



## Supply Chain 2016 Information Request American Electric Power Company, Inc.

### Module: Introduction

#### Page: Introduction Supply Chain

#### Climate change

Please tick the box below to complete the introduction questions for Climate Change

true

#### CC0.1

##### Introduction

Please give a general description and introduction to your organization.

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

#### CC0.2

##### Reporting Year

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

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day/month/year (in full i.e. 2001).

Enter Periods that will be disclosed

Thu 01 Jan 2015 - Thu 31 Dec 2015

#### CC0.3

##### Country list configuration

Please select the countries for which you will be supplying data.

Select country

United States of America

#### CC0.4

##### Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

USD(\$)

#### CC0.5

Please select if you wish to complete a shorter information request.

#### Water

Please tick the box below to complete the introduction questions for Water

false

#### Further Information

**Module: Management****Page: CC1. Governance****CC1.1****Where is the highest level of direct responsibility for climate change within your organization?**

Board or individual/sub-set of the Board or other committee appointed by the Board

**CC1.1a****Please identify the position of the individual or name of the committee with this responsibility**

Due to the carbon intensive nature of our business, AEP's Chairman, President and CEO, Nick Akins, 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, structure and management.

The Committee on Directors & Corporate Governance of AEP's Board of Directors 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/statement.aspx>) and in our annual Corporate Accountability Report (<http://www.AEPsustainability.com>). The board receives semi-annual updates on our progress, although discussion occurs throughout the year. AEP's Board of Directors does not have a committee specifically designated for sole oversight of climate change. The issue is regularly discussed by all board committees and the full board in the context of risk management and business strategy. Senior management reports regularly to the board on policy matters, financial risks, physical risks and mitigation.

**CC1.2****Do you provide incentives for the management of climate change issues, including the attainment of targets?**

Yes

**CC1.2a****Please provide further details on the incentives provided for the management of climate change issues**

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
All employees	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target	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 strategic goals include commitments to culture and business transformation as well as its voluntary emission reduction commitment.
All employees	Monetary reward	Emissions reduction project Energy reduction project Efficiency project Behaviour change related indicator	Key Contributor Awards are annual recognition given to employees who go above and beyond their job expectations to provide a tangible benefit for AEP's business. This award comes with financial incentives and can be awarded to those who further AEP's business interests related to climate change management.
All employees	Recognition (non-monetary)	Emissions reduction project Energy reduction project Efficiency project Behaviour	AEP's executives and managers have broad discretion in rewarding employees for actions which further the company's interest and image, including climate change education, communication action, public policy development and direct action.

		change related indicator	
Environment/Sustainability managers	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target Behaviour change related indicator	AEP employees in Environmental Services, Legal, Corporate Sustainability, Governmental Affairs and Public Policy have specific performance goals related to climate change management written into their annual performance plans. Execution of these goals, through analysis, business development, stakeholder engagement and/or lobbying efforts directly impacts their annual compensation.

**Further Information****Page: CC2. Strategy****CC2.1**

**Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities**

Integrated into multi-disciplinary company wide risk management processes

**CC2.1a**

**Please provide further details on your risk management procedures with regard to climate change risks and opportunities**

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	As AEP's operations are solely within the U.S., primary consideration is given to domestic risks and opportunities. However, the global nature of climate change requires the constant monitoring of global policy initiatives, emission abatement commitments and technological developments to the extent they can/will influence our domestic response.	> 6 years	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.

**CC2.1b**

**Please describe how your risk and opportunity identification processes are applied at both company and asset level**

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 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 in 2.1(a).

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](http://www.AEPsustainability.com))

**CC2.1c**

**How do you prioritize the risks and opportunities identified?**

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 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 special reports on 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.

## CC2.2

### Is climate change integrated into your business strategy?

Yes

## CC2.2a

### Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

i) Climate change has been one of the most significant sustainability issues facing AEP, influencing both short- and long-term strategy. One major reason is our reliance on fossil fuels, including coal. Because of the company's proximity to the nation's coal fields, its legacy in coal-fueled generation, the expertise we developed over more than a century to improve the efficient use of coal and the huge investments we have made to reduce our environmental footprint, coal remains a vital part of AEP's fuel portfolio to insure a diversified resource base that protects reliability and security of the grid.

Our strategy to diversify includes increasing our use of natural gas and renewable generation and reconfiguring the grid to support further integration of distributed energy resources, increased energy efficiency and demand response, and the growth of other customer-driven technologies. The expansion of renewable resources is a key driver of growth in our transmission business.

There is no doubt federal and state policy and society are moving toward the use of clean energy, regardless of what happens with the Clean Power Plan. New and existing fossil-fueled generation resources will be expected to achieve higher efficiencies and include advanced environmental control capabilities. AEP's existing coal units are controlled or in the process of being controlled to achieve compliance with current environmental regulations. In the future, decisions to maintain these units will be driven by their ability to operate and perform economically as market conditions and environmental regulations change. In 2015, coal accounted for approximately 50 percent of AEP's generating capacity. (Please see attached charts that show AEP's integrated resource plan forecasts for increasing renewable resources, natural gas, energy efficiency and demand response programs, designed to meet customers' energy and capacity needs while reflecting the valuation of cleaner energy.)

ii) Anticipated climate change regulatory policy is an important influence on AEP's business strategy given the carbon-intensive nature of our operations.

iii & iv) Climate change influences both AEP's short- and long-term business strategy. Climate change management has become increasingly integrated with our overall strategy through the use of a carbon price in corporate planning efforts and other strategic actions. In response to growing concern over climate change and the risks it presented to our business model, we took early, voluntary steps to reduce greenhouse gas emissions. These efforts included planting millions of trees and accepting a binding emission reduction requirement as a member of the Chicago Climate Exchange, to building the world's first carbon capture and storage validation facility at our Mountaineer Plant in West Virginia. Additionally, we strategically diversified our operations over the past decade, integrating over 3,200 MW of renewable energy and 1,750 MW of energy efficiency / demand side management. Furthermore, we also have added approximately 5,000 MW of highly efficient natural gas generation to our portfolio since 2004. (see attached charts)

As a result of these early actions in recognition of future risk (in addition to other factors such as low natural gas prices and coal unit retirements), AEP has reduced CO2 emissions by 39% from 2000 levels (see chart for historical view). Currently, AEP's generation portfolio is 50% coal. However, coal's share of our portfolio is projected to continue to decline in future, while energy efficiency and renewable energy shares will continue to grow. This reflects a substantial change in our operations.

v) As a result of these actions, AEP's operations are now less carbon intensive, providing a strategic advantage in responding to future climate regulations.

We will continue to prudently invest in technologies that support a balanced portfolio of generation assets. For the existing fossil fleet, our focus is on technologies that can improve efficiency, reliability, flexibility and maintenance of these assets. Improved monitoring and diagnostic capabilities, as well as applying "lean" processes and principles, will complement these investments and ensure these units continue to provide value to our customers and reliability of the power grid.

Given current economics, the logical technology choice for new 24/7 power sources will be high-efficiency combined-cycle natural gas units. However, wind and solar generation will play an increasing role as they become cost-competitive at grid-scale as an intermittent energy resource and align with regulatory mandates and customer preferences.

We are also investing in energy storage technologies that have the capability to improve the efficiency of the power grid and enable reliability with greater use of variable resources in the future.

The power grid of the future will need all of these sources to provide all customers access to safe, reliable and cost-effective electricity. Customer-focused energy efficiency programs and technologies will provide additional opportunities for AEP to adapt and serve our customers as the power grid becomes more and more decentralized.

vi) During the reporting year, AEP strategically shifted capital investment from generation to transmission in part due to the recognition of the regulatory risks associated with continued investment in fossil fuels. Our investments in transmission improve reliability for all customers and enable the connection of renewable resources to the grid, furthering emission reduction initiatives.

**CC2.2c****Does your company use an internal price of carbon?**

Yes

**CC2.2d****Please provide details and examples of how your company uses an internal price of carbon**

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 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.

The carbon price used within the IRP process is a fundamental input that places a relative value on carbon dioxide emissions from AEP's electric generating facilities and future facilities that may be considered within the planning process. The effects of carbon pricing are further integrated into AEP's forecasts for commodity pricing, including wholesale electricity, natural gas and coal. The use of a carbon price favors investment in new zero or low carbon generation technologies as well as gradual retirement of older carbon-intensive generating sources.

AEP's current carbon price reflects an expected market value for carbon emissions predicated upon either legislation or regulatory action requiring carbon emission reductions in the early part of the next decade. At this point in time, the most likely avenue for carbon regulation directly affecting AEP's operations appears to be U.S. EPA's proposed carbon emission standards under section 111(d) of the Clean Air Act, known as the Clean Power Plan.

**CC2.3****Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)**

Direct engagement with policy makers  
Trade associations  
Funding research organizations  
Other

**CC2.3a****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 also is a member of the International Emissions Trading Association (IETA) which is a vocal advocate for market-based emission reduction programs. AEP chaired IETA in 2015.	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.
Energy efficiency	Support with minor exceptions	AEP 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.	AEP will continue to support energy efficiency policies where cost effective measures can be achieved.
Clean energy generation	Support with minor exceptions	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. (see attached map for state-by-state RPS)	AEP will continue to support incentives for lower-emitting generation and appropriate fuel diversity for the U.S. electric grid.

**CC2.3b****Are you on the Board of any trade associations or provide funding beyond membership?**

Yes

**CC2.3c**

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Edison Electric Institute	Consistent	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. ( <a href="http://www.eei.org/ourissues/the%20Environment/climate/Pages/default.aspx">www.eei.org/ourissues/the Environment/climate/Pages/default.aspx</a> )	AEP serves on several committees and in leadership positions in EEI.
U.S. Chamber of Commerce	Consistent	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. ( <a href="http://www.energyxxi.org/invest-climate-science-guide-energy-economic-and-environmental-policy">http://www.energyxxi.org/invest-climate-science-guide-energy-economic-and-environmental-policy</a> )	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.
American Coalition for Clean Coal Electricity	Consistent	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. ( <a href="http://www.americaspower.org/issues-policy">http://www.americaspower.org/issues-policy</a> )	AEP remains a funding member of ACCCE, but reduced its membership level in 2015.
International Emissions Trading Association	Consistent	The International Emissions Trading Association (IETA) composed of over 100 multi-national companies has been an an advocate for cost-effective climate policies around the world. The organization is leading business advocate for a cost-effective and workable framework for greenhouse gas emission reductions using emissions trading, offsets and other market mechanisms. However, IETA does not take positions regarding the degree of stringency of climate legislation or regulations.	AEP currently serves as the chairman of the board of IETA and has been a board member for 14 years.

**CC2.3d**

Do you publicly disclose a list of all the research organizations that you fund?

No

**CC2.3e**

Please provide details of the other engagement activities that you undertake

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. In 2015, we made progress toward this objective and laid out a plan to expand our engagement efforts in 2016.

There is continuing dialogue and general agreement that technology, policy, timing and collaboration are all critical to a clean energy transition plan. As a result, AEP has scheduled 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.

Stakeholder engagement in 2015 was largely dominated by carbon, specifically the Clean Power Plan (CPP), and the evolving utility business model. Although we disagreed on some aspects of the rule, we agreed to try to identify opportunities to work together that would benefit the states we serve as they determine their compliance strategies.

For example, we agreed that renewable energy, energy efficiency and grid modernization initiatives will be critical for the future, regardless of what happens with the CPP. As AEP diversifies its energy portfolio, we will be looking for opportunities to work together to seek state commission support for utility investments in options such as universal solar projects that broaden access to renewable energy to more customers.

Another avenue of stakeholder engagement occurs in our integrated resource planning (IRP) process. Most of our states have formal stakeholder processes for developing these resource plans, while others are more informal. In all cases, the intent is to be inclusive, listen to stakeholder ideas and concerns, answer their questions and consider their input as we develop resource plans for our jurisdictions. These discussions includes climate risk mitigation.

Stakeholder engagement can sometimes be a 24/7 operation, such as customer engagement at our call centers or through our websites and social media outlets. Other relationships require engagement through face-to-face meetings or teleconferences, such as community open houses and standing conference calls.

**CC2.3f**

**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?**

Memberships in all directly funded or supported organizations are regularly reviewed by the Memberships and Contributions group within AEP to ensure consistency. Additionally, executives and/or subject matter experts hold either board level or advisory positions within many of these organizations to further ensure consistency.

AEP also publicly discloses the trade association membership dues to organizations where a portion of the dues is dedicated to lobbying efforts. It is available only on the web. (<http://aep.com/investors/CorporateLeadersAndGovernance/PoliticalContributionsLobbyingActivities.aspx>)

**Further Information**

Please see AEP's detailed carbon profile analysis in its 2016 Corporate Accountability Report -- <http://aepsustainability.com/about/carbon.aspx>

**Attachments**

[https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Text\\_Chart\\_AEP's\\_Renewable\\_Portfolio.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Text_Chart_AEP's_Renewable_Portfolio.jpg)  
[https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Map\\_Renewable\\_Portfolio-Energy\\_Efficiency\\_Standard.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Map_Renewable_Portfolio-Energy_Efficiency_Standard.jpg)  
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[https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Bar\\_Chart\\_Total\\_AEP\\_System-Annual\\_CO2\\_Emissions.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Bar_Chart_Total_AEP_System-Annual_CO2_Emissions.jpg)  
[https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC2.Strategy/Info\\_AEP\\_System\\_Planned\\_Generation\\_Resource\\_Additions.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC2.Strategy/Info_AEP_System_Planned_Generation_Resource_Additions.jpg)

**Page: CC3. Targets and Initiatives****CC3.1**

**Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?**

Absolute target

**CC3.1a**

**Please provide details of your absolute target**

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs1	Scope 1	99%	10%	2010	134000000	2020	Don't know	The use of the term "science-based" to categorize emissions targets is misleading given the uncertainties in science, timing and apportionment of responsibilities between entities.

**CC3.1e**

**For all of your targets, please provide details on the progress made in the reporting year**

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Abs1	50%	100%	AEP's 2015 emissions (as tracked per the actual commitment) were 24% below 2010 levels and AEP remains on track to meet or exceed its goal by 2020.

**CC3.2**

**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

**CC3.2a**

**Please 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	Description of product/Group of products	Are you reporting low carbon product/s	Taxonomy, project or methodology used to classify product/s as low carbon or to	% revenue from low carbon product/s in the	% R&D in low carbon product/s in	Comment
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		or avoided emissions?	calculate avoided emissions	reporting year	the reporting year
Product	In some jurisdictions AEP operating companies or affiliates market 100% renewable electricity, which represents a low carbon product.	Low carbon product	Climate Bonds Taxonomy	0%	Less than or equal to 10%

**CC3.3**

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

Yes

**CC3.3a**

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	6	
To be implemented*	2	5000000
Implementation commenced*	2	
Implemented*	3	13000000
Not to be implemented	0	

**CC3.3b**

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Product design	Deployment of BOLD Transmission Technology		Scope 1	Voluntary			>25 years	Ongoing	Our new, patent BOLD (Breakthrough Overhead Line Design) transmission line design helps to more efficiently deliver power. The 345 kilovolt (kV) line design delivers up to 60 percent more power in a smaller right-of-way than conventional designs and using low-impedance bundled conductors, BOLD lines can save up to 40% of the energy that is lost during power transmission using existing lines, resulting in fewer GHG emissions.
Low carbon energy installation	Community Scale Solar Photovoltaic Installation		Scope 1	Voluntary		42400000	16-20 years	16-20 years	Indiana Michigan Power (I&M), an operating unit of American Electric Power began to add solar energy to its generation fleet in 2015 following the Indiana Utility Regulatory Commission's approval of I&M's plans for four solar facilities with a combined capacity of 14.7 megawatts. The estimated cost of the project is \$42.4 million and will be completed by the end of 2016.
Process emissions reductions	Retirement of Coal-Fired Generating Units	13000000	Scope 1	Voluntary Mandatory		0	4-10 years	Ongoing	The retirement of more than 5500 MW of coal-fired generating capacity occurred in 2015. In 2014, their last full year of operation, these generating units emitted approximately 13 million metric tons of CO2.

**CC3.3c**

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.
	Employees are actively engaged in forums, regular communications, contests and opportunities to identify and promote energy



Employee engagement	efficiency activities. These actions included many related to process efficiency, directly reducing CO2 production.
Internal price of 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 projects in the company's jurisdiction. Results vary by jurisdiction. In 2015, AEP invested approximately \$160 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, in 2015, the AEP system reduced demand by 256.4 MW and consumption by 1,024,998 MWh.

**Further Information**

**Page: CC4. Communication**

**CC4.1**

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	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	pdf pgs 19, 47, 112	<a href="https://www.cdp.net/sites/2016/89/689/Climate Change 2016/Shared Documents/Attachments/CC4.1/AEP_10K_2015.pdf">https://www.cdp.net/sites/2016/89/689/Climate Change 2016/Shared Documents/Attachments/CC4.1/AEP_10K_2015.pdf</a>	
In voluntary communications	Complete	<a href="http://www.aepsustainability.com/environment/regulations/carbon.aspx">http://www.aepsustainability.com/environment/regulations/carbon.aspx</a>	<a href="https://www.cdp.net/sites/2016/89/689/Climate Change 2016/Shared Documents/Attachments/CC4.1/CAR Climate Section.pdf">https://www.cdp.net/sites/2016/89/689/Climate Change 2016/Shared Documents/Attachments/CC4.1/CAR Climate Section.pdf</a>	
In other regulatory filings	Complete	pdf pgs 60, 150	<a href="https://www.cdp.net/sites/2016/89/689/Climate Change 2016/Shared Documents/Attachments/CC4.1/2016 APCO VA IRP_Public_Version_04262016.pdf">https://www.cdp.net/sites/2016/89/689/Climate Change 2016/Shared Documents/Attachments/CC4.1/2016 APCO VA IRP_Public_Version_04262016.pdf</a>	

**Further Information**

**Module: Risks and Opportunities**

**Page: CC5. Climate Change Risks**

**CC5.1**

Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

**CC5.1a**

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								AEP monitors and engages in the public debate surrounding climate	

<p>Air pollution limits</p>	<p>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. Given the magnitude of the transition to a reduced carbon electric sector, AEP believes this issue should be addressed legislatively. However, absent legislation, these provisions could place additional GHG emission limitations on AEP facilities going forward.</p>	<p>Increased operational cost</p>	<p>3 to 6 years</p>	<p>Direct</p>	<p>Very likely</p>	<p>Medium-high</p>	<p>Financial implications will depend on the stringency of the standard as well as the flexibility afforded in demonstrating compliance. AEP will look to quantify this exposure once final regulations are issued and state compliance plans are developed.</p>	<p>change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus lowering risk. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory risk.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
<p>Carbon taxes</p>	<p>While less politically tenable than other forms of carbon regulation, enactment of a carbon tax could result in significant cost to AEP and its customers as AEP's generation portfolio is relatively carbon intensive. This would result in increased operational and capital costs, as there would be an economic incentive to transition to a lower carbon generating mix.</p>	<p>Increased operational cost</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>Unlikely</p>	<p>High</p>	<p>At current CO2 emission levels of over 100 million metric tons, a hypothetical CO2 tax of \$20 per ton would cost AEP over \$2 billion per year. However, much of this cost would be a pass-through to our customers in the form of higher electric rates.</p>	<p>AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus lowering risk. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory risk.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
	<p>In light of the failure of cap-and-trade legislation within the 111th Congress, it appears that this type of regulation will not be likely in the near term. However, longer term there is still a distinct possibility this type of program could ultimately be used to regulate carbon due to its economic advantages. There is also</p>						<p>Financial implications of a cap and trade system would be a function of both the emission</p>	<p>AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its</p>	<p>Minimal (&lt;\$1mm).</p>

<p>Cap and trade schemes</p>	<p>the possibility that cap-and-trade systems could be used as part of a State Implementation Plan or Federal Implementation Plan in response to EPA's Clean Power Plan, should the rule be upheld by the courts. Any cap-and-trade system would likely result in increased operational and capital costs, though the magnitude could vary widely depending on the details of the program.</p>	<p>Increased operational cost</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>More likely than not</p>	<p>Medium-high</p>	<p>targets and the emission allowances AEP is allocated. A free allocation of allowance would make this approach much less costly</p>	<p>carbon emissions profile, thus lowering risk. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory risk.</p>	<p>Part of existing management practices.</p>
<p>Emission reporting obligations</p>	<p>AEP is required to formally report GHG emissions for each power plant to the EPA. This is not a significant issue for AEP because we have been tracking CO2 emissions from our power plants since 1993 through the EPA's Acid Rain program and reported emissions to the EPA's Climate Leaders program and the Chicago Climate Exchange beginning in 2003. There are other smaller sources of GHGs at our facilities that have not been routinely inventoried (less than 1% of our emissions), and we have established an electronic reporting system to collect this new information.</p>	<p>Increased operational cost</p>	<p>Up to 1 year</p>	<p>Direct</p>	<p>Virtually certain</p>	<p>Low</p>	<p>No incremental cost outside of management cost.</p>	<p>AEP utilizes information management systems to collect CO2 data and internal staff to appropriately populate required reports.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
<p>Fuel/energy taxes and regulations</p>	<p>In 2015, AEP consumed 47 million tons of coal. Should additional coal mining regulations, such as those associated with mountaintop removal or environmental regulations, be enacted and enforced, the costs of coal production could go up and as a result AEP would be forced to pay more for coal. The same is true for the cost of new, proposed environmental regulations, which would have significant financial costs for AEP and its customers and could be viewed as a de facto tax. Likewise, environmental concerns over shale natural gas production could also lead to increased regulation and an increased production cost. This increased production cost would be passed on to AEP in the form of higher natural gas prices. Ultimately, these costs are mostly borne by customers.</p>	<p>Increased operational cost</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>Very unlikely</p>	<p>Medium</p>	<p>Financial implications are unknown as any impact will be depend on specific regulatory requirements. For AEP's vertically-integrated utilities, increased fuel costs are directly passed on to consumers. At current CO2 emission levels of over 100 million metric tons, a hypothetical CO2 tax of \$20 per ton levied on fossil fuels would cost AEP over \$2 billion per year</p>	<p>AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus lowering risk. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory risk.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>

<p>Product efficiency regulations and standards</p>	<p>AEP is subject to a number of energy efficiency requirements in several states in which it operates. These requirements direct AEP to provide services to enable customers to reduce electric consumption. These programs coupled with increasing federal efficiency mandates reduce AEP's sales.</p>	<p>Increased operational cost</p>	<p>Up to 1 year</p>	<p>Direct</p>	<p>Virtually certain</p>	<p>Low-medium</p>	<p>In 2015, AEP spent \$159 million on energy efficiency programs. Further regulations could increase this spend incrementally. In most jurisdictions cost of programs are borne by ratepayers. Some states have programs that also compensate AEP for net lost revenues. Codes or standards which reduce energy use also can reduce AEP's revenue.</p>	<p>AEP has staff at the corporate level which oversees consumer programs and forecasts levels of energy efficiency that may be required. Individual operating companies have direct oversight over programs implemented. AEP is actively involved in creating regulatory recovery mechanisms that are indifferent to customer usage and that compensate AEP appropriately for costs.</p>	<p>Cost of management is embedded within total program cost (\$172mm) and is largely recovered from customers.</p>
<p>Voluntary agreements</p>	<p>AEP has taken measurable, voluntary actions to reduce and offset our CO2 emissions. AEP participated in a number of voluntary programs to monitor, mitigate or reduce CO2 emissions, such as the U.S. EPA's Climate Leaders and The Chicago Climate Exchange, but many of these programs have been discontinued due to anticipated legislative or regulatory actions. Through the end of 2010, AEP reduced emissions by a cumulative 96 million metric tons from adjusted baseline levels in 1998 through 2001 as a result of these voluntary actions. Going forward, AEP has set a target of reducing emissions by 10% from 2010 levels by 2020. We believe most all of the CO2 reductions will occur as the result of coal unit retirements. These coal retirements are necessitated due to the increasing environmental regulations of other air emissions, solid waste and water use. Other factors include the cost</p>	<p>Increased operational cost</p>	<p>Up to 1 year</p>	<p>Direct</p>	<p>Virtually certain</p>	<p>Low</p>	<p>As AEP is currently ahead of its voluntary 2020 CO2 emission reduction target, it is currently projected that there will be no incremental cost.</p>	<p>AEP tracks this commitment and reports upon it in its annual Corporate Accountability Report.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>

	<p>competitiveness of natural gas and a continued slow economic recovery. However, should regulations change or electricity use dramatically increase, AEP's stated CO2 reduction obligation could result in additional costs as well as increased emissions.</p>								
<p>Uncertainty surrounding new regulation</p>	<p>Until regulations are finalized, there is significant uncertainty as to the ultimate outcome. Additionally, in recent years, legal challenges to almost every major EPA rulemaking have added additional uncertainty and cost. This uncertainty can lead to uneconomic decisions being made during the planning process as the ultimate goals are subject to change. These uneconomic decisions will lead to increased capital and operating costs. While general environmental regulations mentioned above will have a large impact on AEP operations, the uncertainty regarding climate regulation or legislation is a more challenging risk to manage.</p>	<p>Increased capital cost</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>Virtually certain</p>	<p>Medium</p>	<p>Financial implications of uncertainty are unknown as the implications can only be calculated retrospectively.</p>	<p>AEP uses Monte Carlo analysis and other probabilistic analysis to capture the effects of uncertainty within planning processes in an effort to reduce costs and risk.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
								<p>AEP monitors and engages in the public debate surrounding renewable energy regulation to ensure that sensible policy prevails. Where mandates have required renewable energy purchases AEP often employs a competitive bidding strategy to ensure the lowest possible cost of supply. As we increase our renewable portfolio, we need to increase our knowledge of these resources as</p>	

<p>Other regulatory drivers</p>	<p>Some of AEP's states have laws or commission orders that establish requirements or goals for renewable and/or alternative energy (Ohio, Michigan, West Virginia, Texas, Virginia and Oklahoma) and we are taking steps to comply with these rules in a timely fashion. AEP's operating companies have over 3,200 MW of renewable energy purchase power agreements delivering energy. (see attached map for renewable/alertative requirements, by state)</p>	<p>Increased operational cost</p>	<p>Up to 1 year</p>	<p>Direct</p>	<p>Virtually certain</p>	<p>Low-medium</p>	<p>Costs of renewable energy often come at a premium to conventional energy sources. The cost of mandated renewable energy programs is generally fully recoverable from customers. However, mandates for renewable energy sources can result in depressed wholesale electric prices and reduce AEP's revenue opportunities.</p>	<p>they interact with the power grid. We are doing this by participating in renewable energy trade organizations. We have been members of the American Wind Energy Association for more than a decade. In 2015, we joined the Smart Electric Power Alliance. AEP also has joined with the Edison Electric Institute, the World Resources Institute and the World Wildlife Fund to advocate for a set of "buyer's principles" where large customers that want renewable energy and need their energy company to achieve their goal, work together to develop a solution. AEP's Key Accounts and Economic &amp; Business Development teams are collaborating on this effort to serve current customers and as part of our strategy to attract new businesses to our service territory.</p>	<p>AEP has several internal personnel who are tasked with managing our renewable energy needs.</p>
								<p>AEP monitors and engages in the public debate surrounding climate change</p>	

International agreements	While international negotiations on climate change have yet to lead the U.S. into any binding commitment, progress has been made. A binding commitment from the U.S. toward a reduction pathway would not likely represent a direct risk to AEP but could lead to other risks (covered in this section) that are more likely.	Increased operational cost	>6 years	Direct	About as likely as not	Medium	No direct implications, though could increase risk of financial implications from other regulatory drivers should the U.S. sign on to a broader international accord.	regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus lowering risk. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory risk.	Minimal (<\$1mm). Part of existing management practices.
Other regulatory drivers	When AEP builds plants or retrofits a plant with emissions control equipment it must do so in such a way as to ensure that the plant is cost effective relative to alternative generation sources for a significant period of up to 30 or 40 years to recover the investment in the plant. For example, if new technology or cheaper fuel alternatives are developed then the plant may no longer be viewed as cost effective and the company could lose its investment. This has already occurred with the new EPA regulations on SO2, NOX and hazardous air pollutants. AEP wants to invest in generation that will be cost effective for the long-term benefit of customers; however, there is risk in attempting to predict which technology and generation types will be cost effective over the long term.	Increased capital cost	>6 years	Direct	Very likely	Medium	Financial implications of this type of regulatory uncertainty are unknown as the implications can only be calculated retrospectively.	AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has take numerous voluntary steps to reduce its carbon emissions profile, thus lowering risk. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory risk.	Minimal (<\$1mm). Part of existing management practices.

**CC5.1b**  
**Please describe your inherent risks that are driven by changes in physical climate parameters**

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	The sale of electric power is generally a seasonal business. In many parts of the country, demand for power peaks								

<p>Change in mean (average) temperature</p>	<p>during the hot summer months, with market prices also peaking at that time. In other areas, power demand peaks during the winter heating season. The pattern of fluctuation may change due to the nature and location of AEP's facilities and the terms of power sales contracts into which AEP enters. In addition, AEP has historically sold less power and, consequently, earned less income, when weather conditions are milder. Unusually mild weather in the future could diminish AEP's need to generate electricity and may impact its financial condition.</p>	<p>Reduced demand for goods/services</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>Unknown</p>	<p>Unknown</p>	<p>Financial implications will depend on degree of temperature departure from normal as well as its seasonality.</p>	<p>AEP actively engages in hedging and other activities to reduce exposure to changes in customer demand and market pricing. AEP also continually assesses trends in temperature for forecasting purposes. Furthermore, potential weather variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
<p>Change in temperature extremes</p>	<p>Electric systems are planned to ensure that supply is maintained during the highest demand periods, which will also meet needs during low and medium demand periods. The periods of highest demand typically coincide with periods of temperature extremes</p>	<p>Increased operational cost</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>Unknown</p>	<p>Unknown</p>	<p>Extreme weather events can require use of expensive generation sources and potentially threaten grid reliability. There are also social and financial</p>	<p>AEP and the RTOs that it is a member of consider extreme weather conditions within reserve margin calculation and other planning constructs. AEP also continually assesses trends in temperature for forecasting purposes. Furthermore, potential weather variability is one</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>



	<p>(hottest and coldest days of the year). A change in temperature extremes could increase the challenge of planning for peak demands, given the lead time required to add new generating capacity to the grid.</p>						impacts to customers due to outages and the cost of restoration.	of several factors examined within AEP financial forecasting and corporate budgeting processes.	
Change in mean (average) precipitation	<p>AEP owns and operates 16 hydroelectric facilities and a pumped storage facility that contribute to cleaner energy resources on our system. These facilities generate approximately 1,549 gigawatt-hours of power each year, serving customers in five states. Reduced precipitation could result in less river flow and thus less electricity production. Likewise, reduced river flow in extreme situations could reduce production capacity for AEP's thermal generating units that rely on river water for cooling purposes. Increased precipitation could lead to increased river flooding, which could impact river transportation of coal and</p>	Reduction/disruption in production capacity	>6 years	Direct	Unknown	Unknown	<p>Assuming a hypothetical \$40/MWh incremental cost of replacement power if hydroelectric electricity needs to be replaced, a hypothetical 10% reduction in hydro generation would cost AEP approximately \$6 mm/year.</p>	<p>AEP produces electricity from a number of diverse sources with to allow for use of other generating sources should some become less available. Furthermore, potential weather variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>

	<p>other consumables used by AEP generating facilities. For example, severe droughts in Texas raise concerns for several of our plants, even though they are located on reservoirs built specifically to supply the plants. Additionally, droughts can also cause challenges to the boats and barges that deliver coal and other consumables to AEP's generating facilities.</p>								
Change in precipitation pattern	<p>Changes in precipitation patterns could result in less river flow and/or more seasonal variation which could disrupt hydroelectric electricity production. Likewise, reduced river flow in extreme situations could reduce production capacity for AEP's thermal generating units that rely on river water for cooling purposes. Increased precipitation in certain areas could lead to increased river flooding, which could impact river transportation of coal and other consumables used by AEP</p>	Reduction/disruption in production capacity	>6 years	Direct	Unknown	Unknown	<p>Assuming a hypothetical \$40/MWh incremental cost of replacement power if hydroelectric electricity needs to be replaced, a hypothetical 10% reduction in hydro generation would cost AEP approximately \$6 mm/year.</p>	<p>AEP produces electricity from a number of diverse sources with to allow for use of other generating sources should some become less available. That is why it is so important to have a diverse resource portfolio. AEP also stockpiles fuel and other consumables to prevent against supply interruptions. Furthermore, potential weather variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>

<p>generating facilities.</p> <p>AEP owns and operates 16 hydroelectric facilities and a pumped storage facility that contribute to cleaner energy resources on our system. These facilities generate approximately 1,549 gigawatt-hours of power each year, serving customers in five states. Reduced precipitation could result in less river flow and thus reduced electricity production. Likewise, reduced river flow in extreme situations could reduce production capacity for AEP's thermal generating units that rely on river water for cooling purposes. Also, reduced precipitation could negatively impact AEP's water rights negotiations in drought-prone areas. Increased precipitation in certain areas could lead to increased river flooding, which could impact river transportation of coal and other consumables used by AEP generating</p>	<p>Reduction/disruption in production capacity</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>Unknown</p>	<p>Unknown</p>	<p>Assuming a hypothetical \$40/MWh incremental cost of replacement power if hydroelectric electricity needs to be replaced, a 10% reduction in hydro generation would cost AEP approximately \$6 mm/year.</p>	<p>AEP produces electricity from a number of diverse sources which allows the use of other generating sources should some become less available. That is why it is so important to have a diverse resource portfolio. AEP also stockpiles fuel and other consumables to prevent against supply interruptions. Furthermore, potential weather variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
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	facilities. Conversely, drought situations could result in increased wildfires which could adversely affect AEP's facilities and transmission network.								
Snow and ice	Snow and ice regularly impact our operations, most notably as snow/ice build-up on tree limbs can cause them to fall onto power lines and interrupt service. Restoring service results in additional maintenance expenditures, affects customer satisfaction and can lead to additional regulatory oversight.	Increased operational cost	Up to 1 year	Direct	Virtually certain	Low-medium	Repairs to snow and ice damaged equipment lead to increased capital and O&M costs.	New design criteria to strengthen, or harden, the distribution system took effect in early 2014. AEP designs new and replacement poles to withstand wind speeds and ice accumulation above and beyond the National Electrical Safety Code (NESC) requirement for our service territory. The ice build-up component has been increased to one inch of ice in the central and northern portions of AEP's service territory from a quarter- to a half-inch, respectively. In the southern portion of our territory, where high winds are the primary driver of major storm damage, we have increased the system's ability to withstand high winds from 60 mph to 90 mph. Along the Gulf coast we continue to design facilities to withstand 150 mph winds. Furthermore, potential weather variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.	Minimal (<\$1mm). Part of existing management practices.

**CC5.1c**  
**Please describe your inherent risks that are driven by changes in other climate-related developments**

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Environmental performance is an important part of AEP's reputation. While most of our demand is met through regulated operations we do have some areas in which we operate in competitive retail markets and AEP's brand plays a role in consumer behavior.	Reduced demand for goods/services	Up to 1 year	Direct	Unlikely	Low	While the majority of AEP's business is a regulated monopoly, reputation could affect the ability of AEP's retail sales affiliate to retain or attract customers.	AEP actively positions itself as a leader in addressing climate-related issues through stakeholder outreach, the annual Corporate Accountability Report, political outreach and other forms of communication.	AEP has considerable resources dedicated to community, stakeholder, political and customer relations.

<p>Changing consumer behaviour</p>	<p>An increased focus on environmental performance, climate change and energy consumption by our customers could result in less demand for electricity. Another driver that could impact future demand for centrally-generated electricity is the growing adoption of self-generated electricity. As the cost of solar continues to decline, and with the extension of federal investment tax credits, customer adoption may continue to increase over time. However, we believe that installing private solar panels remains economically challenging for most residential customers. (see attached map of DG)</p>	<p>Reduced demand for goods/services</p>	<p>3 to 6 years</p>	<p>Direct</p>	<p>About as likely as not</p>	<p>Low</p>	<p>Declining retail sales would require rate increases to spread AEP's operating costs over fewer kWh, which could lead to reduced earnings.</p>	<p>AEP is actively involved in creating regulatory recovery mechanisms that are indifferent to customer usage and that compensate AEP appropriately for costs.</p>	<p>Minimal</p>
<p>Induced changes in human and cultural environment</p>	<p>Customers have expressed an interest in reducing energy consumption via energy efficiency. Partially a result of input from stakeholders and support from regulators and customers, AEP has increased its commitment to energy efficiency in the last five years.</p>	<p>Reduced demand for goods/services</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>About as likely as not</p>	<p>Low</p>	<p>Declining retail sales would require rate increases to spread AEP's operating costs over fewer kWh, could lead to reduced earnings.</p>	<p>AEP is actively involved in creating regulatory recovery mechanisms that are indifferent to customer usage and that compensate AEP appropriately for costs.</p>	<p>Minimal</p>
<p>Fluctuating socio-economic conditions</p>	<p>Account delinquencies can be a measure of economic growth or downturn which could be impacted by climate change or climate change policy as it relates to customer bills. We work with customers to help keep them from being delinquent, providing payment plans and other forms of assistance. We connect them with energy assistance programs when appropriate. AEP customers received approximately \$66 million in energy assistance in 2015. Even though AEP's rates remain below the national average, our customers generally live in lower-income</p>	<p>Increased operational cost</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>About as likely as not</p>	<p>Low</p>	<p>Changes in socio-economic conditions could result in declining retail sales and increased needs for energy assistance</p>	<p>AEP actively monitors economic indicators as part of its financial planning process.</p>	<p>Minimal</p>

	regions and are particularly sensitive to rate increases.								
Increasing humanitarian demands	Should climate change result in economic damages, there could be increasing humanitarian demands.	Increased operational cost	>6 years	Direct	About as likely as not	Low	AEP's 2015 total philanthropic giving was \$13.5 million. Through grants, AEP also provided approximately \$66 million in federal and private energy assistance in 2015. These figures could increase if funds are available and demand increases.	AEP actively monitors economic indicators as part of its financial planning process.	Minimal

**Further Information**

**Attachments**

- [https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Map\\_Renewable\\_Portfolio-Energy\\_Efficiency\\_Standard.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Map_Renewable_Portfolio-Energy_Efficiency_Standard.jpg)
- [https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Map\\_Top\\_10\\_States\\_for\\_Solar\\_DG\\_Installed\\_in\\_2015.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Map_Top_10_States_for_Solar_DG_Installed_in_2015.jpg)
- [https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Bar\\_Chart\\_AEP\\_Solar\\_Distributed\\_Generation\\_\(DG\)\\_Customers.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Bar_Chart_AEP_Solar_Distributed_Generation_(DG)_Customers.jpg)
- [https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Line\\_Chart\\_Solar\\_Photovoltaic\\_PV\\_Installation\\_Cost\\_Trends.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Line_Chart_Solar_Photovoltaic_PV_Installation_Cost_Trends.jpg)
- [https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Line\\_Chart\\_Energy\\_Efficiency\\_Technology\\_Impacts\\_to\\_AEP's\\_Sales\\_Forecast.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC5.ClimateChangeRisks/Line_Chart_Energy_Efficiency_Technology_Impacts_to_AEP's_Sales_Forecast.jpg)

**Page: CC6. Climate Change Opportunities**

**CC6.1**

Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Opportunities driven by changes in regulation
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

**CC6.1a**

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	International agreements could lead to other climate change actions within the U.S., which would potentially provide AEP with investment opportunities in new generation, emission offsets, carbon capture and sequestration and renewable energy.								

<p>International agreements</p>	<p>Additionally, AEP holds leadership roles within international organizations committed to addressing energy, environmental and climate issues. We actively participate in the International Emissions Trading Association (IETA). IETA's mission is to establish cost-effective solutions and frameworks for trading in greenhouse gas emission reductions and developing international greenhouse gas offsets. In 2015, AEP served as the chairman of the board of directors and chaired IETA's U.S. working group. AEP also chaired the 2010-2011 e8, now known as the Global Sustainable Electricity Partnership (GSEP). This partnership seeks to demonstrate how clean technologies can be deployed to provide affordable, reliable electricity to developing parts of the world and, at the same time, reduce risks from climate change.</p>	<p>Investment opportunities</p>	<p>&gt;6 years</p>	<p>Direct</p>	<p>About as likely as not</p>	<p>Low</p>	<p>AEP receives a return on equity for capital investment to compensate shareholders. Actual return to shareholders will depend on regulatory conditions and level of investment. As an example, with a capital investment of \$1 billion with a 50% debt/equity ratio and an allowed return on equity of 10% AEP's annual earnings would increase by \$50 million.</p>	<p>AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus increasing potential opportunities. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory opportunities.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
<p>Air pollution limits</p>	<p>Additional air pollution requirements, if phased in over a reasonable timeframe, could create an avenue for capital investment and potential earnings growth for AEP to retrofit some of its existing generating fleet to lower carbon-emitting sources. This could provide an opportunity for investment as well as reduce future exposure to climate change regulation or legislation. AEP</p>	<p>Investment opportunities</p>	<p>3 to 6 years</p>	<p>Direct</p>	<p>Very likely</p>	<p>Low-medium</p>	<p>AEP receives a return on equity for capital investment to compensate shareholders. Return to shareholders will depend on regulatory conditions and level of investment. As an example, with a capital investment of \$1 billion with</p>	<p>AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus increasing potential opportunities.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>

	anticipates spending \$3 billion to \$3.5 billion in environmental-related capital investments between 2012 and 2020. Changes in regulations are also causing plants to retire prematurely. NSPS regulations could provide a similar opportunity for investment.						a 50% debt/equity ratio and an allowed return on equity of 10% AEP's annual earnings would increase by \$50 million.	Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory opportunities.	
Cap and trade schemes	Energy policy initiatives around greenhouse gas emission reductions and energy efficiency, security and reliability create technology deployment and investment opportunities in our regulated utility platform. We support a legislative approach that includes an economy-wide federal cap-and-trade system to reduce CO2 that allows us to provide reliable, reasonably priced electricity to our customers and is not harmful to the U.S. economy.	Investment opportunities	>6 years	Direct	About as likely as not	Medium	AEP receives a return on equity for capital investment to compensate shareholders. Return to shareholders will depend on regulatory conditions and level of investment. As an example, with a capital investment of \$1 billion with a 50% debt/equity ratio and an allowed return on equity of 10% AEP's annual earnings would increase by \$50 million.	AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus increasing potential opportunities. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory opportunities.	Minimal (<\$1mm). Part of existing management practices.
Fuel/energy taxes and regulations	Additional regulations negatively affecting natural gas or coal production could raise natural gas prices, which in turn would raise electricity prices. While this could be a positive boost to AEP's wholesale	Premium price opportunities	>6 years	Direct	Unlikely	Medium-high	An increase in wholesale pricing could increase revenues for AEP's generation fleet but could be partially/fully offset by increased input costs. Based on 2016 earnings guidance, AEP estimated a \$1 increase in Wholesale Market Prices (Regulated)	AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus increasing potential opportunities.	Minimal (<\$1mm). Part of existing management practices.



	power sales revenues, it would have a negative economic impact on customers.						would result in an earnings per share increase of \$0.01 and a \$1 increase in Wholesale Market Prices (Competitive) would result in an earnings per share increase of \$0.03.	Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory opportunities.	
Product efficiency regulations and standards	Between 2008 and 2015, AEP achieved 1,750+ MW and 6,000,000+ MWh of demand and energy consumption reductions respectively, largely driven by regulation. Improved efficiency and demand reduction reduces AEP's exposure to any negative impacts associated with carbon regulation as serving less demand, results in fewer emissions. These reductions also supported energy efficiency mandates in several states.	Reduced operational costs	1 to 3 years	Direct	Likely	Low	The continuation of these regulations has better positioned AEP financially to address climate change regulation.	AEP has staff at the corporate level which oversee consumer programs and forecast levels of energy efficiency that may be required. Individual operating have direct oversight over programs implemented. AEP is actively involved in creating regulatory recovery mechanisms that are indifferent to customer usage and that compensate AEP appropriately for costs.	Minimal (<\$1mm). Part of existing management practices.
Voluntary agreements	Through our involvement with The Chicago Climate Exchange (CCX), we made a voluntary but legally binding commitment to reduce our GHG emissions. We reduced or offset GHGs by a cumulative 96 million metric tons – twice our commitment of 48 million metric tons – during our eight-year membership. That represents	Reduced operational costs	Up to 1 year	Direct	Very unlikely	Low	AEP gained significant expertise in the area of climate change and carbon trading, providing an	AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus increasing	Minimal (<\$1mm). Part of existing management

	about 15 percent below 2003 levels of GHG emissions. Though our commitment ended, we are hopeful that some of the emission reductions and offsets not used for compliance within CCX may someday be able to be used with a mandatory program to offset compliance costs.						intangible benefit in adapting to mandatory regulations.	potential opportunities. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory opportunities.	practices.
General environmental regulations, including planning	Additional environmental regulations, if phased in over a reasonable timeframe could create an avenue for AEP to improve the overall environmental performance of its generating fleet. This would provide an opportunity for capital investment as well as reduce future exposure to climate change regulation or legislation. AEP anticipates spending \$3 billion to \$3.5 billion in environmental compliance-related capital between 2012 and 2020. (see attached chart)	Investment opportunities	1 to 3 years	Direct	Very likely	Medium	AEP receives a return on equity for capital investment to compensate shareholders. Return to shareholders will depend on regulatory conditions and level of investment. As an example, with a capital investment of \$1 billion with a 50% debt/equity ratio and an allowed return on equity of 10% AEP's annual earnings would increase by \$50 million.	AEP monitors and engages in the public debate surrounding climate change regulation. Additionally, AEP has taken numerous voluntary steps to reduce its carbon emissions profile, thus increasing potential opportunities. Furthermore, AEP incorporates a carbon price into its planning practices in anticipation of potential future climate change regulatory opportunities.	Minimal (<\$1mm). Part of existing management practices.

**CC6.1b**  
Please describe the inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) temperature	Our peak demands are highest during the cooling season. Should climate change raise the mean (average) temperature in the summer months within our service territory, electricity demand could increase thus benefiting AEP	Increased demand for existing products/services	Unknown	Direct	Unknown	Unknown	Increased heating degree days in areas with electric heating could increase sales. Increased cooling degree days also would increase sales. Based on 2016 earnings	Potential weather variability is one of several factors examined within AEP financial forecasting	Minimal (<\$1mm). Part of existing management practices.

	<p>electricity sales. However, higher peak demands will also increase AEP's electricity production to meet the demand growth.</p>						<p>guidance AEP estimated that a 0.5% increase in sales would result in an earnings per share increase of \$0.04.</p>	<p>and corporate budgeting processes.</p>	
<p>Change in temperature extremes</p>	<p>Hot weather in the summer and cold weather in the winter increases demand for electricity. Should climate change increase temperature extremes, AEP's units may operate more, generating more income.</p>	<p>Increased demand for existing products/services</p>	<p>Unknown</p>	<p>Direct</p>	<p>Unknown</p>	<p>Unknown</p>	<p>Increases in extreme temperatures could cause increases in electricity demand pricing, boosting sales volume and margin for AEP's competitive generating fleet and off-system sales volume and margin for AEP's regulated generating fleet. Based on 2016 earnings guidance, AEP estimated a \$1 increase in Wholesale Market Prices (Regulated) would result in an earnings per share increase of \$0.01 and/or c) a \$1 increase in Wholesale Market Prices (Competitive) would result in an earnings per share increase of \$0.03.</p>	<p>Potential weather variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
	<p>Lower mean (average)</p>						<p>Increases in extreme temperatures could cause increases in electricity demand pricing, boosting sales volume and margin for AEP's competitive generating fleet and off-system sales volume and margin for</p>	<p>Potential weather</p>	

<p>Change in mean (average) precipitation</p>	<p>precipitation due to climate change could cause lower electricity production from hydroelectric facilities causing an increased demand for other types of electric generation, thus benefiting AEP which generates most of its power from non-hydro sources.</p>	<p>Increased demand for existing products/services</p>	<p>Unknown</p>	<p>Direct</p>	<p>Unknown</p>	<p>Unknown</p>	<p>AEP's regulated generating fleet. Based on 2016 earnings guidance, AEP estimated a \$1 increase in Wholesale Market Prices (Regulated) would result in an earnings per share increase of \$0.01 and/or c) a \$1 increase in Wholesale Market Prices (Competitive) would result in an earnings per share increase of \$0.03.</p>	<p>variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
<p>Change in precipitation pattern</p>	<p>Lower precipitation patterns could cause lower electricity production from hydroelectric facilities causing an increase in demand from other types of electric generation, thus benefiting AEP. Higher or lower than normal precipitation could cause disruptions to coal deliveries if rivers are too high or too low, which in certain situations could affect electricity pricing and earnings.</p>	<p>Premium price opportunities</p>	<p>Unknown</p>	<p>Direct</p>	<p>Unknown</p>	<p>Unknown</p>	<p>Increases in extreme temperatures could cause increases in electricity demand pricing, boosting sales volume and margin for AEP's competitive generating fleet and off-system sales volume and margin for AEP's regulated generating fleet. Based on 2016 earnings guidance, AEP estimated a \$1 increase in Wholesale Market Prices (Regulated) would result in an earnings per share increase of \$0.01 and/or c) a \$1 increase in Wholesale Market Prices (Competitive) would result in an earnings per share increase of</p>	<p>Potential weather variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>

							\$0.03.		
Change in precipitation extremes and droughts	Extreme droughts or lower precipitation could cause lower electricity production from hydroelectric facilities causing an increase in demand from coal-fueled or other types of electric generation, thus benefiting AEP. Higher or lower than normal precipitation could cause disruptions to coal deliveries if rivers are too high or too low, which in certain situations could affect electricity pricing and earnings.	Increased demand for existing products/services	Unknown	Direct	Unknown	Unknown	Increases in extreme temperatures could cause increases in electricity demand pricing, boosting sales volume and margin for AEP's competitive generating fleet and off-system sales volume and margin for AEP's regulated generating fleet. Based on 2016 earnings guidance, AEP estimated a \$1 increase in Wholesale Market Prices (Regulated) would result in an earnings per share increase of \$0.01 and/or c) a \$1 increase in Wholesale Market Prices (Competitive) would result in an earnings per share increase of \$0.03.	Potential weather variability is one of several factors examined within AEP financial forecasting and corporate budgeting processes.	Minimal (<\$1mm). Part of existing management practices.

**CC6.1c**  
Please describe the inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	International agreements and collaboration underscore that climate change is a global issue that requires a global solution. No single nation, industry sector or company can address the issue alone, and it is unreasonable to expect this or attempt to do so. AEP's responsibility is to work within the framework of the regulations and	Increased stock price (market)	1 to 3 years	Direct	Unlikely	Low	AEP is viewed as a leader in climate change issue management and as such its stock price	Management actively promotes our direct and indirect engagement on climate change	Minimal (<\$1mm). Part of existing

	<p>policies in the United States and to collaborate internationally to share expertise, knowledge and engineering best practices. As such, we hold leadership roles within numerous domestic and international organizations committed to addressing energy and environmental issues.</p>	valuation)					might be marginally higher by conveying a sense of responsibility to investors.	issues as part of corporate branding and investor and stakeholder outreach.	management practices.
Changing consumer behaviour	<p>Consumers wanting to reduce their carbon footprint may be inclined to purchase cleaner energy or energy efficiency services that AEP provides.</p>	Increased demand for existing products/services	3 to 6 years	Direct	About as likely as not	Low	<p>AEP offers most energy efficiency services at cost, therefore there is likely little net profit. However, capital investment in renewable technologies could provide increased earnings for shareholders, as well as expand access to clean energy to more customers.</p>	<p>AEP continually looks at providing additional services to customers as their needs change.</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>
Induced changes in human and cultural environments	<p>Energy efficiency is often viewed as one of the most important resources of the future. Increasing the efficient use of energy would contribute to achieving climate change reduction targets, help delay the need to build new generation and reduce environmental impacts. AEP has increased its commitment to energy efficiency in the last ten years, partially a result of input from stakeholders as well as support from regulators and customers. We have installed, and plan continue to install, technologies such as smart meters and smart</p>	Reduced capital costs	3 to 6 years	Direct	About as likely as not	Low	<p>Though consumers using less electricity can negatively impact sales, it could also provide a financial benefit by reducing other operational and regulatory costs.</p>	<p>AEP has staff at the corporate level which oversees consumer programs and forecasts levels of energy efficiency that may be required. Individual operating companies have direct oversight over programs implemented. AEP is actively involved in</p>	<p>Minimal (&lt;\$1mm). Part of existing management practices.</p>

	grid systems that will give customers greater ability and more information to control their energy use and costs. Should climate change increase the demands for consumer control of electricity, demand for smart meter and smart grid technology could increase.							creating regulatory recovery opportunities.	
Fluctuating socio-economic conditions	Should there be regulatory or physical benefits to climate change in a given region (e.g. increased agriculture productivity, clean energy manufacturing) there could be an increased demand for electricity.	Increased demand for existing products/services	>6 years	Direct	About as likely as not	Low	Increased demand for electricity would boost power pricing, sales and profits. The magnitude is uncertain.	AEP routinely monitors macroeconomic factors and incorporates them into planning practices. Additionally, AEP has an Economic Development group that focuses on developing business growth opportunities.	Minimal (<\$1mm). Part of existing management practices.

**Further Information**

**Attachments**

[https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC6\\_ClimateChangeOpportunities/Bar Chart\\_Investing Billions to Reduce Emissions.jpg](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC6_ClimateChangeOpportunities/Bar Chart_Investing Billions to Reduce Emissions.jpg)

**Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading**

**Page: CC7. Emissions Methodology**

**CC7.1**

Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Fri 01 Jan 2010 - Fri 31 Dec 2010	140917311
Scope 2 (location-based)	Fri 01 Jan 2010 - Fri 31 Dec 2010	0
Scope 2 (market-based)	Fri 01 Jan 2010 - Thu 31 Dec 2015	0

**CC7.2**

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use

US EPA Mandatory Greenhouse Gas Reporting Rule

**CC7.2a**

If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

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.

**CC7.3**

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	IPCC Fourth Assessment Report (AR4 - 100 year)

**CC7.4**

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
Bituminous coal	93.4	Other: kg CO2/mmBtu	EPA Table C-1 to Subpart C of 40CFR Part 98
Distillate fuel oil No 2	73.96	Other: kg CO2/mmBtu	EPA Table C-1 to Subpart C of 40CFR Part 98
Electricity	1432.4	Other: lb CO2e/MWh	Weighted eGRID2012 RFCW/ERCT/SPSO Rate
Lignite	96.36	Other: kg CO2/mmBtu	EPA Table C-1 to Subpart C of 40CFR Part 98
Motor gasoline	70.22	Other: kg CO2/mmBtu	EPA Table C-1 to Subpart C of 40CFR Part 98
Natural gas	53.06	Other: kg CO2/mmBtu	EPA Table C-1 to Subpart C of 40CFR Part 98
Propane	62.87	Other: kg CO2/mmBtu	EPA Table C-1 to Subpart C of 40CFR Part 98
Sub bituminous coal	97.17	Other: kg CO2/mmBtu	EPA Table C-1 to Subpart C of 40CFR Part 98
Diesel/Gas oil	10.21	Other: kg CO2/gallon	EPA Climate Leaders: Emission Factors for Greenhouse Gas Inventories 2014
Motor gasoline	8.78	Other: kg CO2/gallon	EPA Climate Leaders: Emission Factors for Greenhouse Gas Inventories 2014
Waste oils	74	Other: kg CO2/mmBtu	EPA Table C-1 to Subpart C of 40CFR Part 98

**Further Information**

The methodology for AEP's 2015 GHG Emissions changed significantly from prior years and requires a revision of the 2010 base year emissions. Attached is the new methodology applied to 2010. The two most significant changes are: - Scope 1 is expanded for just reporting CO2 emissions to including CH4, N2O and SF6. - Scope 1 now includes equity ownership in the OVEC/IKEC facilities: Clifty Creek and Kyger Creek. - Scope 2 calculations were added to the methodology although they did not produce any net emissions.

**Attachments**

[https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC7.EmissionsMethodology/AEP\\_2010\\_System\\_GHG\\_Profile\\_\(GRI\)\\_v1.xlsx](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC7.EmissionsMethodology/AEP_2010_System_GHG_Profile_(GRI)_v1.xlsx)

**Page: CC8. Emissions Data - (1 Jan 2015 - 31 Dec 2015)**

**CC8.1**

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Equity share

**CC8.2**

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

108610665

**CC8.3**

Does your company have any operations in markets providing product or supplier specific data in the form of contractual instruments?

Don't know

**CC8.3a**

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
7485610	7075568	Location-based Scope 2 emissions use operating company net purchases (net of sale-for-resale) and regional eGRID2012 CO2, CH4 and N2O emission rates. Market-based Scope 2 emissions account for dedicated renewable purchases and operating company emission rates for sale-for-resale.

**CC8.4**

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

**CC8.4a**



Please 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	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
Kerosene fueled torpedo heaters (mobile)	Emissions are not relevant	Emissions are not relevant	Emissions are not relevant	EPA's 40 CFR Part 98 does not require that CO <sub>2</sub> e emissions be reported for mobile torpedo heaters. AEP emissions for these sources have been estimated at less than 2,000 metric tons.

#### CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	Less than or equal to 2%	Metering/ Measurement Constraints	EPA Continuous Emission Monitoring System (CEMS) Relative Accuracy Tests Audits (RATA) procedures certify monitors to only +/- 15%. From the attached spreadsheet of individual CO <sub>2</sub> RATA results (GHG_RATA_Test_Data 2015.xlsx), AEP CEMS averaged +/- 3.22% in 2015. See "Further Information" for section CC7 for details of AEP's monitor Availability. Also see, attached below, AEP's 2015 EPA Mandatory GHG Reporting Rule reports and receipts.
Scope 2 (location-based)	More than 5% but less than or equal to 10%	Assumptions	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 2012 regional emission rates (three years old).
Scope 2 (market-based)	More than 5% but less than or equal to 10%	Assumptions	Operating company purchases and sales (for resale) are from FERC Form 1 reports and are considered high quality. Purchase Power Agreements for renewable sources (wind, solar and hydroelectric) are removed from purchases before applying EPA's eGRID 2012 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.

#### CC8.6

Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

No third party verification or assurance – regulatory CEMS required

#### CC8.6b

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emissions Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission
CFR 40 Part 75	93	Thu 01 Jan 2015 - Thu 31 Dec 2015	<a href="https://www.cdp.net/sites/2016/89/689/Climate%20Change%202016/Shared%20Documents/Attachments/CC8.6b/2015%20GHG%20Documentation.zip">https://www.cdp.net/sites/2016/89/689/Climate Change 2016/Shared Documents/Attachments/CC8.6b/2015 GHG Documentation.zip</a>

#### CC8.7

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

No third party verification or assurance

#### CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
No additional data verified	

#### CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

#### Further Information

About 93% of the 2015 GHG emissions reported for Scope 1 & 2 are adapted from US EPA's Mandatory Greenhouse Gas Reporting Rule. All the Scope 2 emissions are based on The Greenhouse Gas Protocol standards. Less than 1% of the Scope 1&2 emissions are based on EPA Climate Leaders Stationary and

Mobile Reporting protocols. Spreadsheet detailing AEP's GHG emission inventory and assumptions is attached.

## Attachments

[https://www.cdp.net/sites/2016/89/689/Climate\\_Change\\_2016/Shared\\_Documents/Attachments/ClimateChange2016/CC8.EmissionsData\(1Jan2015-31Dec2015\)/AEP\\_2015\\_System\\_GHG\\_Profile\\_\(GRI\)\\_v2.xlsx](https://www.cdp.net/sites/2016/89/689/Climate_Change_2016/Shared_Documents/Attachments/ClimateChange2016/CC8.EmissionsData(1Jan2015-31Dec2015)/AEP_2015_System_GHG_Profile_(GRI)_v2.xlsx)

## Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2015 - 31 Dec 2015)

### CC9.1

Do you have Scope 1 emissions sources in more than one country?

No

### CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By GHG type  
By activity

### CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	107671436
CH4	289650
N2O	502145
SF6	147434

### CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
Stationary Combustion	107895397
Mobile Sources	567834
Fugitive SF6	147434

## Further Information

See spreadsheet for details in section CC8-Emission Data: AEP 2015 System GHG Profile (GRI) v2.xlsx

## Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2015 - 31 Dec 2015)

### CC10.1

Do you have Scope 2 emissions sources in more than one country?

No

### CC10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By activity

### CC10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
Electric Purchases	7485610	7075568

## Further Information

See spreadsheet for details in section CC8-Emission Data: AEP 2015 System GHG Profile (GRI) v2.xlsx

## Page: CC11. Energy

### CC11.1

What percentage of your total operational spend in the reporting year was on energy?

More than 45% but less than or equal to 50%

**CC11.2**

Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	Energy purchased and consumed (MWh)
Heat	0
Steam	0
Cooling	0

**CC11.3**

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

341465729

**CC11.3a**

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Bituminous coal	177386077
Sub bituminous coal	92975646
Lignite	17122554
Natural gas	53981451

**CC11.4**

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Comment
Direct procurement contract with a gridconnected generator or Power Purchase Agreement (PPA), supported by energy attribute certificates	4168167	PPA Wind, Solar and Hydro purchases with RECs held or retired.
Direct procurement contract with a gridconnected generator or Power Purchase Agreement (PPA), where electricity attribute certificates do not exist or are not required for a usage claim	2962658	PPA Wind and Hydro purchases with no RECs associated with them.

**CC11.5**

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
145501572	41483869	104017703	1277465	1184438	Total renewable electricity produced includes wind generation that was sold under PPA to external organizations.

**Further Information****Page: CC12. Emissions Performance****CC12.1**

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

Decreased

**CC12.1a**

Please 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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	0	No change	
Divestment	0	No change	
Acquisitions	0	No change	
Mergers	0	No change	

Change in output	11.5	Decrease	Reduction in the generation of electricity.
Change in methodology	6.5	Increase	A more complete accounting of Scope 2 emissions was done for 2015 based on the Greenhouse Gas Protocol guidance.
Change in boundary	0	No change	
Change in physical operating conditions	6	Decrease	Fuel switch from Coal to Natural Gas.
Unidentified		No change	
Other		No change	

**CC12.1b**

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

**CC12.2**

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO<sub>2</sub>e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.007056	metric tonnes CO <sub>2</sub> e	16453200000	Location-based	17	Decrease	Reduced generation, fuel switch to lower emitting fuel, increased electric rates.

**CC12.3**

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.7784	metric tonnes CO <sub>2</sub> e	megawatt hour (MWh)	149156.85	Location-based	1.2	Increase	Change in Scope 2 methodology. Note that GWh was used in place of MWh due to field overflow.

**Further Information****Page: CC13. Emissions Trading****CC13.1**

Do you participate in any emissions trading schemes?

No, and we do not currently anticipate doing so in the next 2 years

**CC13.2**

Has your organization originated any project-based carbon credits or purchased any within the reporting period?

No

**Further Information****Page: CC14. Scope 3 Emissions****CC14.1**

Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO <sub>2</sub> e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
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Purchased goods and services	Relevant, calculated	817457	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.	30.00%	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	Relevant, not yet calculated	0		0.00%	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)	Relevant, calculated	7527988	Quantity of fuel consumed multiplied by life cycle production emission factors from Worldwatch Institute	0.00%	Publicly available life cycle analysis of delivered coal and natural gas was used to estimate upstream energy use.
Upstream transportation and distribution	Not relevant, explanation provided	0		0.00%	Fuel and material transportation is already included in the life cycle analysis used for other category.
Waste generated in operations	Relevant, calculated	0	Quantity of non-organic waste sent to landfill used in EPA's WARM model. The value is actually negative due to recycling of electronic equipment: -165 metric tones of CO <sub>2</sub> e.	0.00%	Hazardous waste disposed and electronic equipment recycled (producing a negative emission according to WARM model).
Business travel	Relevant, calculated	27998	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 2015 System GHG Profile (GRI) v2.xlsx.	34.00%	All forms of business travel including hotel stays. Travel agent provided CO <sub>2</sub> emission estimates for travel booked through them.
Employee commuting	Relevant, calculated	39531	The details of data used and assumptions can be found on the "Commuting" tab of the attached spreadsheet in section CC8-Emission Data: AEP 2015 System GHG Profile (GRI) v2.xlsx	0.00%	Detailed study of average distance traveled by employees from their home address to their work address from human resource records.
Upstream leased assets	Not relevant, explanation provided	0		0.00%	Any meaningful leased equipment fuel consumption is captured by corporate fuel purchase records in scope 1.
Downstream transportation and distribution	Not relevant, explanation provided	0		0.00%	The transportation and distribution of electricity (Transmission & Distribution losses) is already captured by scope 1.
Processing of sold products	Not relevant, explanation provided	0		0.00%	Electricity is not "processed" by the customer.
Use of sold products	Not relevant, explanation provided	0		0.00%	The use of electric energy does not cause any further GHG emissions.
End of life treatment of sold products	Not relevant, explanation provided	0		0.00%	Electricity requires no end of life treatment.
Downstream leased assets		0		0.00%	Any meaningful leased equipment fuel consumption is captured by corporate fuel purchase records in scope 1.
Franchises	Not relevant, explanation provided	0		0.00%	No franchises.
Investments	Not evaluated	0			
Other (upstream)	Not evaluated	0			
Other (downstream)	Not evaluated	0			

**CC14.2**

Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

No third party verification or assurance

**CC14.3**

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

**CC14.3a**

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Purchased goods & services	Change in output	30	Decrease	Reduced generation of electricity.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in output	7	Decrease	Reduced generation of electricity.

**CC14.4**

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our suppliers  
Yes, our customers  
Yes, other partners in the value chain

**CC14.4a**

Please give details of methods of engagement, your strategy for prioritizing engagement and measures of success

AEP is actively involved in supply chain management, customer/stakeholder engagement and vendor management to ensure AEP is properly prepared to manage potential regulations. This engagement includes technology development partnerships, such as AEP's carbon capture and sequestration validation project, Smart Grid initiatives and deployment of highly efficient electrical generation equipment. Additional AEP regularly conducts stakeholder outreach efforts with customers, suppliers and partners. Furthermore, AEP is involved with a number of these entities as part of public policy initiatives. Engagement is prioritized based on the most salient issues, which in the case of AEP is the potential impact of federal climate regulation. Success is based on increasing the knowledge base of our value chain on AEP's priorities and sensible partnership where possible.

**CC14.4b**

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Number of suppliers	% of total spend (direct and indirect)	Comment
		AEP is unable to estimate the number of suppliers with whom we are engaging as they are too numerous to provide an accurate estimate.

**CC14.4c**

If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data

How you make use of the data	Please give details
Managing the impact of regulation in the supply chain	AEP's engagement generally involves evaluation of suppliers' products which have the potential to reduce AEP's scope 1 and 2 emissions as well as public policy engagement which seeks to ensure sensible regulation.

**Further Information**

See spreadsheet for details in section CC8-Emission Data: AEP 2015 System GHG Profile (GRI) v2.xlsx

**Module: Sign Off**

**Page: CC15. Sign Off**

**CC15.1**

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

Name	Job title	Corresponding job category
John McManus	Vice President - Environmental Services	Environment/Sustainability manager

## Further Information

## Module: SupplyChain

## Page: SM0. Supply Chain Module - Introduction

## SM0.0

If you would like to do so, please take this opportunity to provide a separate introduction to this module

## SM0.1

Please could you indicate your company's annual revenue for the stated reporting period?

Annual Revenue	Currency
16453000000	USD(\$)

## SM0.2

Do you have an ISIN for your company that you would be willing to share with CDP?

No

## Further Information

## Page: SM1. Supply Chain - Allocation A

## SM1.1

Please allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period

Please note that this table ( for SM1.1) is designed so that only the customer that you select in column 1 ("Please select the requesting member(s)") will be able to see the data relevant to them. If you enter an answer without selecting a requesting member, your answer will not be viewable at all.

Please select the requesting member(s)	Scope of emissions	Emissions in metric tonnes CO2e	Uncertainty (+/- %)	Major sources of emissions	Verified	Allocation method	Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
AT&T Inc.	Scope 1	108610665	5	Fossil fuel combustion for the entire AEP System.	Yes	Allocation not necessary due to type of primary data available	AEP's emissions rate for 2015 is 0.7282 metric tonnes CO2e/MWh, or 1.605 lbs CO2e/kWh. 99.3% of AEP's emissions are less than +/- 5% uncertain and are certified via EPA certified Continuous Emission Monitors. The remaining 0.7% are from company records and are estimated to be +/- 10% uncertain.
AT&T Inc.	Scope 2	7485610	10	Indirect emissions due to electricity purchase/use/sale of electricity for the entire AEP System. The "Location Based" emissions are provided.	No	Allocation not necessary due to type of primary data available	Scope 2 emissions are based on AEP operating company purchases of electricity from the regional grid. EPA eGRID 2012 emission factors are used.

## Further Information

## Page: SM1. Supply Chain - Allocation B

## SM1.2

Where published information has been used in completing SM1.1, please provide a reference(s)

We have expressed our GHG emissions as an AEP systemwide rate in order for AT&T to calculate their specific emissions.

## SM1.3

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 challenges

Other:	AEP is unable to determine where generated electricity goes on the electrical grid. Therefore, we provide our customers with a system wide or operating company GHG emission rate in order for them to calculate their emissions depending on their location. Since many customers, such as AT&T, operate in multiple states a system wide GHG emission rate makes the most sense.
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**SM1.4**

**Do you plan to develop your capabilities to allocate emissions to your customers in the future?**

No

**SM1.4b**

**Please explain why you do not plan to develop capabilities to allocate emissions to your customers**

AEP has expanded our emission allocation capabilities to regions (East/West) and our operating companies in 2015. Since we do not have geographic information on AT&T's electricity usage, we continue to use a system average rate of CO<sub>2</sub>e.

It is not possible to determine the exact CO<sub>2</sub>e emission rate for a given customer due to grid electricity flow variability. Regional/Corporation/Operating Company emission rates are the best approximation of indirect emissions from the purchase of electricity.

**Further Information****Page: SM2. Supply Chain - Collaboration****SM2.1**

**Please use the table below to communicate any proposals you would like to make to specific CDP supply chain members for the collaborative development of GHG emission reducing projects or products**

**Please do NOT include details of existing commercial offerings of which your customer will already be aware. Use this as an opportunity to think about how you can work with your customer to reduce the emissions associated with the goods and services you provide to your customer.**

*Please note that this table (for SM2.1) is designed so that only the customer that you select in column 1 ("Please select requesting member") will be able to see the data relevant to them. If you enter an answer without selecting a requesting member, your answer will not be viewable at all.*

Please select requesting member	Type of project	Emissions reduction project or product consists of	Estimated timeframe for carbon reductions to be realized	Estimated lifetime CO <sub>2</sub> e savings	Details of proposal
AT&T Inc.	Other: None	Other: na	Other: na		

**SM2.2**

**Have requests or initiatives by CDP supply chain members prompted your organization to take organizational-level emissions reduction initiatives?**

No

**Further Information****Page: SM3. Supply Chain - Product Introduction****SM3.1**

**Are you providing product level data for your organization's goods or services, if so, what functionality will you be using?**

No, I am not providing data

**Further Information****Page: SM3. Supply Chain - Product Lifecycle Stages****Further Information****Page: SM3. Supply Chain - Product Emissions Reductions****Further Information****Page: SM4. Action Exchange**



**SM4.1**

**Do you want to enroll in the 2016-2017 CDP Action Exchange initiative?**

No

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**SM4.2**

**Is your company a participating supplier in CDP's 2015-2016 Action Exchange initiative?**

No

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**SM4.2a**

**Describe how your company actively considered emissions reduction projects as a result of Action Exchange. If you do not have any emissions reduction activities resulting from Action Exchange at any stage of implementation, please explain why not in the second column**

Type of project	Details of proposal
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**Further Information**

CDP: [D][C,-][D2]