

Protecting The Environment

Methane Emissions Reduction Appendix

From 2010 through 2019, Dominion Energy reduced methane emissions by 25 percent. It has done so by replacing infrastructure, improving processes and systems, and pursuing a wide range of voluntary initiatives. The “Methane Emissions Reduction” section in the main body of this report covers those efforts. This appendix provides additional details.

Dominion Energy Methane Reductions (Since 2010)

Dominion Energy’s methane reduction efforts have prevented more than

260,000 MT

(metric tons) of methane from entering the atmosphere since 2010

the equivalent of taking almost



1.4 million

non-EV cars off the road for a year

or planting approximately



110 million

new trees.

Understanding Methane Emissions and Sources

Methane Emissions in the U.S.

In the United States, methane emissions make up approximately 10 percent of all greenhouse gas emissions. Agriculture is the country’s largest source of methane, accounting for approximately 38 percent — mostly from manure and the natural digestive process of livestock. The natural gas industry contributes approximately 22 percent of U.S. methane emissions, or approximately 2.1 percent of the national total of carbon dioxide equivalent (CO₂e).



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Methane Emissions in Dominion Energy's Natural Gas System

The primary sources of methane emissions from Dominion Energy's natural gas system are: 1) gas venting from maintenance and inspection activity; 2) minor releases from specific infrastructure and equipment such as uncoated vintage pipe, valves, and fittings; and, 3) small releases from facilities and metering and regulation stations. Each of these emission sources is subject to a variety of state and federal regulations, and Dominion Energy maintains programs to ensure strict compliance.

As shown in **Figure 1**, as a share of Dominion Energy's total carbon dioxide equivalent, or CO₂e, emissions (including methane and carbon) from all electric generation and natural gas operations in 2019, the company's natural gas business accounted for 13 percent. In July 2020, Dominion



Energy announced a proposed divestment of a majority of its Transmission and Storage assets to Berkshire Hathaway Energy. After this divestment, the company's natural gas business will account for 7 percent of total Dominion Energy CO₂e emissions based on 2019 levels.

Figure 1: 2019 Dominion Energy CO₂e Emissions¹

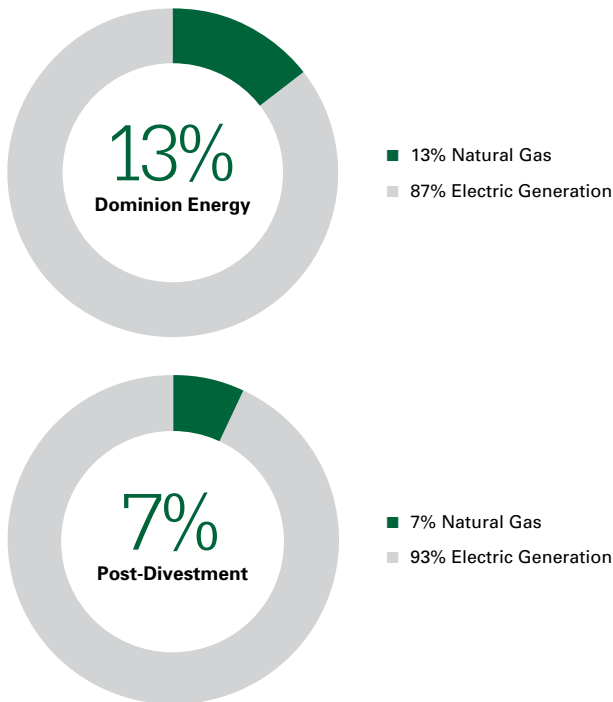
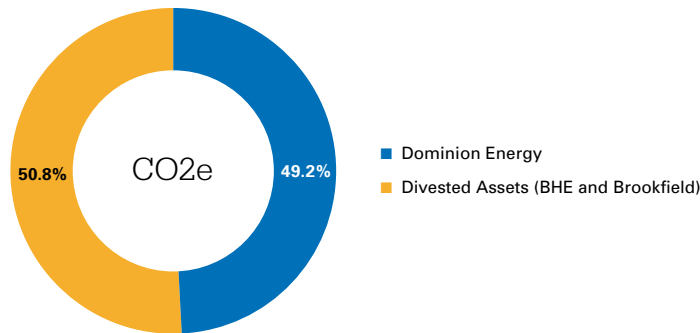


Figure 2 provides a breakdown of Dominion Energy's 2019 emissions profile for its gas assets post-divestment to Berkshire Hathaway Energy (BHE) and Brookfield. These divestments will result in an immediate CO₂e emissions reduction for the company's natural gas business of approximately 51 percent.²

Figure 2: 2019 Methane and CO₂e Emissions by Parent Company (percent)



¹ Of the 13 percent of Dominion Energy's CO₂e emissions from Natural Gas, approximately 6.3 percent was methane and 6.7 percent was from CO₂.
² Dominion Energy's remaining assets to include DEO, DEWV, DEUWI, DESC, DENC, DE Wexpro and 50 percent ownership in DECP. BHE assets to include DETI, DECG, DEQP and 25 percent ownership in DECP. The remaining 25 percent of DECP was divested to Brookfield Super-Core Infrastructure Partners (Brookfield) in December 2019.

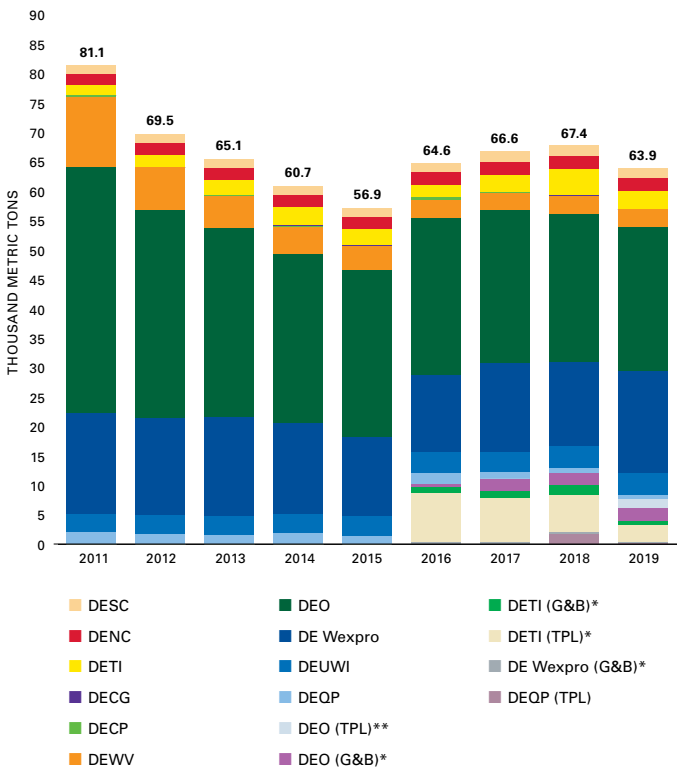
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How Methane Emissions Are Reported

Because EPA's reporting requirements exclude emissions from some minor equipment and in the interest of transparency, in 2018 Dominion Energy voluntarily adopted our own corporate inventory, which includes additional emissions sources and alternative calculation methodologies. **Figure 3** Dominion Energy's EPA-reported methane emissions from 2011 to 2019 by subsidiary.

Figure 3: Methane Emissions Reported to EPA by Subsidiary (thousand metric tons)

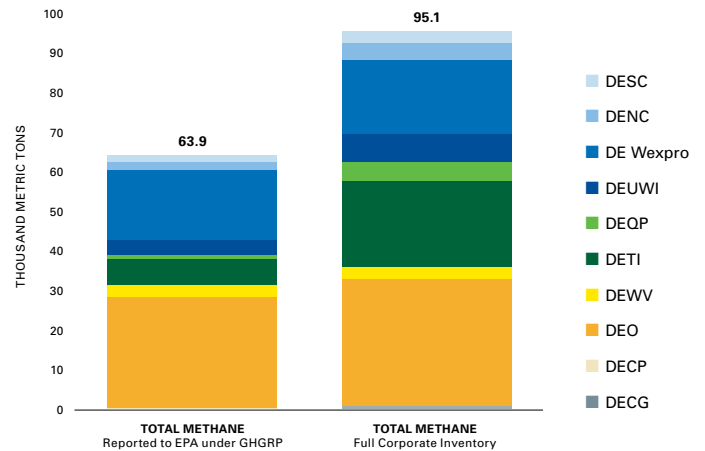
Additional information on the emissions reported to the EPA under the GHGRP, including station-by-station information, can be found at: <https://ghgdata.epa.gov/ghgp/main.do>.



*Reporting segments added to EPA's GHGRP in 2016
 **2019 was first year DEO TPL reported under EPA's GHGRP, prior years were below the reporting threshold.

Dominion Energy continues to push for even greater transparency and accountability by integrating new, more representative methods and more comprehensive methane source inventories. **Figure 4** shows the company's corporate inventory of methane emissions as compared to the inventory of emissions required to be reported to EPA for 2019.

Figure 4: Dominion Energy Methane: EPA-Reported vs. Corporate Inventory for 2019 (thousand metric tons)



In addition, Dominion Energy reports emissions on a rate or intensity basis. Emissions rates are measurements of methane emissions as a percentage of the total amount of gas that travels through the Dominion Energy gas delivery chain. **Table 1** and **Figure 5** provide updated methane emissions and emission rates for Dominion Energy's natural gas assets based on the company's corporate inventory. In 2019, Dominion Energy's methane emissions rate across our entire natural gas infrastructure system was 0.110 percent.

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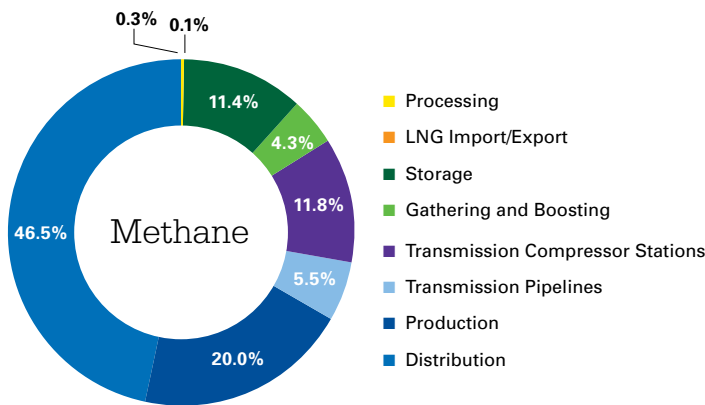
Table 1: 2019 Methane Emission Rates from Dominion Energy’s Natural Gas Operations

Natural Gas System Segment	Total Corporate Methane Emissions (mcf CH ₄) (numerator)	Total Gas Throughput (mcf CH ₄) (denominator)	Methane Emission Rate %
Production	992,281	50,653,337	1.959%
Gathering & Boosting	214,688	311,028,707	0.069%
Processing	14,505	46,590,109	0.031%
Transmission and Storage	1,421,092	3,157,140,470	0.045%
LNG Import/Export	6,914	229,135,507	0.003%
Distribution	2,304,829	719,394,608	0.320%
Total	4,954,309	4,513,942,738	0.110%

Note: 2019 emissions rate includes North and South Carolina gas assets which were acquired on January 1, 2019 in the SCANA merger. As the Company continues to implement our best practices in reducing methane emissions, the emissions rate is expected to decrease. By way of clarification and transparency, the company is restating its 2018 emissions rate from 0.102 percent to 0.114 percent. The update is the result of adding DESC and DENC gas operations for 2018, corrected EIA reports resubmitted in April of 2020, and a minor calculation update.

This data reflects Dominion Energy facilities and emissions calculated using more stringent methodology for corporate inventory reporting. Segments are consistent with EPA GHG Part 98 Subpart W definitions. Values reported are based on measurements of standard cubic feet of methane. Throughput calculated following ONE Future Coalition Protocol.

Figure 5: Dominion Energy 2019 Methane Emissions by Segment (percent)³



³ Methane emitted by the company’s electric generation operations is less than 2 percent of total methane inventory for the natural gas businesses.

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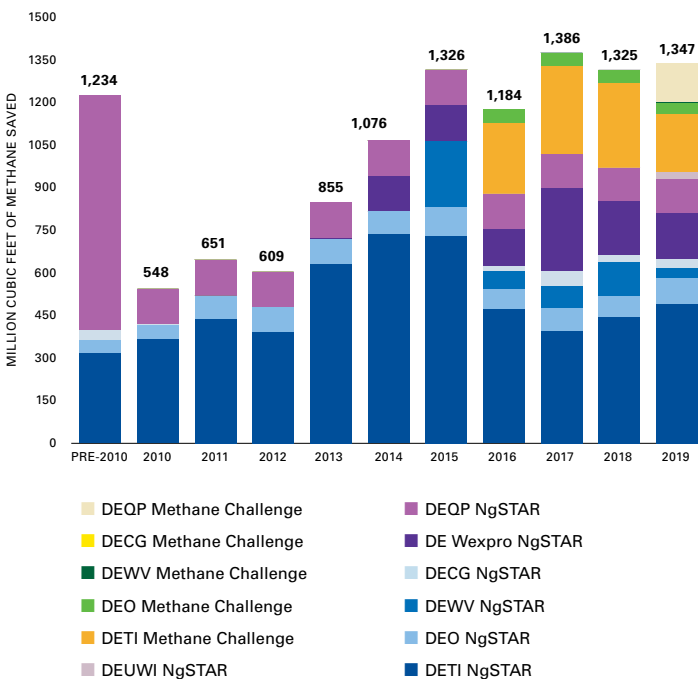
Dominion Energy's Methane Emission Reduction Initiatives

Dominion Energy has been a founding member or leading participant in several landmark methane emissions reduction and benchmarking initiatives, including the EPA's Natural Gas Star (NgSTAR) Program, the EPA's Methane Challenge Program, the ONE Future Coalition, and the Natural Gas Sustainability Initiative (NGSI).

Natural Gas STAR and Methane Challenge Methane Reductions by Business Unit

Figure 6 shows annual methane emissions reduction credits calculated under the NgSTAR and Methane Challenge Programs for Dominion Energy's natural gas businesses. Copies of the full reports showing methane emissions reductions and cumulative credits attributed to Dominion Energy for each NgSTAR and Methane Challenge Report will be included in **Appendix A** and **Appendix B**, respectively, once the reports are published by EPA.

Figure 6: Methane Reductions Achieved Through EPA NgSTAR and Methane Challenge



EPA's voluntary methane reduction programs, NgSTAR Program and the Methane Challenge Program, have provided a platform where proactive and progressive natural gas companies can voluntarily report methane emissions reductions from their operations through implementation of best management practices (BMPs), as well as progress towards commitments made under the Methane Challenge. **Table 2** lists several of the most successful BMPs implemented by Dominion Energy under the NgSTAR Program, Methane Challenge Program, and most recently through Dominion Energy's internal methane emissions reduction commitments.

Table 2: Dominion Energy Best Management Practices for Reducing Methane Emissions

Directed Inspection & Maintenance (DI&M)	Reducing Releases before Maintenance - Stations, Pigging, Pipelines (reduce pressure, capturing/rerouting gas)
Voluntary Leak Detection and Repair (LDAR)	Install Electric Compressors
Replacement of 'Older' Pipelines - Mains/Services	Use of Hot Taps
Replacement of Pneumatic Devices (High Bleed, Intermittent Bleed, Low Bleed)	Capped Emergency Shutdown (ESD) Tests
Installation of Air- or Electric (solar)- Driven Devices	Replace Orifice with Ultrasonic Meters
Engine Blowdown Recovery (EBDR)	Artificial Lift - Install Plunger Lifts