



**AMERICAN
ELECTRIC
POWER**

BOUNDLESS ENERGY™



**American Electric Power
2018 Edison Electric Institute
ESG/Sustainability Report**

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INTRODUCTION

At American Electric Power (AEP:NYSE), we are preparing for a future that is more distributed and disruptive; our strategy for growth and the way we are advancing our business model are evolving to keep pace with these changes. We believe a sustainable future begins with the social and economic benefits of delivering universal access to safe, reliable and cost-effective electricity every day. As the industry transitions to a cleaner energy future, AEP is investing to create a modern, bi-directional, secure and interconnected grid to support sustainable economic and business growth. AEP is focused on providing customer solutions through technology, diversifying resources and investing in renewables, and working with regulators and policymakers to modernize the regulatory compact to better serve customers' changing needs. At the same time, we are reducing our environmental footprint, removing risk from our business and delivering value to our customers and shareholders. Learn more about our efforts and long-term strategy in AEP's [2018 Corporate Accountability Report](#).

TRANSITIONING TO A CLEAN ENERGY FUTURE



AEP has **4,327 MW** of renewable energy and plans to add another **6,455 MW** by 2030.



From 2000 to 2017, AEP has reduced carbon emissions by **57%**, with a long-term goal to reduce CO₂ emissions from our generating facilities by **80%** from 2000 levels by 2050.



Approximately **11,900 MW** of renewable generation is interconnected via AEP's transmission system, serving customers across the U.S.



From 2011 to 2016, AEP has retired more than **7,200 MW** of coal-fueled generating capacity.

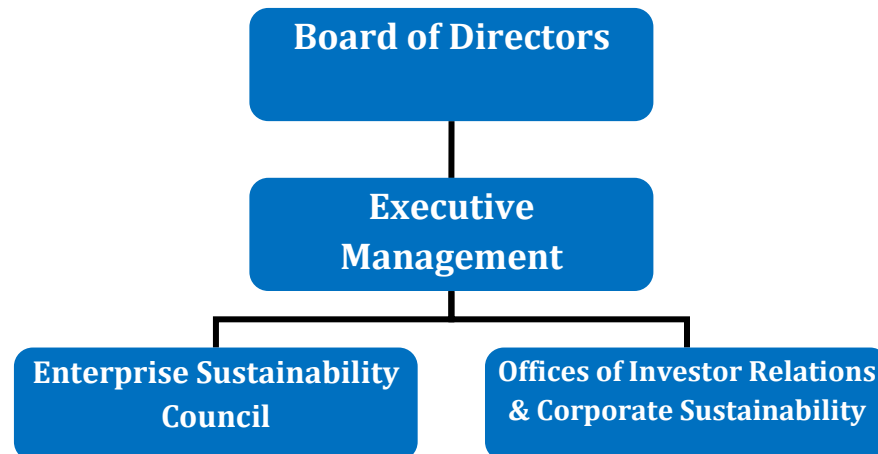
SECTION I: QUALITATIVE REPORT

Governance, Risk Management & Strategy

ESG SUSTAINABILITY GOVERNANCE & RISK MANAGEMENT

Responsibility for environmental, social and governance (ESG) performance is integrated with the policies and principles that govern our company. Our commitment to effective and strong governance is underpinned by our belief in doing the right thing every time for our customers, each other and our future. From the Boardroom to the frontline, AEP is guided by [Principles of Business Conduct](#) that demand uncompromising integrity and the highest ethical standards. Sustainability governance is fundamental to building and strengthening sustained business value. It ensures transparency, fairness, and accountability and gives us a structured way to manage the challenges of a changing society. In addition, AEP leverages its robust internal and external stakeholder engagement process to seek guidance, helping us to ensure we are meeting stakeholders' ESG needs.

ESG SUSTAINABILITY GOVERNANCE STRUCTURE



The Board’s Committee on Directors and Corporate Governance is responsible for overseeing sustainability, including performance disclosure in the Corporate Accountability Report. The Board receives frequent reports from management about the company’s sustainability initiatives, as well as financial reporting, policy matters, and economic performance. In addition, the Committee receives a formal report on sustainability issues and initiatives twice per year. Following a review of the Corporate Accountability Report annually, a [letter from the Board](#) is published, outlining expectations for executing the company’s strategic plan and meeting stakeholders’ needs.

Environmental policies have a significant impact on AEP’s strategy. As a result, the Board regularly engages with senior management in the oversight of environmental issues, including climate change, energy efficiency, renewable energy, and technology changes in the industry. Discussions about carbon and carbon risk occur during Board meetings, strategic planning, and scenario planning and analysis sessions.

In addition to Board-level oversight, AEP’s [Enterprise Sustainability Council](#) provides guidance on ESG responsibilities for sustainable business development. The Council is made up of leaders across AEP, representing all major business units, and executive sponsors include the Chairman, President & CEO; the Executive Vice President of External Affairs; and the Executive Vice President, General Counsel and Corporate Secretary.

In 2018, AEP was named to the NASDAQ CRD Global Sustainability Index, awarded to companies who have taken a leadership role in disclosing sustainability performance, strategic vision and the shared value impact of ESG and financial performance.

Managing Risk

AEP’s Board of Directors and senior management are committed to having a risk management program that proactively identifies and mitigates business risks. The Board and its Committees, including the Audit Committee, have responsibility for oversight and monitoring of AEP’s risks.

AEP’s Enterprise Risk Management process looks holistically at all risks – real or perceived – across all aspects of AEP’s operations, including those risks posed by climate change, through a risk identification, analysis, and mitigation process.

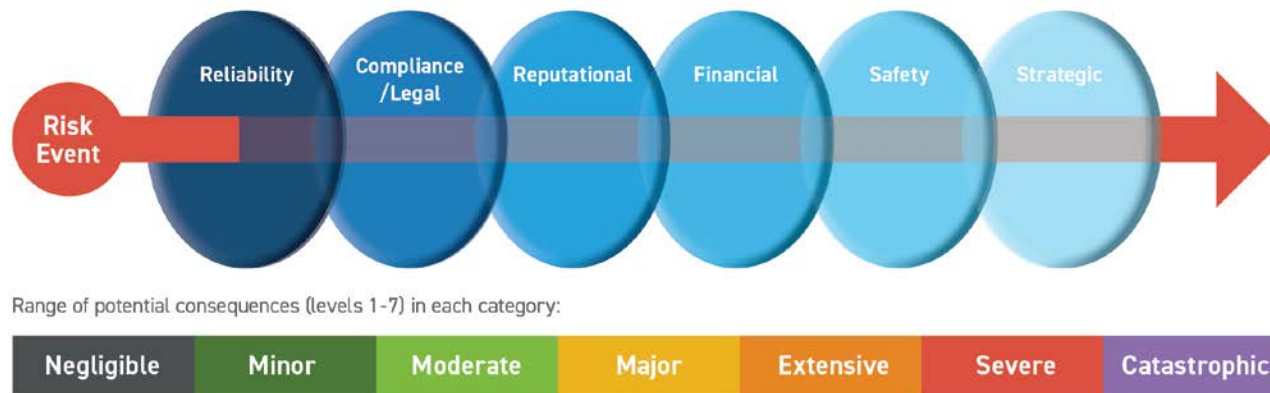
4 Categories of Risk	Potential Impacts to AEP
Strategic	Can affect long-term or overall business goals and ability to achieve them
Financial	Potential risks that affect financing needs, financial standing, and/or reporting requirements
Operational	Risks that affect our ability to operate the power grid
Regulatory	Risks that can affect our legal and compliance requirements

In addition, AEP categorizes risk impacts into six subcategories and scores them based on the severity of potential consequences.

Climate-related risk can potentially impact most of these six sub-categories. Once risks are identified, mitigation strategies are developed. Learn more about AEP's approach to risk management in our [2018 Corporate Accountability Report](#). Learn more about scenario planning and climate-related risk management in [AEP: Strategic Vision For A Clean Energy Future 2018](#).

Risk Analysis: Viewing Risks Through Lenses

Consistent, transparent, repeatable process for risk management
Six impact categories to evaluate consequences of a risk event



ESG SUSTAINABILITY STRATEGY

The rapid changes transforming the energy industry are altering the dynamics of how people interact with the power grid, turning consumers into active, not passive, participants. From decentralized power generation and electrification to digitization, disruptive innovation is reshaping our company and our industry. AEP's capital investment strategy spans the value chain of generation, transmission and distribution with the customer at the center.

Our vision for a sustainable electricity future means:

- Redefining our relationship with our customers
- Building a more intelligent network to enable two-way flows of power and information
- Meeting the challenge of a changing workforce and adapting to the future of work
- Diversifying our resources and investing in a cleaner, smarter energy system
- Strengthening the security of our assets and information



“ The energy industry is in an era of transformation, moving rapidly toward a cleaner energy economy. American Electric Power is at the forefront of this transition to modernize the power grid, diversify our resources and deliver cost-effective, reliable electricity to customers and value to our shareholders. Our business strategy and resource planning have created a path forward that will result in the clean energy our customers want and, consequently, lower carbon dioxide emissions. ”

– Nick Akins, Chairman, President and Chief Executive Officer

AEP has laid a strong foundation for the future. We have managed through significant earnings challenges due to the deregulation of our generation assets in Ohio; completed the sale of merchant power plants to reduce the risk from the volatility of unpredictable capacity markets; spun off businesses that were not core to our regulated utility business; diversified our resource portfolio to meet the needs of a clean energy future; set new carbon emissions reduction goals; expanded our business beyond our traditional regulated footprint; embraced continuous improvement to manage our financial resources and improve efficiency, reliability and customer focus; and transformed our culture.

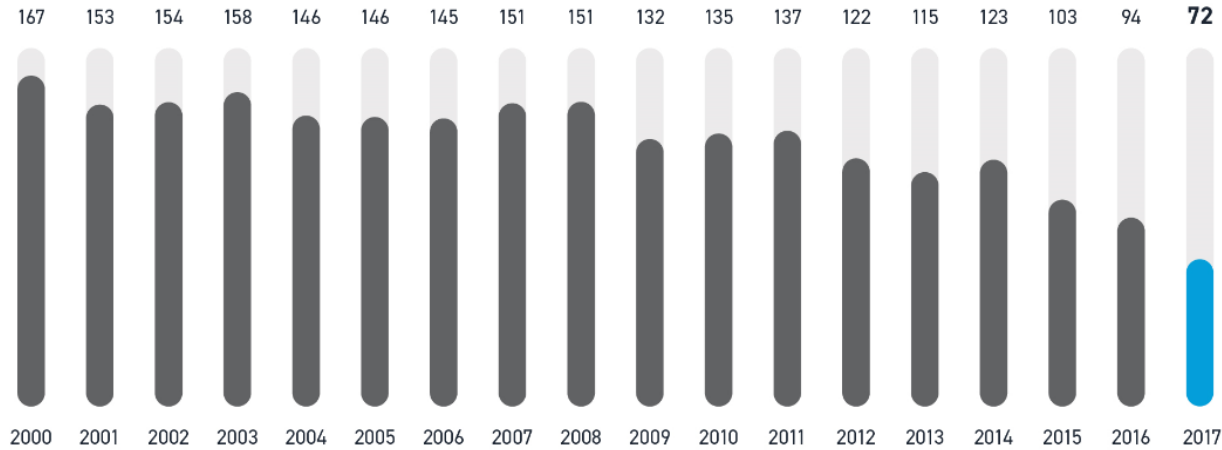
Our strategy is to pursue opportunities to provide new energy resources and technology solutions for customers. AEP plans to invest \$24 billion in 2018 through 2021 to rebuild and enhance aging infrastructure, add advanced technologies to the energy system and create a more reliable and resilient grid.

Our 2022 vision to be the energy company of the future provides mileposts that are essential to our success. These include grid reliability and modernization, advancing technology and innovation, exceeding customers' expectations, growing our regulated and contracted renewables, preparing for the workforce of the future and partnering with our regulators to shift the regulatory paradigm to support these activities.

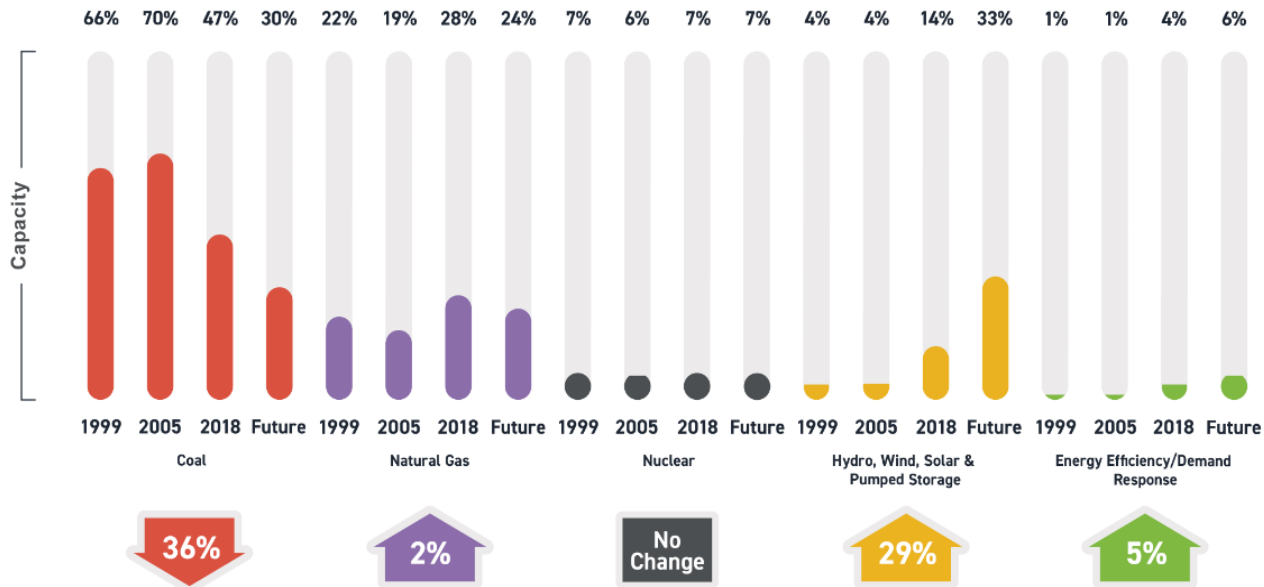
Learn more about AEP's [strategic goals](#) and the progress being made. In addition to new carbon goals, AEP announced [new sustainability goals](#) that focus on the energy transition, social issues (e.g., diversity and inclusion) and economic development.

Total AEP System – Annual CO₂ Emissions

in million metric tons



Transforming Our Generation Fleet – AEP's Generating Resource Portfolio



Future includes IRP forecasted additions and retirements through 2030.

Energy Efficiency/Demand Response represents avoided capacity rather than physical assets.

As of June 2018.

Our strategy for achievement is an “all of the above” plan that includes:

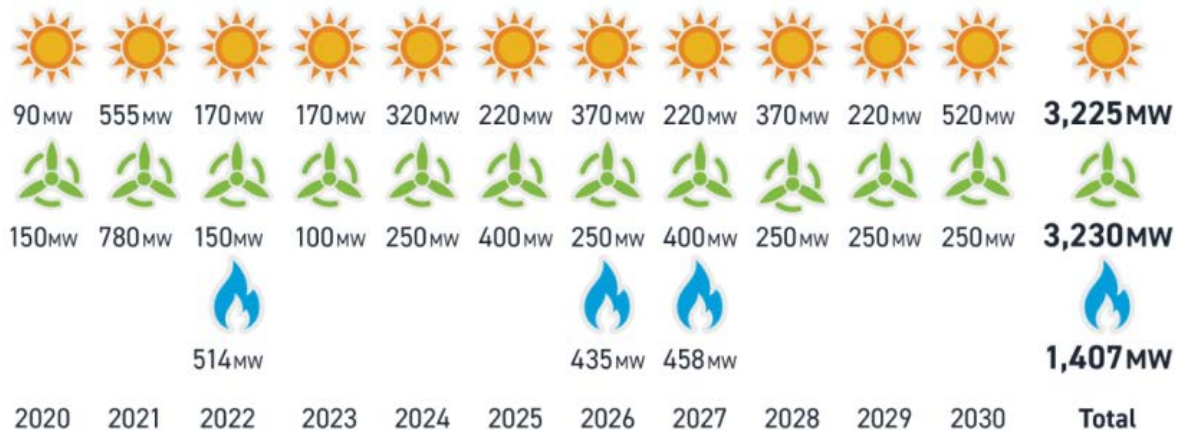
- Near-term investments in renewable energy within and outside of our traditional service territory
- Technology deployment (e.g., energy storage)
- Modernization of the grid to optimize all resources and technologies with significant investments in our transmission and distribution systems
- Increased use of natural gas
- Purchased power agreements (PPAs)
- Advancement of our resource plans with regulators
- Energy efficiency and savings through technology, load management and conservation programs on both sides of the meter
- Demand response programs
- Increased integration of distributed resources, including large-scale renewables
- Optimization of our existing generating fleet

BUILDING A SUSTAINABLE FUTURE

Our strategy for a sustainable future is to ensure that the production and delivery of energy enables positive social and economic change for our customers, employees, investors and communities as we work together to shape our future. This is grounded in our culture of safety, continuous improvement and customer focus. We are committed to aggressively supporting economic development, developing innovative solutions, championing education and making smart infrastructure investments that power our communities and improve lives. Learn more about [AEP's sustainability goals](#) and how they align with corporate initiatives and map to the U.N. Sustainable Development Goals.

AEP System Planned Generation Resource Additions

Regulated and AEP Ohio Purchase Power Agreement



Wind and solar represents nameplate MW capacity.

Source: Internal Integrated Resource Plans as of May 2018.

Actual additions depend on market conditions, regulatory approval, customer demand and other external factors.

ADDITIONAL RESOURCES:

Energy & Technology

Sustainable Electricity -- <http://aepsustainability.com/energy/sustainable.aspx>
Resource Planning and Diversity -- <http://aepsustainability.com/energy/diversity/>
Coal Fleet Optimization -- <http://aepsustainability.com/energy/diversity/coal-fleet.aspx>
Distributed Energy Resources -- <http://aepsustainability.com/energy/diversity/distributed.aspx>
Electrification -- <http://aepsustainability.com/energy/diversity/electrification/>
Electric Vehicles -- <http://aepsustainability.com/energy/diversity/electrification/vehicles.aspx>
Grid Reliability and Modernization -- <http://aepsustainability.com/energy/reliability/>
Managing Aging Infrastructure -- <http://aepsustainability.com/energy/reliability/aging.aspx>
Grid Resilience -- <http://aepsustainability.com/energy/reliability/grid-resilience.aspx>
Energy Storage -- <http://aepsustainability.com/energy/reliability/modernization/storage.aspx>
Advancing Technology & Innovation -- <http://aepsustainability.com/energy/innovation/>

Social Responsibility

Diversity & Inclusion -- <http://aepsustainability.com/social/diversity/>
Safety & Health -- <http://aepsustainability.com/social/safety/>
Customer Experience -- <http://aepsustainability.com/social/cx/>

Economic

Economic Development -- <http://aepsustainability.com/community/development/>
Supporting Appalachia -- <http://aepsustainability.com/community/development/appalachia.aspx>
Grid Investments -- <http://aepsustainability.com/community/development/grid-investments.aspx>

AEP: Strategic Vision for a Clean Energy Future -- <http://aep.com/investors/docs/AEP2018CleanEnergyFutureReport.pdf>
AEP's Sustainability Goals -- <https://www.aepsustainability.com/goals/>
Statement of AEP Board of Directors -- <https://www.aepsustainability.com/about/report/board.aspx>

SECTION II: QUANTITATIVE REPORT

Portfolio, Emissions, Resources



ESG/Sustainability Template – Section II: Quantitative Information



Disclaimer: All information below is being provided on a voluntarily basis, and as such, companies may elect to include or exclude any of the topics outlined below and customize the template to their specific needs. The decision to include data for historical and future years is at the discretion of each company and the specific years (e.g., historical baseline) should be chosen as appropriate for each company.

Parent Company: *American Electric Power
AEP Ohio, Indiana Michigan Power Company, Appalachian Power Company, Kentucky Power Company, Public Service Company of Oklahoma, Southwestern Electric Power Company, AEP Texas*

Operating Company(s): *Vertically Integrated*

Business Type(s): *Ohio, Michigan, Indiana, Virginia, Kentucky, West Virginia, Oklahoma, Louisiana, Texas, Arkansas, Tennessee*

State(s) of Operation: *Ohio, Michigan, Indiana, Virginia, Oklahoma, Texas*

State(s) with RPS Programs: *Both*

Regulatory Environment: *8/1/2018*

Report Date:

Ref. No.	Refer to the Definitions for more information on each metric	Baseline	Last Year	Current Year
		2000	2016	2017
Portfolio				
1	Owned Nameplate Generation Capacity at end of year (MW)	37,369	33,411	28,804
1.1	Coal	25,556	18,025	14,506
1.2	Natural Gas	8,195	9,598	7,853
1.3	Nuclear	2,740	2,191	2,278
1.4	Petroleum	36	0	0
1.5	Total Renewable Energy Resources	842	3,597	4,167
1.5.1	Biomass/Biogas	0	0	0
1.5.2	Geothermal	0	0	0
1.5.3	Hydroelectric	842	938	964
1.5.4	Solar	0	26	26
1.5.5	Wind	0	2,633	3,177
1.6	Other	0	0	0
2	Net Generation for the data year (MWh)	196,942,749	137,346,204	108,631,253
2.1	Coal	160,080,902	84,561,633	69,405,395
2.2	Natural Gas	26,388,802	27,331,502	11,959,828
2.3	Nuclear	9,745,654	15,359,799	17,592,001
2.4	Petroleum	44	23,014	20,335
2.5	Total Renewable Energy Resources	727,347	10,070,256	9,653,694
2.5.1	Biomass/Biogas	0	0	0
2.5.2	Geothermal	0	0	0
2.5.3	Hydroelectric	727,347	1,102,537	775,636
2.5.4	Solar	0	22,258	37,828
2.5.5	Wind	0	8,945,461	8,840,230
2.6	Other	0	0	0
2.i	Owned Net Generation for the data year (MWh)	196,942,749	120,472,501	99,192,640

Ref. No.	Refer to the Definitions for more information on each metric	Baseline	Last Year	Current Year
		2000	2016	2017
2.1.i	Coal	160,080,902	84,561,633	69,405,395
2.2.i	Natural Gas	26,388,802	19,619,354	11,375,054
2.3.i	Nuclear	9,745,654	15,359,799	17,592,001
2.4.i	Petroleum	44	23,014	20,335
2.5.i	Total Renewable Energy Resources	727,347	908,701	799,855
2.5.1.i	Biomass/Biogas	0	0	0
2.5.2.i	Geothermal	0	0	0
2.5.3.i	Hydroelectric	727,347	900,847	775,636
2.5.4.i	Solar	0	7,854	24,219
2.5.5.i	Wind	0	0	0
2.6.i	Other	0	0	0
2.ii	Purchased Net Generation for the data year (MWh)	0	16,873,703	9,438,613
2.1.ii	Coal	0	0	0
2.2.ii	Natural Gas	0	7,712,148	584,774
2.3.ii	Nuclear	0	0	0
2.4.ii	Petroleum	0	0	0
2.5.ii	Total Renewable Energy Resources	0	9,161,555	8,853,839
2.5.1.ii	Biomass/Biogas	0	0	0
2.5.2.ii	Geothermal	0	0	0
2.5.3.ii	Hydroelectric	0	201,690	0
2.5.4.ii	Solar	0	14,404	13,609
2.5.5.ii	Wind	0	8,945,461	8,840,230
2.6.ii	Other	0	0	0
3	Investing in the Future: Capital Expenditures, Energy Efficiency (EE), and Smart Meters			
3.1	Total Annual Capital Expenditures (nominal dollars)		\$4,934,000,000	\$6,045,000,000
3.2	Incremental Annual Electricity Savings from EE Measures (MWh)		1,055,046	1,032,000

Ref. No.	Refer to the Definitions for more information on each metric	Baseline	Last Year	Current Year
		2000	2016	2017
3.3	Incremental Annual Investment in Electric EE Programs (nominal dollars)		\$169,000,000	\$185,000,000
3.4	Percent of Total Electric Customers with Smart Meters (at end of year)		30.67%	34%
4	Retail Electric Customer Count (at end of year)			
4.1	Commercial		704,500	708,000
4.2	Industrial		43,000	36,000
4.3	Residential		5,022,000	4,604,000

Emissions

5 GHG Emissions: Carbon Dioxide (CO2) and Carbon Dioxide Equivalent (CO2e)

Note: The alternatives available below are intended to provide flexibility in reporting GHG emissions, and should be used to the extent appropriate for each company.

5.1

Owned Generation

5.1.1	Carbon Dioxide (CO2)			
5.1.1.1	Total Owned Generation CO2 Emissions (MT)	167,100,561	90,457,399	72,109,609
5.1.1.2	Total Owned Generation CO2 Emissions Intensity (MT/Net MWh)	0.848	0.751	0.727
5.1.2	Carbon Dioxide Equivalent (CO2e)			
5.1.2.1	Total Owned Generation CO2e Emissions (MT)	168,470,786	90,989,994	72,813,962
5.1.2.2	Total Owned Generation CO2e Emissions Intensity (MT/Net MWh)	0.855	0.755	0.734

5.2

Purchased Power

5.2.1	Carbon Dioxide (CO2)			
5.2.1.1	Total Purchased Generation CO2 Emissions (MT)	0	3,003,087	227,681
5.2.1.2	Total Purchased Generation CO2 Emissions Intensity (MT/Net MWh)	0.000	0.178	0.024
5.2.2	Carbon Dioxide Equivalent (CO2e)			
5.2.2.1	Total Purchased Generation CO2e Emissions (MT)	0	3,006,186	251,231
5.2.2.2	Total Purchased Generation CO2e Emissions Intensity (MT/Net MWh)	0.000	0.178	0.027

Ref. No.	Refer to the Definitions for more information on each metric	Baseline	Last Year	Current Year
		2000	2016	2017
5.3	Owned Generation + Purchased Power			
5.3.1	Carbon Dioxide (CO ₂)			
5.3.1.1	Total Owned + Purchased Generation CO ₂ Emissions (MT)	167,100,561	93,460,486	72,337,290
5.3.1.2	Total Owned + Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.848	0.680	0.666
5.3.2	Carbon Dioxide Equivalent (CO ₂ e)			
5.3.2.1	Total Owned + Purchased Generation CO ₂ e Emissions (MT)	168,470,786	93,996,180	73,065,193
5.3.2.2	Total Owned + Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.855	0.684	0.673
5.4	Non-Generation CO₂e Emissions			
5.4.1	Fugitive CO ₂ e emissions of sulfur hexafluoride (MT)	123,140	461,122	189,810
5.4.2	Fugitive CO ₂ e emissions from natural gas distribution (MT)	0	0	0
6	Nitrogen Oxide (NO_x), Sulfur Dioxide (SO₂), Mercury (Hg)			
6.1	Generation basis for calculation		Fossil	
6.2	Nitrogen Oxide (NO_x)			
6.2.1	Total NO _x Emissions (MT)	417,826	59,074	47,552
6.2.2	Total NO _x Emissions Intensity (MT/Net MWh)	0.002241	0.000528	0.000584
6.3	Sulfur Dioxide (SO₂)			
6.3.1	Total SO ₂ Emissions (MT)	929,796	90,213	68,652
6.3.2	Total SO ₂ Emissions Intensity (MT/Net MWh)	0.004986	0.000806	0.000844
6.4	Mercury (Hg)			
6.4.1	Total Hg Emissions (kg)	4,289.0	306.2	206.5
6.4.2	Total Hg Emissions Intensity (kg/Net MWh)	0.000023	0.000003	0.000003

Ref. No.	Refer to the Definitions for more information on each metric	Baseline	Last Year	Current Year
		2000	2016	2017
Resources				
7	Human Resources			
7.1	Total Number of Employees	19,998	17,701	17,666
7.2	Total Number on Board of Directors/Trustees	11	12	12
7.3	Total Women on Board of Directors/Trustees	2	3	3
7.4	Total Minorities on Board of Directors/Trustees	1	2	2
7.5	Employee Safety Metrics			
7.5.1	Recordable Incident Rate	2.35	0.89	0.80
7.5.2	Lost-time Case Rate	0.60	0.32	0.32
7.5.3	Days Away, Restricted, and Transfer (DART) Rate	0.96	0.50	0.45
7.5.4	Work-related Fatalities	1.00	2	0.00
8	Fresh Water Resources			
8.1	Water Withdrawals - Consumptive (Billions of Liters/Net MWh)		0.000002	0.000002
8.2	Water Withdrawals - Non-Consumptive (Billions of Liters/Net MWh)		0.000046	0.000059
9	Waste Products			
9.1	Percent of Non-Hazardous Waste Diverted (Metric Tons)		47.8	55.6
9.2	Percent of Coal Combustion Products Beneficially Used		33%	41%

APPENDIX: DEFINITIONS

Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
1	Owned Nameplate Generation Capacity at end of year (MW)	Provide generation capacity data that is consistent with other external reporting by your company. The alternative default is to use the summation of the nameplate capacity of installed owned generation in the company portfolio, as reported to the U.S. Energy Information Administration (EIA) on Form 860 Generator Information . Note that data should be provided in terms of equity ownership for shared facilities. Nameplate capacity is defined as the maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer. Installed generator nameplate capacity is commonly expressed in megawatts (MW) and is usually indicated on a nameplate physically attached to the generator.	Megawatt (MW): One million watts of electricity.	End of Year	U.S. Energy Information Administration, Online Glossary
1.1	Coal	Nameplate capacity of generation resources that produce electricity through the combustion of coal (a readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time).	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.2	Natural Gas	Nameplate capacity of generation resources that produce electricity through the combustion of natural gas (a gaseous mixture of hydrocarbon compounds, the primary one being methane).	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.3	Nuclear	Nameplate capacity of generation resources that produce electricity through the use of thermal energy released from the fission of nuclear fuel in a reactor.	MW	End of Year	U.S. Energy Information Administration, Online Glossary

1.4	Petroleum	Nameplate capacity of generation resources that produce electricity through the combustion of petroleum (a broadly defined class of liquid hydrocarbon mixtures. Included are crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids).	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.5	Total Renewable Energy Resources	Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.5.1	Biomass/Biogas	Nameplate capacity of generation resources that produce electricity through the combustion of biomass (an organic nonfossil material of biological origin constituting a renewable energy source).	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.5.2	Geothermal	Nameplate capacity of generation resources that produce electricity through the use of thermal energy released from hot water or steam extracted from geothermal reservoirs in the earth's crust.	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.5.3	Hydroelectric	Nameplate capacity of generation resources that produce electricity through the use of flowing water.	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.5.4	Solar	Nameplate capacity of generation resources that produce electricity through the use of the radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.5.5	Wind	Nameplate capacity of generation resources that produce electricity through the use of kinetic energy present in wind motion that can be converted to mechanical energy for driving pumps, mills, and electric power generators.	MW	End of Year	U.S. Energy Information Administration, Online Glossary
1.6	Other	Nameplate capacity of generation resources that are not defined above.	MW	End of Year	

2	Net Generation for the data year (MWh)	Net generation is defined as the summation of the amount of gross generation less the electrical energy consumed at the generating station(s) for station service or auxiliaries. Data can be provided in terms of total, owned, and/or purchased, depending on how the company prefers to disseminate data in this template. Provide net generation data that is consistent with other external reporting by your company. The alternative default is to provide owned generation data as reported to EIA on Form 923 Schedule 3 and align purchased power data with the Federal Energy Regulatory Commission (FERC) Form 1 Purchased Power Schedule , Reference Pages numbers 326-327. Note: Electricity required for pumping at pumped-storage plants is regarded as electricity for station service and is deducted from gross generation.	Megawatt hour (MWh): One thousand kilowatt-hours or one million watt-hours.	Annual	U.S. Energy Information Administration, Online Glossary
2.1	Coal	Net electricity generated by the combustion of coal (a readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time).	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.2	Natural Gas	Net electricity generated by the combustion of natural gas (a gaseous mixture of hydrocarbon compounds, the primary one being methane).	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.3	Nuclear	Net electricity generated by the use of the thermal energy released from the fission of nuclear fuel in a reactor.	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.4	Petroleum	Net electricity generated by the combustion of petroleum (a broadly defined class of liquid hydrocarbon mixtures. Included are crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids).	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.5	Total Renewable Energy Resources	Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.5.1	Biomass/Biogas	Net electricity generated by the combustion of biomass (an organic nonfossil material of biological origin constituting a renewable energy source).	MWh	Annual	U.S. Energy Information Administration, Online Glossary

2.5.2	Geothermal	Net electricity generated by the use of thermal energy released from hot water or steam extracted from geothermal reservoirs in the earth's crust.	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.5.3	Hydroelectric	Net electricity generated by the use of flowing water.	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.5.4	Solar	Net electricity generated by the use of the radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.5.5	Wind	Net electricity generated by the use of kinetic energy present in wind motion that can be converted to mechanical energy for driving pumps, mills, and electric power generators.	MWh	Annual	U.S. Energy Information Administration, Online Glossary
2.6	Other	Net electricity generated by other resources that are not defined above. If applicable, this metric should also include market purchases where the generation resource is unknown.	MWh	Annual	
3	Investing in the Future: Capital Expenditures, Energy Efficiency (EE), and Smart Mete				
3.1	Total Annual Capital Expenditures	Align annual capital expenditures with data reported in recent investor presentations. A capital expenditure is the use of funds or assumption of a liability in order to obtain physical assets that are to be used for productive purposes for at least one year. This type of expenditure is made in order to expand the productive or competitive posture of a business.	Nominal Dollars	Annual	Accounting Tools, Q&A
3.2	Incremental Annual Electricity Savings from EE Measures (MWh)	Incremental Annual Electricity Savings for the reporting year as reported to EIA on Form 861 . Incremental Annual Savings for the reporting year are those changes in energy use caused in the current reporting year by: (1) new participants in DSM programs that operated in the previous reporting year, and (2) participants in new DSM programs that operated for the first time in the current reporting year. A "New program" is a program for which the reporting year is the first year the program achieved savings, regardless of when program development and expenditures began.	MWh	End of Year	U.S. Energy Information Administration, Form EIA-861 Annual Electric Power Industry Report Instructions
3.3	Incremental Annual Investment in Electric EE Programs (nominal dollars)	Total annual investment in electric energy efficiency programs as reported to EIA on Form 861 .	Nominal Dollars	End of Year	U.S. Energy Information Administration, Form EIA-861 Annual Electric Power Industry Report Instructions

3.4	Percent of Total Electric Customers with Smart Meters (at end of year)	Number of electric smart meters installed at end-use customer locations, divided by number of total electric meters installed at end-use customer locations. Smart meters are defined as electricity meters that measure and record usage data at a minimum, in hourly intervals, and provide usage data to both consumers and energy companies at least once daily. Align reporting with EIA Form 861 meter data, which lists all types of meter technology used in the system as well as total meters in the system.	Percent	End of Year	U.S. Energy Information Administration, Online Glossary
4	Retail Electric Customer Count (at end of year)	Electric customer counts should be aligned with the data provided to EIA on Form 861 - Sales to Utility Customers .			U.S. Energy Information Administration, Form EIA-861 Annual Electric Power Industry Report Instructions
4.1	Commercial	An energy-consuming sector that consists of service-providing facilities and equipment of businesses; Federal, State, and local governments; and other private and public organizations, such as religious, social, or fraternal groups. The commercial sector includes institutional living quarters. It also includes sewage treatment facilities. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a wide variety of other equipment. Note: This sector includes generators that produce electricity and/or useful thermal output primarily to support the activities of the above-mentioned commercial establishments.	Number of end-use retail customers receiving electricity (individual homes and businesses count as one).	End of Year	U.S. Energy Information Administration, Online Glossary
4.2	Industrial	An energy-consuming sector that consists of all facilities and equipment used for producing, processing, or assembling goods. The industrial sector encompasses the following types of activity manufacturing (NAICS codes 31-33); agriculture, forestry, fishing and hunting (NAICS code 11); mining, including oil and gas extraction (NAICS code 21); and construction (NAICS code 23). Overall energy use in this sector is largely for process heat and cooling and powering machinery, with lesser amounts used for facility heating, air conditioning, and lighting. Fossil fuels are also used as raw material inputs to manufactured products. Note: This sector includes generators that produce electricity and/or useful thermal output primarily to support the above-mentioned industrial activities. Various EIA programs differ in sectoral coverage.	Number of end-use retail customers receiving electricity (individual homes and businesses count as one).	End of Year	U.S. Energy Information Administration, Online Glossary

4.3	Residential	An energy-consuming sector that consists of living quarters for private households. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a variety of other appliances. The residential sector excludes institutional living quarters. Note: Various EIA programs differ in sectoral coverage.	Number of end-use retail customers receiving electricity (individual homes and businesses count as one).	End of Year	U.S. Energy Information Administration, Online Glossary
5	GHG Emissions: Carbon Dioxide (CO2) and Carbon Dioxide Equivalent (CO2e)				
5.1	Owned Generation				
5.1.1	Carbon Dioxide (CO2)				
5.1.1.1	Total Owned Generation CO2 Emissions	Total direct CO2 emissions from company equity-owned fossil fuel combustion generation in accordance with EPA's GHG Reporting Program (40 CFR, part 98, Subpart C – General Stationary Fuel Combustion and Subpart D – Electricity Production), using a continuous emission monitoring system (CEMS) or other approved methodology.	Metric Tons	Annual	U.S. Environmental Protection Agency, <i>Greenhouse Gas Reporting Program</i> (40 CFR, part 98, Subparts C and D).
5.1.1.2	Total Owned Generation CO2 Emissions Intensity	Total direct CO2 emissions from 5.1.1.1, divided by total MWh of <u>owned</u> net generation reported in the Utility Portfolio section.	Metric Tons/Net MWh	Annual	
5.1.2	Carbon Dioxide Equivalent (CO2e)				
5.1.2.1	Total Owned Generation CO2e Emissions	Total direct CO2e emissions (CO2, CH4, and N2O) from company equity-owned fossil fuel combustion generation in accordance with EPA's GHG Reporting Program (40 CFR, part 98, Subpart C – General Stationary Fuel Combustion and Subpart D – Electricity Production), using a continuous emission monitoring system (CEMS) or other approved methodology.	Metric Tons	Annual	U.S. Environmental Protection Agency, <i>Greenhouse Gas Reporting Program</i> (40 CFR, part 98, Subparts C and D).
5.1.2.2	Total Owned Generation CO2e Emissions Intensity	Total direct CO2e emissions from 5.1.2.1, divided by total MWh of <u>owned</u> net generation reported in the Utility Portfolio section.	Metric Tons/Net MWh	Annual	
5.2	Purchased Power				
5.2.1	Carbon Dioxide (CO2)				

5.2.1.1	Total Purchased Generation CO2 Emissions	Purchased power CO2 emissions should be calculated using the most relevant and accurate of the following methods: (1) For direct purchases, such as PPAs, use the direct emissions data as reported to EPA. (2) For market purchases where emissions attributes are unknown, use applicable regional or national emissions rate: - ISO/RTO-level emission factors - Climate Registry emission factors - E-Grid emission factors	Metric Tons	Annual	
5.2.1.2	Total Purchased Generation CO2 Emissions Intensity	Total purchased power CO2 emissions from 5.2.1.1, divided by total MWh of purchased net generation reported in the Utility Portfolio section.	Metric Tons/Net MWh	Annual	
5.2.2	Carbon Dioxide Equivalent (CO2e)				
5.2.2.1	Total Purchased Generation CO2e Emissions	Purchased power CO2e emissions should be calculated using the most relevant and accurate of the following methods: (1) For direct purchases, such as PPAs, use the direct emissions data as reported to EPA. (2) For market purchases where emissions attributes are unknown, use applicable regional or national emissions rate: - ISO/RTO-level emission factors - Climate Registry emission factors - E-Grid emission factors	Metric Tons	Annual	
5.2.2.2	Total Purchased Generation CO2e Emissions Intensity	Total purchased power CO2e emissions from 5.2.2.1, divided by total MWh of purchased net generation reported in the Utility Portfolio section.	Metric Tons/Net MWh	Annual	
5.3	Owned Generation + Purchased Power				
5.3.1	Carbon Dioxide (CO2)				
5.3.1.1	Total Owned + Purchased Generation CO2 Emissions	Sum of total CO2 emissions reported under 5.1.1.1 and 5.2.1.1.	Metric Tons	Annual	
5.3.1.2	Total Owned + Purchased Generation CO2 Emissions Intensity	Total emissions from 5.3.1.1, divided by total MWh of owned and purchased net generation reported in the Utility Portfolio section.	Metric Tons/Net MWh	Annual	
5.3.2	Carbon Dioxide Equivalent (CO2e)				

5.3.2.1	Total Owned + Purchased Generation CO2e Emissions	Sum of total CO2e emissions reported under 5.1.2.1 and 5.2.2.1.	Metric Tons	Annual	
5.3.2.2	Total Owned + Purchased Generation CO2e Emissions Intensity	Total emissions from 5.3.2.1, divided by total MWh of owned and purchased net generation reported in the Utility Portfolio section.	Metric Tons/Net MWh	Annual	
5.4	Non-Generation CO2e Emissions				
5.4.1	Fugitive CO2e emissions of sulfur hexafluoride	Total fugitive CO2e emissions of sulfur hexafluoride in accordance with EPA's GHG Reporting Program (40 CFR Part 98, Subpart DD).	Metric Tons	Annual	U.S. EPA, <i>Greenhouse Gas Reporting Program</i> (40 CFR, part 98, Subpart DD).
5.4.2	Fugitive CO2e emissions from natural gas distribution	Total fugitive CO2e emissions from natural gas distribution in accordance with EPA's GHG Reporting Program (40 CFR Part 98, Subpart W)	Metric Tons	Annual	U.S. Environmental Protection Agency, <i>Greenhouse Gas Reporting Program</i> (40 CFR, part 98, Subpart W).
6	Nitrogen Oxide (NOx), Sulfur Dioxide (SO2), Mercury (Hg)				
6.1	Generation basis for calculation	Indicate the generation basis for calculating SO2, NOx, and Hg emissions and intensity. Fossil: Fossil Fuel Generation Only Total: Total System Generation Other: Other (please specify in comment section)			
6.2	Nitrogen Oxide (NOx)				
6.2.1	Total NOx Emissions	Total NOx emissions from company equity-owned fossil fuel combustion generation. In accordance with EPA's Acid Rain Reporting Program (40 CFR, part 75) or regulatory equivalent.	Metric Tons	Annual	U.S. Environmental Protection Agency, <i>Acid Rain Reporting Program</i> (40 CFR, part 75).
6.2.2	Total NOx Emissions Intensity	Total from above, divided by the MWh of generation basis as indicated in 6.1.	Metric Tons/Net MWh	Annual	
6.3	Sulfur Dioxide (SO2)				
6.3.1	Total SO2 Emissions	Total SO2 emissions from company equity-owned fossil fuel combustion generation. In accordance with EPA's Acid Rain Reporting Program (40 CFR, part 75) or regulatory equivalent.	Metric Tons	Annual	U.S. Environmental Protection Agency, <i>Acid Rain Reporting Program</i> (40 CFR, part 75).
6.3.2	Total SO2 Emissions Intensity	Total from above, divided by the MWh of generation basis as indicated in 6.1.	Metric Tons/Net MWh	Annual	

6.4	Mercury (Hg)				
6.4.1	Total Hg Emissions	Total Mercury emissions from company equity-owned fossil fuel combustion generation. Preferred methods of measurement are performance-based, direct measurement as outlined in the EPA Mercury and Air Toxics Standard (MATS). In the absence of performance-based measures, report value aligned with Toxics Release Inventory (TRI) or regulatory equivalent for international operations.	Kilograms	Annual	EPRI, <i>Metrics to Benchmark Electric Power Company Sustainability Performance</i> , 2018 Technical Report.
6.4.2	Total Hg Emissions Intensity	Total from above, divided by the MWh of generation basis as indicated in 6.1.	Kilograms/Net MWh	Annual	
7	Human Resources				
7.1	Total Number of Employees	Average number of employees over the year. To calculate the annual average number of employees: (1) Calculate the total number of employees your establishment paid for all periods. Add the number of employees your establishment paid in every pay period during the data year. Count all employees that you paid at any time during the year and include full-time, part-time, temporary, seasonal, salaried, and hourly workers. Note that pay periods could be monthly, weekly, bi-weekly, and so on. (2) Divide the total number of employees (from step 1) by the number of pay periods your establishment had in during the data year. Be sure to count any pay periods when you had no (zero) employees. (3) Round the answer you computed in step 2 to the next highest whole number.	Number of Employees	Annual	U.S. Department of Labor, Bureau of Labor Statistics, Steps to estimate annual average number of employees
7.2	Total Number of Board of Directors/Trustees	Average number of employees on the Board of Directors/Trustees over the year.	Number of Employees	Annual	
7.3	Total Women on Board of Directors/Trustees	Total number of women (defined as employees who identify as female) on Board of Directors/Trustees.	Number of Employees	Annual	U.S. Equal Employment Opportunity Commission, EEO Terminology

7.4	Total Minorities on Board of Directors/Trustees	<p>Total number of minorities on Board of Directors/Trustees. Minority employees are defined as “the smaller part of a group. A group within a country or state that differs in race, religion or national origin from the dominant group. Minority is used to mean four particular groups who share a race, color or national origin.” These groups are: “(1) American Indian or Alaskan Native. A person having origins in any of the original peoples of North America, and who maintain their culture through a tribe or community; (2) Asian or Pacific Islander. A person having origins in any of the original people of the Far East, Southeast Asia, India, or the Pacific Islands. These areas include, for example, China, India, Korea, the Philippine Islands, and Samoa; (3) Black (except Hispanic). A person having origins in any of the black racial groups of Africa; (4) Hispanic. A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.”</p>	Number of Employees	Annual	U.S. Equal Employment Opportunity Commission, EEO Terminology
7.5	Employee Safety Metrics				
7.5.1	Recordable Incident Rate	<p>Number of injuries or illnesses x 200,000 / Number of employee labor hours worked. Injury or illness is recordable if it results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. You must also consider a case to meet the general recording criteria if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. Record the injuries and illnesses of all employees on your payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers. You also must record the recordable injuries and illnesses that occur to employees who are not on your payroll if you supervise these employees on a day-to-day basis. If your business is organized as a sole proprietorship or partnership, the owner or partners are not considered employees for recordkeeping purposes. For temporary employees, you must record these injuries and illnesses if you supervise these employees on a day-to-day basis. If the contractor's employee is under the day-to-day supervision of the contractor, the contractor is responsible for recording the injury or illness. If you supervise the contractor employee's work on a day-to-day basis, you must record the injury or illness.</p>	Percent	Annual	<p>U.S. Department of Labor, Occupational Health and Safety Administration, OSHA Recordable Incidents. EPRI, <i>Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</i></p>

7.5.2	Lost-time Case Rate	Calculated as: Number of lost-time cases x 200,000 / Number of employee labor hours worked. Only report for employees of the company as defined for the “recordable incident rate for employees” metric. A lost-time incident is one that resulted in an employee's inability to work the next full work day.	Percent	Annual	U.S. Department of Labor, Occupational Health and Safety Administration, OSHA Recordable Incidents. EPRI, <i>Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</i>
7.5.3	Days Away, Restricted, and Transfer (DART) Rate	Calculated as: Total number of DART incidents x 200,000 / Number of employee labor hours worked. A DART incident is one in which there were one or more lost days or one or more restricted days, or one that resulted in an employee transferring to a different job within the company.	Percent	Annual	U.S. Department of Labor, Occupational Health and Safety Administration, OSHA Recordable Incidents. EPRI, <i>Metrics to Benchmark Sustainability Performance for the Electric Power Industry, 2018 Technical Report.</i>
7.5.4	Work-related Fatalities	Total employee fatalities. Record for all employees on your payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers. Include fatalities to those that occur to employees who are not on your payroll if you supervise these employees on a day-to-day basis. For temporary employees, report fatalities if you supervise these employees on a day-to-day basis.	Number of Employees	Annual	U.S. Department of Labor, Occupational Health and Safety Administration, OSHA Recordable Incidents. EPRI, <i>Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</i>
8	Fresh Water Resources				
8.1	Water Withdrawals - Consumptive (Billions of Liters/Net MWh)	Rate of freshwater consumed for generation. “Freshwater” includes water sourced from fresh surface water, groundwater, rain water, and fresh municipal water. Do NOT include recycled, reclaimed, or gray water. Water consumption is defined as water that is not returned to the original water source after being withdrawn, including evaporation to the atmosphere. Divide billions of liters by equity-owned total net generation from all electric generation as reported under Metric 2, Net Generation for the data year (MWh).	Billions of Liters/Net MWh	Annual	Partially sourced from EPRI, <i>Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</i>

8.2	Water Withdrawals - Non-Consumptive (Billions of Liters/Net MWh)	Rate of fresh water withdrawn, but not consumed, for generation. "Freshwater" includes water sourced from fresh surface water, groundwater, rain water, and fresh municipal water. Do NOT include recycled, reclaimed, or gray water. Information on organizational water withdrawal may be drawn from water meters, water bills, calculations derived from other available water data or (if neither water meters nor bills or reference data exist) the organization's own estimates. Divide billions of liters by equity-owned total net generation from all electric generation as reported under Metric 2, Net Generation for the data year (MWh).	Billions of Liters/Net MWh	Annual	Partially sourced from EPRI, <i>Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</i>
9	Waste Products				
9.1	Amount of Hazardous Waste Manifested for Disposal	Tons of hazardous waste, as defined by the Resource Conservation and Recovery Act (RCRA), manifested for disposal at a Treatment Storage and Disposal (TSD) facility. Methods of disposal include disposing to landfill, surface impoundment, waste pile, and land treatment units. Hazardous wastes include either listed wastes (F, K, P and U lists) or characteristic wastes (wastes which exhibit at least one of the following characteristics - ignitability, corrosivity, reactivity, toxicity).	Metric Tons	Annual	Partially sourced from EPRI, <i>Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</i>
9.2	Percent of Coal Combustion Products Beneficially Used	Percent of coal combustion products (CCPs) - fly ash, bottom ash, boiler slag, flue gas desulfurization materials, scrubber bi-product - diverted from disposal into beneficial uses, including being sold. Include any CCP that is generated during the data year and stored for beneficial use in a future year. Only include CCP generated at company equity-owned facilities. If no weight data are available, estimate the weight using available information on waste density and volume collected, mass balances, or similar information.	Percent	Annual	Partially sourced from EPRI, <i>Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</i>

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