

CONSUMERS ENERGY SUSTAINABILITY INFORMATION

Parent Company: CMS Energy Corporation

Operating Company(s): Consumers Energy Company

Business Type(s): Vertically Integrated

State(s) of Operation: Michigan

State(s) with RPS Programs: Michigan

Regulatory Environment: Regulated

Report Date: October 1, 2020

CMS Energy Website: CMSEnergy.com

Consumers Energy Website: ConsumersEnergy.com

Sustainability Report: ConsumersEnergy.com/sustainability-report-2019

The following quantitative information is Consumers Energy data only.

TREND KEY: ■ Not Rated ■ No Change ■ Better ■ Worse

ELECTRIC PORTFOLIO	Baseline				Trend
	2005	2017	2018	2019	
Owned Nameplate Generation Capacity at end of year (MW)					
Coal	3,015	2,043	2,043	2,043	■
Natural Gas	1,285	2,487	2,487	2,318	■
Nuclear	812	N/A	N/A	N/A	■
Petroleum	738	720	720	701	■
Total Renewable Energy Resources	1,141	1,357	1,401	1,477	■
Biomass/Biogas	N/A	N/A	N/A	N/A	■
Geothermal	N/A	N/A	N/A	N/A	■
Hydroelectric	1,141	1,141	1,141	1,141	■
Solar	N/A	4	4	4	■
Wind	N/A	212	256	332	■
Other	N/A	N/A	1	1	■
Owned Net Generation for the data year (MWh)					
Coal	19,711,000	10,098,000	9,804,000	9,776,000	■
Natural Gas	356,000	5,190,000	5,272,000	6,289,000	■
Nuclear	6,636,000	N/A	N/A	N/A	■
Petroleum	225,000	12,000	5,000	5,000	■
Total Renewable Energy Resources	129,000	788,000	862,000	950,000	■
Biomass/Biogas	N/A	N/A	N/A	N/A	■
Geothermal	N/A	N/A	N/A	N/A	■
Hydroelectric	129,000	189,000	120,000	204,000	■
Solar	N/A	6,000	6,000	5,000	■
Wind	N/A	593,000	736,000	741,000	■
Other	N/A	N/A	N/A	N/A	■
Purchased Net Generation for the data year (MWh)					
Coal	482,000	491,000	511,000	462,000	■
Natural Gas	7,061,000	5,521,000	6,712,000	6,812,000	■
Nuclear	N/A	6,780,000	6,749,000	6,946,000	■
Petroleum	N/A	N/A	N/A	N/A	■
Total Renewable Energy Resources	1,236,000	2,288,000	2,379,000	2,387,000	■
Biomass/Biogas	1,200,000	1,242,000	1,237,000	1,164,000	■
Geothermal	N/A	N/A	N/A	N/A	■
Hydroelectric	34,000	88,000	79,000	60,000	■
Solar	NA	6,900	6,700	7,400	■
Wind	2,600	951,000	1,006,000	1,156,000	■
Other	1,991,000	4,384,000	4,953,000	2,059,000	■
Investing in the Future: Capital Expenditures, Energy Efficiency (EE), and Smart Meters					
Total Annual Capital Expenditures (nominal dollars)	\$593,000,000	\$1,880,000,000	\$1,975,000,000	\$2,298,000,000	■
Incremental Annual Electricity Savings from EE Measures (MWh)	N/A	562,121	586,784	566,183	■
Incremental Annual Investment in Electric EE Programs (nominal dollars)	N/A	\$113,500,000	\$117,800,000	\$115,900,000	■
Percent of Total Electric Customers with Smart Meters (at end of year)	N/A	99	99	99	■
Retail Electric Customer Count (at end of year)					
Commercial	214,025	220,734	219,869	221,892	■
Industrial	8,595	1,433	1,312	1,329	■
Residential	1,565,601	1,601,688	1,603,125	1,611,320	■

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EMISSIONS	Baseline				Trend
	2005	2017	2018	2019	
GHG Emissions: Carbon Dioxide (CO₂) and Carbon Dioxide Equivalent (CO₂e)					
Owned Generation					
Carbon Dioxide (CO ₂)					
Total Owned Generation CO ₂ Emissions (MT)	20,219,000	12,465,000	12,682,000	12,604,000	■
Total Owned Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.754	0.775	0.795	0.741	■
Carbon Dioxide Equivalent (CO ₂ e)					
Total Owned Generation CO ₂ e Emissions (MT)	N/A	12,889,000	12,743,000	12,659,000	■
Total Owned Generation CO ₂ e Emissions Intensity (MT/Net MWh)	N/A	0.801	0.799	0.744	■
Purchased Power					
Carbon Dioxide (CO ₂)					
Total Purchased Generation CO ₂ Emissions (MT)	4,999,000	5,548,000	6,373,000	5,121,000	■
Total Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.464	0.285	0.299	0.276	■
Carbon Dioxide Equivalent (CO ₂ e)					
Total Purchased Generation CO ₂ e Emissions (MT)	N/A	5,587,000	6,419,000	5,150,000	■
Total Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	N/A	0.287	0.301	0.276	■
Owned Generation + Purchased Power					
Carbon Dioxide (CO ₂)					
Total Owned + Purchased Generation CO ₂ Emissions (MT)	25,218,000	18,013,000	19,055,000	17,725,000	■
Total Owned + Purchased Generation CO ₂ Emissions Intensity (MT/Net MWh)	0.671	0.507	0.512	0.497	■
Carbon Dioxide Equivalent (CO ₂ e)					
Total Owned + Purchased Generation CO ₂ e Emissions (MT)	N/A	18,476,000	19,162,000	17,809,000	■
Total Owned + Purchased Generation CO ₂ e Emissions Intensity (MT/Net MWh)	N/A	0.520	0.514	0.499	■
Non-Generation CO₂e Emissions					
Fugitive CO ₂ e emissions of sulfur hexafluoride (MT)	N/A	176	2,100	2,533	■
Electric & Gas Scope 1, 2 and 3 Greenhouse Gas Emissions					
Carbon Dioxide Equivalent (CO ₂ e)					
Scope 1 CO ₂ e emissions (MT)	N/A	13,046,000	13,165,000	13,509,000	■
Scope 2 CO ₂ e emissions (MT) ¹	N/A	380,000	424,000	279,500	■
Scope 3 CO ₂ e emissions (MT)	N/A	20,216,000	22,780,000	20,574,000	■
Nitrogen Oxide (NO_x), Sulfur Dioxide (SO₂), Mercury (Hg)					
Generation basis for calculation	Fossil				
Nitrogen Oxide (NO_x)					
Total NO _x Emissions (MT)	28,400	3,900	3,900	4,100	■
Total NO _x Emissions Intensity (MT/Net MWh)	1.06E-03	2.44E-04	2.44E-04	2.41E-04	■
Sulfur Dioxide (SO₂)					
Total SO ₂ Emissions (MT)	83,600	5,100	5,200	5,700	■
Total SO ₂ Emissions Intensity (MT/Net MWh)	3.12E-03	3.18E-04	3.29E-04	3.35E-04	■
Mercury (Hg)					
Total Hg Emissions (kg)	N/A	24	26	33	■
Total Hg Emissions Intensity (kg/Net MWh)	N/A	1.47E-06	1.64E-06	1.94E-06	■

1. The Scope 2 numbers shown here were recently updated to include line losses on the electric distribution system for purchased power. Scope 2 numbers in prior public reports do not reflect this additional analysis.

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RESOURCES

	Baseline				
	2005	2017	2018	2019	Trend
Human Resources					
Total Number of Employees	8,114	7,496	8,121	8,253	■
Total Number on Board of Directors/Trustees	12	10	10	12	■
Total Women on Board of Directors/Trustees	1	4	4	5	■
Total Minorities on Board of Directors/Trustees	1	2	2	3	■
Total Females in Senior Leadership	N/A	N/A	8	9	■
Percent Females in Senior Leadership	N/A	N/A	0%	32%	■
Total Minorities in Senior Leadership	N/A	N/A	7	6	■
Percent Minorities in Senior Leadership	N/A	N/A	26%	21%	■
Total Females in Management	N/A	N/A	125	132	■
Percent Females in Management	N/A	N/A	30%	31%	■
Total Minorities in Management	N/A	N/A	51	53	■
Percent Minorities in Management	N/A	N/A	12%	12%	■
Total Female Employees	N/A	N/A	2,304	2,342	■
Percent Female Employees	N/A	N/A	28%	28%	■
Total Minority Employees	N/A	N/A	1,162	1,180	■
Percent Minority	N/A	N/A	14%	14%	■
Total Veteran Employees	N/A	N/A	699	825	■
Percent Veteran Employees	N/A	N/A	9%	10%	■
Total Disability Status Employees	N/A	N/A	372	397	■
Percent Disability Status Employees	N/A	N/A	5%	5%	■
Employee Safety Metrics					
Recordable Incident Rate	7.01	0.75	1.21	1.23	■
Lost-time Case Rate	2.00	0.11	0.34	0.50	■
Days Away, Restricted, and Transfer (DART) Rate	3.22	0.40	0.75	0.84	■
Work-related Fatalities	1.00	0.00	1.00	0.00	■
Fresh Water Resources					
Water Withdrawals - Consumptive (Billions of Liters/Net MWh)	N/A	2.94E-07	3.19E-07	3.74E-07	■
Water Withdrawals - Non-Consumptive (Billions of Liters/Net MWh)	N/A	7.61E-05	7.74E-05	6.88E-05	■
Waste Products					
Amount of Hazardous Waste Manifested for Disposal (tons)	N/A	52.1	23.9	23.7	■
Percent of Coal Combustion Products Beneficially Used	N/A	10%	13%	15%	■



NATURAL GAS BUSINESS SUSTAINABILITY METRICS

Parent Company: CMS Energy
 Operating Company(s): Consumers Energy Company
 Business Type(s): Vertically Integrated
 State(s) of Operation: Michigan
 Regulatory Environment: Regulated
 Report Date: October 1, 2020



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NATURAL GAS DISTRIBUTION

Methane Emissions and Mitigation from Distribution Mains

	2018	2019	Trend
Number of Gas Distribution Customers	1,775,565	1,782,031	■
Distribution Mains in Service			
Plastic (miles)	14,502	14,734	■
Cathodically Protected Steel - Bare & Coated (miles)	12,339	12,387	■
Unprotected Steel - Bare & Coated (miles)	485	456	■
Cast Iron / Wrought Iron - without upgrades (miles)	402	382	■
Plan/Commitment to Replace/Upgrade Remaining Miles of Distribution Mains (# years to complete)			
Unprotected Steel (Bare & Coated) (# years to complete)	18	17	■
Cast Iron / Wrought Iron (# years to complete)	18	17	■

In order to improve the safety and reliability of our natural gas system, Consumers Energy is investing nearly \$2 billion to replace 2,600 miles of natural gas pipelines. Our Enhanced Infrastructure Replacement Program (EIRP) is a 19-year project, which began in 2011.

Distribution CO₂e Fugitive Emissions

	2018	2019	Trend
CO ₂ e Fugitive Methane Emissions from Gas Distribution Operations (metric tons)	233,003	226,912	■
CH ₄ Fugitive Methane Emissions from Gas Distribution Operations (metric tons)	9,320	9,076	■
CH ₄ Fugitive Methane Emissions from Gas Distribution Operations (MMSCF/year)	485	473	■
Annual Natural Gas Throughput from Gas Distribution Operations in thousands of standard cubic feet (Mscf/year)	381,210,972	387,948,984	■
Annual Methane Gas Throughput from Gas Distribution Operations in millions of standard cubic feet (MMscf/year)	362,150	368,547	■
Fugitive Methane Emissions Rate (MMscf of Methane Emissions per MMscf of Methane Throughput)	0.134%	0.128%	■

NATURAL GAS TRANSMISSION & STORAGE

Onshore Natural Gas Transmission Compression Methane Emissions

	2018	2019	Trend
3 of 7 compressor stations are above Subpart W reporting threshold			
Pneumatic Device Venting (metric tons/year)	0	0	■
Blowdown Vent Stacks (metric tons/year)	40	1,240	■
Transmission Storage Tanks (metric tons/year)	1	0	■
Flare Stack Emissions (metric tons/year)	0	0	■
Centrifugal Compressor Venting (metric tons/year)	14	21	■
Reciprocating Compressor Venting (metric tons/year)	72	736	■
Equipment leaks from valves, connectors, open ended lines, pressure relief valves, and meters (metric tons/year)	31	148	■
Other Leaks (metric tons/year)	0	0	■
Total Transmission Compression Methane Emissions (metric tons/year)	158	2,145	■
Total Transmission Compression Methane Emissions (CO ₂ e/year)	3,955	53,629	■
Total Transmission Compression Methane Emissions (MSCF/year)	8,240	111,727	■

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NATURAL GAS TRANSMISSION AND STORAGE

2018

2019

Trend

Underground Natural Gas Storage Methane Emissions

	3 of 7 compressor stations are above Subpart W reporting threshold	Data for all 7 compressor stations, regardless of reporting threshold	
Pneumatic Device Venting (metric tons/year)	0	0	■
Blowdown Vent Stacks (metric tons/year)	40	1,240	■
Transmission Storage Tanks (metric tons/year)	1	0	■
Flare Stack Emissions (metric tons/year)	0	0	■
Centrifugal Compressor Venting (metric tons/year)	14	21	■
Reciprocating Compressor Venting (metric tons/year)	72	736	■
Equipment leaks from valves, connectors, open ended lines, pressure relief valves, and meters (metric tons/year)	31	148	■
Other Leaks (metric tons/year)	0	0	■
Total Transmission Compression Methane Emissions (metric tons/year)	158	2,145	■
Total Transmission Compression Methane Emissions (CO _{2e} /year)	3,955	53,629	■
Total Transmission Compression Methane Emissions (MSCF/year)	8,240	111,727	■

Underground Natural Gas Storage Methane Emissions

	Below reporting threshold for Subpart W		
Pneumatic Device Venting (metric tons/year)		N/A	■
Flare Stack Emissions (metric tons/year)		N/A	■
Centrifugal Compressor Venting (metric tons/year)		N/A	■
Reciprocating Compressor Venting (metric tons/year)		N/A	■
Equipment leaks from valves, connectors, open ended lines, pressure relief valves, and meters (metric tons/year)		N/A	■
Other Equipment Leaks (metric tons/year)		N/A	■
Equipment leaks from valves, connectors, open-ended lines, and pressure relief valves associated with storage wellheads (metric tons/year)		77.4	■
Other equipment leaks from components associated with storage wellheads (metric tons/year)		N/A	■
Total Storage Compression Methane Emissions (metric tons/year)		77.4	■
Total Storage Compression Methane Emissions (CO _{2e} /year)		1,935.0	■
Total Storage Compression Methane Emissions (MSCF/year)		4,031.3	■

Onshore Natural Gas Transmission Pipeline Blowdowns

	Below reporting threshold for Subpart W		
Transmission Pipeline Blowdown Vent Stacks (metric tons/year)		863	■
Transmission Pipeline Blowdown Vent Stacks (CO _{2e} /year)		21,574	■
Transmission Pipeline Blowdown Vent Stacks (MSCF/year)		44,946	■

Other Non-Sub W Emissions Data

Total Methane Emissions from additional sources not recognized by 40 CFR 98 Subpart W (metric tons/year)	N/A	1,287	■
Total Methane Emissions from additional sources not recognized by 40 CFR 98 Subpart W (CO _{2e} /year)	N/A	32,172	■
Total Methane Emissions from additional sources not recognized by 40 CFR 98 Subpart W (MSCF/year)	N/A	67,024	■

Summary and Metrics

Total Transmission and Storage Methane Emissions (MMSCF/year)	8	228	■
Annual Natural Gas Throughput from Gas Transmission and Storage Operations (MSCF/year)	293,722,672	543,706,132	■
Annual Methane Gas Throughput from Gas Transmission and Storage Operations (MMSCF/year)	279,037	516,521	■
Fugitive Methane Emissions Rate (MMscf of Methane Emissions per MMscf of Methane Throughput)	0.003%	0.044%	■

NATURAL GAS GATHERING AND BOOSTING

Methane Emissions

Gathering and Boosting Pipelines, Blow Down Volumes, and Emissions	N/A	N/A	■
Total Miles of Gathering Pipeline Operated by gas utility (miles)	N/A	N/A	■
Volume of Gathering Pipeline Blow Down Emissions (scf)	N/A	N/A	■
Gathering Pipeline Blow-Down Emissions outside storage and compression facilities (metric tons CO _{2e})	N/A	N/A	■

CO_{2e} Combustion Emissions for Gathering and Boosting Compression

CO _{2e} Emissions for Gathering & Boosting Compression Stations (metric tons)	N/A	N/A	■
Conventional Combustion Emissions From Gathering and Boosting Compression	N/A	N/A	■

Emissions reported for all permitted sources (minor or major)

NO _x (metric tons per year)	N/A	N/A	■
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