



e-FILING REPORT COVER SHEET

COMPANY NAME: NW Natural

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes If yes, submit a redacted public version (or a cover letter) by email. Submit the confidential information as directed in OAR 860-001-0070 or the terms of an applicable protective order.

Select report type: RE (Electric) RG (Gas) RW (Water) RT (Telecommunications)
 RO (Other, for example, industry safety information)

Did you previously file a similar report? No Yes, report docket number: RG 46

Report is required by: OAR 860-027-0050(1)

Statute

Order

Note: A one-time submission required by an order is a compliance filing and not a report (file compliance in the applicable docket)

Other

(For example, federal regulations, or requested by Staff)

Is this report associated with a specific docket/case? No Yes, docket number: RG 46

List Key Words for this report. We use these to improve search results.

2018, Greenhouse Gas, GHG, Carbon, NW Natural

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VIA ELECTRONIC FILING

June 26, 2018

Public Utility Commission of Oregon
201 High Street SE Suite 100
Post Office Box 1088
Salem, Oregon 97308-1088

Attn: Filing Center

Re: RG-46, OAR 860-085-0050(1) Greenhouse Gas (GHG) Compliance Report

Northwest Natural Gas Company, dba NW Natural ("NW Natural" or "Company"), submits this letter in compliance with OAR 860-085-0050(1), which requires natural gas utilities to report the greenhouse gas (GHG) emissions it expects to have from Company operations in 2020 and the costs it may incur to reduce 2020 GHG emissions to a level that is 10% lower than its 1990 emissions and 15% lower than its 2005 emissions. This information will inform Staff's report to the legislature, required per OAR 860-085-0050(7) that will include the estimated rate impacts for reducing utilities' GHG emissions by State's established targets.

NW Natural identified its sources of GHG emissions as: 1) its operations and facilities, 2) its natural gas usage for operations including compressors, 3) its operation of fleet vehicles to service customers; and 4) natural gas leaks commonly referred to as fugitive emission. Fugitive emissions were first added to the Company's 2014 GHG Compliance Report.

Since the goal of this effort is to determine the emissions reduction required to achieve the goals of being 10% below 1990 emissions and 15% below 2005 emissions in 2020, the Company began its analysis by establishing its 1990 and 2005 emissions. NW Natural does not have historical energy consumption data sufficient for determining its 1990 or 2005 GHG emissions. For this report, NW Natural uses the average emissions for 2008 and 2009 as the proxy for both 1990 and 2005. The Company believes this is a reasonable assumption because, in spite of serving more customers, the Company is more efficient, has a tighter system due to the system integrity program, and has fewer employees operating vehicles now than it had in 1990. Column A in Table I below shows the average emissions for 2008-2009 as they were reported to the Commission in 2012, including a value for fugitive emissions using the estimation process established by the Environmental Protection Agency (EPA) in 40 Code of Federal Regulations (CFR) part 98 subpart W, also known as the Greenhouse Gas Reporting Program.

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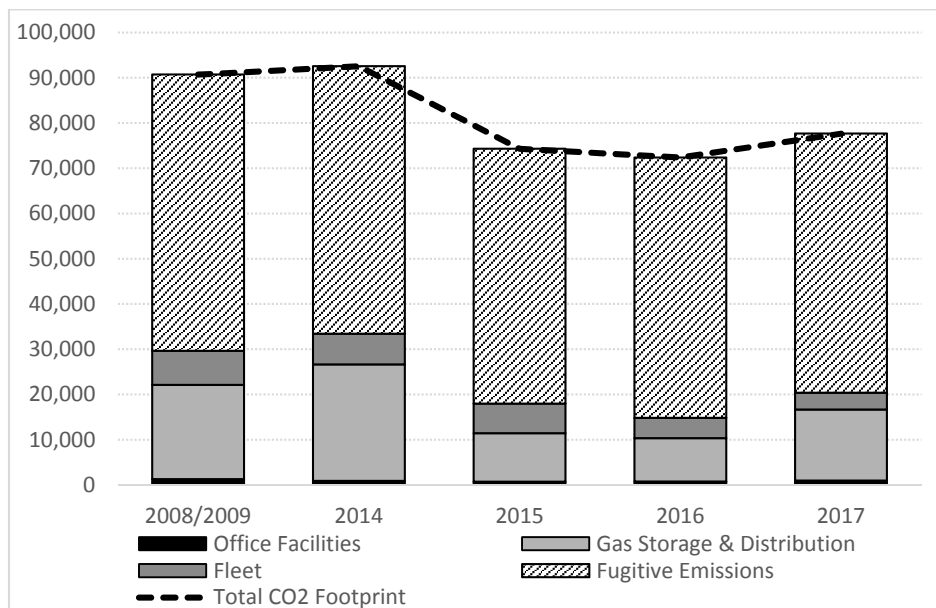
Table I – NW Natural's Operational GHG Emissions

| | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>E</u> |
|--|--------------------------|--------------------|--------------------|--------------------|--------------------|
| NW Natural Scope 1 Emissions | <u>2008-2009*</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> |
| Office Facilities | 1,275 | 910 | 738 | 744 | 952 |
| Gas Storage Compression | 20,845 | 25,747 | 10,710 | 9,603 | 15,730 |
| Fleet | 7,533 | 6,790 | 6,543 | 4,480 | 3,715 |
| Fugitive Emissions | 61,068 | 59,112 | 56,310 | 57,556 | 57,261 |
| Total CO₂e Footprint | 90,721 | 92,558 | 74,301 | 72,383 | 77,658 |
| *Proxy for 1990 and 2005 emissions levels submitted in prior reports | | | | | |

Table I also provides the Company's 2017 emissions, which are the proxy for 2020. The Company assumes that its emissions related to its fleet and office facilities will remain steady or decline through 2020. The Company does not foresee significant reductions to gas storage and compression, and even with the company's dedication to making energy efficient equipment purchases, building retrofits, and new fleet choices the emissions associated with operations today are already very low. Presumably, gained efficiencies could offset the impact of increased operations, were that to occur. But, as noted previously, the Company's operations have reduced in size in spite of serving more customers.

Figure I below provides a graphical illustration of the source and amount of the Company's GHG emissions over the past four years as compared to the proxy baseline.

**Figure I- NW Natural GHT emissions by source
 NW Natural GHG Footprint**



Fugitive emissions are the Company's largest source of GHG emissions. In consideration of this, it is interesting to note that NW Natural has one of the tightest systems in the country as it has completed

both cast iron and bare steel replacement programs on its system. The Company further notes that the measurement of fugitive gas is an *estimated value* based on assumptions established by the EPA for pipe composition and system characteristics. It is the Company's expectation that the measurement of fugitive emissions will become better refined over time.

Another major factor in the Company's level of GHG emissions year to year is its use of compressors to move gas in and out of storage. Two factors impact how frequently gas storage facilities are operated. First, when gas prices are volatile, storage gas is used more as a least cost supply-side resource. With the continued high availability of low cost domestic gas on the market, gas prices continue to be lower and less volatile. Second, when cold weather events result in high gas send-outs, gas storage is utilized to meet customer demand. This results in increased operation of compressors as natural gas that is moved out of storage for the weather event is replaced. When gas storage usage is up, the Company has more GHG emissions. This is reflected in emissions seen in 2017 that exceed those in 2016. The ice events of early 2017 are reflected in this incremental increase.

Table II below provides a breakdown of the Company's GHG emissions assumptions and the two 2020 emissions targets for a typical year.

Table II (emissions expressed in MT CO₂e)

| 10% below 1990 | | 15% below 2005 | |
|--|--------|--|---------|
| Assumed 2020 emissions at 2017 level | | Assumed 2020 emissions at 2017 level | |
| 1990 emissions | 90,721 | 2005 emissions | 90,721 |
| 10% reduction below 1990 | 9,072 | 15% reduction below 2005 | 13,608 |
| 2020 emissions target ¹ | 81,649 | 2020 emissions target ¹ | 77,113 |
| Reduction required from assumed 2020 emissions level at 2015 emission rate | none | Reduction required from assumed 2020 emissions level at 2017 emission rate | 545 |
| Estimated Cost for Offsets ² | \$0.00 | Estimated Cost for Offsets ² | \$6,840 |

¹2017 Footprint is assumed to be representative of 2020

² Using the cost of carbon in the Base Case of the 2016 IRP, starting in 2021 at .07/therm or \$12.55/MT CO₂e

In 2017, the Company's GHG emissions were 14.4% lower than the 1990 and 2005 levels. If the Company's 2017 GHG emissions are unchanged through 2020, the reduction goals will likely be met as current reductions only miss the goal by 0.6%.

While there are a number of actions that the company will be pursuing to reduce GHG footprint including an energy efficient new headquarters site, a more CNG intensive fleet and continuing to improve fugitive savings it is notable that it is still possible that weather could impact emissions. To provide a proxy for this value the offset price for compliance is pulled from the base case of the 2016 NW Natural Integrated Resource Plan (\$12.55 per metric ton beginning in 2021).

If 2017 is representative of 2020 emissions, the offsets needed to achieve the goal of 15% below 2005 levels have an estimated cost of \$6,840. While not a sizeable obligation to achieve the 15% reduction, the impact of weather between the two reporting years are an indication of typical seasonal variance and the impact on gas used by company facilities in colder years.

NW Natural provides this information with the understanding that this analysis incorporates numerous assumptions about uncertain future events, any of which may prove inaccurate.

Please contact me at (503)226-4211, extension 5865, if you have questions.

Sincerely,

NW NATURAL

/s/ Gail Hammer

Gail Hammer
Rates & Regulatory Affairs