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National Greenhouse and Energy Reporting Scheme - 2020 Amendments

Consultation Paper

May 2020

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OVERVIEW

The National Greenhouse and Energy Reporting (**NGER**) Scheme is a national system for reporting greenhouse gas emissions, energy consumption and energy production by Australian corporations. This document has been prepared by the Department of Industry, Science, Energy and Resources to outline proposed amendments (the **2020 NGER Amendments**) to the *National Greenhouse and Energy Reporting Regulations 2008* (the **NGER Regulations**) and *National Greenhouse and Energy Reporting (Measurement) Determination 2008* (the **Measurement Determination**).

The NGER Regulations were made under section 77 of the *National Greenhouse and Energy Reporting Act 2007* (**NGER Act**) and identify the requirements reporters must meet when reporting under the NGER Scheme.

The NGER Measurement Determination provides the methods for the estimation of GHG emissions and the production and consumption of energy. The scope of the Determination follows international classification systems and includes emissions from:

- the combustion of fuel for energy;
- the extraction, production, flaring, processing and distribution of fossil fuels and carbon capture and storage (**fugitive emissions**);
- industrial processes where a mineral, chemical or metal product is formed using a chemical reaction that generates greenhouse gases as a by-product as well as emissions of hydrofluorocarbons and sulphur hexafluoride resulting from their use by certain industries; and
- waste disposal – either in landfill, as management of wastewater or from waste incineration.

Amendments are proposed to the NGER Regulations and the NGER Measurement Determination to:

- **Update emission factors based on updated Global Warming Potentials** (GWPs) that convert non-carbon dioxide gases into carbon dioxide equivalent values in order to align NGERs with the Australian Government's implementation of the Paris Agreement;
- **Update the list of matters to be identified in reports under Part 2 of Schedule 3 of the NGER Regulations (Oil or gas)** in order to support the preparation of the National Greenhouse Accounts; and
- Update emission factors used to estimate emissions resulting from the consumption of electricity purchased or lost from the grid **('scope 2 emissions')** based on the latest available data.

In making these draft amendments publicly available the Department seeks views on their practical operation and application.

This consultation will inform the finalisation of the amendment instruments, which will be legislative instruments for the purposes of the *Legislation Act 2003*.

The amendments are intended to commence on 1 July 2020 and would affect NGER reports to be submitted by corporations by 31 October 2021.

Further information on the NGER scheme is available at:
http://www.cleanenergyregulator.gov.au/NGER/Pages/default.aspx

Information for respondents

29 May 2020	Consultation draft available on the Department of Industry, Science, Energy and Resources' website
10 June 2020	Submissions on the consultation draft close.
Commencement	The amendments are proposed to commence on 1 July 2020 and affect NGER reports to be submitted by corporations by 31 October 2021

Submissions

Submissions are invited from all interested stakeholders. Submissions should be lodged electronically via the consultation website or sent to the email address below.

Submissions may be made publicly available. If a stakeholder wishes their submission (or extracts of a submission) to be kept confidential, this should be clearly indicated in the submission.

Submissions should be sent to:

Email: nationalgreenhouseaccounts@industry.gov.au

By 10 June 2020.

A: UPDATES TO EMISSION FACTORS IN ACCORDANCE WITH THE PARIS AGREEMENT

This section outlines updates to be made to reporting emission factors in the NGER Measurement Determination to reflect changes to Global Warming Potentials (the climate impact of different gases, expressed as a multiple of the warming potential of carbon dioxide and referred to as ***carbon-dioxide equivalent***, or ***CO_2-e***) consistent with the implementation of Australia's Paris Agreement obligations.

The Parties to the Paris Agreement adopted the Global Warming Potentials (GWPs), provided by the Intergovernmental Panel on Climate Change (IPCC) in its Fifth Assessment Report (AR5), for the purpose of GHG inventory reporting.

In accordance with the Paris Agreement, the Australian Government will apply the IPCC AR5 GWPs to national emission estimates from the financial year 2020-21.

The changes proposed here align the use of GWPs for NGER reporting with the use of GWPs in the National Greenhouse Accounts.

Implications for related legislation

The NGER Scheme underpins the Safeguard Mechanism and Emission Reduction Fund (ERF) to promote consistency between the methods used to estimate emissions at the facility level and international emission estimation rules and guidance. This approach facilitates outcomes whereby abatement from domestic climate programs can be reflected in the national greenhouse gas inventory.

With regard to the Safeguard Mechanism, the rules have been designed to avoid changes in GWPs adversely impacting liability. In particular, section 56 of the Safeguard Rule provides for the Clean Energy Regulator to automatically update baselines for changes in GWP values. The Government will also update relevant default emissions-intensity values to ensure they reflect the new GWPs. Through these mechanisms, there is not anticipated to be any adverse impacts on facilities or any new liabilities under the scheme.

The methods under the ERF have been designed to accommodate changes in GWP over time. Methods have been designed with a clause which sets out a general rule for the adoption of NGER Scheme parameters, including GWPs, to be those in force at the end of the relevant reporting period.

If the GWP change is implemented on 1 July 2020 as proposed, this means that projects with a reporting period ending on 30 June 2020 would use the current NGER Scheme parameters for the whole reporting period, but projects with reporting periods ending 1 July 2020 onward would use the updated NGER Scheme parameters for their reporting period.

The GWP changes are generally expected to be immaterial, but would result in additional credits for projects that predominantly avoid emissions of methane. The changes in GWPs will also flow through to other documents and calculators incorporated by methods and these will also be updated in the usual way. The ERF legislation provides flexibility in the timing of reporting periods to assist projects implement such changes.

NGER Regulations amendments

Table in NGER Regulation 2.02, which will be amended to read as follows:

Values specified for determining carbon dioxide equivalence			
Item	**Greenhouse gas**	**Chemical formula**	**Global Warming Potential (GWP)**
1	Carbon dioxide	CO_2	1
2	Methane	CH_4	28
3	Nitrous oxide	N_2O	265
4	Sulphur hexafluoride	SF_6	23,500
5	HFC-23	CHF_3	12,400
6	HFC-32	CH_2F_2	677
7	HFC-41	CH_3F_2	116
8	HFC-43-10mee	$C_5H_2F_{10}$	1,650
9	HFC-125	C_2HF_5	3,170
10	HFC-134	$C_2H_2F_4$ (CHF_2CHF_2)	1,120
11	HFC-134a	$C_2H_2F_4$ (CH_2FCF_3)	1,300
12	HFC-143	$C_2H_3F_3$ (CHF_2CH_2F)	328
13	HFC-143a	$C_2H_3F_3$ (CF_3CH_3)	4,800
14	HFC-152a	$C_2H_4F_2$ (CH_3CHF_2)	138
15	HFC-227ea	C_3HF_7	3,350
16	HFC-236fa	$C_3H_2F_6$	8,060
17	HFC-245ca	$C_3H_3F_5$	716
18	Perfluoromethane (tetrafluoromethane)	CF_4	6,630
19	Perfluoroethane (hexafluoroethane)	C_2F_6	11,100
20	Perfluoropropane	C_3F_8	8,900
21	Perfluorobutane	C_4F_{10}	9,200
22	Perfluorocyclobutane	c-C_4F_8	9,540
23	Perfluoropentane	C_5F_{12}	8,550
24	Perfluorohexane	C_6F_{14}	7,910

NGER Measurement Determination amendments

Proposed emission factor changes to the Measurement Determination are listed in the table below.

Measurement Determination Section	Reference	New factor
Part 3.2 Coal mining—fugitive emissions		
3.5 Method 1—extraction of coal	*EFj* (a) for a gassy mine—0.363	0.407
	(b) for a non gassy mine—0.010	0.011
3.6 Method 4—extraction of coal	*γj* (a) for methane—6.784 × 10 $^{-4}$ × 25	6.784 × 10 $^{-4}$ × 28
3.17 Method 1—post mining activities related to gassy mines	(2) In applying method 1 under section 3.5, *EFj* is taken to be 0.017	0.019
3.20 Method 1—extraction of coal	*EFj* (a) for a mine in New South Wales—0.054	0.061
	(b) for a mine in Victoria—0.00027	0.0003
	(c) for a mine in Queensland—0.020	0.023
	(d) for a mine in Western Australia—0.020	0.023
	(e) for a mine in South Australia—0.00027	0.0003
	(f) for a mine in Tasmania—0.017	0.019
3.21 Method 2—extraction of coal	*γj* (a) for methane—6.784 × 10 $^{-4}$ × 25	6.784 × 10 $^{-4}$ × 28
3.91 Method 1—emissions from transport of greenhouse gases involving transfer	*γj* (a) for methane—6.784 × 10-4 × 25; and	6.784 × 10 $^{-4}$ × 28

Measurement Determination Section	Reference	New factor
3.92 Method 1—emissions from transport of greenhouse gases not involving transfer	*yj* (a) for methane—6.784 × 10-4 × 25; and	6.784 × 10^{-4} × 28
Part 3.3 Oil and natural gas—fugitive emissions		
3.44 Method 1—oil or gas exploration	(2) For *EFij* in subsection (1), Item 1 - Unprocessed gas flared CH_4 0.8	0.93
	(2) For *EFij* in subsection (1), Item 1 - Unprocessed gas flared N_2O 0.03	0.026
	(2) For *EFij* in subsection (1), Item 2 - Crude oil CH_4 0.008	0.009
	(2) For *EFij* in subsection (1), Item 2 - Crude oil N_2O 0.07	0.06
3.46B Method 4—vented emissions from well completions and well workovers	(a) for methane—6.784 × 10^{-4} × 25	28
	(a) for methane—6.784 × 10^{-4} × 25	28
3.49 Method 1—crude oil production (non flared) emissions of methane	EF(l) ij is 1.4 x 10^{-3}	1.6 x 10^{-3}
	Item 1 - Internal floating tank CH_4 1.0 x 10^{-6}	1.12 x 10^{-6}
	Item 2 - Fixed roof tank CH_4 5.0 x 10^{-6}	5.6 x 10^{-6}
	Item 3 - Floating tank CH_4 4.0 x 10^{-6}	4.27 x 10^{-6}

Measurement Determination Section	Reference	New factor
3.52 Method 1—crude oil production (flared) emissions	Item 1 - Unprocessed gas flared CH_4 0.8	0.933
	Item 1 - Unprocessed gas flared N_2O 0.03	0.026
	Item 2 - Crude Oil CH_4 0.008	0.009
	Item 2 - Crude Oil N_2O 0.07	0.060
3.59 Method 1—crude oil transport	methane (j), which is 8.7 x 10^{-4} tonnes CO2-e	9.7 x 10^{-4}
3.63 Method 1—crude oil refining and storage tanks for crude oil	8.5 x 10^{-4} tonnes CO2 e per tonne of crude oil refined	9.5 x 10^{-4}
	1.5 x 10^{-4} tonnes CO2 e per tonne of crude oil stored in tanks	1.7 x 10^{-4}
3.67 Method 1—gas flared from crude oil refining	Item 1 - gas CH_4 0.1	0.133
	Item 1 - gas N_2O 0.03	0.026
3.72 Method 1—natural gas production and processing (other than emissions that are vented or flared)	EF(l) ij is 1.2 x 10^{-3}, which	1.6 x 10^{-3}
	Item 1 - Internal floating tank CH_4 1.0 x 10^{-7}	1.12 x 10^{-6}
	Item 2 - Fixed roof tank CH_4 5.0 x 10^{-6}	5.6 x 10^{-6}
	Item 3 - Floating tank CH_4 3.8 x 10^{-6}	4.27 x 10^{-6}
3.76 Method 1—natural gas transmission	10.4 for methane	11.6

Measurement Determination Section	Reference	New factor
3.80 Method 1—natural gas distribution	Item 1 - NSW and ACT 390	437
	Item 2 - VIC 388	435
	Item 3 - QLD 377	423
	Item 4 - WA 364	408
	Item 5 - SA 390	437
	Item 6 - TAS 388	435
	Item 7 - NT 314	352
3.81A Method 3—natural gas distribution	Item 1 - NSW and ACT 390	437
	Item 2 - VIC 388	435
	Item 3 - QLD 377	423
	Item 4 - WA 364	408
	Item 5 - SA 390	437
	Item 6 - TAS 388	435
	Item 7 - NT 314	352
3.85 Method 1—gas flared from natural gas production and processing	Item 1 - gas CH_4 0.1	0.133
	Item 1 - gas N_2O 0.03	0.026
3.91 Method 1—emissions from transport of	for methane—$6.784 \times 10^{-4} \times 25$	28

Measurement Determination Section	Reference	New factor
greenhouse gases involving transfer		
3.92 Method 1—emissions from transport of greenhouse gases not involving transfer	for methane—$6.784 \times 10^{-4} \times 25$	28
Chapter 4—Industrial processes emissions		
4.47 Method 1—nitric acid production	Item 1 - Atmospheric pressure plants	1.33
	Item 2 - Medium pressure combustion plant	1.86
	Item 3 - High pressure plant	2.39
4.85 Method 1—aluminium (tetrafluoromethane)	EF_{ij} is 0.30, which is the emission factor for tetrafluoromethane	0.3
4.89 Method 1—aluminium production (hexafluoroethane)	EF_{ij} is 0.07, which is the emission factor for hexafluoroethane	0.06
Chapter 5—Waste		
5.4 Method 1—methane released from landfills (other than from flaring of methane)	(1) … γ is the factor $6.784 \times 10^{-4} \times 25$	$6.784 \times 10^{-4} \times 28$
	(3) … γ is the factor $6.784 \times 10^{-4} \times 25$	$6.784 \times 10^{-4} \times 28$
5.4B Equation—change in quantity of particular opening stock at landfill for calculating CH_{4gen}	(3) For subsection (2), the equation is: $\Delta C_{ost} = CH_4^* / (F \times 1.336 \times 25)$	$\Delta C_{ost} = CH4^* / (F \times 1.336 \times 28)$

Measurement Determination Section	Reference	New factor
	(3) … 25 is the factor to convert methane to carbon dioxide equivalent	28
5.4D Equation—quantity of methane generated by landfill for calculating CH4gen	$CH_{4gen} = (\Delta C_{ost} + \Delta C_{at}) \times F \times 1.336 \times 25$	$CH_{4gen} = (\Delta C_{ost} + \Delta C_{at}) \times F \times 1.336 \times 28$
	… 25 is the factor to convert methane to carbon dioxide equivalent	28
5.15 Method 2—methane released by landfill (other than from flaring of methane)	(1) … γ is the factor $6.784 \times 10^{-4} \times 25$	28
	(4) γ is the factor $6.784 \times 10^{-4} \times 25$	28
5.15A Equation—change in quantity of particular opening stock at landfill for calculating CH4gen	$\Delta C_{ost} = CH_4^* / (F \times 1.336 \times 25)$	$\Delta C_{ost} = CH_4^* / (F \times 1.336 \times 28)$
5.22 Method 1—emissions of methane and nitrous oxide from biological treatment of solid waste	Item 1 - Composting at the facility – Methane	0.021
	Item 1 - Composting at the facility – Nitrous Oxide	0.025
	Item 2 - Anaerobic digestion at the facility – Methane	0.028
	Item 2 - Anaerobic digestion at the facility – Nitrous Oxide	0
5.22B Legacy emissions—formula and unit of measurement	(1) … γ is the factor $6.784 \times 10^{-4} \times 25$	$6.784 \times 10^{-4} \times 28$
5.25 Method 1—methane released from wastewater handling (domestic and commercial)	(1) … γ is the factor $6.784 \times 10^{-4} \times 25$	$6.784 \times 10^{-4} \times 28$

Measurement Determination Section	Reference	New factor
	(3) … γ is the factor 6.784 x 10^{-4} x 25	6.784 x 10^{-4} x 28
5.26 Method 2—methane released from wastewater handling (domestic and commercial)	(1) Step 1. … γ is the factor 6.784 x 10^{-4} x 25	6.784 x 10^{-4} x 28
	(2) Step 1. … EF_{slijz} is the default methane emission factor for sludge with a value of 6.3 CO_2 e	7.0
	(2) Step 1. … EF_{wijz} is the default methane emission factor for wastewater with a value of 6.3 CO_2 e	7.0
5.31 Method 1—nitrous oxide released from wastewater handling (domestic and commercial)	(6) For EF_{secij} in subsection (1), the emission factor is 4.9 tonnes of nitrous oxide	2.082[1]
	Item 1 - Enclosed waters	2.082[2]
	Item 2 - Estuarine waters	1.026
	Item 3 - Open coastal waters (ocean and deep ocean)	0.0
5.42 Method 1—methane released from wastewater handling (industrial)	(1) … γ is the factor 6.784 x 10^{-4} x 25	6.784 x 10^{-4} x 28
	(3) … γ is the factor 6.784 x 10^{-4} x 25	6.784 x 10^{-4} x 28
	(6) For EF_{wij} in subsection (5), an emission factor of 6.3 CO_2 e	7.0
	(7) For EF_{slij} in subsection (5), an emission factor of 6.3 CO_2 e	7.0

[1] This factor represents a technical correction as well as revision due to new Global Warming Potentials.
[2] As above.

Schedule 1- Energy content factors and emission factors

The tables below show proposed updates to emission factors listed in Schedule 1 of the Measurement Determination.

Part 1- Fuel combustion- solid fuels and certain coal-based products

Item	Fuel combusted	New emission factor (kg CO_2-e/GJ)	
		CH_4	**N_2O**
1	Bituminous Coal	**0.04**	**0.2**
1A	Sub-bituminous coal	**0.04**	**0.2**
1B	Anthracite	**0.04**	**0.2**
2	Brown Coal	**0.02**	**0.3**
3	Coking coal	**0.03**	**0.2**
4	Coal briquettes	**0.08**	**0.2**
5	Coal coke	**0.03**	**0.2**
6	Coal tar	**0.03**	**0.2**
7	Solid fossil fuels other than those mentioned in items 1 to 5	**0.08**	**0.2**
8	Industrial materials and tyres that are derived from fossil fuels, if recycled and combusted to produce heat or electricity	**0.03**	**0.2**
9	Non biomass municipal materials, if recycled and combusted to produce heat or electricity	**0.8**	**1.0**
10	Dry wood	**0.1**	**1.1**
11	Green and Air dried wood	**0.1**	**1.1**
12	Sulphite Lyes	**0.08**	**0.5**
13	Bagasse	**0.3**	**1.1**
14	Biomass municipal and industrial materials, if recycled and combusted to produce heat or electricity	**0.8**	**1.0**
15	Charcoal	**5.3**	**1.0**
16	Primary solid biomass fuels other than those mentioned in items 10 to 15	**0.8**	**1.0**

Part 2- Fuel combustion- gaseous fuels

Item	Fuel combusted	New emission factor (kg CO_2-e/GJ)	
		CH_4	**N_2O**
17	Natural gas distributed in a pipeline	**0.1**	**0.03**
18	Coal seam methane	**0.2**	**0.03**
19	Coal mine waste gas	**4.6**	**0.3**
20	Compressed natural gas that has reverted to standard conditions	**0.1**	**0.03**
21	Unprocessed natural gas	**0.1**	**0.03**
22	Ethane	**0.03**	**0.03**
23	Coke oven gas	**0.03**	**0.05**
24	Blast furnace gas	**0.03**	**0.02**
25	Town gas	**0.04**	**0.03**
26	Liquefied natural gas	**0.1**	**0.03**
27	Gaseous fossil fuels other than those mentioned in items 17 to 26	**0.1**	**0.03**
28	Landfill biogas that is captured for combustion (methane only)	**6.4**	**0.03**
29	Sludge biogas that is captured for combustion (methane only)	**6.4**	**0.03**
30	A biogas that is captured for combustion, other than those mentioned in items 28 and 29 (methane only)	**6.4**	**0.03**

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

Item	Fuel combusted	New emission factor (kg CO_2-e/GJ)	
		CH_4	**N_2O**
31	Petroleum based oils (other than petroleum based oil used as fuel)	**0.0**	**0.0**
32	petroleum based greases	**0.0**	**0.0**
33	Crude oil including crude oil condensates	**0.08**	**0.2**
34	Other natural gas liquids not covered by another item in this table	**0.08**	**0.2**
35	Gasoline (other than for use as fuel in an aircraft)	**0.2**	**0.2**
36	Gasoline for use as fuel in an aircraft	**0.2**	**0.2**
37	Kerosene (other than for use as fuel in an aircraft)	**0.01**	**0.2**
38	Kerosene for use as fuel in an aircraft	**0.02**	**0.2**
39	Heating oil	**0.03**	**0.2**
40	Diesel oil	**0.1**	**0.2**
41	Fuel oil	**0.04**	**0.2**
42	Liquefied aromatic hydrocarbons	**0.03**	**0.2**
43	Solvents if mineral turpentine or white spirits	**0.03**	**0.2**
44	liquefied petroleum gas	**0.2**	**0.2**
45	Naphtha	**0.01**	**0.01**
46	Petroleum coke	**0.08**	**0.2**
47	Refinery gas and liquids	0.03	0.03
48	Refinery coke	**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	**0.02**	**0.1**
50	Biodiesel	**0.08**	**0.2**
51	Ethanol for use as a fuel in an internal combustion engine	**0.08**	**0.2**
52	Biofuels other than those mentioned in items 50 and 51	**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	New emission factor (kg CO_2-e/GJ)	
		CH_4	**N_2O**
53	Gasoline (other than for use as fuel in an aircraft)	**0.6**	**1.6**
54	diesel oil	**0.1**	**0.4**
55	Gasoline for use as fuel in an aircraft	**0.06**	**0.6**
56	Kerosene for use as fuel in an aircraft	**0.01**	**0.6**
57	fuel oil	**0.08**	**0.5**
58	liquefied petroleum gas	**0.7**	**0.6**
59	biodiesel	**0.8**	**1.7**
60	Ethanol for use as a fuel in an internal combustion engine	**0.8**	**1.7**
61	Biofuels other than those mentioned in items 59 and 60	**0.8**	**1.7**
62	Compressed natural gas that has reverted to standard conditions (light duty vehicles	**7.3**	**0.3**
63	Compressed natural gas that has reverted to standard conditions (heavy duty vehicles)	**2.8**	**0.3**
63A	Liquefied natural gas (light duty vehicles)	**7.3**	**0.3**
63B	Liquefied natural gas (heavy duty vehicles)	**2.8**	**0.3**

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

Item	Fuel combusted	New emission factor (kg CO_2-e/GJ)	
		CH_4	**N_2O**
64	Gasoline (other than for use as fuel in an aircraft)	**0.02**	**0.2**
65	Diesel oil	**0.01**	**0.5**
66	liquefied petroleum gas	**0.5**	**0.3**
67	Ethanol for use as a fuel in an internal combustion engine	**0.2**	**0.2**

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

Item	Fuel combusted	New emission factor (kg CO_2-e/GJ)	
		CH_4	**N_2O**
68	Diesel oil - Euro iv or higher	**0.07**	**0.4**
69	Diesel oil - Euro iii	**0.1**	**0.4**
70	Diesel oil - Euro i	**0.2**	**0.4**

B: UPDATE TO MATTERS TO BE IDENTIFIED UNDER PART 2 (OIL OR GAS) OF SCHEDULE 3 OF THE NGER REGULATIONS

In addition, the list of matters to be identified by reporters under Part 2 Schedule 3 Oil or Gas will be amended to provide for the collection of additional activity data that will be used to inform the development of the National Greenhouse Accounts. The following additional matters to be identified (in blue) are proposed to be added to Part 2 of Schedule 3 of the NGER Regulations.

Part 2—Oil or gas

Source 1—Oil or gas exploration

Item	Method	Matters to be identified
1	Method 1or 4 for the source, as set out in the Measurement Determination	(a) the tonnes of gas flared (b) the tonnes of liquids flared (c) number of well completions without hydraulic fracturing (d) number of well completions with hydraulic fracturing and without flaring or capture (e) number of well completions with hydraulic fracturing and flaring (f) number of well completions with hydraulic fracturing and capture (g) number of well workovers without hydraulic fracturing (h) number of well workovers with hydraulic fracturing and without flaring or capture (i) number of well workovers with hydraulic fracturing and flaring (j) number of well workovers with hydraulic fracturing and capture

…

Source 5—Natural gas production or processing (other than venting or flaring)

Item	Method	Matters to be identified
1	Method 1 for the source, as set out in the Measurement Determination	(a) the tonnes of natural gas throughput (b) number of wells (c) the tonnes of natural gas throughput for each natural gas gathering and boosting station (d) the tonnes of natural gas throughput for each natural gas processing station (e) kilometres of natural gas gathering and boosting pipeline length (f) megalitres of produced water
2	Method 2 for the source, as set out in the Measurement Determination	(a) the tonnes of natural gas throughput (b) the facility specific emission factor or factors, in tonnes of each gas (CO_2-e) per tonne of gas throughput (c) number of wells (d) the tonnes of natural gas throughput for each natural gas gathering and boosting station (e) the tonnes of natural gas throughput for each natural gas processing station

Item	Method	Matters to be identified
		(f) kilometres of natural gas gathering and boosting pipeline length (g) megalitres of produced water

…

Source 9—Natural gas production or processing—venting

Item	Method	Matters to be identified
1	Method 1 or 4 for the source, as set out in the Measurement Determination	(a) the tonnes of vented gas (b) the tonnes of vented gas related to gas treatment processes (c) the tonnes of vented gas related to cold process vents (d) the tonnes of vented gas related to gas blanketed tanks (e) the tonnes of vented gas related to condensate storage tanks (f) the tonnes of vented gas related to gas driven pneumatic devices (g) the tonnes of vented gas related to gas driven chemical injection pumps (h) the tonnes of vented gas related to well blowouts (i) the tonnes of vented gas related to carbon dioxide stimulation (j) the tonnes of vented gas related to vessel blowdowns, compressor starts and compressor blowdowns (k) the tonnes of vented gas related to natural gas processing stations (l) the tonnes of vented gas related to natural gas gathering and boosting stations and pipelines

C: UPDATE TO MEASUREMENT DETERMINATION PART 6 OF SCHEDULE 3- SCOPE 2 EMISSION FACTORS

In addition, the emission factors set out in Part 6 of Schedule 3 that are used to estimate emissions resulting from the consumption of electricity purchased or lost from the grid **('scope 2 emissions')** will be updated based on latest available data.

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