

LEGAL DISCLAIMER & USER'S NOTICE

*Unofficial electronic compilation of the
U.S. EPA Final Rule on Mandatory Reporting of Greenhouse Gases
incorporated by reference in California's Regulation for the
Mandatory Reporting of Greenhouse Gas Emissions*

Unofficial Electronic Compilation

This unofficial electronic compilation is provided by the California Air Resources Board (ARB) solely for the reader's convenience.

ARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (title 17, California Code of Regulations (CCR), sections 95100-95157) incorporated by reference certain requirements promulgated by the United States Environmental Protection Agency (U.S. EPA) in its Final Rule on Mandatory Reporting of Greenhouse Gases (Title 40, Code of Federal Regulations (CFR), Part 98). Specifically, section 95100(c) of ARB's regulation incorporated those requirements promulgated by U.S. EPA as published in the Federal Register on October 30, 2009, July 12, 2010, September 22, 2010, October 28, 2010, November 30, 2010, December 17, 2010, and April 25, 2011.

This compilation combines the various incorporated Federal Register versions into one document for the reader's convenience; however, this compilation is not an official edition of either the CFR or the CCR. While reasonable steps have been taken to make this unofficial compilation accurate, the officially published requirements, found within the incorporated Federal Register notices with the dates listed above, take precedence if there are any discrepancies.

Official Legal Versions

The official legal versions of the incorporated CFR provisions from the Federal Register are available, with the incorporated Federal Register notice and date, at <http://www.epa.gov/climatechange/emissions/subpart.html>.

To access the incorporated versions, click on the relevant subpart(s) for your reporting entity, then click on the Final Rule which corresponds to the incorporated date(s). For instance, when reporting is required under Subpart C of the U.S. EPA Rule, click on Subpart C (<http://www.epa.gov/climatechange/emissions/subpart/c.html>), then click on the applicable dates – October 30, 2009 (<http://www.epa.gov/climatechange/emissions/downloads09/GHG-MRR-FinalRule.pdf>) and December 17, 2010 (<http://edocket.access.gpo.gov/2010/pdf/2010-30286.pdf>) – to access the applicable requirements.

Page Intentionally Blank

40 CFR Part 98
Subpart NN
Mandatory Reporting of Greenhouse Gases

PART 98—MANDATORY GREENHOUSE GAS REPORTING

Subpart NN—Suppliers of Natural Gas and Natural Gas Liquids

§98.400 Definition of the source category.

§98.401 Reporting threshold.

§98.402 GHGs to report.

§98.403 Calculating GHG emissions.

§98.404 Monitoring and QA/QC requirements.

§98.405 Procedures for estimating missing data.

§98.406 Data reporting requirements.

§98.407 Records that must be retained.

§98.408 Definitions.

Tables for Subpart NN

Table NN-1 to Subpart NN of Part 98—Default Factors for Calculation Methodology 1 of this Subpart
Table NN-2 to Subpart NN of Part 98—Lookup Default Values for Calculation Methodology 2 of this Subpart

§98.400 Definition of the source category.

This supplier category consists of natural gas liquids fractionators and local natural gas distribution companies.

(a) Natural gas liquids fractionators are installations that fractionate natural gas liquids (NGLs) into their constituent liquid products (ethane, propane, normal butane, isobutane or pentanes plus) for supply to downstream facilities.

(b) Local Distribution Companies (LDCs) are companies that own or operate distribution pipelines, not interstate pipelines or intrastate pipelines, that physically deliver natural gas to end users and that are regulated as separate operating companies by State public utility commissions or that operate as independent municipally-owned distribution systems.

(c) This supply category does not consist of the following facilities:

- (1) Field gathering and boosting stations.
- (2) Natural gas processing plants that separate NGLs from natural gas and produce bulk or y-grade NGLs but do not fractionate these NGLs into their constituent products.
- (3) Facilities that meet the definition of refineries and report under subpart MM of this part.
- (4) Facilities that meet the definition of petrochemical plants and report under subpart X of this part.

§98.401 Reporting threshold.

Any supplier of natural gas and natural gas liquids that meets the requirements of §98.2(a)(4) must report GHG emissions.

§98.402 GHGs to report.

(a) NGL fractionators must report the CO₂ emissions that would result from the complete combustion or oxidation of the annual quantity of ethane, propane, normal butane, isobutane, and pentanes plus that is produced and sold or delivered to others.

(b) LDCs must report the CO₂ emissions that would result from the complete combustion or oxidation of the annual volumes of natural gas provided to end-users on their distribution systems.

§98.403 Calculating GHG emissions.

(a) LDCs and fractionators shall, for each individual product reported under this part, calculate the estimated CO₂ emissions that would result from the complete combustion or oxidation of the products supplied using either of Calculation Methodology 1 or 2 of this subpart:

(1) Calculation Methodology 1. NGL fractionators shall estimate CO₂ emissions that would result from the complete combustion or oxidation of the product(s) supplied using Equation NN-1 of this section. LDCs shall estimate CO₂ emissions that would result from the complete combustion or oxidation of the product received at the city gate using Equation NN-1. For each product, use the default value for higher heating value and CO₂ emission factor in Table NN-1 of this subpart. Alternatively, for each product, a reporter-specific higher heating value and CO₂ emission factor may be used, in place of one or both defaults provided they are developed using methods outlined in §98.404. For each product, you must use the same volume unit throughout the equation.

$$CO_{2i} = 1 \times 10^{-3} * \sum Fuel_h * HHV_h * EF_h \tag{Eq. NN-1}$$

Where:

- CO_{2i} = Annual CO₂ mass emissions that would result from the combustion or oxidation of each product "h" for redelivery to all recipients (metric tons).
- Fuel_h = Total annual volume of product "h" supplied (volume per year, in thousand standard cubic feet(Mscf) for natural gas and bbl for NGLs).
- HHV_h = Higher heating value of product "h" supplied (MMBtu/ Mscf or MMBtu/bbl).
- EF_h = CO₂ emission factor of product "h" (kg CO₂/MMBtu).
- 1 x 10⁻³ = Conversion factor from kilograms to metric tons (MT/kg).

(2) Calculation Methodology 2. NGL fractionators shall estimate CO₂ emissions that would result from the complete combustion or oxidation of the product(s) supplied using Equation NN-2 of this section. LDCs shall estimate CO₂ emissions that would result from the complete combustion or oxidation of the product received at the city gate using Equation NN-2. For each product, use the default CO₂ emission factor found in Table NN-2 of this subpart. Alternatively, for each product, a reporter-specific CO₂ emission factor may be used in place of the default factor, provided it is developed using methods outlined in §98.404. For each product, you must use the same volume unit throughout the equation.

$$CO_{2i} = \sum_h Fuel_h * EF_h \tag{Eq. NN-2}$$

Where:

- CO_{2i} = Annual CO₂ mass emissions that would result from the combustion or oxidation of each product "h" (metric tons)
- Fuel_h = Total annual volume of product "h" supplied (bbl or Mscf per year)
- EF_h = CO₂ emission factor of product "h" (MT CO₂/bbl, or MT CO₂/Mscf)

(b) Each LDC shall follow the procedures below.

(1) For natural gas that is received for redelivery to downstream gas transmission pipelines and other local distribution companies, use Equation NN-3 of this section and the default values for the CO₂ emission factors found in Table NN-2 of this subpart. Alternatively, reporter-specific CO₂ emission factors may be used, provided they are developed using methods outlined in §98.404.

$$CO_{2j} = Fuel * EF \tag{Eq. NN-3}$$

Where:

- CO_{2j} = Annual CO₂ mass emissions that would result from the combustion or oxidation of natural gas for redelivery to transmission pipelines or other LDCs (metric tons).
- Fuel = Total annual volume of natural gas supplied (Mscf per year).
- EF = Fuel-specific CO₂ emission factor (MT CO₂/Mscf).

(2) For natural gas delivered to each meter registering a supply equal to or greater than 460,000 Mscf per year, use Equation NN-4 of this section and the default values for the CO₂ emission factors found in Table NN-2 of this subpart.

Alternatively, reporter-specific CO₂ emission factors may be used, provided they are developed using methods outlined in §98.404.

$$CO_{2k} = Fuel * EF \tag{Eq. NN-4}$$

Where:

- CO_{2k} = Annual CO₂ mass emissions that would result from the combustion or oxidation of natural gas received by end-users that receive a supply equal to or greater than 460,000 Mscf per year (metric tons).
- Fuel = Total annual volume of natural gas supplied (Mscf per year).
- EF = Fuel-specific CO₂ emission factor (MT CO₂/Mscf).

(3) For natural gas received by the LDC at the city gate that is injected into on-system storage, and/or liquefied and stored, use Equation NN-5 of this section and the default value for the CO₂ emission factors found in Table NN-2 of this subpart. Alternatively, a

reporter-specific CO₂ emission factor may be used, provided it is developed using methods outlined in §98.404.

$$CO_{21} = [Fuel_1 - Fuel_2] * EF \quad \text{(Eq. NN-5)}$$

Where:

- CO₂₁ = Annual CO₂ mass emissions that would result from the combustion or oxidation of the net natural gas that is liquefied and/or stored and not used for deliveries by the LDC within the reported year (metric tons).
- Fuel₁ = Total annual volume of natural gas received by the LDC at the city gate and stored on-system or liquefied and stored in the reporting year (Mscf per year).
- Fuel₂ = Total annual volume of natural gas that is used for deliveries in the reporting year that was not otherwise accounted for in Equation NN-1 or NN-2 of this section (Mscf per year). This primarily includes natural gas previously stored on-system or liquefied and stored that is removed from storage and used for deliveries to customers or other LDCs by the LDC within the reporting year. This also includes natural gas that bypassed the city gate and was delivered directly to LDC systems from producers or natural gas processing plants from local production.
- EF = Fuel-specific CO₂ emission factor (MT CO₂/Mscf).

(4) Calculate the total CO₂ emissions that would result from the complete combustion or oxidation of the annual supply of natural gas to end-users using Equation NN-6 of this section.

$$CO_2 = \sum CO_{2i} - \sum CO_{2j} - \sum CO_{2k} - \sum CO_{21} \quad \text{(Eq. NN-6)}$$

Where:

- CO₂ = Annual CO₂ mass emissions that would result from the combustion or oxidation of natural gas delivered to LDC customers not covered in paragraph (b)(2) of this section (metric tons).
- CO_{2i} = Annual CO₂ mass emissions that would result from the combustion or oxidation of natural gas received at the city gate as calculated in paragraph (a)(1) or (a)(2) of this section (metric tons).
- CO_{2j} = Annual CO₂ mass emissions that would result from the combustion or oxidation of natural gas delivered to transmission pipelines or other LDCs as calculated in paragraph (b)(1) of this section (metric tons).
- CO_{2k} = Annual CO₂ mass emissions that would result from the combustion or oxidation of natural gas received by end-users that receive a supply equal to or greater than 460,000 Mscf per year as calculated in paragraph (b)(2) of this section (metric tons).
- CO₂₁ = Annual CO₂ mass emissions that would result from the combustion or oxidation of natural gas received by the LDC and liquefied and/or stored but not used for deliveries within the reported year as calculated in paragraph (b)(3) of this section (metric tons).

(c) Each NGL fractionator shall follow the following procedures.

(1) For fractionated NGLs received by the reporter from other NGL fractionators, you shall use Equation NN-7 of this section and the default values for the CO₂ emission factors found in Table NN-2 of this subpart.

Alternatively, reporter-specific CO₂ emission factors may be used, provided they are developed using methods outlined in §98.404.

$$CO_{2m} = \sum_g Fuel_g * EF_g \quad (Eq. NN-7)$$

Where:

CO_{2m} = Annual CO₂ mass emissions that would result from the combustion or oxidation of each fractionated NGL product "g" received from other fractionators (metric tons).

Fuel_g = Total annual volume of each NGL product "g" received (bbls).

EF_g = Fuel-specific CO₂ emission factor of NGL product "g" (MT CO₂/bbl).

(2) Calculate the total CO₂ equivalent emissions that would result from the combustion or oxidation of fractionated NGLs supplied less the quantity received by other fractionators using Equation NN-8 of this section.

$$CO_2 = \sum CO_{2i} - \sum CO_{2m} \quad (Eq. NN-8)$$

Where:

CO₂ = Annual CO₂ mass emissions that would result from the combustion or oxidation of fractionated NGLs delivered to customers or on behalf of customers (metric tons).

CO_{2i} = Annual CO₂ mass emissions that would result from the combustion or oxidation of fractionated NGLs delivered to all customers or on behalf of customers as calculated in paragraph (a)(1) or (a)(2) of this section (metric tons).

CO_{2m} = Annual CO₂ mass emissions that would result from the combustion or oxidation of fractionated NGLs received from other fractionators and calculated in paragraph (c)(1) of this section (metric tons).

§98.404 Monitoring and QA/QC requirements.

(a) Determination of quantity.

(1) NGL fractionators and LDCs shall determine the quantity of NGLs and natural gas using methods in common use in the industry for billing purposes as audited under existing Sarbanes Oxley regulation.

(i) Where an appropriate standard method published by a consensus-based standards organization exists, such a method shall be used. Consensus-based standards organizations include, but are not limited to, the following: ASTM International, the American National Standards Institute (ANSI), the American Gas Association (AGA), the American Society of Mechanical Engineers (ASME), the American Petroleum Institute (API), and the North American Energy Standards Board (NAESB).

(ii) Where no appropriate standard method developed by a consensus-based standards organization exists, industry standard practices shall be followed.

(2) NGL fractionators and LDCs shall base the minimum frequency of the product quantity measurements, to be summed to the annual quantity reported, on the reporter's standard practices for commercial operations.

(i) For NGL fractionators the minimum frequency of measurements shall be the measurements taken at custody transfers summed to the annual reportable volume.

(ii) For natural gas the minimum frequency of measurement shall be based on the LDC's standard measurement schedules used for billing purposes and summed to the annual reportable volume.

(3) NGL fractionators shall use measurement for NGLs at custody transfer meters or at such meters that are used to determine the NGL product slate delivered from the fractionation facility.

(4) If a NGL fractionator supplies a product not listed in Table NN-1 of this subpart that is a mixture or blend of two or more products listed in Tables NN-1 and NN-2 of this subpart, the NGL fractionator shall report the quantities of the constituents of the mixtures or blends separately.

(5) For an LDC using Equation NN-1 or NN-2 of this subpart, the point(s) of measurement for the natural gas volume supplied shall be the LDC city gate meter(s).

(i) If the LDC makes its own quantity measurements according to established business practices, its own measurements shall be used.

(ii) If the LDC does not make its own quantity measurements according to established business practices, it shall use its delivering pipeline invoiced measurements for natural gas deliveries to the LDC city gate, used in determining daily system sendout.

(6) An LDC using Equation NN-3 of this subpart shall measure natural gas at the custody transfer meters.

(7) An LDC using Equation NN-4 of this subpart shall measure natural gas at the customer meters. The reporter shall consider the volume delivered through a single particular meter at a single particular location as the volume delivered to an individual end-user.

(8) An LDC using Equation NN-5 of this subpart shall measure natural gas as follows:

(i) Fuel₁ shall be measured at the on-system storage injection meters and/or at the meters measuring natural gas to be liquefied.

(ii) Fuel₂ shall be measured at the meters used for measuring on-system storage withdrawals and/or LNG vaporization injection. If Fuel₂ is from a source other than storage, the appropriate meter shall be used to measure the quantity.

(9) An LDC shall measure all natural gas under the following standard industry temperature and pressure conditions: cubic foot of gas at a temperature of 60 degrees Fahrenheit and at an absolute pressure of fourteen and seventy-three hundredths (14.73) pounds per square inch.

(b) Determination of higher heating values (HHV).

(1) When a reporter uses the default HHV provided in this section to calculate Equation NN-1 of this subpart, the appropriate value shall be taken from Table NN-1 of this subpart.

(2) When a reporter uses a reporter-specific HHV to calculate Equation NN-1 of this subpart, an appropriate standard test published by a consensus-based standards organization shall be used. Consensus-based standards organizations include, but are not limited to, the following: AGA and GPA.

(i) If an LDC makes its own HHV measurements according to established business practices, then its own measurements shall be used.

(ii) If an LDC does not make its own measurements according to established business practices, it shall use its delivering pipeline measurements.

(c) Determination of emission factor (EF).

(1) When a reporter used the default EF provided in this section to calculate Equation NN-1 of this subpart, the appropriate value shall be taken from Table NN-1 of this subpart.

(2) When a reporter used the default EF provided in this section to calculate Equation NN-2, NN-3, NN-4, NN-5, or NN-7 of this subpart, the appropriate value shall be taken from Table NN-2 of this subpart.

(3) When a reporter uses a reporter-specific EF, the reporter shall use an appropriate standard method published by a consensus-based standards organization to conduct compositional analysis necessary to determine reporter-specific CO₂ emission factors. Consensus-based standards organizations include, but are not limited to, the following: AGA and GPA.

(d) Equipment Calibration.

(1) Equipment used to measure quantities in Equations NN-1, NN-2, and NN-5 of this subpart shall be calibrated prior to its first use for reporting under this subpart, using a suitable standard method published by a consensus based standards organization or according to the equipment manufacturer's directions.

(2) Equipment used to measure quantities in Equations NN-1, NN-2, and NN-5 of this subpart shall be recalibrated at the frequency specified by the standard method used or by the manufacturer's directions.

§98.405 Procedures for estimating missing data.

(a) Whenever a quality-assured value of the quantity of natural gas liquids or natural gas supplied during any period is unavailable (e.g., if a flow meter malfunctions), a substitute data value for the missing quantity measurement must be used in the calculations according to paragraphs (b) and (c) of this section.

(b) Determination of quantity.

(1) NGL fractionators shall substitute meter records provided by pipeline(s) for all pipeline receipts of NGLs; by manifests for deliveries made to trucks or rail cars; or metered quantities accepted by the entities purchasing the output from the fractionator whether by pipeline or by truck or rail car. In cases where the metered data from the receiving pipeline(s) or purchasing entities are not available, fractionators may substitute estimates based on contract quantities required to be delivered under purchase or delivery contracts with other parties.

(2) LDCs shall either substitute their delivering pipeline metered deliveries at the city gate or substitute nominations and scheduled delivery quantities for the period when metered values of actual deliveries are not available.

(c) Determination of HHV and EF.

- (1) Whenever an LDC that makes its own HHV measurements according to established business practices cannot follow the quality assurance procedures for developing a reporter-specific HHV, as specified in §98.404, during any period for any reason, the reporter shall use either its delivering pipeline measurements or the default HHV provided in Table NN-1 of this part for that period.
- (2) Whenever an LDC that does not make its own HHV measurements according to established business practices or an NGL fractionator cannot follow the quality assurance procedures for developing a reporter-specific HHV, as specified in §98.404, during any period for any reason, the reporter shall use the default HHV provided in Table NN-1 of this part for that period.
- (3) Whenever a NGL fractionator cannot follow the quality assurance procedures for developing a reporter-specific HHV, as specified in §98.404, during any period for any reason, the NGL fractionator shall use the default HHV provided in Table NN-1 of this part for that period.
- (4) Whenever a reporter cannot follow the quality assurance procedures for developing a reporter-specific EF, as specified in §98.404, during any period for any reason, the reporter shall use the default EF provided in §98.408 for that period.

§98.406 Data reporting requirements.

- (a) In addition to the information required by §98.3(c), the annual report for each NGL fractionator covered by this rule shall contain the following information.
 - (1) Annual quantity (in barrels) of each NGL product supplied to downstream facilities in the following product categories: ethane, propane, normal butane, isobutane, and pentanes plus.
 - (2) Annual quantity (in barrels) of each NGL product received from other NGL fractionators in the following product categories: ethane, propane, normal butane, isobutane, and pentanes plus.
 - (3) Annual volumes in Mscf of natural gas received for processing.
 - (4) Annual quantity (in barrels) of y-grade, bulk NGLs received from others for fractionation.
 - (5) Annual quantity (in barrels) of propane that the NGL fractionator odorizes at the facility and delivers to others.
 - (6) Annual CO₂ emissions (metric tons) that would result from the complete combustion or oxidation of the quantities in paragraphs (a)(1) and (a)(2) of this section, calculated in accordance with §98.403(a) and (c)(1).
 - (7) Annual CO₂ mass emissions (metric tons) that would result from the combustion or oxidation of fractionated NGLs supplied less the quantity received by other fractionators, calculated in accordance with §98.403(c)(2).
 - (8) The specific industry standard used to measure each quantity reported in paragraph (a)(1) of this section.
 - (9) If the LNG fractionator developed reporter-specific EFs or HHVs, report the following for each product type:
 - (i) The specific industry standard(s) used to develop reporter-specific higher heating value(s) and/or emission factor(s), pursuant to §98.404 (b)(2) and (c)(3).
 - (ii) The developed HHV(s).

(iii) The developed EF(s).

(b) In addition to the information required by §98.3(c), the annual report for each LDC shall contain the following information.

- (1) Annual volume in Mscf of natural gas received by the LDC at its city gate stations for redelivery on the LDC's distribution system, including for use by the LDC.
- (2) Annual volume in Mscf of natural gas placed into storage.
- (3) Annual volume in Mscf of vaporized liquefied natural gas (LNG) produced at on-system vaporization facilities for delivery on the distribution system that is not accounted for in paragraph (b)(1) of this section.
- (4) Annual volume in Mscf of natural gas withdrawn from on-system storage (that is not delivered to the city gate) for delivery on the distribution system.
- (5) Annual volume in Mscf of natural gas delivered directly to LDC systems from producers or natural gas processing plants from local production.
- (6) Annual volume in Mscf of natural gas delivered to downstream gas transmission pipelines and other local distribution companies.
- (7) Annual volume in Mscf of natural gas delivered by LDC to each meter registering supply equal to or greater than 460,000 Mscf during the calendar year.
- (8) The total annual CO₂ mass emissions (metric tons) associated with the volumes in paragraphs (b)(1) through (b)(7) of this section, calculated in accordance with §98.403(a) and (b)(1) through (b)(3).
- (9) Annual CO₂ emissions (metric tons) that would result from the complete combustion or oxidation of the annual supply of natural gas to end-users registering less than 460,000 Mscf, calculated in accordance with §98.403(b)(4).
- (10) The specific industry standard used to develop the volume reported in paragraph (b)(1) of this section.
- (11) If the LDC developed reporter-specific EFs or HHVs, report the following:
 - (i) The specific industry standard(s) used to develop reporter-specific higher heating value(s) and/or emission factor(s), pursuant to §98.404 (b)(2) and (c)(3).
 - (ii) The developed HHV(s).
 - (iii) The developed EF(s).
- (12) The customer name, address, and meter number of each meter reading used to report in paragraph (b)(7) of this section.
 - (i) If known, report the EIA identification number of each LDC customer.
- (13) The annual volume in Mscf of natural gas delivered by the local distribution company to each of the following end-use categories. For definitions of these categories, refer to EIA Form 176 (Annual Report of Natural Gas and Supplemental Gas Supply & Disposition) and Instructions.
 - (i) Residential consumers.
 - (ii) Commercial consumers.
 - (iii) Industrial consumers.
 - (iv) Electricity generating facilities.

(c) Each reporter shall report the number of days in the reporting year for which substitute data procedures were used for the following purpose:

- (i) To measure quantity.
- (ii) To develop HHV(s).
- (iii) To develop EF(s).

§98.407 Records that must be retained.

In addition to the information required by §98.3(g), each annual report must contain the following information:

- (a) Records of all meter readings and documentation to support volumes of natural gas and NGLs that are reported under this part.
- (b) Records documenting any estimates of missing metered data and showing the calculations of the values used for the missing data.
- (c) Calculations and worksheets used to estimate CO₂ emissions for the volumes reported under this part.
- (d) Records related to the large end-users identified in §98.406(b)(7).
- (e) Records relating to measured Btu content or carbon content showing specific industry standards used to develop reporter-specific higher heating values and emission factors.
- (f) Records of such audits as required by Sarbanes Oxley regulations on the accuracy of measurements of volumes of natural gas and NGLs delivered to customers or on behalf of customers.

§98.408 Definitions.

All terms used in this subpart have the same meaning given in the Clean Air Act and subpart A of this part.

Table NN-1 to Subpart NN of Part 98—Default Factors for Calculation Methodology 1 of this Subpart

Fuel	Default High Heating Value Factor	Default CO ₂ Emission Factor (kg CO ₂ /MMBtu)
Natural Gas	1.028 MMBtu/Mscf	53.02
Propane	3.822 MMBtu/bbl	61.46
Normal butane	4.242 MMBtu/bbl	65.15
Ethane	4.032 MMBtu/bbl	62.64
Isobutane	4.074 MMBtu/bbl	64.91
Pentanes plus	4.620 MMBtu/bbl	70.02

Table NN-2 to Subpart NN of Part 98—Lookup Default Values for Calculation Methodology 2 of this Subpart

Fuel	Unit	Default CO ₂ Emission Value (MT CO ₂ /Unit)
Natural Gas	Mscf	0.055
Propane	Barrel	0.235
Normal butane	Barrel	0.276

Table NN-2 to Subpart NN of Part 98—Lookup Default Values for Calculation Methodology 2 of this Subpart

Fuel	Unit	Default CO₂ Emission Value (MT CO₂/Unit)
Ethane	Barrel	0.253
Isobutane	Barrel	0.266
Pentanes plus	Barrel	0.324