



**AMERICAN
ELECTRIC
POWER**

BOUNDLESS ENERGY™



**American Electric Power
2019 EEI ESG/Sustainability
Report for Investors**

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Introduction

Today's age of technology, innovation and disruption is transforming the electric industry. As we transition to a clean energy future, AEP is modernizing the grid to enable all resources and technologies, ensure universal access to reliable, secure power, reduce our environmental footprint, and support sustainable economic growth for our communities. At American Electric Power (NYSE: AEP), we have a strong foundation for growth to achieve this, focused on operational excellence, financial strength and workforce readiness.

For decades, we have engaged with and listened to many different stakeholders about their expectations of AEP for reducing carbon emissions. In 2018, we set new carbon reduction goals – a 60 percent reduction by 2030 and 80 percent by 2050 – both from a 2000 baseline. In 2018, AEP's CO₂ emissions reached 59 percent below 2000 levels. As a result, we are accelerating our 2030 goal to 70 percent below our 2000 baseline. We are also confident that we will exceed our 80 percent target in 2050 and our aspiration is zero. We will continue to review these targets annually as public policies, regulations and advancing technologies change.

AEP envisions a future where beneficial electrification across industry sectors creates new opportunities for growth, fewer carbon emissions economy-wide, greater transportation mobility, and a modern grid that enables two-way flows of energy and data. Our generation, transmission and distribution investments directly affect customers and shareholders, and must coexist with regulation and policy considerations, such as environmental rules and affordability. As we move to a clean energy future, we are reshaping our asset base in a reliable and affordable way for customers while managing the financial risk for shareholders and reducing our carbon footprint.

AEP's Carbon Emissions Reduction Goals

70% by 2030
80% by 2050
(both from a 2000 baseline)

Innovating for a Clean Energy Future—Progress at a Glance



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



AEP has retired
approximately
7,800MW
of coal-fueled generating
capacity since 2011



59%
reduction in CO₂ emissions,
2000–2018



AEP has
5,272MW
of renewable generation
(regulated & competitive)



AEP's energy efficiency
programs saved more than
1M MWh
in 2018 and avoided
more than 525,000 metric
tons of CO₂

SECTION I: QUALITATIVE REPORT

Governance, Risk Management & Strategy

ESG Governance

The integration of environmental, social and governance (ESG) performance with AEP’s policies and principles that govern our company reflects its importance for our ability to create long-term value. Our commitment to effective and strong governance is strengthened by our belief in doing the right thing every time for our customers, each other and our future. We believe good governance ensures transparency, fairness and accountability, and gives us a structured way to manage the challenges of a changing society. Guided by our [Principles of Business Conduct](#), we demand uncompromising integrity and the highest ethical standards. In addition to a robust internal governance structure, AEP leverages its extensive stakeholder engagement process to seek the insights of our many stakeholders.

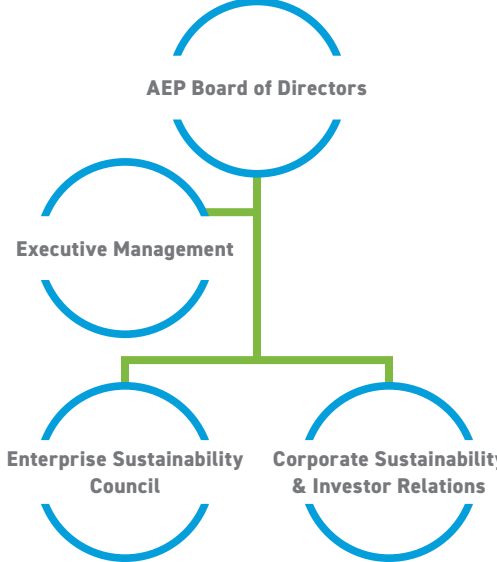
Sustainability governance at AEP is multi-layered and extends from the Board of Directors and senior management to an executive-level Enterprise Sustainability Council and a dedicated Corporate Sustainability team. The Board’s Committee on Directors and Corporate Governance actively monitors AEP’s ESG performance. This includes an annual review of AEP’s Corporate Accountability Report and issuance of a [Board statement](#), supporting AEP’s commitment to sustainable business development and performance accountability. In addition, the Lead Director of the Board conducts an annual outreach to AEP’s largest institutional investors on important ESG matters, including climate risk and governance.

In addition to Board oversight, AEP’s Enterprise Sustainability Council (ESC), which represents all aspects of AEP’s business, serves as strategic ambassadors, providing guidance and support to ensure the success of AEP’s sustainable development strategy. They do this by enabling cross-functional integration of sustainability across the enterprise. The ESC also provides a forum for sharing work, best practices, and identifying trends and emerging issues that could affect AEP financially and/or operationally. The combined governance from the Board of Directors and the ESC helps to ensure AEP’s disclosure undergoes a disciplined review and validation process.

Executive sponsors of the ESC include the Chairman, President & CEO; Executive Vice President, External Affairs; and Executive Vice President, General Counsel & Corporate Secretary.

Environmental policies can have a significant impact on AEP’s strategy. The Board’s Committee on Directors and Corporate Governance receives regular updates about AEP’s environmental performance, which includes discussion about climate risk. In addition, the Board’s Policy Committee (which comprises the entire Board) invites speakers to share varying viewpoints on a variety of topics. In 2019, the Board heard from an outside climate expert.

AEP’S ESG SUSTAINABILITY GOVERNANCE STRUCTURE



Stakeholders often ask us about climate risk and oversight, including the Board’s expertise in climate change. Through regular updates to the Board on AEP’s environmental performance, which includes climate change, Board oversight is strong. Our directors are elected based on providing a diverse mix of viewpoints, skills and experience relevant to managing a large corporation, including long-term changes in investment strategy, operations and technology, and all of our directors have considerable expertise in these areas.

Managing Risk

AEP’s Enterprise Risk & Resiliency team proactively identifies and mitigates risks in collaboration with business units and operating companies, including our ability to respond to and recover from a disruptive event. Significant ESG issues, including climate change impacts, are identified, assessed, and mitigation plans are developed through AEP’s Enterprise Risk Management process. In 2019, ESG, climate change and wildfires were formally identified as additional risks we are monitoring. To the extent that significant risks exist, AEP will appropriately assess and mitigate these risks as it does other enterprise level risks.

AEP has received requests to conduct scenario analysis consistent with international goals to limit global warming to 2 degrees Celsius (and potentially 1.5 degrees Celsius). This is a complex process with many differing recommendations, methodologies and tools. AEP has not conducted a 2-degree scenario analysis because we believe the uncertainties — from new and unknown technologies and other externalities — are so significant they would render potential outcomes and recommendations as misguided.

Changes in regulation, technology, economic growth, and customer preferences have been present throughout AEP’s history and will continue to provide uncertainty in business planning and strategy. To explore different outcomes, AEP does review and test planning assumptions through the use of informative scenarios that encompass all relevant factors that may influence our operations in the future, including technology, public policy, regulation, market shifts and customer preferences.

AEP’S RISK MANAGEMENT PROCESS



AEP’s 2018 [“American Electric Power: Strategic Vision for a Clean Energy Future”](#) report helps guide stakeholders on how we manage climate risk, but conversations with investors and other stakeholders have identified additional opportunities for disclosure. For example, we are frequently asked about the alignment of AEP’s ESG disclosure with other frameworks and standards, such as the Task Force for Financial-related Climate Disclosures (TCFD). In fact, AEP’s disclosure aligns with the majority of TCFD’s recommendations. To make it easier for investors to see this linkage, we have mapped our disclosure to the TCFD framework and posted it on our Investor Relations website.

In addition, we have made it easier for investors to find AEP’s ESG disclosure by posting all of our ESG-related reports on our [Investor Relations](#) website and our [sustainability website](#). In response to requests from several stakeholders, starting in 2019, AEP’s EEI ESG/Sustainability Report includes quantitative metrics at the operating company level as well as the aggregate parent company data.

ESG/Sustainability Strategy

At AEP, our vision for a sustainable, clean energy future includes an “all of the above” strategy that combines fuel resources with transmission and distribution, energy efficiency, advanced technologies, such as battery storage, and data analytics. At the center of this is our commitment to deliver an exceptional customer experience and value to our shareholders.

As we advance our business model, our first obligation is to serve customers with safe, reliable, reasonably priced and increasingly cleaner electricity. Our business strategy and resource plans reflect a comprehensive and diverse approach to meeting those needs cost-effectively and efficiently. Our plan includes:

- Near-term investments in renewable energy within and outside of our service territory
- Energy efficiency and savings through technology, energy management and conservation programs — on both sides of the customer meter
- Technology deployment
- Demand response programs

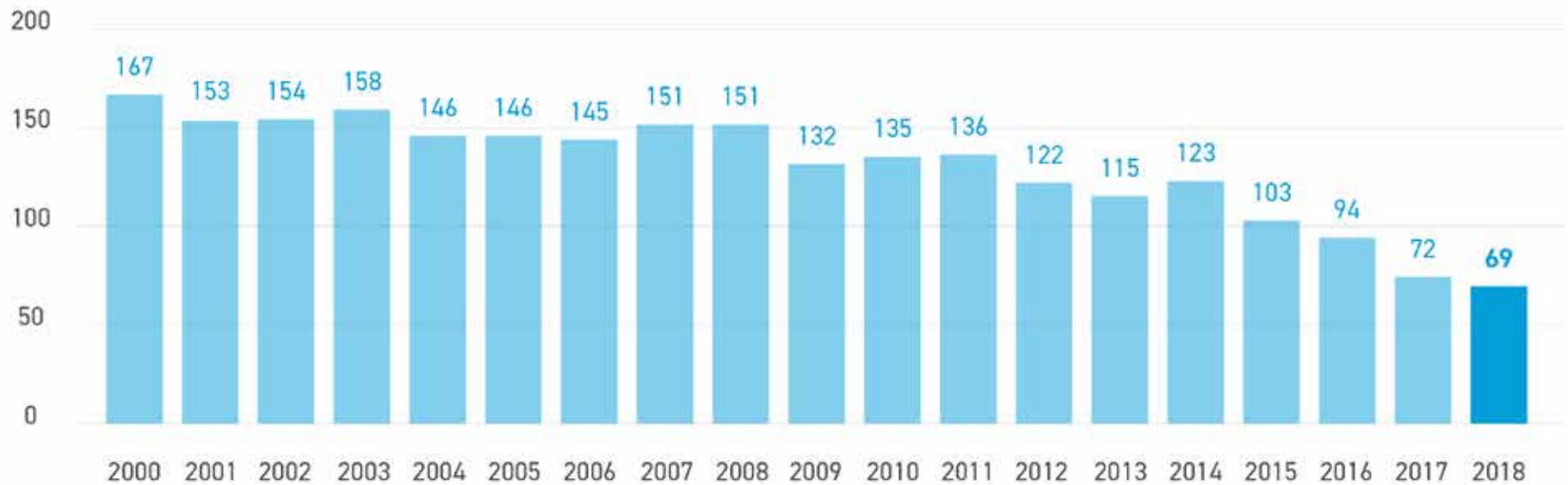
AEP’S 2023 STRATEGY & EXECUTION



- Modernization of the grid to optimize all resources and technologies with significant investments in our transmission and distribution systems
- Increased integration of distributed resources, including community and large-scale renewables
- Increased use of low-carbon-emitting generation resources, such as natural gas
- Optimization of our existing generating fleet
- Advancement of our integrated resource plans with regulators
- Support for advancing low-carbon fossil technologies










In 2018, AEP set new carbon reduction goals for 2030 and 2050 (from a 2000 baseline). We have already made significant progress toward reducing our carbon footprint and increasing the clean energy serving our customers. As a result, we are accelerating our 2030 goal to 70 percent from a 2000 baseline. In 2018, we announced the closure of two coal-fueled facilities by the end of 2020 for economic reasons. A combination of factors gives us confidence in meeting these targets, including an aging coal fleet, our growing investments in clean energy and the potential of new and emerging technologies that will make the power system more efficient, more decentralized, fully integrated and digitized.


TOTAL AEP SYSTEM – ANNUAL CO₂ EMISSIONS in million metric tons




AEP's 2019 acquisition of Semptra Renewables accelerated a planned investment of \$2.2 billion between 2019 and 2023 in contracted renewables and expanded our total renewable portfolio to 16 percent. On the regulated side, resource plans are projecting the addition of up to 3,766 MW of solar energy and 5,050 MW of wind energy between 2020 and 2030. These capital investments provide universal access to clean energy for all customers while enhancing earning opportunities for shareholders.

AEP'S PROJECTED RESOURCE ADDITIONS


	2020-2023			2024-2027			2028-2030		
Operating Company									
AEP Ohio	Up to 400*	Up to 500*	—	—	—	—	—	—	—
Appalachian Power	15	—	—	300	300	—	450	—	—
Indiana Michigan Power	—	—	—	150	600	—	150	450	1,500
Kentucky Power	30*	—	—	20	—	—	40	—	—
Public Service Company of Oklahoma	11	up to 1,000*	410**	600	—	373**	600	200	—
Southwestern Electric Power Company	—	up to 1,200*	—	450	200	—	550	600	—
Totals	up to 456	up to 2,700	410	1,520	1,100	373	1,790	1,250	1,500



up to 3,766



up to 5,050



up to 2,283

* Subject to regulatory filings currently underway

** To replace expiring PPA

While climate change is often framed as a risk for electric utilities, there are also many opportunities. Electrification is one example that is more cost-effective and achieves the significant carbon emission reductions customers, investors and society are seeking.

Electric transportation presents the biggest opportunity for electrification. Today, transportation is the largest contributor to carbon emissions in the U.S. — surpassing the electric power sector. AEP is advocating for electric vehicle (EV) adoption as well as electrification of other end-use technologies in industry and buildings. Through workplace charging programs, fleet conversion efforts, EV tariffs, and charging infrastructure incentives, we are actively engaged in addressing the challenges and opportunities that EVs will present.

As we modernize and strengthen the electric power grid to meet the needs of customers today and in the future, we are creating a smarter, cleaner and more sophisticated system. We continually strive to find the right mix of projects and technologies while maintaining affordability and reliability for customers. Having the right public policies and regulations in place directly impacts our ability to achieve these goals and we have ongoing discussions with regulators and legislators on these issues.

Learn more about AEP's [strategy for growth](#) and [carbon reduction strategies and goals](#).

Additional Resources

Chairman’s Message – <https://www.aepsustainability.com/about/chairmans-message/>

AEP’s Strategy for the Future – <https://www.aepsustainability.com/about/strategy/>

Sustainability governance – <https://www.aepsustainability.com/about/governance/>

Carbon & Climate – <https://www.aepsustainability.com/environment/>

Sustainability Goals – <http://aepsustainability.com/sustainability/goals>

Sustainable Electricity – <https://www.aepsustainability.com/energy/sustainable-electricity/>

Resource Planning – <https://www.aepsustainability.com/energy/sustainable-electricity/planning/>

Renewables – <https://www.aepsustainability.com/energy/renewables/>

- Regulated Renewables
- Contracted Renewables

Energy Efficiency/Demand Response – <https://www.aepsustainability.com/energy/management/>

Beneficial Electrification – <https://www.aepsustainability.com/energy/beneficial-electrification/>

- New Opportunities
- Electric Transportation

Traditional Generation – <https://www.aepsustainability.com/energy/generation/>

- Coal Fleet Optimization
- Natural Gas
- Nuclear & Hydro

Reliability & Resilience – <https://www.aepsustainability.com/energy/reliability/>

Technology & Innovation – <https://www.aepsustainability.com/energy/technology/>

- Data Analytics – <https://www.aepsustainability.com/energy/technology/data-analytics/>
- Becoming Digital – <https://www.aepsustainability.com/energy/technology/becoming-digital/>
- Innovation – <https://www.aepsustainability.com/energy/technology/innovation/>
- Global Innovation – <https://www.aepsustainability.com/energy/technology/global-innovation/>
- Innovation in Action – <https://www.aepsustainability.com/energy/technology/innovation-in-action/>

Enterprise Security – <https://www.aepsustainability.com/about/enterprise-security/>

- Cyber & Physical Security

SECTION II: QUANTITATIVE REPORT

Ref. No.	American Electric Power	Baseline 2000	Last Year 2017	Current Year 2018
1	Owned Nameplate Generation Capacity at end of year (MW)	37,369	28,804	28,462
1.1	Coal	25,556	14,506	14,056
1.2	Natural Gas	8,195	7,853	7,809
1.3	Nuclear	2,740	2,278	2,278
1.4	Petroleum	36	0	0
1.5	Total Renewable Energy Resources	842	4,167	4,319
1.5.1	• Biomass/Biogas	0	0	0
1.5.2	• Geothermal	0	0	0
1.5.3	• Hydroelectric	842	964	933
1.5.4	• Solar	0	26	200
1.5.5	• Wind	0	3,177	3,186
1.6	Other	0	0	0
2	Net Generation for the data year (MWh)	196,942,749	108,631,253	104,375,491
2.1	Coal	160,080,902	69,405,395	63,001,348
2.2	Natural Gas	26,388,802	11,959,828	13,318,616
2.3	Nuclear	9,745,654	17,592,001	17,610,815
2.4	Petroleum	44	20,335	0
2.5	Total Renewable Energy Resources	727,347	9,653,694	10,444,712
2.5.1	• Biomass/Biogas	0	0	0
2.5.2	• Geothermal	0	0	0
2.5.3	• Hydroelectric	727,347	775,636	1,160,659
2.5.4	• Solar	0	37,828	33,795
2.5.5	• Wind	0	8,840,230	9,250,258
2.6	Other	0	0	0

Ref. No.	American Electric Power	Baseline 2000	Last Year 2017	Current Year 2018
3	Investing in the Future: Capital Expenditures, Energy Efficiency (EE), & Smart Meters			
3.1	Total Annual Capital Expenditures (nominal dollars)	—	\$6,045,000,000	\$5,959,000,000
3.2	Incremental Annual Electricity Savings from EE Measures (MWh)	—	1,032,000	1,022,257
3.3	Incremental Annual Investment in Electric EE Programs (nominal dollars)	—	\$185,000,000	\$165,000,000
3.4	Percent of Total Electric Customers with Smart Meters (at end of year)	—	34%	47%
4	Retail Electric Customer Count (at end of year)			
4.1	Commercial	—	708,000	713,000
4.2	Industrial	—	36,000	42,500
4.3	Residential	—	5,402,000	5,437,000
5	GHG Emissions: Carbon Dioxide (CO₂) & Carbon Dioxide Equivalent (CO₂e)			
5.1	Owned Generation ^{1, 2, 3}			
5.1.1	• Carbon Dioxide (CO ₂)			
5.1.1.1	– Total Owned Generation CO ₂ Emissions (MT)	167,100,561	72,109,609	68,732,609
5.1.1.2	– Total Owned Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.848	0.727	0.725
5.1.2	• Carbon Dioxide Equivalent (CO ₂ e)			
5.1.2.1	– Total Owned Generation CO ₂ e Emissions (MT)	168,470,786	72,813,962	69,614,180
5.1.2.2	– Total Owned Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.855	0.734	0.734
5.2	Purchased Power ⁴			
5.2.1	• Carbon Dioxide (CO ₂)			
5.2.1.1	– Total Purchased Generation CO ₂ Emissions (MT)	0	227,681	0
5.2.1.2	– Total Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.000	0.024	0.000
5.2.2	• Carbon Dioxide Equivalent (CO ₂ e)			
5.2.2.1	– Total Purchased Generation CO ₂ e Emissions (MT)	0	251,231	0
5.2.2.2	– Total Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.000	0.027	0.000

Ref. No.	American Electric Power	Baseline 2000	Last Year 2017	Current Year 2018
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	72,337,290	68,732,609
5.3.1.2	– Total Owned + Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.848	0.666	0.659
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	73,065,193	69,614,180
5.3.2.2	– Total Owned + Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.855	0.673	0.667
5.4	Non-Generation CO ₂ e Emissions			
5.4.1	• Fugitive CO ₂ e emissions of sulfur hexafluoride (MT) ⁵	123,140	189,810	163,408
5.4.2	• Fugitive CO ₂ e emissions from natural gas distribution (MT) ⁶	0	0	0
6	Nitrogen Oxide (NO_x), Sulfur Dioxide (SO₂), Mercury (Hg)		Total	
6.1	Total Generation basis for calculation ⁷			
6.2	Nitrogen Oxide (NO _x)			
6.2.1	• Total NO _x Emissions (MT)	417,826	47,552	45,281
6.2.2	• Total NO _x Emissions Intensity (MT/Net MWh)	0.002122	0.000479	0.000478
6.3	Sulfur Dioxide (SO ₂)			
6.3.1	• Total SO ₂ Emissions (MT)	929,796	68,652	62,274
6.3.2	• Total SO ₂ Emissions Intensity (MT/Net MWh)	0.004721	0.000692	0.000657
6.4	Mercury (Hg)			
6.4.1	• Total Hg Emissions (kg)	4,289.0	206.5	189.1
6.4.2	• Total Hg Emissions Intensity (kg/Net MWh)	0.000022	0.000002	0.000002

Ref. No.	American Electric Power	Baseline 2000	Last Year 2017	Current Year 2018
7.1	Total Number of Employees	19,998	17,666	17,582
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	0.80	0.67
7.5.2	• Lost-time Case Rate	0.60	0.32	0.31
7.5.3	• Days Away, Restricted, and Transfer (DART) Rate	0.96	0.51	0.39
7.5.4	• Work-related Fatalities	1	2	1
8	Fresh Water Resources			
8.1	Water Withdrawals — Consumptive (Billions of Liters/Net MWh)	—	0.0000017	0.0000015
8.2	Water Withdrawals — Non-Consumptive (Billions of Liters/Net MWh)	—	0.0000594	0.0000054
9	Waste Products			
9.1	Amount of Hazardous Waste Manifested for Disposal	—	55.6	21.90
9.2	Percent of Coal Combustion Products Beneficially Used	—	41%	38%

Ref. No.	Appalachian Power	Last Year 2017	Current Year 2018
	Portfolio		
1	Owned Nameplate Generation Capacity at end of year (MW)	6,660	6,629
1.1	Coal	4,250	4,250
1.2	Natural Gas	1,594	1,594
1.3	Nuclear	0	0
1.4	Petroleum	0	0
1.5	Total Renewable Energy Resources	816	785
1.5.1	• Biomass/Biogas	0	0
1.5.2	• Geothermal	0	0
1.5.3	• Hydroelectric	816	785
1.5.4	• Solar	0	0
1.5.5	• Wind	0	0
1.6	Other	0	0
2	Net Generation for the data year (MWh)	26,816,965	25,968,691
2.1	Coal	21,039,583	18,694,736
2.2	Natural Gas	4,143,800	4,949,093
2.3	Nuclear	0	0
2.4	Petroleum	0	0
2.5	Total Renewable Energy Resources	1,633,582	2,324,862
2.5.1	• Biomass/Biogas	0	0
2.5.2	• Geothermal	0	0
2.5.3	• Hydroelectric	668,275	1,028,940
2.5.4	• Solar	0	0
2.5.5	• Wind	965,307	1,295,922
2.6	Other	0	0

Ref. No.	Appalachian Power	Last Year 2017	Current Year 2018
2.i	Owned Net Generation for the data year (MWh)	25,685,811	24,383,779
2.1.i	Coal	21,039,583	18,694,736
2.2.i	Natural Gas	4,143,800	4,949,093
2.3.i	Nuclear	0	0
2.4.i	Petroleum	0	0
2.5.i	Total Renewable Energy Resources	502,428	739,950
2.5.1.i	• Biomass/Biogas	0	0
2.5.2.i	• Geothermal	0	0
2.5.3.i	• Hydroelectric	502,428	739,950
2.5.4.i	• Solar	0	0
2.5.5.i	• Wind	0	0
2.6.i	Other	0	0
2.ii	Purchased Net Generation for the data year (MWh)	1,131,154	1,584,912
2.1.ii	Coal	0	0
2.2.ii	Natural Gas	0	0
2.3.ii	Nuclear	0	0
2.4.ii	Petroleum	0	0
2.5.ii	Total Renewable Energy Resources	1,131,154	1,584,912
2.5.1.ii	• Biomass/Biogas	0	0
2.5.2.ii	• Geothermal	0	0
2.5.3.ii	• Hydroelectric	165,847	288,990
2.5.4.ii	• Solar	0	0
2.5.5.ii	• Wind	965,307	1,295,922
2.6.ii	Other	0	0

Ref. No.	Appalachian Power	Last Year 2017	Current Year 2018
	Emissions		
5	GHG Emissions: Carbon Dioxide (CO₂) & Carbon Dioxide Equivalent (CO₂e)		
5.1	Owned Generation ^{1, 2, 3}		
5.1.1	• Carbon Dioxide (CO ₂)		
5.1.1.1	– Total Owned Generation CO ₂ Emissions (MT)	21,631,295	19,793,293
5.1.1.2	– Total Owned Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.842	0.812
5.1.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.1.2.1	– Total Owned Generation CO ₂ e Emissions (MT)	21,823,706	19,962,684
5.1.2.2	– Total Owned Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.850	0.819
5.2	Purchased Power ⁴		
5.2.1	• Carbon Dioxide (CO ₂)		
5.2.1.1	– Total Purchased Generation CO ₂ Emissions (MT)	0	0
5.2.1.2	– Total Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.000	0.000
5.2.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.2.2.1	– Total Purchased Generation CO ₂ e Emissions (MT)	0	0
5.2.2.2	– Total Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.000	0.000
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)	21,631,295	19,793,293
5.3.1.2	– Total Owned + Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.807	0.762
5.3.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.3.2.1	– Total Owned + Purchased Generation CO ₂ e Emissions (MT)	21,823,706	19,962,684
5.3.2.2	– Total Owned + Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.814	0.769

Ref. No.	Appalachian Power	Last Year 2017	Current Year 2018
5.4	Non-Generation CO ₂ e Emissions		
5.4.1	• Fugitive CO ₂ e emissions of sulfur hexafluoride (MT) ⁵	44,009	37,888
5.4.2	• Fugitive CO ₂ e emissions from natural gas distribution (MT) ⁶	0	0
6	Nitrogen Oxide (NO_x), Sulfur Dioxide (SO₂), Mercury (Hg)	Total	
6.1	Generation basis for calculation ⁷		
6.2	Nitrogen Oxide (NO _x)		
6.2.1	• Total NO _x Emissions (MT)	8,974	8,361
6.2.2	• Total NO _x Emissions Intensity (MT/Net MWh)	0.000335	0.000322
6.3	Sulfur Dioxide (SO ₂)		
6.3.1	• Total SO ₂ Emissions (MT)	8,988	7,494
6.3.2	• Total SO ₂ Emissions Intensity (MT/Net MWh)	0.000335	0.000289
6.4	Mercury (Hg)		
6.4.1	• Total Hg Emissions (kg)	48.4	47.0
6.4.2	• Total Hg Emissions Intensity (kg/Net MWh)	0.000002	0.000002

Ref.No.	Kentucky Power	Last Year 2017	Current Year 2018
	Portfolio		
1	Owned Nameplate Generation Capacity at end of year (MW)	1,453	1,453
1.1	Coal	1,173	1,173
1.2	Natural Gas	280	280
1.3	Nuclear	0	0
1.4	Petroleum	0	0
1.5	Total Renewable Energy Resources	0	0
1.5.1	• Biomass/Biogas	0	0
1.5.2	• Geothermal	0	0
1.5.3	• Hydroelectric	0	0
1.5.4	• Solar	0	0
1.5.5	• Wind	0	0
1.6	Other	0	0
2	Net Generation for the data year (MWh)	6,045,647	5,106,138
2.1	Coal	5,481,940	4,535,334
2.2	Natural Gas	563,707	624,804
2.3	Nuclear	0	0
2.4	Petroleum	0	0
2.5	Total Renewable Energy Resources	0	0
2.5.1	• Biomass/Biogas	0	0
2.5.2	• Geothermal	0	0
2.5.3	• Hydroelectric	0	0
2.5.4	• Solar	0	0
2.5.5	• Wind	0	0
2.6	Other	0	0

Ref.No.	Kentucky Power	Last Year 2017	Current Year 2018
2.i	Owned Net Generation for the data year (MWh)	6,045,647	5,160,138
2.1.i	Coal	5,481,940	4,535,334
2.2.i	Natural Gas	563,707	624,804
2.3.i	Nuclear	0	0
2.4.i	Petroleum	0	0
2.5.i	Total Renewable Energy Resources	0	0
2.5.1.i	• Biomass/Biogas	0	0
2.5.2.i	• Geothermal	0	0
2.5.3.i	• Hydroelectric	0	0
2.5.4.i	• Solar	0	0
2.5.5.i	• Wind	0	0
2.6.i	Other	0	0
2.ii	Purchased Net Generation for the data year (MWh)	0	0
2.1.ii	Coal	0	0
2.2.ii	Natural Gas	0	0
2.3.ii	Nuclear	0	0
2.4.ii	Petroleum	0	0
2.5.ii	Total Renewable Energy Resources	0	0
2.5.1.ii	• Biomass/Biogas	0	0
2.5.2.ii	• Geothermal	0	0
2.5.3.ii	• Hydroelectric	0	0
2.5.4.ii	• Solar	0	0
2.5.5.ii	• Wind	0	0
2.6.ii	Other	0	0

Ref. No.	Kentucky Power	Last Year 2017	Current Year 2018
	Emissions		
5	GHG Emissions: Carbon Dioxide (CO₂) & Carbon Dioxide Equivalent (CO₂e)		
5.1	Owned Generation ^{1, 2, 3}		
5.1.1	• Carbon Dioxide (CO ₂)		
5.1.1.1	– Total Owned Generation CO ₂ Emissions (MT)	5,605,773	4,838,061
5.1.1.2	– Total Owned Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.927	0.938
5.1.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.1.2.1	– Total Owned Generation CO ₂ e Emissions (MT)	5,655,272	4,879,814
5.1.2.2	– Total Owned Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.935	0.946
5.2	Purchased Power ⁴		
5.2.1	• Carbon Dioxide (CO ₂)		
5.2.1.1	– Total Purchased Generation CO ₂ Emissions (MT)	0	0
5.2.1.2	– Total Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.000	0.000
5.2.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.2.2.1	– Total Purchased Generation CO ₂ e Emissions (MT)	0	0
5.2.2.2	• Total Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.000	0.000
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)	5,605,773	4,838,061
5.3.1.2	– Total Owned + Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.927	0.947
5.3.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.3.2.1	– Total Owned + Purchased Generation CO ₂ e Emissions (MT)	5,655,272	4,879,814
5.3.2.2	– Total Owned + Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.935	0.956

Ref. No.	Kentucky Power	Last Year 2017	Current Year 2018
5.4	Non-Generation CO ₂ e Emissions		
5.4.1	• Fugitive CO ₂ e emissions of sulfur hexafluoride (MT) ⁵	9,501	8,179
5.4.2	• Fugitive CO ₂ e emissions from natural gas distribution (MT) ⁶	0	0
6	Nitrogen Oxide (NOx), Sulfur Dioxide (SO₂), Mercury (Hg)	Total	
6.1	Generation basis for calculation ⁷		
6.2	Nitrogen Oxide (NOx)		
6.2.1	• Total NOx Emissions (MT)	3,561	2,728
6.2.2	• Total NOx Emissions Intensity (MT/Net MWh)	0.000589	0.000534
6.3	Sulfur Dioxide (SO ₂)		
6.3.1	• Total SO ₂ Emissions (MT)	4,310	4,036
6.3.2	• Total SO ₂ Emissions Intensity (MT/Net MWh)	0.000713	0.000790
6.4	Mercury (Hg)		
6.4.1	• Total Hg Emissions (kg)	10.9	9.3
6.4.2	• Total Hg Emissions Intensity (kg/Net MWh)	0.000002	0.000002

Ref. No.	Indiana Michigan Power	Last Year 2017	Current Year 2018
	Portfolio		
1	Owned Nameplate Generation Capacity at end of year (MW)	4,505	4,505
1.1	Coal	2,227	2,227
1.2	Natural Gas	0	0
1.3	Nuclear	2,278	2,278
1.4	Petroleum	0	0
1.5	Total Renewable Energy Resources	36	36
1.5.1	• Biomass/Biogas	0	0
1.5.2	• Geothermal	0	0
1.5.3	• Hydroelectric	20	20
1.5.4	• Solar	16	16
1.5.5	• Wind	0	0
1.6	Other	0	0
2	Net Generation for the data year (MWh)	28,411,719	29,144,068
2.1	Coal	9,284,926	10,109,541
2.2	Natural Gas	0	0
2.3	Nuclear	17,592,001	17,610,815
2.4	Petroleum	0	0
2.5	Total Renewable Energy Resources	1,534,792	1,423,712
2.5.1	• Biomass/Biogas	0	0
2.5.2	• Geothermal	0	0
2.5.3	• Hydroelectric	107,361	115,114
2.5.4	• Solar	24,219	20,747
2.5.5	• Wind	1,403,212	1,287,851
2.6	Other	0	0

Ref. No.	Indiana Michigan Power	Last Year 2017	Current Year 2018
2.i	Owned Net Generation for the data year (MWh)	27,008,507	27,856,217
2.1.i	Coal	9,284,926	10,109,541
2.2.i	Natural Gas	0	0
2.3.i	Nuclear	17,592,001	17,610,815
2.4.i	Petroleum	0	0
2.5.i	Total Renewable Energy Resources	131,580	135,861
2.5.1.i	• Biomass/Biogas	0	0
2.5.2.i	• Geothermal	0	0
2.5.3.i	• Hydroelectric	107,361	115,114
2.5.4.i	• Solar	24,219	20,747
2.5.5.i	• Wind	0	0
2.6.i	Other	0	0
2.ii	Purchased Net Generation for the data year (MWh)	1,403,212	1,287,851
2.1.ii	Coal	0	0
2.2.ii	Natural Gas	0	0
2.3.ii	Nuclear	0	0
2.4.ii	Petroleum	0	0
2.5.ii	Total Renewable Energy Resources	1,403,212	1,287,851
2.5.1.ii	• Biomass/Biogas	0	0
2.5.2.ii	• Geothermal	0	0
2.5.3.ii	• Hydroelectric	0	0
2.5.4.ii	• Solar	0	0
2.5.5.ii	• Wind	1,403,212	1,287,851
2.6.ii	Other	0	0

Ref. No.	Indiana Michigan Power	Last Year 2017	Current Year 2018
	Emissions		
5	GHG Emissions: Carbon Dioxide (CO₂) & Carbon Dioxide Equivalent (CO₂e)		
5.1	Owned Generation ^{1, 2, 3}		
5.1.1	• Carbon Dioxide (CO ₂)		
5.1.1.1	– Total Owned Generation CO ₂ Emissions (MT)	8,809,565	9,608,170
5.1.1.2	– Total Owned Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.326	0.345
5.1.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.1.2.1	– Total Owned Generation CO ₂ e Emissions (MT)	8,891,406	9,695,220
5.1.2.2	– Total Owned Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.329	0.348
5.2	Purchased Power ⁴		
5.2.1	• Carbon Dioxide (CO ₂)		
5.2.1.1	– Total Purchased Generation CO ₂ Emissions (MT)	0	0
5.2.1.2	– Total Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.000	0.000
5.2.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.2.2.1	– Total Purchased Generation CO ₂ e Emissions (MT)	0	0
5.2.2.2	– Total Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.000	0.000
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)	8,809,565	9,608,170
5.3.1.2	– Total Owned + Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.310	0.330
5.3.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.3.2.1	– Total Owned + Purchased Generation CO ₂ e Emissions (MT)	8,891,406	9,695,220
5.3.2.2	– Total Owned + Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.313	0.333

Ref. No.	Indiana Michigan Power	Last Year 2017	Current Year 2018
5.4	Non-Generation CO ₂ e Emissions		
5.4.1	• Fugitive CO ₂ e emissions of sulfur hexafluoride (MT) ⁵	18,439	15,874
5.4.2	• Fugitive CO ₂ e emissions from natural gas distribution (MT) ⁶	0	0
6	Nitrogen Oxide (NOx), Sulfur Dioxide (SO₂), Mercury (Hg)	Total	
6.1	Generation basis for calculation ⁷		
6.2	Nitrogen Oxide (NOx)		
6.2.1	• Total NOx Emissions (MT)	8,683	6,740
6.2.2	• Total NOx Emissions Intensity (MT/Net MWh)	0.000306	0.000231
6.3	Sulfur Dioxide (SO ₂)		
6.3.1	• Total SO ₂ Emissions (MT)	16,026	16,379
6.3.2	• Total SO ₂ Emissions Intensity (MT/Net MWh)	0.000564	0.000562
6.4	Mercury (Hg)		
6.4.1	• Total Hg Emissions (kg)	51.3	52.8
6.4.2	• Total Hg Emissions Intensity (kg/Net MWh)	0.000002	0.000002

Ref. No.	Public Service Company of Oklahoma	Last Year 2017	Current Year 2018
	Portfolio		
1	Owned Nameplate Generation Capacity at end of year (MW)	3,934	3,893
1.1	Coal	574	574
1.2	Natural Gas	3,360	3,319
1.3	Nuclear	0	0
1.4	Petroleum	0	0
1.5	Total Renewable Energy Resources	0	0
1.5.1	• Biomass/Biogas	0	0
1.5.2	• Geothermal	0	0
1.5.3	• Hydroelectric	0	0
1.5.4	• Solar	0	0
1.5.5	• Wind	0	0
1.6	Other	0	0
2	Net Generation for the data year (MWh)	9,359,221	11,757,218
2.1	Coal	2,620,147	3,246,459
2.2	Natural Gas	2,592,949	4,203,473
2.3	Nuclear	0	0
2.4	Petroleum	0	0
2.5	Total Renewable Energy Resources	4,146,125	4,307,286
2.5.1	• Biomass/Biogas	0	0
2.5.2	• Geothermal	0	0
2.5.3	• Hydroelectric	0	0
2.5.4	• Solar	0	0
2.5.5	• Wind	4,146,125	4,307,286
2.6	Other	0	0

Ref. No.	Public Service Company of Oklahoma	Last Year 2017	Current Year 2018
2.i	Owned Net Generation for the data year (MWh)	5,213,096	7,449,932
2.1.i	Coal	2,620,147	3,246,459
2.2.i	Natural Gas	2,592,949	4,203,473
2.3.i	Nuclear	0	0
2.4.i	Petroleum	0	0
2.5.i	Total Renewable Energy Resources	0	0
2.5.1.i	• Biomass/Biogas	0	0
2.5.2.i	• Geothermal	0	0
2.5.3.i	• Hydroelectric	0	0
2.5.4.i	• Solar	0	0
2.5.5.i	• Wind	0	0
2.6.i	Other	0	0
2.ii	Purchased Net Generation for the data year (MWh)	4,146,125	4,307,286
2.1.ii	Coal	0	0
2.2.ii	Natural Gas	0	0
2.3.ii	Nuclear	0	0
2.4.ii	Petroleum	0	0
2.5.ii	Total Renewable Energy Resources	4,146,125	4,307,286
2.5.1.ii	• Biomass/Biogas	0	0
2.5.2.ii	• Geothermal	0	0
2.5.3.ii	• Hydroelectric	0	0
2.5.4.ii	• Solar	0	0
2.5.5.ii	• Wind	4,146,125	4,307,286
2.6.ii	Other	0	0

Ref. No.	Public Service Company of Oklahoma	Last Year 2017	Current Year 2018
	Emissions		
5	GHG Emissions: Carbon Dioxide (CO₂) & Carbon Dioxide Equivalent (CO₂e)		
5.1	Owned Generation ^{1, 2, 3}		
5.1.1	• Carbon Dioxide (CO ₂)		
5.1.1.1	– Total Owned Generation CO ₂ Emissions (MT)	3,996,189	5,713,127
5.1.1.2	– Total Owned Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.767	0.767
5.1.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.1.2.1	– Total Owned Generation CO ₂ e Emissions (MT)	4,022,684	5,747,920
5.1.2.2	– Total Owned Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.772	0.772
5.2	Purchased Power ⁴		
5.2.1	• Carbon Dioxide (CO ₂)		
5.2.1.1	– Total Purchased Generation CO ₂ Emissions (MT)	0	0
5.2.1.2	– Total Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.000	0.000
5.2.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.2.2.1	– Total Purchased Generation CO ₂ e Emissions (MT)	0	0
5.2.2.2	– Total Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.000	0.000
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)	3,996,189	5,713,127
5.3.1.2	– Total Owned + Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.427	0.486
5.3.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.3.2.1	– Total Owned + Purchased Generation CO ₂ e Emissions (MT)	4,022,684	5,747,920
5.3.2.2	– Total Owned + Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.430	0.489

Ref. No.	Public Service Company of Oklahoma	Last Year 2017	Current Year 2018
5.4	Non-Generation CO ₂ e Emissions		
5.4.1	• Fugitive CO ₂ e emissions of sulfur hexafluoride (MT) ⁵	15,710	13,525
5.4.2	• Fugitive CO ₂ e emissions from natural gas distribution (MT) ⁶	0	0
6	Nitrogen Oxide (NOx), Sulfur Dioxide (SO₂), Mercury (Hg)	Total	
6.1	Generation basis for calculation ⁷		
6.2	Nitrogen Oxide (NOx)		
6.2.1	• Total NOx Emissions (MT)	3,543	6,067
6.2.2	• Total NOx Emissions Intensity (MT/Net MWh)	0.000379	0.000516
6.3	Sulfur Dioxide (SO ₂)		
6.3.1	• Total SO ₂ Emissions (MT)	3,684	4,713
6.3.2	• Total SO ₂ Emissions Intensity (MT/Net MWh)	0.000394	0.000401
6.4	Mercury (Hg)		
6.4.1	• Total Hg Emissions (kg)	16.9	21.3
6.4.2	• Total Hg Emissions Intensity (kg/Net MWh)	0.000002	0.000002

Ref. No.	Southwestern Electric Power Company	Last Year 2017	Current Year 2018
	Portfolio		
1	Owned Nameplate Generation Capacity at end of year (MW)	5,250	5,246
1.1	Coal	2,631	2,631
1.2	Natural Gas	2,619	2,615
1.3	Nuclear	0	0
1.4	Petroleum	0	0
1.5	Total Renewable Energy Resources	0	0
1.5.1	• Biomass/Biogas	0	0
1.5.2	• Geothermal	0	0
1.5.3	• Hydroelectric	0	0
1.5.4	• Solar	0	0
1.5.5	• Wind	0	0
1.6	Other	0	0
2	Net Generation for the data year (MWh)	20,001,098	19,581,619
2.1	Coal	14,788,512	14,231,138
2.2	Natural Gas	3,482,714	3,541,246
2.3	Nuclear	0	0
2.4	Petroleum	0	0
2.5	Total Renewable Energy Resources	1,729,872	1,809,235
2.5.1	• Biomass/Biogas	00	
2.5.2	• Geothermal	0	0
2.5.3	• Hydroelectric	0	0
2.5.4	• Solar	0	0
2.5.5	• Wind	1,729,872	1,809,235
2.6	Other	0	0

Ref. No.	Southwestern Electric Power Company	Last Year 2017	Current Year 2018
2.i	Owned Net Generation for the data year (MWh)	18,271,226	17,772,384
2.1.i	Coal	14,788,512	14,231,138
2.2.i	Natural Gas	3,482,714	3,541,246
2.3.i	Nuclear	0	0
2.4.i	Petroleum	0	0
2.5.i	Total Renewable Energy Resources	0	0
2.5.1.i	• Biomass/Biogas	0	0
2.5.2.i	• Geothermal	0	0
2.5.3.i	• Hydroelectric	0	0
2.5.4.i	• Solar	0	0
2.5.5.i	• Wind	0	0
2.6.i	Other	0	0
2.ii	Purchased Net Generation for the data year (MWh)	1,729,872	1,809,235
2.1.ii	Coal	0	0
2.2.ii	Natural Gas	0	0
2.3.ii	Nuclear	0	0
2.4.ii	Petroleum	0	0
2.5.ii	Total Renewable Energy Resources	1,729,872	1,809,235
2.5.1.ii	• Biomass/Biogas	0	0
2.5.2.ii	• Geothermal	0	0
2.5.3.ii	• Hydroelectric	0	0
2.5.4.ii	• Solar	0	0
2.5.5.ii	• Wind	1,729,872	1,809,235
2.6.ii	Other	0	0

Ref. No.	Southwestern Electric Power Company	Last Year 2017	Current Year 2018
	Emissions		
5	GHG Emissions: Carbon Dioxide (CO₂) & Carbon Dioxide Equivalent (CO₂e)		
5.1	Owned Generation ^{1, 2, 3}		
5.1.1	• Carbon Dioxide (CO ₂)		
5.1.1.1	– Total Owned Generation CO ₂ Emissions (MT)	16,410,462	16,547,542
5.1.1.2	– Total Owned Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.898	0.931
5.1.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.1.2.1	– Total Owned Generation CO ₂ e Emissions (MT)	16,536,987	16,672,476
5.1.2.2	– Total Owned Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.905	0.938
5.2	Purchased Power ⁴		
5.2.1	• Carbon Dioxide (CO ₂)		
5.2.1.1	– Total Purchased Generation CO ₂ Emissions (MT)	0	0
5.2.1.2	– Total Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.000	0.000
5.2.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.2.2.1	– Total Purchased Generation CO ₂ e Emissions (MT)	0	0
5.2.2.2	– Total Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.000	0.000
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)	16,410,462	16,547,542
5.3.1.2	– Total Owned + Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.820	0.845
5.3.2	• Carbon Dioxide Equivalent (CO ₂ e)		
5.3.2.1	– Total Owned + Purchased Generation CO ₂ e Emissions (MT)	16,536,987	16,672,476
5.3.2.2	– Total Owned + Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	0.827	0.851

Ref. No.	Southwestern Electric Power Company	Last Year 2017	Current Year 2018
5.4	Non-Generation CO ₂ e Emissions		
5.4.1	• Fugitive CO ₂ e emissions of sulfur hexafluoride (MT) ⁵	22,172	19,088
5.4.2	• Fugitive CO ₂ e emissions from natural gas distribution (MT) ⁶	0	0
6	Nitrogen Oxide (NO_x), Sulfur Dioxide (SO₂), Mercury (Hg)	Total	
6.1	Generation basis for calculation ⁷		
6.2	Nitrogen Oxide (NO _x)		
6.2.1	• Total NO _x Emissions (MT)	11,542	11,968
6.2.2	• Total NO _x Emissions Intensity (MT/Net MWh)	0.000577	0.000611
6.3	Sulfur Dioxide (SO ₂)		
6.3.1	• Total SO ₂ Emissions (MT)	20,818	19,900
6.3.2	• Total SO ₂ Emissions Intensity (MT/Net MWh)	0.001041	0.001016
6.4	Mercury (Hg)		
6.4.1	• Total Hg Emissions (kg)	36.1	35.5
6.4.2	• Total Hg Emissions Intensity (kg/Net MWh)	0.000002	0.000002

Key

MT = metric tons

1 lb. = 453.59 grams

1 tonne = 1,000,000.00 grams

1 metric ton = 1.1023 short tons

Total output-based emissions factor = (insert emissions factor and source)

Notes

¹ Generation and emissions are adjusted for equity ownership share to reflect the percentage of output owned by reporting entity.

² CO₂ and CO₂e emissions intensity should be reported using total system generation (net MWh) based on GHG worksheet.

³ As reported to EPA under the mandatory GHG Reporting Protocols (40 CFR Part 98, Subparts C and D).

⁴ Purchased power emissions should be calculated using the most relevant and accurate of the following methods:

- For direct purchases, such as PPAs, use the direct emissions data as reported to EPA.
- For market purchases where emissions are unknown, use applicable regional or national emissions rate:
 - ISO/RTO-level emission factors
 - Climate Registry emission factors
 - E-Grid emission factors

⁵ As reported to EPA under the mandatory GHG Reporting Protocols (40 CFR Part 98, Subpart DD).

⁶ As reported to EPA under the mandatory GHG Reporting Protocols (40 CFR Part 98, Subpart W).

⁷ Indicate the generation basis for calculating SO₂, NO_x, and Hg emissions and intensity:

- Fossil: Fossil Fuel Generation Only
- Total: Total System Generation
- Other: Other (please specify in comment section)

Total CO₂e is calculated using the following global warming potentials from the IPCC Fourth Assessment Report:

CO₂ = 1

CH₄ = 25

N₂O = 298

SF₆ = 22,800

AEP Ohio and AEP Texas are “wires-only” companies and therefore are not featured in the Operating Company breakdown portion of this report.

Appendix

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
1	Portfolio 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, https://www.eia.gov/tools/glossary/ . Form 860 instructions available at: www.eia.gov/survey/form/eia_860/instructions.pdf .
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, https://www.eia.gov/tools/glossary/ .
1.2	Natural Gas	Nameplate capacity of generation resources that produce electricity through the combustion of	MW	End of Year	U.S. Energy Information Administration, Online

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
		natural gas (a gaseous mixture of hydrocarbon compounds, the primary one being methane).			Glossary, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/glossary/ .

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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	Megawatthour (MWh): One thousand kilowatt-hours or one million watt-hours.	Annual	U.S. Energy Information Administration, Online Glossary, https://www.eia.gov/tools/glossary/ . Form 923 instructions available at: www.eia.gov/survey/form/eia_923/instructions.pdf .

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
		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.			
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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/glossary/ .

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/glossary/ .
2.5.3	Hydroelectric	Net electricity generated by the use of flowing water.	MWh	Annual	U.S. Energy Information Administration, Online Glossary, https://www.eia.gov/tools/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, https://www.eia.gov/tools/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, https://www.eia.gov/tools/glossary/ .

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
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), & Smart Meters				
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, http://www.accountingtools.com/questions-and-answers/what-is-a-capital-expenditure.html
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. Available at: www.eia.gov/survey/form/eia_861/instructions.pdf .

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
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. Available at: www.eia.gov/survey/form/eia_861/instructions.pdf .
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, https://www.eia.gov/tools/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. Available at: www.eia.gov/survey/form/eia_861/instructions.pdf .
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	Number of end-use retail customers receiving	End of Year	U.S. Energy Information Administration, Online Glossary, https://www.eia.gov/tools/glossary/ .

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
		<p>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.</p>	<p>electricity (individual homes and businesses count as one).</p>		
4.2	Industrial	<p>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.</p>	<p>Number of end-use retail customers receiving electricity (individual homes and businesses count as one).</p>	End of Year	<p>U.S. Energy Information Administration, Online Glossary, https://www.eia.gov/tools/glossary/.</p>

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
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, https://www.eia.gov/tools/glossary/ .
Emissions					
5	GHG Emissions: Carbon Dioxide (CO₂) & Carbon Dioxide Equivalent (CO₂e)				
5.1	Owned Generation				
5.1.1	Carbon Dioxide (CO₂)				
5.1.1.1	Total Owned Generation CO ₂ Emissions	Total direct CO ₂ 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, Greenhouse Gas Reporting Program (40 CFR, part 98, Subparts C and D).
5.1.1.2	Total Owned Generation CO ₂ Emissions Intensity	Total direct CO ₂ emissions from 5.1.1.1, divided by total MWh of owned 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 CO ₂ e Emissions	Total direct CO ₂ e emissions (CO ₂ , CH ₄ , & N ₂ O) from company equity-owned fossil fuel combustion generation in accordance with EPA's GHG	Metric Tons	Annual	U.S. Environmental Protection Agency, Greenhouse Gas Reporting

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
		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.			Program (40 CFR, part 98, Subparts C and D).
5.1.2.2	Total Owned Generation CO ₂ e Emissions Intensity	Total direct CO ₂ e emissions from 5.1.2.1, divided by total MWh of owned 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 CO ₂ Emissions	Purchased power CO ₂ 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: <ul style="list-style-type: none"> – ISO/RTO-level emission factors – Climate Registry emission factors – E-Grid emission factors 	Metric Tons	Annual	
5.2.1.2	Total Purchased Generation CO ₂ Emissions Intensity	Total purchased power CO ₂ 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 CO ₂ e Emissions	Purchased power CO ₂ e emissions should be calculated using the most relevant and accurate of the following methods:	Metric Tons	Annual	

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
		<p>(1) For direct purchases, such as PPAs, use the direct emissions data as reported to EPA.</p> <p>(2) For market purchases where emissions attributes are unknown, use applicable regional or national emissions rate:</p> <ul style="list-style-type: none"> – ISO/RTO-level emission factors – Climate Registry emission factors – E-Grid emission factors 			
5.2.2.2	Total Purchased Generation CO ₂ e Emissions Intensity	Total purchased power CO ₂ e 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 CO ₂ Emissions	Sum of total CO ₂ emissions reported under 5.1.1.1 and 5.2.1.1.	Metric Tons	Annual	
5.3.1.2	Total Owned + Purchased Generation CO ₂ 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 CO ₂ e Emission	Sum of total CO ₂ e emissions reported under 5.1.2.1 and 5.2.2.1.	Metric Tons	Annual	
5.3.2.2	Total Owned + Purchased Generation CO ₂ e 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	

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
5.4	Non-Generation CO₂e Emissions				
5.4.1	Fugitive CO ₂ e emissions of sulfur hexafluoride	Total fugitive CO ₂ e emissions of sulfur hexafluoride in accordance with EPA's GHG Reporting Program (40 CFR Part 98, Subpart DD).	Metric Tons	Annual	U.S. Environmental Protection Agency, Greenhouse Gas Reporting Program (40 CFR, part 98, Subpart DD).
5.4.2	Fugitive CO ₂ e emissions from natural gas distribution	Total fugitive CO ₂ e 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, Greenhouse Gas Reporting Program (40 CFR, part 98, Subpart W).
6	Nitrogen Oxide (NO_x), Sulfur Dioxide (SO₂), Mercury (Hg)				
6.1	Generation basis for calculation	Indicate the generation basis for calculating SO ₂ , NO _x , 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 (NO_x)				
6.2.1	Total NO _x Emissions	Total NO _x 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, Acid Rain Reporting Program (40 CFR, part 75).
6.2.2	Total NO _x Emissions Intensity	Total from above, divided by the MWh of generation basis as indicated in 6.1.	Metric Tons/ Net MWh	Annual	

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
6.3	Sulfur Dioxide (SO₂)				
6.3.1	Total SO ₂ Emissions	Total SO ₂ 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, Acid Rain Reporting Program (40 CFR, part 75).
6.3.2	Total SO ₂ 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, Metrics to Benchmark Electric Power Company Sustainability Performance, 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	Resources				
	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	Number of Employees	Annual	U.S. Department of Labor, Bureau of Labor Statistics, Steps to estimate annual average number of employees, www.bls.gov/respondents/iif/annualavghours.htm .

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
		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.			EPRI, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.
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, www.archives.gov/eoo/terminology.html . EPRI, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.
7.4	Total Minorities on Board of Directors/Trustees	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	Number of Employees	Annual	U.S. Equal Employment Opportunity Commission, EEO Terminology, www.archives.gov/eoo/terminology.html . EPRI, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
		<p>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>			
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-</p>	Percent	Annual	<p>U.S. Department of Labor, Occupational Health and Safety Administration, OSHA Recordable Incidents. EPRI, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</p>

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
7.5.2	Lost-time Case Rate	<p>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> <p>Calculated as: $\text{Number of lost-time cases} \times 200,000 / \text{Number of employee labor hours worked}$. 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.</p>	Percent	Annual	<p>U.S. Department of Labor, Occupational Health and Safety Administration, OSHA Recordable Incidents. EPRI, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.</p>
7.5.3	Days Away, Restricted, & Transfer (DART) Rate	<p>Calculated as: $\text{Total number of DART incidents} \times 200,000 / \text{Number of employee labor hours worked}$. 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.</p>	Percent	Annual	<p>U.S. Department of Labor, Occupational Health and Safety Administration, OSHA Recordable Incidents. EPRI, Metrics to Benchmark Sustainability Performance for the Electric Power Industry, 2018 Technical Report.</p>

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
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, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.
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, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report
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	Billions of Liters/ Net MWh	Annual	Partially sourced from EPRI, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.

Ref. No.	Metric Name	Definition	Units Reported in	Time Period	Reference to Source
		liters by equity-owned total net generation from all electric generation as reported under Metric 2, Net Generation for the data year (MWh).			
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, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report
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, Metrics to Benchmark Electric Power Company Sustainability Performance, 2018 Technical Report.

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