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

Contents

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Note: This table relates only to the provisions of this instrument as originally made.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Each instrument that is specified in a Schedule to this instrument is amended or repealed as set out in the applicable items in the Schedule concerned, and any other item in a Schedule to this instrument has effect according to its terms.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:

$GWP_{methane}$ 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 CO_2 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 CO_2 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 EF_j)

Repeal the definition, substitute:

EF_j is the emission factor for methane (***j***), measured in CO_2-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 γ_j)

Omit "25", substitute "$GWP_{methane}$".

[4] Subsection 3.17(2)

Omit "0.017", substitute "0.019".

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

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 γ_j)

Omit "25", substitute "$GWP_{methane}$".

[7] Subsection 3.44(2) (table)

Repeal the table, substitute:

Item	Fuel type (*i*)	Emission factor for gas type (*j*) (tonnes CO_2-e/tonnes of fuel flared)		
		CO_2	**CH_4**	**N_2O**
1	Unprocessed gas flared	2.8	0.933	0.026
2	Crude oil	3.2	0.009	0.06

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

Omit "25", substitute "$GWP_{methane}$".

[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 CO_2-e/tonnes fuel throughput)
		CH_4
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 CO_2-e/tonnes of fuel flared)		
		CO_2	CH_4	N_2O
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 EF_{ij})

Omit "8.7", substitute "9.74".

[13] Section 3.63 (definition of EF_{ij})

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 CO_2-e/tonnes fuel flared)		
		CO_2	CH_4	N_2O
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 $CO_{2\text{-}e}$/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 EF_{ij})

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 $CO_{2\text{-}e}$/TJ)	
		UAGp	CO_2	CH_4
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 $CO_{2\text{-}e}$/TJ)	
		CO_2	CH_4
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 CO_2-e/tonnes fuel flared)		
		CO_2	CH_4	N_2O
1	gas	2.7	0.133	0.026

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

Omit "25", substitute "$GWP_{methane}$".

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

Omit "25", substitute "$GWP_{methane}$".

[23] Subsection 4.47(2)

Repeal the table, substitute:

Item	Plant type (*k*)	Emission factor of nitrous oxide (tonnes CO_2-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 EF_{ij})

Omit "0.30", substitute "0.27".

[25] Section 4.89 (definition of EF_{ij})

Omit "0.07", substitute "0.06".

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

Omit "25", substitute "$GWP_{methane}$".

[27] Subsection 5.4B(3)

Repeal the equation, substitute:

$$\Delta C_{ost} = \frac{CH_4{}^*}{F \times 1.336 \times GWP_{methane}}$$

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

Repeal the definition.

[29] Section 5.4D

Repeal the equation, substitute:

$$CH_{4gen} = (\Delta C_{ost} + \Delta C_{at}) \times F \times 1.336 \times GWP_{methane}$$

[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 "$GWP_{methane}$".

[32] Subsection 5.15A(3)

Repeal the equation, substitute:

$$\Delta C_{ost} = \frac{CH_4^*}{F \times 1.336 \times GWP_{methane}}$$

[33] Subsection 5.22(2)

Repeal the table, substitute:

Emission factor for type of gas and biological treatment			
Item	**Biological treatment**	**Emission factor tonnes CO_2-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 "$GWP_{methane}$".

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

Omit "25", substitute "$GWP_{methane}$".

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

Omit "25", substitute "$GWP_{methane}$".

[37] Subsection 5.26(2) (definitions of EF_{slijz} and EF_{wijz})

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	EF_{disij}
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 "$GWP_{methane}$".

[41] Subsection 5.42(6)

Omit "6.3", substitute "7.0".

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[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 factor GJ/t	Emission factor kg CO_2-e/GJ (relevant oxidation factors incorporated)		
			CO_2	CH_4	N_2O
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

Item	Fuel combusted	Energy content factor GJ/t	Emission factor kg CO_2-e/GJ (relevant oxidation factors incorporated)		
			CO_2	CH_4	N_2O
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/m^3 unless otherwise indicated)	Emission factor kg CO_2-e/GJ (relevant oxidation factors incorporated)		
			CO_2	CH_4	N_2O
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

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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 factor kg CO_2-e/GJ (relevant oxidation factors incorporated)		
			CO_2	CH_4	N_2O
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

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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 factor kg CO_2-e/GJ (relevant oxidation factors incorporated)		
			CO_2	CH_4	N_2O
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 factor GJ/kL	Emission factor kg CO_2-e/GJ (relevant oxidation factors incorporated)		
			CO_2	CH_4	N_2O
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 factor GJ/kL	Emission factor kg CO_2-e/GJ (relevant oxidation factors incorporated)		
				CO_2	CH_4	N_2O
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 1 State, Territory or grid description	Column 2 Emission factor kg CO_2-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