitive emissions are associated with generation activities.

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
United States of America	15,739,423	14,479,514	27,702,067	4,330,649

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By activity

C7.6c

(C7.6c) Break down your total gross global Scope 2 emissions by business activity.

Activity	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
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Electric Purchases	15,739,423	14,479,514
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C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	
Other emissions reduction activities	1,852,061	Increased	3	Increase in purchased power for consumption.
Divestment	0	No change	0	0
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output	2,469,415	Decreased	4	Decreased internal generation.
Change in methodology	0	No change	0	
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other	0	No change	0	

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 40% but less than or equal to 45%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	No
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	No

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	244,429,800	244,429,800
Total energy consumption		0	244,429,800	244,429,800

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Bituminous Coal

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

114,084,938

MWh fuel consumed for self-generation of electricity

114,084,938

MWh fuel consumed for self-generation of heat

0

Comment

Fuels (excluding feedstocks)

Lignite Coal

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

14,965,709

MWh fuel consumed for self-generation of electricity

14,965,709

MWh fuel consumed for self-generation of heat

0

Comment

Fuels (excluding feedstocks)

Subbituminous Coal

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

81,705,877

MWh fuel consumed for self-generation of electricity

81,705,877

MWh fuel consumed for self-generation of heat

0

Comment

Fuels (excluding feedstocks)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

33,673,276

MWh fuel consumed for self-generation of electricity

33,673,276

MWh fuel consumed for self-generation of heat

0

Comment

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Bituminous Coal

Emission factor

93.4

Unit

kg CO₂ per million Btu

Emission factor source

EPA Table C-1 to Subpart C of 40 CFR Part 98

Comment

Lignite Coal

Emission factor

96.36

Unit

kg CO₂ per million Btu

Emission factor source

EPA Table C-1 to Subpart C of 40 CFR Part 98

Comment

Natural Gas

Emission factor

53.06

Unit

kg CO₂ per million Btu

Emission factor source

EPA Table C-1 to Subpart C of 40 CFR Part 98

Comment

Subbituminous Coal

Emission factor

97.17

Unit

kg CO2 per million Btu

Emission factor source

EPA Table C-1 to Subpart C of 40 CFR Part 98

Comment

C-EU8.4

(C-EU8.4) Does your electric utility organization have a transmission and distribution business?

Yes

C-EU8.4a

(C-EU8.4a) Disclose the following information about your transmission and distribution business.

Country/Region

United States of America

Voltage level

Distribution (low voltage)

Annual load (GWh)

148,614

Scope 2 emissions (basis)

Location-based

Scope 2 emissions (metric tons CO2e)

Annual energy losses (% of annual load)

4.2

Length of network (km)

356,063

Number of connections

Area covered (km²)

518,431

Comment

Country/Region

United States of America

Voltage level

Transmission (high voltage)

Annual load (GWh)

193,010

Scope 2 emissions (basis)

Location-based

Scope 2 emissions (metric tons CO2e)

Annual energy losses (% of annual load)

4.8

Length of network (km)

64,374

Number of connections

Area covered (km2)

518,431

Comment

Some distribution losses maybe embedded

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

C-EU9.5a

(C-EU9.5a) Break down, by source, your total planned CAPEX in your current CAPEX plan for power generation.

Primary power generation source	CAPEX planned for power generation from this source	Percentage of total CAPEX planned for power generation	End year of CAPEX plan	Comment

Coal – hard	1,598,274	26	2023	
Lignite	169,740	3	2023	
Nuclear	506,439	8	2023	
Gas	456,081	7	2023	
Hydroelectric	120,584	2	2023	
Solar	2,579	0	2023	
Wind	1,669,869	27	2023	
Other renewable	1,362,484	22	2023	

C-EU9.5b

(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g. smart grids, digitalization, etc.).

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan
-----------------------	--------------------------------	-----------------------------------	---	------------------------

C-CO9.6/C-EU9.6/C-OG9.6

(C-CO9.6/C-EU9.6/C-OG9.6) Disclose your investments in low-carbon research and development (R&D), equipment, products, and services.

Investment start date

February 12, 2019

Investment end date

Investment area

Equipment

Technology area

Renewable energy

Investment maturity

Large scale commercial deployment

Investment figure

1,056,000,000

Low-carbon investment percentage

81-100%

Please explain

In Feb 2019 AEP acquired a large portfolio of commercial scale wind (724 MW) from Sempra energy.

Investment start date

January 1, 2018

Investment end date

Investment area

Equipment

Technology area

Distributed energy resources

Investment maturity

Applied research and development

Investment figure

Low-carbon investment percentage

81-100%

Please explain

EtaGen manufactures Linear Generators to deliver onsite electric power to commercial businesses. The EtaGen Linear Generator uses a low-temperature reaction of air and natural gas to drive magnets through copper coils to produce electricity. The company's novel design achieves high efficiency with few moving parts, making it affordable and reliable with lower greenhouse gas emissions than the grid.

AEP does not disclose investment dollars for these types of investments and end date is TBD.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	No third-party verification or assurance
Scope 3	No third-party verification or assurance

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

High assurance

Attach the statement

Page/ section reference

Relevant standard

Other, please specify

Proportion of reported emissions verified (%)

99

-  Tulsa EPA Receipt 2018.pdf
-  Southwestern EPA Receipt 2018.pdf
-  Pirkey EPA Receipt 2018.pdf
-  Clinch River EPA Receipt 2018.pdf
-  Conesville EPA Receipt 2018.pdf
-  Mattison EPA Receipt 2018.pdf
-  AEP 2018 EPA GHG Summary.xlsx
-  Kanawha River EPA Receipt 2018.pdf
-  Weleetka EPA Receipt 2018.pdf
-  Northeastern EPA Receipt 2018.pdf
-  Turk EPA Receipt 2018.pdf
-  Arsenal Hill EPA Receipt 2018.pdf
-  GHG Summary Report - Lonestar.pdf
-  GHG Summary Report - Rockport.pdf

- 📎 Mountaineer EPA Receipt 2018.pdf
- 📎 Lieberman EPA Receipt 2018.pdf
- 📎 Lone Star EPA Receipt 2018.pdf
- 📎 SF6 EPA Receipt 2018.pdf
- 📎 GHG Summary Report - Lieberman.pdf
- 📎 GHG Summary Report - Comanche.pdf
- 📎 GHG Summary Report - Ceredo.pdf
- 📎 GHG Summary Report - Clinch River Resubmission.pdf
- 📎 GHG Summary Report - Kanawha River.pdf
- 📎 Comanche EPA Receipt 2018.pdf
- 📎 Oklaunion EPA Receipt 2018.pdf
- 📎 Ceredo EPA Receipt 2018.pdf
- 📎 AEP 2018 System GHG Profile (GRI) v1.xlsx
- 📎 GHG Summary Report - Oklaunion.pdf
- 📎 Amos EPA Receipt 2018.pdf
- 📎 QA_RataSummary_2018.xlsx
- 📎 Big Sandy EPA Receipt 2018.pdf
- 📎 GHG Summary Report - Riverside.pdf
- 📎 GHG Summary Report - Welsh.pdf
- 📎 GHG Summary Report - Mountaineer.pdf
- 📎 Mitchell EPA Receipt 2018.pdf
- 📎 Welsh EPA Receipt 2018.pdf
- 📎 GHG Summary Report - Big Sandy.pdf
- 📎 Flint Creek EPA Receipt 2018.pdf
- 📎 Rockport EPA Receipt 2018.pdf
- 📎 GHG Summary Report - Mattison.pdf
- 📎 GHG Summary Report - Pirkey.pdf
- 📎 GHG Summary Report - Southwestern.pdf
- 📎 GHG Summary Report - Wilkes.pdf
- 📎 GHG Summary Report - Weleetka.pdf
- 📎 GHG Summary Report - Conesville.pdf
- 📎 GHG Summary Report - Mitchell.pdf
- 📎 GHG Summary Report - Northeastern.pdf
- 📎 GHG Summary Report - Flint Creek.pdf

-  GHG Summary Report - Arsenal Hill.pdf
-  GHG Summary Report - Dresden.pdf
-  GHG Summary Report - Knox Lee.pdf
-  GHG Summary Report - Tulsa.pdf
-  GHG Summary Report - Turk.pdf
-  GHG Summary Report - SF6 2018 revised.pdf
-  Riverside EPA Receipt 2018.pdf
-  Knox Lee EPA Receipt 2018.pdf
-  GHG Summary Report - Amos.pdf
-  Plant_GHG_Summaries.xlsx
-  Wilkes EPA Receipt 2018.pdf
-  Dresden EPA Receipt 2018.pdf

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

No, we do not verify any other climate-related information reported in our CDP disclosure

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

No, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?

One state in which AEP operates in, Virginia, has approved a regulation for a cap-and-trade program governing electric sector carbon emissions. Final details of the program are still being established but AEP anticipates complying through the use of free allowances, potential allowance purchases and the eventual retirement of its two remaining fossil-fired electric generating units in Virginia.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

- Navigate GHG regulations
- Stakeholder expectations
- Drive energy efficiency
- Drive low-carbon investment
- Stress test investments
- Identify and seize low-carbon opportunities

GHG Scope

- Scope 1
- Scope 2

Application

AEP uses a carbon price within its Integrated Resource Planning (IRP) process to appropriately capture the potential future policy and regulatory risk associated with Scope 1 and 2 carbon emissions. The IRP process is the fundamental pathway in which we assess and plan for providing reliable electric supply to our customers over a longer-term time horizon. The IRP is a formal process within many of our states, which involves publically disclosing a plan for future operations and resources that is subject to review by regulators and stakeholders. In most cases, it includes a robust stakeholder process to inform the plan's development. AEP's IRP process considers all available resource and market options to achieve the least-cost plan that provides the energy and capacity resources customers need and value.

Actual price(s) used (Currency /metric ton)

15

Variance of price(s) used

Price gradually increases by 5 % per year

Type of internal carbon price

Shadow price

Impact & implication

The use of a carbon price within AEP's planning and IRP process has encouraged additional energy efficiency and renewable energy measures while simultaneously

reducing the perceived value of fossil fueled resources. As a result of the carbon price and other factors, AEP's CO2 emissions have decreased by 59% since 2000.

Additionally, use of the carbon price has supported a new generation strategy that is solely focused on low- or no-carbon resources.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers

Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Compliance & onboarding

Details of engagement

Other, please specify

AEP is in the process of exploring development of a Supplier Code of Conduct.

Currently, there are no climate-specific KPIs or requirements for suppliers but there are compliance requirements.

% of suppliers by number

% total procurement spend (direct and indirect)

% Scope 3 emissions as reported in C6.5

Rationale for the coverage of your engagement

Impact of engagement, including measures of success

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Education/information sharing

Details of engagement

Share information about your products and relevant certification schemes (i.e. Energy STAR)

% of customers by number

% Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

AEP engages with its largest commercial & industrial customers regularly. In 2019, AEP published a new GHG and Energy Report for these customers. Many of our large customers have sustainability goals that relate to renewable energy and/or carbon emission reductions. AEP published this report ahead of an industry-wide effort among investor-owned utilities to be more transparent and provide easier access to this data for customers. Previously, customers would have to rely on two-year old egrid data from the U.S. EPA, which doesn't accurately reflect current performance and emissions reductions. This is especially true for AEP, where the transition to a clean energy future has accelerated in the last few years, compared with five years ago. Working through the Edison Electric Institute and the World Resources Institute's Clean Power Council (a group of utilities and customers working with WRI), we are developing a broader report template. The new template will include guidance to provide customers with the appropriate data they need to calculate their own emissions. In the future, the goal would be to identify additional opportunities for climate-related collaboration.

Impact of engagement, including measures of success

This engagement addresses a pain point customers currently have of accessing accurate data to calculate their own emissions. AEP's own GHG and Energy Report was well-received by customers. Engagement with customers in our process and in the WRI/EEI process has been significant for the past two years to develop these standardized reports.

C12.1c

(C12.1c) Give details of your climate-related engagement strategy with other partners in the value chain.

AEP regularly engages a variety of stakeholders on climate-related issues, including customers, investors and NGOs. For example, AEP is currently in the midst of engaging with the Climate Action 100+ group with ongoing dialogue on a range of issues related to climate risk, governance and strategies for a low- to no-carbon future. This example reflects AEP's commitment to transparency and engagement with all of its stakeholders.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

- Direct engagement with policy makers
- Trade associations
- Funding research organizations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Cap and trade	Support with minor exceptions	AEP supported the Waxman-Markey climate bill in 2009 which would have implemented a cap-and-trade program. AEP continues to support this type of approach in lieu of regulation through the Clean Air Act. Engagement occurs through various forms of communication with regulators, policymakers and stakeholders. These discussions generally occur at the federal level given the global scope of the underlying issue.	AEP will continue to advocate for this approach to climate policy as the most economical way to address the climate issue and balance cost and benefits. However, political deadlock in Washington, D.C. has rendered this approach dormant for the time being.
Carbon tax	Oppose	While a carbon tax represents a potential source of revenue, its disadvantages for the economy and the electric power and energy industry in particular, and the uncertainty of the environmental benefits that would be achieved, keep it from becoming a reasonable policy solution. Engagement occurs through various forms of communication with regulators, policymakers and stakeholders, generally at the federal level, though many state regulators are also interested in our position.	AEP will continue to maintain that this type of approach does not represent a workable solution to reduce carbon emissions and places added burden on customers with no clear benefit.

Energy efficiency	Support with minor exceptions	<p>AEP generally supports federal and state policy initiatives to improve the energy efficiency of the U.S. economy. AEP supports reasonable and justified policies that do not adversely impact any individual customers or businesses, including AEP. Engagement occurs through various forms of communication with regulators, policymakers and stakeholders. This engagement occurs both at the federal level as well as the state level on energy efficiency legislation and potential regulations. Engagement is focused especially on those state officials and regulators involved in setting the required amounts of energy efficiency to be achieved by our customers.</p>	<p>AEP will continue to support energy efficiency policies where cost effective measures can be achieved.</p>
Clean energy generation	Support with minor exceptions	<p>AEP has been gradually adding various forms of lower-emitting energy to its electric system and believes that such sources can play an increasing role in the diversification of the U.S. generating mix. However, policies to support clean energy need to carefully balance long-term objectives with cost impacts. Engagement occurs through various forms of communication with regulators, policymakers and stakeholders. Seven of the states in which AEP operates have renewable or alternative energy portfolio standards and AEP continues to have dialogues with regulators and policymakers in all of its states regarding potential new or modified standards.</p>	<p>AEP will continue to support incentives for lower-emitting generation and appropriate fuel diversity for the U.S. electric grid.</p>

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Edison Electric Institute

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

As Congress works to address this issue, it is essential to include effective consumer protection measures that help to reduce price increases for consumers and avoid harm to U.S. industry and the economy. (www.eei.org/ourissues/theEnvironment/climate/Pages/default.aspx)

How have you influenced, or are you attempting to influence their position?

AEP serves on several committees and in leadership positions in EEI.

Trade association

U.S. Chamber of Commerce

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

A deeper understanding of the issues and developing science associated with the environment and climate change will influence national and global energy, economic, and environmental policy choices. Balancing these priorities requires greater consideration of the complex processes driving climate change and increased attention to adaptation measures. We must increase our investment in climate science, which will enable us to adjust policies as scientific understanding advances. At the federal level, we need better coordination and collaboration across agencies for policy coherence and balance. (<http://www.energyxxi.org/invest-climate-science-guide-energy-economic-and-environmental-policy>)

How have you influenced, or are you attempting to influence their position?

AEP is a member of the U.S. Chamber of Commerce, as are many of our customers. We believe it is important to be at the table for our views to be heard. We may not always be in a position of influence on any single issue, but we actively engage on a range of issues.

Trade association

American Coalition for Clean Coal Electricity

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The American Coalition for Clean Coal Electricity (ACCCE) advocates for public policies that advance environmental improvement, economic prosperity and energy security. ACCCE believes that the wise use of coal – one of America's most abundant, domestically produced energy resources – is essential to providing affordable, reliable electricity for millions of U.S. consumers and a growing domestic economy. Further, ACCCE is committed to continued and enhanced U.S. leadership in developing and deploying new, advanced clean coal technologies that protect and improve the environment. Finally, ACCCE closely follows issues and public policy deliberations at the federal and state levels. (<http://www.americaspower.org/issues-policy>)

How have you influenced, or are you attempting to influence their position?

AEP remains a funding member of ACCCE, but reduced its membership level in 2015.

Trade association

Business Roundtable

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Business Roundtable is an association of chief executive officers of leading U.S. companies working to promote a thriving economy and expanded opportunity for all Americans through sound public policy. Access to reliable, affordable energy undergirds U.S. national and economic security, and a clean, healthy environment is essential for economic prosperity now and for future generations. Business Roundtable supports policies that capitalize on America's strengths in technology and energy diversity to maximize U.S. energy options and preserve environmental quality. The business community has a special obligation to step forward and help build an environmentally and economically sustainable future.

How have you influenced, or are you attempting to influence their position?

AEP's CEO is an active member of the Roundtable and previously chaired the Energy and Environment committee.

Trade association

Global Sustainable Electricity Partnership

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The mission of the Global Sustainable Electricity Partnership is to play an active role in addressing global electricity issues and to promote sustainable development worldwide. Missions include:

- 1) Develop joint policy frameworks and implement related initiatives in both domestic and international markets.
- 2) Engage in the global debates on electricity-related issues, taking joint positions.
- 3) Provide information and expertise on the efficient generation and use of electricity to assist developing countries in strengthening their human capabilities.

How have you influenced, or are you attempting to influence their position?

AEP serves on the Board of Directors.

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

No

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Similar to other companies, AEP has a public policy strategy that seeks to influence decisions being made at Congress, FERC, state legislatures and regulatory commissions. We do this to mitigate our risk exposure and to help us achieve our business objectives. In 2017, AEP formed an internal Policy Advisory Team (PAT) to better manage public policy issues. This team is composed of senior executives across AEP, including some of those who represent the company in Washington, D.C., and the state capitals in our service territory. The PAT considers policy options on issues of relevance to the company. The multi-departmental, cross-functional structure of the PAT supports internal policy analysis and debate. The approach helps ensure that AEP is speaking with one voice on important public policy considerations and that all employees, and ultimately external stakeholders, are clear on our policy positions and objectives. The goal of the PAT is to ensure a smoother, more consistent policy strategy across the company. In strategic discussions about how we can best align ourselves to maximize the customer benefits of new technologies, we talk about "future-proofing" our company. The pace and scope of change underway in the utility sector is indisputable. In order to adapt and bring the most value to customers, utilities require a regulatory and legislative framework that allows them the flexibility to incorporate new technologies, including those we've not even envisioned yet. We need a regulatory paradigm that fosters rapid deployment of creative energy solutions.

Furthermore, during the last decade, AEP has cultivated a commitment to engagement and transparency by being accessible, responsive, honest and open with those with whom we engage. We seek to foster healthy, trusting relationships that turn conflict into cooperation and, ultimately, into partnership. We have ongoing dialogue with many stakeholders and general

agreement that technology, policy, timing and collaboration are all critical to a clean energy transition plan. As a result, AEP holds periodic calls and meetings with stakeholders to keep the channels of communication open and continue information sharing as well as looking for areas of collaboration, particularly as it relates to carbon emission reductions.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

 2018AnnualReportAppendixAtoProxy.pdf

Page/Section reference

pdf page 22

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Page/Section reference

www.aepsustainability.com

Content elements

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets
- Other metrics

Comment

Annual corporate accountability report is available from the link above.

C14. Signoff

C-FI

(C-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.

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

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

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

Not at this time

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	16,200,000,000

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

Yes

SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	US	0255371017

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Managing the different emission factors of diverse and numerous geographies makes calculating total footprint difficult	Customers would have to have their specific electricity usage in particular relevant geographies.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

AEP provides location-specific electricity emissions factors at <http://www.aepsustainability.com/community-customer/docs/2018%20Summary-Customer%20Energy-Carbon%20Emissions%20Report.pdf>. Customers should go to this site to calculate scope 2 emissions based on location.

AEP is also part of an industry initiative to provide GHG emissions and electricity mix data to customers through the Edison Electric Institute. This effort is in collaboration with the World Resources Institute.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

No

SC3.1

(SC3.1) Do you want to enroll in the 2019-2020 CDP Action Exchange initiative?

No

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2018-2019 Action Exchange initiative?

No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

No, I am not providing data

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to	Are you ready to submit the additional Supply Chain Questions?
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I am submitting my response	Public	Investors Customers	Yes, submit Supply Chain Questions now
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Please confirm below

I have read and accept the applicable Terms