



American Electric Power EEI ESG/Sustainability Pilot



EEI ESG/Sustainability Qualitative Template Pilot – American Electric Power

AEP is among EEI member companies piloting the voluntary Environmental, Social, Governance and Sustainability reporting template for investors. AEP is a member of the EEI ESG/Sustainability Steering Committee and the GHG Subcommittee. This portion of the template reflects qualitative information contained within AEP’s 2017 Corporate Accountability Report (data is 2016 unless otherwise noted). Links to relevant information are provided.

Sustainability Strategy

1. Adapting to the changing business environment (these sections contain detailed information related to this)
 - a. Strategy and future outlook -- <http://www.aepsustainability.com/about/strategy/>
 - b. Sustainable electricity -- <http://www.aepsustainability.com/energy/sustainable.aspx>
 - c. Regulatory and public policy -- <http://www.aepsustainability.com/about/regulatory/>
2. Managing and adapting to future ESG/Sustainability risks and opportunities
 - a. Risks
 - i. Carbon and climate -- <http://www.aepsustainability.com/environment/climate/>
 - ii. Carbon profile analysis -- <http://www.aepsustainability.com/environment/climate/carbon.aspx>
 - iii. Environmental Performance -- <http://www.aepsustainability.com/environment/performance.aspx>
 - iv. Cyber and physical security -- <http://www.aepsustainability.com/about/security/cyber.aspx>
 - v. Business continuity and resiliency -- <http://www.aepsustainability.com/about/security/continuity.aspx>

- vi. Water management -- <http://www.aepsustainability.com/environment/water.aspx>
- vii. Environmental regulations -- <http://www.aepsustainability.com/environment/regulations/>
- viii. Net energy metering -- <http://www.aepsustainability.com/about/regulatory/metering.aspx>
- ix. Capacity markets -- <http://www.aepsustainability.com/about/regulatory/capacity.aspx>
- x. Gas/electric harmonization -- https://www.aep.com/about/IssuesAndPositions/Generation/docs/GEH_white_paper.pdf

b. Opportunities

- i. Renewables – <http://www.aepsustainability.com/energy/renewables.aspx>
 - 1. Wind Catcher Energy Connection (new since report was launched) -- <http://aep.com/newsroom/newsreleases/?id=1997>
- ii. Energy efficiency -- <http://www.aepsustainability.com/energy/efficiency.aspx>
- iii. Demand response -- <http://www.aepsustainability.com/energy/demand.aspx>
- iv. Distributed energy resources -- <http://www.aepsustainability.com/energy/distributed.aspx>
- v. Technology and innovation -- <http://www.aepsustainability.com/energy/technology/>

c. Continued reliability/affordability

- i. Reliability and resiliency -- <http://www.aepsustainability.com/energy/reliability/>
- ii. Policy models -- <http://www.aepsustainability.com/about/regulatory/models.aspx>

3. Sustainability plans and progress

- i. Resource planning -- <http://www.aepsustainability.com/energy/planning.aspx>
- ii. Sustainable electricity -- <http://www.aepsustainability.com/energy/sustainable.aspx>
- iii. Strategic goals and initiatives -- <http://www.aepsustainability.com/about/strategy/future.aspx>
- iv. Strategy for sustainable development -- <http://www.aepsustainability.com/about/strategy/goals.aspx>
- v. Stakeholder engagement -- <http://www.aepsustainability.com/social/stakeholder/>

ESG/Sustainability Governance

1. Sustainability/ESG governance -- Positions Responsible for ESG/Sustainability Reporting and Management:
 - a. Charles Patton, Executive Vice President, External Affairs
 - b. Sandy Nessing, Managing Director, Corporate Sustainability
 - c. Bette Jo Rozsa, Managing Director, Investor Relations
2. At AEP, ESG/Sustainability Reporting and Management Oversight happens on multiple levels. The Corporate Sustainability team oversees data gathering and reporting. We work with more than 100 subject matter experts and reviewers/approvers. The annual [Corporate Accountability Report](#), which contains AEP's ESG/sustainability performance information/data, is reviewed and approved by an [Enterprise Sustainability Council](#), executive management and the [Committee on Directors and Corporate Governance of the AEP Board of Directors](#). The Board publishes a [statement of accountability](#) each year within the report.
 - a. Board of Directors: Committee on Directors and Corporate Governance
 - i. T. E. Hoaglin (Chair) (independent)
 - ii. S. B. Lin (independent)
 - iii. R. C. Notebaert (independent)
 - iv. L. L. Nowell, III (independent)
 - v. S. S. Rasmussen (independent)

- vi. S. M. Tucker (independent)
- b. Management
 - i. Nick Akins, Chairman, President & CEO
 - ii. Brian Tierney, Chief Financial Officer
 - 1. Bette Jo Rozsa, Managing Director, Investor Relations
 - iii. David Feinberg, General Counsel and Corporate Secretary
 - iv. Charles Patton, executive vice president, External Affairs
 - 1. Sandy Nessing, Managing Director, Corporate Sustainability
- 3. Reporting Structure:
 - a. Board of Directors: Committee on Directors and Corporate Governance
 - i. Nick Akins, Chairman, President & CEO
 - ii. Brian Tierney, Chief Financial Officer
 - iii. David Feinberg, General Counsel & Corporate Secretary
 - iv. Charles Patton, Executive Vice President, External Affairs
 - a. Sandy Nessing, Managing Director, Corporate Sustainability
 - b. Bette Jo Rozsa, Managing Director, Investor Relations
- 4. Other
 - a. AEP prepares a GRI report annually, according to the G4 -- <http://www.aepsustainability.com/about/gri.aspx>
 - b. AEP reports to CDP Climate, Water and Supply Chain annually and provides an archive online -- <http://www.aepsustainability.com/about/cdp.aspx>
 - c. Chairman's Message outlines AEP's transformation and path forward -- <http://www.aepsustainability.com/about/message.aspx>
 - d. Sustainability governance – <http://aepsustainability.com/about/governance/>
 - e. Board Statement of Accountability -- <http://aepsustainability.com/about/report/board.aspx>

EEI ESG/Sustainability Template – Section 2: 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*
Operating Company(s): *APCo, IMPCo, KPCo, OPCo, PSO, SWEPCo, WPCo, KGPCo, TCC, TNC*
Business Type(s): *Vertically Integrated and Competitive Integrated*
State(s) of Operation: *AR, IN, KY, LA, MI, OH, OK, TN, TX, VA, WV*
State(s) with RPS Programs: *OH, MI*
Regulatory Environment: *Both Regulated and Unregulated*
Report Date: *8/31/2017*

Ref. No.	Metrics	Baseline	Last Year	Current Year	Comments, Links, Additional Information, and Notes
		2005	2015	2016	
		<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	

Utility Portfolio

1	Owned Nameplate Generation Capacity at end of year (MW)*				
1.1	Coal	25,722	19,976	18,979	Details: http://www.aep.com/investors/events/presentationsandwebcasts/documents/2016EEI_FactBookv2.pdf Differences with AEP Fact Book due to sale of 3,987MW of capacity, 1,989MW of Demand Response/Energy Efficiency, and 488MW of PPA wind.
1.2	Natural Gas	7,451	9,676	9,598	

Ref. No.	Metrics	Baseline	Last Year	Current Year	Comments, Links, Additional Information, and Notes
		2005	2015	2016	
		<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	
1.3	Nuclear	2,143	2,191	2,191	The 2016 inventory includes 953MW of OVEC entitlement, 2,633MW of wind PPA, 10MW solar PPA, 1,149MW of gas PPA, 80MW hydro PPA, and 355MW for TNC's portion of Oklaunion.
1.4	Petroleum	35	0	0	
1.5	Total Renewable Energy Resources	1,240	3,144	3,597	
1.5.1	Biomass/Biogas	0	0	0	
1.5.2	Geothermal	0	0	0	
1.5.3	Hydroelectric	951	951	938	
1.5.4	Solar	0	10	26	
1.5.5	Wind	289	2,183	2,633	
1.6	Other	0	0	0	
2	Net Generation for the data year (MWh) *				
2.1	Coal	163,464,700	100,072,219	89,370,271	Does not reflect the sale of 4,978,626 MWh of RECs in 2016, 2,962,658 MWh of RECs in 2015.
2.2	Natural Gas	11,003,764	24,454,947	27,280,277	
2.3	Nuclear	19,219,383	16,519,124	15,359,868	
2.4	Petroleum	0	0	0	
2.5	Total Renewable Energy Resources	1,309,561	8,110,558	10,071,048	
2.5.1	Biomass/Biogas	0	0	0	
2.5.2	Geothermal	0	0	0	
2.5.3	Hydroelectric	1,024,554	1,184,438	1,102,621	

Ref. No.	Metrics	Baseline	Last Year	Current Year	Comments, Links, Additional Information, and Notes
		2005	2015	2016	
		<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	
2.5.4	Solar	0	14,598	22,966	
2.5.5	Wind	285,007	6,911,522	8,945,461	
2.6	Other	0	0	0	
2.i	Owned Net Generation for the data year (MWh) *				
2.1.i	Coal	163,464,700	100,072,219	89,370,271	
2.2.i	Natural Gas	11,003,764	17,681,064	19,568,129	
2.3.i	Nuclear	19,219,383	16,519,124	15,359,868	
2.4.i	Petroleum	0	0	0	
2.5.i	Renewables	1,024,554	979,736	909,493	
2.5.1.i	Biomass	0	0	0	
2.5.2.i	Geothermal	0	0	0	
2.5.3.i	Hydroelectric	1,024,554	979,727	900,931	
2.5.4.i	Solar	0	9	8,562	
2.5.5.i	Wind	0	0	0	
2.6.i	Other				
2.ii	Purchased Net Generation for the data year (MWh) *	0	11,521,124	17,332,735	Net market/grid purchases from FERC Form 1 (additional to PPA's below)
2.1.ii	Coal	0	0	0	
2.2.ii	Natural Gas	0	6,773,883	7,712,148	
2.3.ii	Nuclear	0	0	0	
2.4.ii	Petroleum	0	0	0	
2.5.ii	Renewables	285,007	7,130,822	9,161,555	
2.5.1.ii	Biomass	0	0	0	

Ref. No.	Metrics	Baseline	Last Year	Current Year	Comments, Links, Additional Information, and Notes
		2005	2015	2016	
		<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	
2.5.2.ii	Geothermal	0	0	0	
2.5.3.ii	Hydroelectric	0	204,711	201,690	
2.5.4.ii	Solar	0	14,589	14,404	
2.5.5.ii	Wind	285,007	6,911,522	8,945,461	Does not reflect the sale of 4,978,626 MWh of RECs in 2016, 2,962,658 MWh of RECs in 2015.
2.6.ii	Other				
3	Investing in the Future: Capital Expenditures, Energy Efficiency (EE), and Smart Meters				
3.1	Total Annual Capital Expenditures (nominal dollars)		\$4,561,000,000	\$4,934,000,000	http://www.aepsustainability.com/about/strategy/
3.2	Incremental Annual Electricity Savings from EE Measures (MWh)		1,024,998	1,055,046	
3.3	Incremental Investment in Electric EE Programs (nominal dollars)		\$159,000,000	\$169,000,000	
3.4	Percent of Total Electric Customers with Smart Meters (at end of year)		30.69%	30.67%	2016: Total # of smart meters deployed = 1,778,784 / total # of customers = 5.8 million (competitive and regulated). 2015: Total # of smart meters deployed = 1,657,080 / total # of customers = 5.4 million (competitive and regulated)
4	Retail Customer Count (at end of year)				
4.1	Commercial		701,000	704,500	Regulated & Competitive

Ref. No.	Metrics	Baseline	Last Year	Current Year	Comments, Links, Additional Information, and Notes
		2005	2015	2016	
		<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	
4.2	Industrial		43,500	43,000	Regulated & Competitive
4.3	Residential		4,917,000	5,022,000	Regulated & Competitive
Emissions					
5	GHG Emissions: Carbon Dioxide (CO2) and Carbon Dioxide Equivalent (CO2e)*				
5.1	Owned Generation *(1) (2) (3)				
5.1.1	Carbon Dioxide (CO2)				
5.1.1.1	Total Owned Generation CO2 Emissions (MT)	152,309,537	104,961,742	94,995,282	
5.1.1.2	Total Owned Generation CO2 Emissions Intensity (MT/Net MWh)	1	1	1	
5.1.2	Carbon Dioxide Equivalent (CO2e)				
5.1.2.1	Total Owned Generation CO2e Emissions (MT)	153,963,182	105,953,572	96,160,383	2005 CO2e emissions are estimated based on AEP's average CO2/CO2e ratio from 2010-2016.
5.1.2.2	Total Owned Generation CO2e Emissions Intensity (MT/Net MWh)	1	1	1	
5.2	Purchased Power* (4)				
5.2.1	Carbon Dioxide (CO2)				
5.2.1.1	Total Purchased Generation CO2 Emissions (MT)	0	10,104,535	14,143,333	
5.2.1.2	Total Purchased Generation CO2 Emissions Intensity (MT/Net MWh)	0.000	0.397	0.413	

Ref. No.	Metrics	Baseline			Current Year
		2005	2015	Last Year	
			2016	2016	Comments, Links, Additional Information, and Notes
			<i>Actual</i>	<i>Actual</i>	<i>Actual</i>
5.2.2.2	Total Purchased Generation CO2e Emissions Intensity (MT/Net MWh)	0.000	0.399	0.416	
5.3	Owned Generation + Purchased Power*				
5.3.1	Carbon Dioxide (CO2)				
5.3.1.1	Total Owned + Purchased Generation CO2 Emissions (MT)	152,309,537	115,066,277	109,138,615	
5.3.1.2	Total Owned + Purchased Generation CO2 Emissions Intensity (MT/Net MWh)	0.781	0.716	0.685	
5.3.2	Carbon Dioxide Equivalent (CO2e)				
5.3.2.1	Total Owned + Purchased Generation CO2e Emissions (MT)	153,881,371	116,096,275	110,384,682	
5.3.2.2	Total Owned + Purchased Generation CO2e Emissions Intensity (MT/Net MWh)	0.789	0.723	0.692	
5.4	Non-Generation CO2e Emissions*				
5.4.1	Fugitive CO2e emissions of sulfur hexafluoride (MT) (5)	42,608	140,648	439,899	The increase reflects a change in SF6 cylinder inventory management, which impacts fugitive emission reporting calculations, and is a one-time event.
5.4.2	Fugitive CO2e emissions from natural gas distribution (MT) (6)	0	0	0	Included with the Owned Generation CO2e Emissions of section 5.1 and 5.3.

Ref. No.	Metrics	Baseline			Last Year	Current Year
		2005	2015	2016	2016	Comments, Links, Additional Information, and Notes
		<i>Actual</i>	<i>Actual</i>	<i>Actual</i>		
6	Nitrogen Oxide (NOx), Sulfur Dioxide (SO2), Mercury (Hg)*					
6.1	Generation basis for calculation (7)	Fossil				
6.2	Nitrogen Oxide (NOx)*					
6.2.1	Total NOx Emissions (MT)	277,040	78,775	65,059		
6.2.2	Total NOx Emissions Intensity (MT/Net MWh)	0.001588	0.000629	0.000558		
6.3	Sulfur Dioxide (SO2)*					
6.3.1	Total SO2 Emissions (MT)	882,777	175,069	93,582		
6.3.2	Total SO2 Emissions Intensity (MT/Net MWh)	0.005060	0.001398	0.000802		
6.4	Mercury (Hg)*					
6.4.1	Total Hg Emissions (kg)	3,791.6	1,149.7	318.2		
6.4.2	Total Hg Emissions Intensity (kg/Net MWh)	0.000022	0.000009	0.000003		
Resources						
7	Human Resources					
7.1	Total Number of Employees	19,998	17,468	17,701		
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	0.76	0.89		
7.5.2	Lost-time Case Rate	0.60	0.31	0.32		

Ref. No.	Metrics	Baseline			Current Year
		2005	2015	Last Year	Comments, Links, Additional Information, and Notes
		<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	
7.5.3	Days Away, Restricted, and Transfer (DART) Rate	0.96	0.46	0.50	
7.5.4	Work-related Fatalities	1	0	2	
8	Fresh Water Resources*				
8.1	Water Withdrawals - Consumptive (Billions of Liters/Net MWh)		0.00	0.00	
8.2	Water Withdrawals - Non-consumptive (Billions of Liters/Net MWh)		0.01	0.02	
9	Waste Products*				
9.1	Percent of Non-hazardous Municipal Solid Waste Diverted		N/A	14%	
9.2	Percent of Coal Combustion Products Beneficially Used		34%	33%	

*Includes the Gen. James M. Gavin Plant

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

APPENDIX:

Definitions for the EEI ESG/Sustainability Template for Regulated Electric Companies

Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
Utility Portfolio					
1	Owned Nameplate Generation Capacity at end of year (MW)	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, <i>Online Glossary</i> , https://www.eia.gov/tools/glossary/ . Form 860 instructions available at: www.eia.gov/survey/form/eia_860/instructions.pdf .

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

resource is unknown.

Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
3	Investing in the Future: Capital Expenditures, Energy Efficiency (EE), and 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, <i>Form EIA-861 Annual Electric Power Industry Report Instructions</i> . Available at: www.eia.gov/survey/form/eia_861/instructions.pdf .

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, <i>Form EIA-861 Annual Electric Power Industry Report Instructions</i> . 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, <i>Online Glossary</i> , https://www.eia.gov/tools/glossary/ .
Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
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, <i>Form EIA-861 Annual Electric Power Industry Report Instructions</i> . Available at: www.eia.gov/survey/form/eia_861/instructions.pdf .

4.1	Commercial	<p>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.</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, <i>Online Glossary</i>, https://www.eia.gov/tools/glossary/.</p>
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Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
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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, <i>Online Glossary</i>, https://www.eia.gov/tools/glossary/.</p>
4.3	Residential	<p>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.</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, <i>Online Glossary</i>, https://www.eia.gov/tools/glossary/.</p>
Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)

Emissions					
Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
5.1.1.1	Total Owned Generation CO2 Emissions	Total direct CO2 emissions from company equity-owned fossil fuel combustion generation as reported to EPA under the 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	
5.1.2.1	Total Owned Generation CO2e Emissions	Total direct CO2e emissions (CO2, CH4, and N2O) from company equity-owned fossil fuel combustion generation as reported to EPA under the 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**

		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			
5.2.1.1	Total Purchased Generation CO2 Emissions		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	
		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			
5.2.2.1	Total Purchased Generation CO2e Emissions		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	
Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)

Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
5.3 Owned Generation + Purchased Power					
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	
5.3.2.1	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 as reported to EPA under the mandatory GHG Reporting Protocols (40 CFR Part 98, Subpart DD).	Metric Tons	Annual	U.S. Environmental Protection Agency, <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 as reported to EPA under the mandatory GHG Reporting Protocols (40 CFR Part 98, Subpart W)	Metric Tons	Annual	U.S. EPA, <i>Greenhouse Gas Reporting Program</i> (40 CFR, part 98, Subpart W).

Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
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. As reported to EPA under the 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. As reported to EPA under the 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 Sustainability Performance for the Electric Power Industry</i> , 2016 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	

Resources

7 **Human Resources**

Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
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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, www.bls.gov/respondents/iif/annualavghours.htm . EPRI, <i>Metrics to Benchmark Sustainability Performance for the Electric Power Industry</i> , 2016 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, <i>Metrics to Benchmark Sustainability Performance for the Electric Power Industry</i> , 2016 Technical Report.
Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)

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	<p>U.S. Equal Employment Opportunity Commission, EEO Terminology, www.archives.gov/eoo/terminology.html. EPRI, <i>Metrics to Benchmark Sustainability Performance for the Electric Power Industry</i>, 2016 Technical Report.</p>
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7.5 Employee Safety Metrics

Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
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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 Sustainability Performance for the Electric Power Industry</i>, 2016 Technical Report.</p>
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Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)
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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 Sustainability Performance for the Electric Power Industry</i> , 2016 Technical Report.
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</i> , 2016 Technical Report.
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 Sustainability Performance for the Electric Power Industry</i> , 2016 Technical Report.
8 Fresh Water Resources					
Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)

8.1	Water Withdrawals - Consumptive (Billions of Liters/Net MWh)	Rate of fresh water consumed for generation. Include water sourced from fresh surface water, groundwater, and municipal 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 Sustainability Performance for the Electric Power Industry</i> , 2016 Technical Report.
8.2	Water Withdrawals - Non-consumptive (Billions of Liters/Net MWh)	Rate of fresh water withdrawn, but not consumed, for generation. Include water sourced from fresh surface water, groundwater, and municipal 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 Sustainability Performance for the Electric Power Industry</i> , 2016 Technical Report.
9 Waste Products					
9.1	Percent of Non-hazardous Municipal Solid Waste Diverted	Percent of non-hazardous municipal solid waste, including construction and demolition (C&D) waste diverted. 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 Sustainability Performance for the Electric Power Industry</i> , 2016 Technical Report.
Ref. No.	Metric Name	Definition	Units Reported in	Time Period (if applicable)	Reference to Source (if applicable)

9.2	Percent of Coal Combustion Products Beneficially Used	Percent of coal combustion products (CCPs)—fly ash, bottom ash, boiler slag and flue gas desulfurization materials—diverted from disposal into beneficial uses, including being sold. Only include CCPs 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 Sustainability Performance for the Electric Power Industry</i> , 2016 Technical Report.
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