

National Greenhouse and Energy Reporting (Measurement) Amendment (2020 Update) Determination 2020

I, Angus Taylor, Minister for Energy and Emissions Reduction, make the following instrument.

Dated 15 June 2020

Angus Taylor

Minister for Energy and Emissions Reduction

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1 Name

 This is the *National Greenhouse and Energy Reporting (Measurement) Amendment (2020 Update) Determination 2020*.

2 Commencement

 (1) Each provision of this instrument specified in column 1 of the table commences, or is taken to have commenced, in accordance with column 2 of the table. Any other statement in column 2 has effect according to its terms.

| Commencement information |
| --- |
| Column 1 | Column 2 | Column 3 |
| Provisions | Commencement | Date/Details |
| 1. The whole of this instrument | 1 July 2020. | 1 July 2020 |

Note: This table relates only to the provisions of this instrument as originally made. It will not be amended to deal with any later amendments of this instrument.

 (2) Any information in column 3 of the table is not part of this instrument. Information may be inserted in this column, or information in it may be edited, in any published version of this instrument.

3 Authority

 This instrument is made under subsection 10(3) of the *National Greenhouse and Energy Reporting Act 2007.*

4 Schedules

 Each instrument that is specified in a Schedule to this instrument is amended or repealed as set out in the applicable items in the Schedule concerned, and any other item in a Schedule to this instrument has effect according to its terms.

Schedule 1—Amendments

National Greenhouse and Energy Reporting (Measurement) Determination 2009

[1] Section 1.8

Insert in the appropriate alphabetical position:

***GWPmethane*** means the Global Warming Potential of methane.

***natural gas gathering and boosting*** means the activity to collect unprocessed natural gas or coal seam methane from gas wellheads and to compress, dehydrate, sweeten, or transport the gas through natural gas gathering and boosting pipelines to a natural gas processing station, a natural gas transmission pipeline or a natural gas distribution pipeline.

***natural gas gathering and boosting pipeline*** means a pipeline for the conveyance of gas that:

 (a) contains unprocessed natural gas or coal seam methane; and

 (b) pertains to the activity of natural gas gathering and boosting.

Note: Such pipelines can operates at high or low pressures

***natural gas gathering and boosting station*** means one or more pieces of plant and equipment used in natural gas gathering and boosting at a single location that operates as a unit in the natural gas gathering and boosting activity. The plant and equipment may include any of the following:

 (a) compressors;

 (b) generators;

 (c) dehydrators;

 (d) storage vessels;

 (e) acid gas removal units;

 (f) engines;

 (g) boilers;

 (h) heaters;

 (i) flares;

 (j) separation and processing equipment;

 (k) associated storage or measurement vessels;

 (l) equipment on, or associated with, an enhanced oil recovery well pad using CO2 or gas injection.

Note: The single location that operates as a unit will generally be known as a facility, station or node for operational purposes. It is not expected that stations will be defined differently for operational purposes and emissions accounting purposes.

***natural gas processing station***means the plant and equipment used in the natural gas processing in a single location, and includes:

 (a) liquids recovery plant and equipment where the separation of natural gas liquids or non-methane gases from unprocessed natural gas or coal seam methane occurs; and

 (b) liquids recovery plant and equipment where the separation of natural gas liquids into one or more component mixtures occur; and

 (c) gas separation trains where the removal of acidic gases from unprocessed natural gas or coal seam methane occurs;

Note: The separation includes one or more of the following: forced extraction of natural gas liquids, sulphur and carbon dioxide removal, fractionation of natural gas liquids, or the capture of CO2 separated from unprocessed natural gas and coal seam methane streams.

***produced water***means the water that is either:

 (a) pumped from coal seams or unprocessed gas reservoirs during natural gas production or natural gas gathering and boosting; or

 (b) pumped from wells during crude oil production or oil and gas exploration and development.

[2] Section 3.5 (definition of *EFj*)

Repeal the definition, substitute:

***EFj*** is the emission factor for methane (***j***), measured in CO2‑e tonnes per tonne of run‑of‑mine coal extracted from the mine, as follows:

 (a) for a gassy mine—0.407;

 (b) for a non‑gassy mine—0.011.

[3] Subsection 3.6(1) (paragraph (a) of the definition of *γj*)

Omit “25”, substitute “GWPmethane”.

[4] Subsection 3.17(2)

Omit “0.017”, substitute “0.019”.

[5] Section 3.20 (paragraphs (a) to (f) of the definition of *EFj*)

Repeal the paragraphs, substitute:

 (a) for a mine in New South Wales—0.061;

 (b) for a mine in Victoria—0.0003;

 (c) for a mine in Queensland—0.023;

 (d) for a mine in Western Australia—0.023;

 (e) for a mine in South Australia—0.0003;

 (f) for a mine in Tasmania—0.019.

[6] Subsection 3.21(1) (paragraph (a) of the definition of *γj*)

Omit “25”, substitute “GWPmethane”.

[7] Subsection 3.44(2) (table)

Repeal the table, substitute:

| Item | Fuel type (*i*) | Emission factor for gas type (*j*) (tonnes CO2‑e/tonnes of fuel flared) |
| --- | --- | --- |
|  | CO2 | CH4 | N2O |
| 1 | Unprocessed gas flared | 2.8 | 0.933 | 0.026 |
| 2 | Crude oil | 3.2 | 0.009 | 0.06 |

[8] Subsections 3.46B(1) and (4) (paragraph (a) of the definition of *γj*)

Omit “25”, substitute “GWPmethane”.

[9] Subsection 3.49(1) (definition of *EF(l) ij*)

Omit “1.4”, substitute “1.60”.

[10] Subsection 3.49(2) (table)

Repeal the table, substitute:

| Item | Equipment type (k) | Emission factor for gas type (j) (tonnes CO2‑e/tonnes fuel throughput) |
| --- | --- | --- |
|  | CH4 |
| 1 | Internal floating tank | 1.12 × 10-6 |
| 2 | Fixed roof tank | 5.60 × 10-6 |
| 3 | Floating tank | 4.27 × 10-6 |

[11] Subsection 3.52(2) (table)

Repeal the table, substitute:

| Item | Fuel type (i) | Emission factor for gas type (j) (tonnes CO2‑e/tonnes of fuel flared) |
| --- | --- | --- |
|  | CO2 | CH4 | N2O |
| 1 | Unprocessed gas flared | 2.8 | 0.933 | 0.026 |
| 2 | Crude oil | 3.2 | 0.009 | 0.060 |

[12] Section 3.59 (definition of *EFij*)

Omit “8.7”, substitute “9.74”.

[13] Section 3.63 (definition of *EFij*)

Omit “8.5”, substitute “9.47” and omit “1.5”, substitute “1.73”.

[14] Subsection 3.67(2) (table)

Repeal the table, substitute:

| Item | fuel type (i) | Emission factor of gas type (j) (tonnes CO2‑e/tonnes fuel flared) |
| --- | --- | --- |
|  | CO2 | CH4 | N2O |
| 1 | gas  | 2.7 | 0.133 | 0.026 |

[15] Subsection 3.72(1) (definition of *EF(l) ij*)

Omit “1.2”, substitute “1.60”.

[16] Subsection 3.72(2) (table)

Repeal the table, substitute:

|  |  |  |
| --- | --- | --- |
| Item | Equipment type (k) | Emission factor for methane (j) (tonnes CO2‑e/tonnes fuel throughput) |
| 1 | Internal floating tank | 1.12 × 10-6 |
| 2 | Fixed roof tank | 5.60 × 10-6 |
| 3 | Floating tank | 4.27 × 10-6 |

[17] Section 3.76 (definition of *EFij*)

Omit “10.4”, substitute “11.6”.

[18] Subsection 3.80(3) (table)

Repeal the table, substitute:

| Item | State | Unaccounted for gas (a)% | Natural gas composition factor (a)(tonnes CO2‑e/TJ) |
| --- | --- | --- | --- |
|  | UAGp | CO2 | CH4 |
| 1 | NSW and ACT | 2.2 | 0.8 | 437 |
| 2 | VIC | 3.0 | 0.9 | 435 |
| 3 | QLD | 1.7 | 0.8 | 423 |
| 4 | WA | 2.9 | 1.1 | 408 |
| 5 | SA | 4.9 | 0.8 | 437 |
| 6 | TAS | 0.2 | 0.9 | 435 |
| 7 | NT | 2.2 | 0.0 | 352 |

[19] Subsection 3.81A(3) (table)

Repeal the table, substitute:

| Item | State | Natural gas composition factor (a)(tonnes CO2‑e/TJ) |
| --- | --- | --- |
|  | CO2 | CH4 |
| 1 | NSW and ACT | 0.8 | 437 |
| 2 | VIC | 0.9 | 435 |
| 3 | QLD | 0.8 | 423 |
| 4 | WA | 1.1 | 408 |
| 5 | SA | 0.8 | 437 |
| 6 | TAS | 0.9 | 435 |
| 7 | NT | 0.0 | 352 |

[20] Subsection 3.85(2) (table)

Repeal the table, substitute:

|  |  |  |
| --- | --- | --- |
| Item | fuel type (i) | Emission factor of gas type (j) (tonnes CO2‑e/tonnes fuel flared) |
|  | CO2 | CH4 | N2O |
| 1 | gas  | 2.7 | 0.133 | 0.026 |

[21] Section 3.91 (paragraph (a) of the definition of *γj*)

Omit “25”, substitute “GWPmethane”.

[22] Section 3.92 (paragraph (a) of the definition of *γj*)

Omit “25”, substitute “GWPmethane”.

[23] Subsection 4.47(2)

Repeal the table, substitute:

| Item | Plant type (*k*) | Emission factor of nitrous oxide(tonnes CO2‑e per tonne of nitric acid production)  |
| --- | --- | --- |
| 1 | Atmospheric pressure plants | 1.33 |
| 2 | Medium pressure combustion plant | 1.86 |
| 3 | High pressure plant | 2.39 |

Note: The emission factors specified in this table apply only to method 1 and the operation of a facility that is constituted by a plant that has not used measures to reduce nitrous oxide emissions.

[24] Section 4.85 (definition of *EFij*)

Omit “0.30”, substitute “0.27”.

[25] Section 4.89 (definition of *EFij*)

Omit “0.07”, substitute “0.06”.

[26] Subsections 5.4(1) and 5.4(3) (definition of *γ*)

Omit “25”, substitute “GWPmethane”.

[27] Subsection 5.4B(3)

Repeal the equation, substitute:

$∆C\_{ost}=\frac{CH\_{4}^{\*}}{F ×1.336 ×GWP\_{methane}}$

[28] Subsection 5.4B(3) (definition of *25*)

Repeal the definition.

[29] Section 5.4D

Repeal the equation, substitute:

$CH\_{4gen} =( ∆C\_{ost} + ∆C\_{at }) ×F×1.336 ×GWP\_{methane}$

[30] Section 5.4D (definition of *25*)

Repeal the definition.

[31] Subsections 5.15(1) and 5.15(4) (definition of γ)

Omit “25”, substitute “GWPmethane”.

[32] Subsection 5.15A(3)

Repeal the equation, substitute:

$∆C\_{ost}=\frac{CH\_{4}^{\*}}{F ×1.336 ×GWP\_{methane}}$

[33] Subsection 5.22(2)

Repeal the table, substitute:

| Emission factor for type of gas and biological treatment |
| --- |
| Item | Biological treatment  | Emission factor**tonnes CO2‑e/tonne of waste treated** |
|  |  | Methane | Nitrous Oxide |
| 1 | Composting at the facility | 0.021 | 0.025 |
| 2 | Anaerobic digestion at the facility | 0.028 | 0 |

[34] Subsection 5.22B(1) (definition of *γ*)

Omit “25”, substitute “GWPmethane”.

[35] Subsections 5.25(1) and 5.25(3) (definition of *γ*)

Omit “25”, substitute “GWPmethane”.

[36] Subsection 5.26(1) (definition of *γ*)

Omit “25”, substitute “GWPmethane”.

[37] Subsection 5.26(2) (definitions of *EFslijz and EFwijz*)

Omit “6.3”, substitute “7.0”.

[38] Subsection 5.31(6)

Omit “4.9”, substitute “2.082”.

[39] Subsection 5.31(7)

Repeal the table, substitute:

|  |  |  |
| --- | --- | --- |
| Item | Discharge environment | *EFdisij* |
| 1 | Enclosed waters | 2.082 |
| 2 | Estuarine waters | 1.026 |
| 3 | Open coastal waters (ocean and deep ocean) | 0.0 |

[40] Subsections 5.42(1) and 5.42(3) (definition of *γ*)

Omit “25”, substitute “GWPmethane”.

[41] Subsection 5.42(6)

Omit “6.3”, substitute “7.0”.

[42] Subsection 5.42(7)

Omit “6.3”, substitute “7.0”.

[43] After section 9.12

 Insert:

9.13 Amendments made by the *National Greenhouse and Energy Reporting (Measurement) Amendment (2020 Update) Determination 2020*

 The amendments made by the *National Greenhouse and Energy Reporting (Measurement) Amendment (2020 Update) Determination 2020* apply in relation to:

 (a) the financial year starting on 1 July 2020; and

 (b) later financial years.

[44] Parts 1 to 4 of Schedule 1

Repeal the Parts, substitute:

Part 1—Fuel combustion—solid fuels and certain coal‑based products

| Item | Fuel combusted | Energy content factorGJ/t | Emission factorkg CO2‑e/GJ(relevant oxidation factors incorporated) |
| --- | --- | --- | --- |
| CO2 | CH4 | N2O |
| 1 | Bituminous coal | 27.0 | 90.0 | 0.04 | 0.2 |
| 1A | Sub‑bituminous coal | 21.0 | 90.0 | 0.04 | 0.2 |
| 1B | Anthracite | 29.0 | 90.0 | 0.04 | 0.2 |
| 2 | Brown coal | 10.2 | 93.5 | 0.02 | 0.3 |
| 3 | Coking coal | 30.0 | 91.8 | 0.03 | 0.2 |
| 4 | Coal briquettes | 22.1 | 95.0 | 0.08 | 0.2 |
| 5 | Coal coke | 27.0 | 107.0 | 0.03 | 0.2 |
| 6 | Coal tar | 37.5 | 81.8 | 0.03 | 0.2 |
| 7 | Solid fossil fuels other than those mentioned in items 1 to 5 | 22.1 | 95.0 | 0.08 | 0.2 |
| 8 | Industrial materials and tyres that are derived from fossil fuels, if recycled and combusted to produce heat or electricity | 26.3 | 81.6 | 0.03 | 0.2 |
| 9 | Non‑biomass municipal materials, if recycled and combusted to produce heat or electricity | 10.5 | 87.1 | 0.8 | 1.0 |
| 10 | Dry wood | 16.2 | 0.0 | 0.1 | 1.1 |
| 11 | Green and air dried wood | 10.4 | 0.0 | 0.1 | 1.1 |
| 12 | Sulphite lyes | 12.4 | 0.0 | 0.08 | 0.5 |
| 13 | Bagasse | 9.6 | 0.0 | 0.3 | 1.1 |
| 14 | Biomass municipal and industrial materials, if recycled and combusted to produce heat or electricity | 12.2 | 0.0 | 0.8 | 1.0 |
| 15 | Charcoal | 31.1 | 0.0 | 5.3 | 1.0 |
| 16 | Primary solid biomass fuels other than those mentioned in items 10 to 15 | 12.2 | 0.0 | 0.8 | 1.0 |

Note: Energy content and emission factors for coal products are measured on an as combusted basis. The energy content for black coal and coking coal (metallurgical coal) is on a washed basis.

Part 2—Fuel combustion—gaseous fuels

| Item | Fuel combusted | Energy content factor(GJ/m3 unless otherwise indicated) | Emission factorkg CO2‑e/GJ(relevant oxidation factors incorporated) |
| --- | --- | --- | --- |
| CO2 | CH4 | N2O |
| 17 | Natural gas distributed in a pipeline | 39.3 × 10‑3 | 51.4 | 0.1 | 0.03 |
| 18 | Coal seam methane that is captured for combustion | 37.7 × 10‑3 | 51.4 | 0.2 | 0.03 |
| 19 | Coal mine waste gas that is captured for combustion | 37.7 × 10‑3 | 51.9 | 4.6 | 0.3 |
| 20 | Compressed natural gas that has reverted to standard conditions | 39.3 × 10‑3 | 51.4 | 0.1 | 0.03 |
| 21 | Unprocessed natural gas | 39.3 × 10‑3 | 51.4 | 0.1 | 0.03 |
| 22 | Ethane | 62.9 × 10‑3 | 56.5 | 0.03 | 0.03 |
| 23 | Coke oven gas | 18.1 × 10‑3 | 37.0 | 0.03 | 0.05 |
| 24 | Blast furnace gas | 4.0 × 10‑3 | 234.0 | 0.03 | 0.02 |
| 25 | Town gas | 39.0 × 10‑3 | 60.2 | 0.04 | 0.03 |
| 26 | Liquefied natural gas | 25.3 GJ/kL | 51.4 | 0.1 | 0.03 |
| 27 | Gaseous fossil fuels other than those mentioned in items 17 to 26 | 39.3 × 10‑3 | 51.4 | 0.1 | 0.03 |
| 28 | Landfill biogas that is captured for combustion (methane only) | 37.7 × 10‑3 | 0.0 | 6.4 | 0.03 |
| 29 | Sludge biogas that is captured for combustion (methane only) | 37.7 × 10‑3 | 0.0 | 6.4 | 0.03 |
| 30 | A biogas that is captured for combustion, other than those mentioned in items 28 and 29 (methane only) | 37.7 × 10‑3 | 0.0 | 6.4 | 0.03 |

Part 3—Fuel combustion—liquid fuels and certain petroleum‑based products for stationary energy purposes

| Item | Fuel combusted | Energy content factor(GJ/kL unless otherwise indicated) | Emission factorkg CO2‑e/GJ(relevant oxidation factors incorporated) |
| --- | --- | --- | --- |
| CO2 | CH4 | N2O |
| 31 | Petroleum based oils (other than petroleum based oil used as fuel) | 38.8 | 13.9 | 0.0 | 0.0 |
| 32 | Petroleum based greases | 38.8 | 3.5 | 0.0 | 0.0 |
| 33 | Crude oil including crude oil condensates | 45.3 GJ/t | 69.6 | 0.08 | 0.2 |
| 34 | Other natural gas liquids not covered by another item in this table | 46.5 GJ/t | 61.0 | 0.08 | 0.2 |
| 35 | Gasoline (other than for use as fuel in an aircraft) | 34.2 | 67.4 | 0.2 | 0.2 |
| 36 | Gasoline for use as fuel in an aircraft | 33.1 | 67.0 | 0.2 | 0.2 |
| 37 | Kerosene (other than for use as fuel in an aircraft) | 37.5 | 68.9 | 0.01 | 0.2 |
| 38 | Kerosene for use as fuel in an aircraft | 36.8 | 69.6 | 0.02 | 0.2 |
| 39 | Heating oil | 37.3 | 69.5 | 0.03 | 0.2 |
| 40 | Diesel oil | 38.6 | 69.9 | 0.1 | 0.2 |
| 41 | Fuel oil | 39.7 | 73.6 | 0.04 | 0.2 |
| 42 | Liquefied aromatic hydrocarbons | 34.4 | 69.7 | 0.03 | 0.2 |
| 43 | Solvents if mineral turpentine or white spirits | 34.4 | 69.7 | 0.03 | 0.2 |
| 44 | Liquefied petroleum gas | 25.7 | 60.2 | 0.2 | 0.2 |
| 45 | Naphtha | 31.4 | 69.8 | 0.01 | 0.01 |
| 46 | Petroleum coke | 34.2 GJ/t | 92.6 | 0.08 | 0.2 |
| 47 | Refinery gas and liquids | 42.9 GJ/t | 54.7 | 0.03 | 0.03 |
| 48 | Refinery coke | 34.2 GJ/t | 92.6 | 0.08 | 0.2 |
| 49 | Petroleum based products other than:(a) petroleum based oils and petroleum based greases mentioned in items 31 and 32; and(b) the petroleum based products mentioned in items 33 to 48. | 34.4 | 69.8 | 0.02 | 0.1 |
| 50 | Biodiesel | 34.6 | 0.0 | 0.08 | 0.2 |
| 51 | Ethanol for use as a fuel in an internal combustion engine | 23.4 | 0.0 | 0.08 | 0.2 |
| 52 | Biofuels other than those mentioned in items 50 and 51 | 23.4 | 0.0 | 0.08 | 0.2 |

Part 4—Fuel combustion—fuels for transport energy purposes

Division 4.1—Fuel combustion—fuels for transport energy purposes

| Item | Fuel combusted | Energy content factor(GJ/kL unless otherwise indicated) | Emission factorkg CO2‑e/GJ(relevant oxidation factors incorporated) |
| --- | --- | --- | --- |
| CO2 | CH4 | N2O |
| 53 | Gasoline (other than for use as fuel in an aircraft) | 34.2 | 67.4 | 0.6 | 1.6 |
| 54 | Diesel oil | 38.6 | 69.9 | 0.1 | 0.4 |
| 55 | Gasoline for use as fuel in an aircraft | 33.1 | 67.0 | 0.06 | 0.6 |
| 56 | Kerosene for use as fuel in an aircraft | 36.8 | 69.6 | 0.01 | 0.6 |
| 57 | Fuel oil | 39.7 | 73.6 | 0.08 | 0.5 |
| 58 | Liquefied petroleum gas | 26.2 | 60.2 | 0.7 | 0.6 |
| 59 | Biodiesel | 34.6 | 0.0 | 0.8 | 1.7 |
| 60 | Ethanol for use as fuel in an internal combustion engine | 23.4 | 0.0 | 0.8 | 1.7 |
| 61 | Biofuels other than those mentioned in items 59 and 60 | 23.4 | 0.0 | 0.8 | 1.7 |
| 62 | Compressed natural gas that has reverted to standard conditions (light duty vehicles) | 39.3 × 10‑3 GJ/m3 | 51.4 | 7.3 | 0.3 |
| 63 | Compressed natural gas that has reverted to standard conditions (heavy duty vehicles) | 39.3 × 10‑3 GJ/m3 | 51.4 | 2.8 | 0.3 |
| 63A | Liquefied natural gas (light duty vehicles) | 25.3 | 51.4 | 7.3 | 0.3 |
| 63B | Liquefied natural gas (heavy duty vehicles) | 25.3 | 51.4 | 2.8 | 0.3 |

Division 4.2—Fuel combustion—liquid fuels for transport energy purposes for post‑2004 vehicles

| Item | Fuel combusted | Energy content factorGJ/kL | Emission factorkg CO2‑e/GJ(relevant oxidation factors incorporated) |
| --- | --- | --- | --- |
| CO2 | CH4 | N2O |
| 64 | Gasoline (other than for use as fuel in an aircraft) | 34.2 | 67.4 | 0.02 | 0.2 |
| 65 | Diesel oil | 38.6 | 69.9 | 0.01 | 0.5 |
| 66 | Liquefied petroleum gas | 26.2 | 60.2 | 0.5 | 0.3 |
| 67 | Ethanol for use as fuel in an internal combustion engine | 23.4 | 0.0 | 0.2 | 0.2 |

Division 4.3—Fuel combustion—liquid fuels for transport energy purposes for certain trucks

| Item | Fuel type | Heavy vehicles design standard | Energy content factorGJ/kL | Emission factorkg CO2‑e/GJ(relevant oxidation factors incorporated) |
| --- | --- | --- | --- | --- |
| CO2 | CH4 | N2O |
| 68 | Diesel oil | Euro iv or higher | 38.6 | 69.9 | 0.07 | 0.4 |
| 69 | Diesel oil | Euro iii | 38.6 | 69.9 | 0.1 | 0.4 |
| 70 | Diesel oil | Euro i | 38.6 | 69.9 | 0.2 | 0.4 |

[45] Part 6 of Schedule 1

Repeal the Part, substitute:

Part 6—Indirect (scope 2) emission factors from consumption of electricity purchased or lost from grid

| Indirect (scope 2) emissions factors from consumption of electricity purchased or lost from grid |
| --- |
| Item | Column 1State, Territory or grid description | Column 2Emission factorkg CO2‑e/kWh |
| 77 | New South Wales and Australian Capital Territory | 0.81 |
| 78 | Victoria | 0.98 |
| 79 | Queensland | 0.81 |
| 80 | South Australia | 0.43 |
| 81 | South West Interconnected System in Western Australia | 0.68 |
| 82 | Tasmania | 0.17 |
| 83 | Northern Territory | 0.62 |