

Methane Emissions from Exelon Utility (BGE, PECO, DPL) Gas Distribution Systemsⁱ

Exelon's utilities with gas distribution systems annually report methane emissions associated with these systems to the U.S. EPA under its [GHG Mandatory Reporting Rule](#) (40 CFR Part 98, Subpart W). In addition to reporting methane emissions to the U.S. EPA, Exelon also [3rd party verifies](#) its GHG emission inventory and includes its methane emissions in its GHG inventory data reported publicly to [CDP](#).

As described in the Exelon Sustainability Report 2022 section "Progress on Our Path to Clean: Our Company and Operations," reduction of methane emissions associated with Exelon utility gas systems is a key component of the operations-driven GHG emission reduction component of Exelon's Path to Clean plan, with expected emissions from this source being nearly 9,000 tonnes of methane (equivalent to over 220,000 mtCO₂e) less annually by 2030. In 2022, emissions from natural gas distribution systems represented 59 percent of Exelon's Scope 1 & 2 operations-driven emissions (sources we can control), but just over 5 percent of Exelon's Total Scope 1 & 2 (market-based) emissions of 5.7 million metric tons of CO₂e (which includes customer-driven electric generation and electric system losses). For a complete summary table of Exelon's GHG emission inventory, please see the "Exelon Corporate GHG Inventory Breakdown" table of the Exelon Sustainability Report 2022 at page 155 of the report.



Emissions Calculation Methodology and Emission Factors

Exelon's method for reporting GHG emissions under the GHG Mandatory Reporting Rule from our natural gas distribution systems is consistent with the basis utilized to establish Exelon's corporate GHG emission reduction goal and will be the basis for our reporting on progress each year. As described in the Progress on Our Path to Clean section of our 2022 sustainability report, methane emission

reductions will be driven over time by the continued replacement of older gas distribution system pipe and services, pursuant to our long-term upgrade and replacement program.

Under the EPA GHG Mandatory Reporting Ruleⁱⁱ, Exelon calculates emissions from its natural gas distribution system based on a methodology that assumes a certain amount of emissions per mile-hour or service count-hour of system use. Since our distribution system is always in use, we assume emissions occur all hours per year for all miles of pipeline and service counts. Adjacent is a summary of the emission factors from 40 CFR Part 98, Subpart W that we currently use. The advantage of using a regulatorily-required methodology as a basis for calculating emissions is that it results in comparability within, and across companies, since all companies are required to calculate emissions using the same calculation methodologies and emission factors.

Global Warming Potential of Methane

Per EPA 40 CFR Part 98 Subpart A General Provisions, Definitions, *Global warming potential or GWP* means the ratio of the time-integrated radiative forcing from the instantaneous release of one kilogram of a trace substance relative to that of one kilogram of a reference gas (*i.e.*, CO₂). GWPs for each greenhouse used in the regulation are per the 100-year time horizon per IPCC Assessment Report 4 as shown below.

Environmental Protection Agency

§ 98.240

[76 FR 80594, Dec. 23, 2011]

TABLE W-7 TO SUBPART W OF PART 98—DEFAULT METHANE EMISSION FACTORS FOR NATURAL GAS DISTRIBUTION

Natural gas distribution	Emission factor (scf/hour/ component)
Leaker Emission Factors—Transmission-Distribution Transfer Station¹ Components, Gas Service	
Connector	1.69
Block Valve	0.557
Control Valve	9.34
Pressure Relief Valve	0.27
Orifice Meter	0.212
Regulator	0.772
Open-ended Line	26.131
Population Emission Factors—Below Grade Metering-Regulating station¹ Components, Gas Service²	
Below Grade M&R Station, Inlet Pressure >300 psig	1.30
Below Grade M&R Station, Inlet Pressure 100 to 300 psig	0.20
Below Grade M&R Station, Inlet Pressure <100 psig	0.10
Population Emission Factors—Distribution Mains, Gas Service³	
Unprotected Steel	12.58
Protected Steel	0.35
Plastic	1.13
Cast Iron	27.25
Population Emission Factors—Distribution Services, Gas Service⁴	
Unprotected Steel	0.19
Protected Steel	0.02
Plastic	0.001
Copper	0.03

¹ Excluding customer meters.

² Emission Factor is in units of "scf/hour/station."

³ Emission Factor is in units of "scf/hour/mile."

⁴ Emission Factor is in units of "scf/hour/number of services."

TABLE A-1 TO SUBPART A OF PART 98—GLOBAL WARMING POTENTIALS
[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Chemical-Specific GWPs			
Carbon dioxide	124-38-9	CO ₂	1
Methane	74-82-8	CH ₄	^a 25
Nitrous oxide	10024-97-2	N ₂ O	^a 298

Exelon completes its reporting in line with the GWPs as outlined in the EPA regulations for consistency, as these 100-year GWPs are what are also used for the US GHG inventory and typically as referenced in the World Resource Institute (WRI) Corporate Standard GHG Protocol. We recognize that in its recent report, the IPCC increased its Global Warming Potential (GWP) estimates for Methane to 28 times more potent than CO₂ over 100 years, and 84 times more potent over 20 years. This means that methane is considered an even more impactful greenhouse gas now than it was in the past. However, Exelon maintains a GHG Inventory Plan which requires that, to drive consistency of calculation and reporting, we maintain alignment with the GWPs established by U.S. EPA regulation. Exelon will update to newer GWPs as they are codified by formal EPA rulemaking and has updated its GHG inventory Plan in the past when U.S. EPA regulations have been updated with new emission factors and/or other reporting requirements.

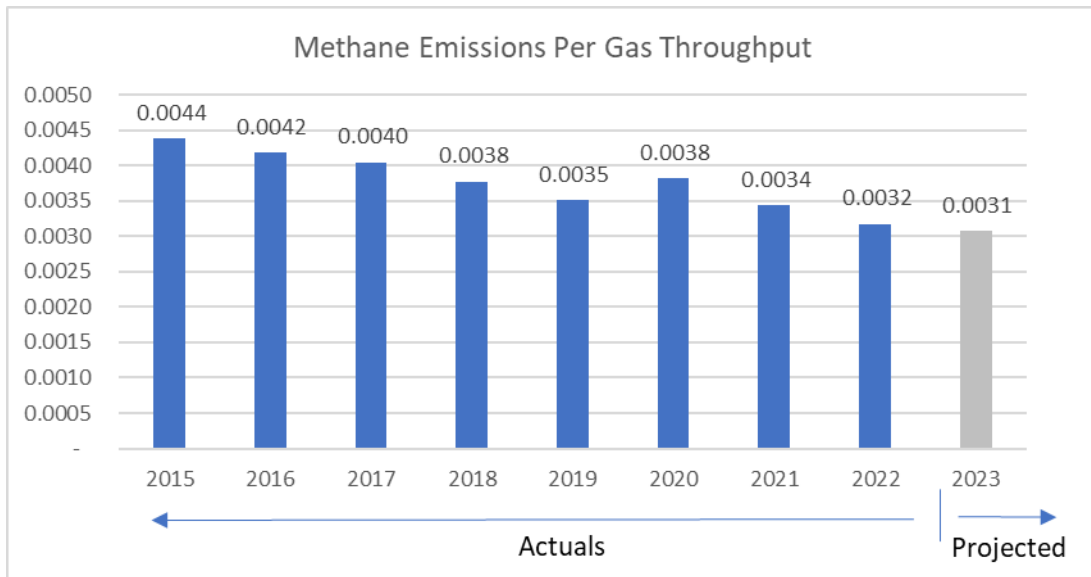
Methane Emissions per Natural Gas Throughput

In addition to our mass-based tracking and reporting of methane emissions from natural gas distribution systems, emission intensity can also be used to monitor gas system emissions as a percentage of gas system throughput. The natural gas throughputs used are consistent with those reported on EIA Form 176 for each of our utilities. It should be noted that emissions in the numerator of this calculation are developed by applying emissions factors to miles of pipe and counts of services and emissions and emissions are not based on throughput. In 2022, Exelon utility gas system emissions represented 0.32 percent of system throughput, down from 0.44 percent in 2015.

EPA GHG Mandatory Reporting Rule Subpart W MCF of Methane Reported to EPA by Utilities (BGE, DPL, PECO) Weather-corrected MCF Throughput (BGE, DPL, PECO)
--

=

percent methane emission leak rate



ⁱ This document provides supplemental information to support the “Reducing Emissions from Natural Gas Systems” discussion on page 55 of the Exelon Sustainability Report 2022 available at: <http://www.exeloncorp.com/sustainability/interactive-csr>

ⁱⁱ On June 21, 2022, U.S. EPA proposed revisions to its Greenhouse Gas Reporting Rule at 87 FR 36920. EPA’s proposal includes potential revisions to Table W-I to Subpart W of Part 98 – Default Methane Population Emission Factors for Natural Gas Distribution. As of the publication date of Exelon’s 2022 CSR in June 2023, a final rule had not been published. Exelon will provide an update on any implications from EPA’s final revisions to its GHG emission accounting as appropriate in its 2023 sustainability report.