

EXPLANATORY STATEMENT

Issued by authority of the Minister for Climate Change and Energy

National Greenhouse and Energy Reporting Act 2007

*National Greenhouse and Energy Reporting (Measurement) Amendment (2024 Update)
Determination 2024*

Background

The National Greenhouse and Energy Reporting (NGER) scheme is Australia's national system for reporting greenhouse gas emissions, energy consumption and energy production by Australian corporations.

The NGER scheme is a key data source which supports Australia's international and domestic reporting obligations and informs domestic climate and energy policies. Emissions reported under the NGER scheme underpin the operation of the Safeguard Mechanism.

NGER scheme legislation includes the:

- *National Greenhouse and Energy Reporting Act 2007* (the Act);
- *National Greenhouse and Energy Reporting Regulations 2008*; (the NGER Regulations);
and
- *National Greenhouse and Energy Reporting (Measurement) Determination 2008* (the Measurement Determination).

Overview of the Measurement Determination

The Measurement Determination was made under section 10 of the Act, which provides for the Minister to determine methods, or criteria for methods, for the measurement of (a) greenhouse gas emissions; (b) the production of energy; and (c) the consumption of energy. It provides the technical detail of methods for the estimation of greenhouse gas emissions and for the production and consumption of energy within the NGER scheme.

The structure of the Measurement Determination reflects the framework of the 2006 *Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories*, as adopted by the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement, and includes emissions from:

- the combustion of fuel for energy;
- the extraction, production, flaring, processing and distribution of fossil fuels, and from carbon capture and storage;
- 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 (HFCs) and sulphur hexafluoride (SF₆) resulting from their use by certain industries; and

- waste disposal – either in landfill, biological treatment facilities, as management of wastewater or from waste incineration.

The scope of the Measurement Determination does not include land-based emissions covered by the IPCC categories ‘Agriculture’ and ‘Land Use, Land Use Change and Forestry’.

The NGER scheme is regularly reviewed by the department for opportunities to improve the accuracy of estimates while being cognisant of reporting burden.

Methods of measurement

The Measurement Determination provides a hierarchy of emissions reporting methods to accommodate the circumstances of individual reporters:

- Method 1 typically specifies the use of default emission factors to estimate emissions based on those used in Australia’s National Greenhouse Gas Inventory;
- Method 2, where available, is a facility-specific method, for example using industry sampling and Australian or international standards to provide more accurate estimates of emissions at facility level;
- Method 3, where available, is a higher-level facility-specific method, for instance using Australian or international standards for sampling and analysis of fuels and raw materials;
- Method 4, where available, provides for direct monitoring of emissions, either on a continuous or periodic basis.

The Measurement Determination draws on existing estimation practices wherever possible, including through the use of data collected for commercial, taxation or other regulatory purposes, with the aim of maximising the use of readily validated data and minimising administrative burdens on reporters.

Purpose and operation

The *National Greenhouse and Energy Reporting (Measurement) Amendment (2024 Update) Determination 2024* (the Update Determination) is the first stage of the Government’s response to the Climate Change Authority’s 2023 review of the NGER legislation. The amendments focus on areas identified in the review for further improvement where immediate action can be taken, specifically in relation to market-based reporting and enhancing the accuracy of reported fugitive methane emissions. These amendments:

- phase out the use of Method 1 for estimating fugitive methane emissions from the extraction of coal from open-cut mines covered by the Safeguard Mechanism;
- add a Method 2B for the estimation of fugitive methane and carbon dioxide emissions from flaring of gas in natural gas production, providing a mass balance approach,

- update Method 2 for the estimation of fugitive methane emissions from produced formation water occurring in oil or gas operations, to reflect onsite operations where the water has not been exposed to atmosphere and where facilities capture and recycle methane back into the gathering line rather than allowing it to dissolve into the resource pond and leak into the atmosphere;
- correct the categorisation of specified instances of Method 1 for estimating emissions of methane from natural gas venting activities that are consistent with Method 2 requirements;
- update Method 2 for the estimation of fugitive emissions of greenhouse gases from the injection of a greenhouse gas into a geological formation to align with Method 2 for onshore natural gas production;
- reinstate a method for estimating emissions of methane from mud de-gassing activities during oil or gas exploration and development;
- enable the market-based reporting of scope 1 emissions from renewable liquid fuels when they are co-mingled with their fossil fuel equivalents and supplied through shared infrastructure as recommended by the review.

The Government's full response to the review, including on further action to enhance fugitive methane emissions estimation will be published once it is finalised.

The Update Determination also makes the following additional improvements to the NGER scheme:

- enable identification of circumstances in which there exists an overlap between a company's reported scope 1 and scope 2 emissions;
- introduce a reporting requirement for landfills reporting over 100 kilotonnes of carbon dioxide equivalent to provide an estimate of gross emissions from non-legacy waste;
- make other minor updates.

With the exception of amendments phasing out Method 1 for estimating fugitive methane emissions from the extraction of coal from open-cut mines, the Update Determination commences on 1 July 2024 and apply to the 2024-25 financial year and subsequent years. It will affect NGER scheme reports to be submitted by corporations by 31 October 2025. Amendments phasing out the use of Method 1 for estimating fugitive methane emissions from open-cut coal mines commence progressively from 1 July 2025.

Further details of the Update Determination are outlined in **Attachment A**.

The Update Determination is a legislative instrument for the purposes of the *Legislation Act 2003*.

A statement of the Update Determination's compatibility with human rights is set out in **Attachment B**.

The Measurement Determination is exempt from sunseting under *Legislation (Exemptions and Other Matters) Regulation 2015* section 12, item 42A. This exemption is justified because the legislative instrument implements international reporting obligations under the United Nations

Framework Convention on Climate Change and Paris Agreement and is scientific and technical in application. There would be limited benefit in sunseting of this instrument because it is required on an ongoing basis for relevant persons to calculate their emissions estimates and for Australia to comply with its international reporting obligations.

Consultation

An exposure draft of the Update Determination and accompanying consultation paper were released for [public consultation](#) from Monday 29 April to Friday 24 May 2024. 64 submissions were received in response to the consultation, including from organisations reporting under the NGER scheme, non-government organisations, and other interested parties. Submissions not requested to remain confidential and a summary of consultation outcomes (*National Greenhouse and Energy Reporting Scheme – 2024 Amendments – Consultation Outcomes Paper*) will be published on the department’s consultation page.

A proposed amendment to the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015* to require the Regulator to publish each year the methods used to estimate fugitive methane emissions from coal mining, oil and natural gas activities was included in the public consultation process for the amendments in this instrument. This proposal was part of a broader suite of proposed amendments to the Rule that was subject to a separate public consultation process.

Following public consultation, a number of changes were made to the proposed amendments, including:

- expansion of proposed amendments to enable market-based accounting of scope 1 emissions from combustion of blended renewable liquid fuels to cover blends of biodiesel with diesel oil. This is consistent with the market method’s technical requirements and purpose to incentivise use of low-carbon fuels.
- expansion of proposed amendments to reflect onsite oil and gas operations in relation to methane from produced water to also cover the capture and recycling of methane back into the gathering line rather than allowing it to dissolve into the resource pond and leak into the atmosphere. Feedback identified this additional opportunity to incentivise onsite abatement. The additional amendment applies an approach well-tested in landfill and coal mine methods;
- removal of proposed amendment to require reporters to indicate whether Periodic Emissions Monitoring (PEM) or Continuous Emissions Monitoring (CEM) is used for fugitive methane emission estimation from underground coal mines, based on feedback that typically a facility will use both and that sole use of CEM could result in underestimation of emissions. This feedback provides the information sought through the proposed amendment. In the context of the government’s broader priorities to improve fugitive methane emission estimation, the department will consult state and territory regulators and underground mine experts to assess the implications of PEM phase out, including in relation to coal mine safety methane monitoring requirements; and
- removal of proposed amendments to disaggregate residual mix factors used in the market-based method for estimating scope 2 emissions into State- and Territory-specific factors pending further technical consideration. The government will consider these amendments

further following feedback on their technical design and implications. This will include considering alignment with the Renewable Energy Guarantee of Origin certification process under development.

In addition to feedback on the specific amendments, several submissions raised the importance of appropriate assurance processes for estimates made under the NGER scheme. The Regulator has a comprehensive assurance process.

The Regulator monitors compliance with the NGER scheme through systematic analysis of reported data for qualitative or quantitative errors and through consideration of findings from its annual audit program. Where reporting errors are identified and confirmed, the Regulator may require that the data is corrected through resubmission. In its monitoring and compliance activities, the Regulator will prioritise reporters who are implementing Method 2 or Method 3 for the estimation of fugitive methane emissions from open-cut mines for the first time and will continue its current practice of publishing quarterly Compliance Updates which includes information on compliance activities associated with the NGER scheme.

Regulatory Impact

Consistent with the Australia Government's Impact Analysis requirements, the 2023 Climate Change Authority (CCA) review of the NGER legislation, in conjunction with supplementary analysis and a regulatory burden estimate, has been certified by the department as meeting the requirements of an Impact Analysis Equivalent (IAE). The IAE is included in this Explanatory Statement at **Attachment C**.

The Office of Impact Analysis (OIA) assessed that the options analysed in the IAE are sufficiently relevant to the amendments to phase out Method 1 for the estimation of fugitive methane emissions from open-cut mines covered by the Safeguard Mechanism, and that the IAE contains additional analysis prepared by the department to address Impact Analysis questions 6 and 7.

The regulatory impacts of other amendments made by the Update Determination have been assessed as minor by the Office of Impact Assessment (ref OIA24-06759).

Summary of amendments

Open-cut coal mine fugitive emissions

Division 3.2.3 of the Measurement Determination provides for the estimation of fugitive greenhouse gas emissions, including methane, from the extraction of coal from open-cut mining. NGER reporters have had the option of estimating fugitive methane emissions from open-cut mines in accordance with Method 1, 2 or 3.

The amendments to Division 3.2.3 phase out Method 1 for open-cut mines covered by the Safeguard Mechanism as follows:

- from 1 July 2025, all facilities covered by the Safeguard Mechanism that reported more than 10 million tonnes of run-of-mine coal from their open-cut mine operations was extracted during FY2023 must estimate fugitive methane emissions from open-cut mines using Method 2 or 3;

- from 1 July 2026 all remaining facilities covered by the Safeguard Mechanism must estimate fugitive methane emissions from open-cut mines using Method 2 or 3.

Open-cut mines covered by the Safeguard Mechanism are the focus of the amendments because: their emission reduction obligations under the Safeguard Mechanism make more accurate emission estimates a priority; they constitute the largest number of facilities currently using Method 1 (around 57% in FY2023); and their contribution to fugitive methane emissions estimated using that method is significant (around 92% of total Method 1 fugitive methane emissions in FY2023).

The amendments also provide the Clean Energy Regulator (the Regulator) with the power to approve an application for a facility to use Method 1 for a specific reporting year beyond the above phase out deadlines. The discretionary power is intended to support the orderly transition of open-cut mine facilities covered by the Safeguard Mechanism from Method 1 to Method 2 or 3 and recognise the materially different requirements of Methods 2 and 3, which in large part must be completed prior to the commencement of the reporting year to which the higher order method is applied. To approve an application for a facility to continue use of Method 1 for a specific reporting year, the Regulator must be satisfied that early and reasonable efforts to transition to Method 2 or 3 in accordance with the above phase out requirements have been made and that, despite such efforts, the facility is not able to apply Method 2 or 3 by the relevant deadline due to circumstances outside its control.

Natural gas fugitive emissions

Reinstating a method for the estimation of methane emissions from natural gas mud degassing activities during oil or gas exploration and development

The Update Determination reinstates the method for this source that was set out at item 6 of the table in section 3.84 in the *National Greenhouse and Energy Reporting (Measurement) Amendment (2020 Update) Determination 2020*. The amendment updates the previously cited references to Section 5.6.3 of the 2009 American Petroleum Institute (API) Compendium to section 6.2.1 in the 2021 API Compendium; enabling application of a more up to date emissions factor.

Methane emissions from this activity for a particular facility may fall below the threshold for incidental emissions as set out in sub-regulation 4.27(5) of the NGER Regulations. In recognition of that possibility, the reinstated method's placement in the Determination provides reporters with the option of reporting via another method that is consistent with the principles in section 1.13 of the Determination.

Produced water Method 2 update

Method 2 for this source that occurs when water extracted from an oil or gas well is stored and over time releases dissolved methane to the atmosphere, has been updated to better reflect onsite operations. The definition of produced water in Method 2 has been updated to mean the net volume of water produced, allowing for reinjected water to be excluded in those instances where it has not been exposed to atmosphere. In addition, the updates also allow reporters to reflect instances where a facility has captured and recycled methane back into the gathering line rather than allowing it to dissolve into the resource pond and leak into the atmosphere. The quantity of methane captured and re-injected must be estimated in accordance with Division 2.3.6 that prescribes approaches for the measurement of quantities of gaseous fuels. This approach draws on established methodologies available in the landfill and coal mine emissions sectors.

Correcting the categorisation of specified instances of Method 1 for the estimation of methane emissions from natural gas venting activities that are consistent with Method 2 requirements

A number of pre-existing Methods 1 for natural gas venting methane emissions are re-categorised as Methods 2. These methods require an approach to emission estimation that does not conform to the typical Method 1 approach of multiplying activity data by default emission factors. Instead, they require a more sophisticated approach, using engineering approaches from the API Compendium based on facility-specific information. They result in a level of accuracy more consistent with Method 2 approaches in the Measurement Determination, and so have been re-categorised to create greater consistency through the Determination.

All sources estimated using a Method 2 must calculate uncertainties for reported emissions rather than using the default uncertainty factors under the Method 1 approach. Consequently, reporters that apply the instances of Method 1 that will be re-categorised as Method 2 through the Update Determination will be required to change their approach to reporting uncertainty, such that they calculate uncertainty in accordance with Part 8.4 of the Determination.

Additional method for estimating emissions from flaring of methane and carbon dioxide in natural gas production

The Update Determination introduces a new Method 2B for estimating emissions of methane and carbon dioxide from flaring of gas in natural gas production. This new method is based on the mass balance approach set out in Equation 5-5 and Equation 5-3 of the 2021 API Compendium and provides an alternative approach to the pre-existing methods. A mass balance applies the concept of conservation of mass to the analysis of a physical system – in this case, because the quantity of carbon atoms in the gas cannot be destroyed in any part of the process, the total mass of carbon that is tracked entering the facility must therefore be equal to the total mass of carbon that leaves the system through any means, including through the product stream, or venting, leaking and flaring routes. Effectively this process acts like a chain of custody model, where the carbon is tracked through the flaring system.

The approach in Method 2B will be supported by gas composition sampling of the input gases and the flare feed, rather than the flare point; leveraging sampling arrangements currently undertaken as part of usual business practices, where those arrangements meet representativeness requirements, as per Subdivision 2.3.3.2 of the Measurement Determination. This approach to Method 2B responds to stakeholder feedback on barriers to uptake of a higher order method for this emissions source. Sampling requirements in Method 2B ensure inputs to the mass balance are representative of the facility's gas composition, thus maintaining the accuracy of emissions estimates at a level equivalent to the pre-existing Method 2A.

Emissions from renewable liquid fuels and blended fuels

Market-based approach for determining the amount of renewable liquid fuel in a blended fuel supplied through shared infrastructure

The Update Determination makes amendments to enable market-based estimates of scope 1 emissions from the combustion of renewable liquid fuels (defined in item 5 of the Update Determination as meaning *renewable aviation kerosene (RAK)*, *renewable diesel (RD)*, or *biodiesel*) after they have been co-mingled with their fossil fuel equivalents and supplied through

shared infrastructure (defined in item 2 as fuel supply infrastructure from which fuel may be drawn by multiple facilities).

Renewable liquid fuels are biomass-derived substitutes for their fossil fuel equivalents. RAK and RD have nearly identical chemical and physical properties to their fossil fuel equivalents and are generally considered to be fully compatible ‘drop-in’ substitutes for their fossil fuel equivalents, meaning that maintenance of existing infrastructure will be the preferred and most cost-effective method of deploying them, rather than through construction of new, segregated infrastructure. Biodiesel is chemically distinct from RD and is generally considered to be a ‘blend-in’ substitute for diesel oil as it is typically only used in a blend with diesel oil up to 20% biodiesel and can only be supplied through existing diesel infrastructure as a blend with diesel oil up to 5% biodiesel. Consistent with the approach for biogenic carbon fuel types under the NGER scheme, renewable liquid fuels are assigned a scope 1 carbon dioxide emission factor of zero. This reflects that their combustion releases carbon which was absorbed by their biogenic source materials from the atmosphere during their life.

Under the NGER scheme’s previous accounting approach, under all circumstances, reporters reported the scope 1 emissions from combustion of the renewable liquid fuel they physically consumed. However, this approach meant that in the circumstance when a renewable liquid fuel was co-mingled with its fossil fuel equivalent in shared infrastructure (for example, in a Joint User Hydrant Installation (JUHI) at an airport or shared fuel tank at a port, mine or construction site), the claim to its consumption and the associated emissions benefit was spread across all entities drawing fuel from the infrastructure. Renewable liquid fuel purchasers were only able to report consumption of the part share of renewable liquid fuel they physically consumed, determined in accordance with the blended liquid fuel provisions in section 2.67 of the Measurement Determination. This materially limited the incentive for operators to purchase renewable fuels.

Item 5 introduces a new section 2.67B which provides a ‘market-based’ approach for determining the amount of renewable liquid fuel in a blended liquid fuel drawn from shared infrastructure. The new section 2.67B requires NGER scheme reporters to exclusively report the full scope 1 emissions benefit from their renewable liquid fuel purchases, even if the fuel they purchased is distributed through shared infrastructure and physically consumed by multiple entities. Section 2.67B provides that if a renewable liquid fuel is supplied as a component of a blended fuel through shared infrastructure, the existing rules for determining the composition of the blended fuel provided in section 2.67 no longer apply. Instead, reporters must determine the amounts of each kind of fuel in the blended fuel they draw from shared infrastructure based on their fuel purchase, delivery and blending records. Subject to meeting the requirements in subsection 2.67B(2), reporters will be able to report the blended fuel they draw from shared infrastructure as being composed of the amount of each fuel or fuels they contracted to have delivered into the shared infrastructure on their behalf. The evidence requirements include reporters being able to demonstrate that:

- they have purchased the amount renewable liquid fuel they are reporting, as well as the amount of blended fuel they physically draw from the shared infrastructure for combustion at the facility (see subparagraph 2.67B(2)(a)(i))
- the renewable liquid fuel they are reporting has been delivered into the shared infrastructure, evidenced, for example, by a delivery or blending certificate (see subparagraph 2.67B(2)(a)(ii))

- the renewable liquid fuel delivered into the shared infrastructure is derived or recovered from biomass, evidenced, for example, by a certificate or declaration from the vendor of the fuel specifying the biomass feedstock used to produce the fuel (see subparagraph 2.67B(2)(a)(iii)).

Reporters also cannot report to have combusted more renewable liquid fuel than the amount of blended fuel physically drawn from the shared infrastructure (see paragraph 2.67B(2)(b)).

Any fuel drawn from shared infrastructure that is not supported by the evidence required to report that fuel as renewable liquid fuel must be reported as the relevant fossil fuel equivalent, even if it physically contains some renewable liquid fuel added to the shared infrastructure on behalf of another entity.

The amendments made in the Update Determination are intended to enable market-based reporting of scope 1 emissions from combustion of renewable liquid fuels in circumstances where there is a reasonable physical link between the supply and consumption of the renewable liquid fuel (see Item 5, sub-paragraph 2.67B(2)(a)(ii) which requires that the renewable liquid fuel being reported has been delivered into the shared infrastructure from which the blended fuel is drawn). For example,

- delivery of RAK, neat or as a blend with kerosene for use as fuel in an aircraft, by truck or pipeline into a JUHI or other shared refuelling infrastructure at an airport;
- delivery of RD or biodiesel, or a blend of RD or biodiesel and diesel oil, into a common user tank or ‘fuel farm’ at a mine site, port, construction site or railway facility from which the reporting NGER facility physically draws or receives fuel.
- the blending of biodiesel or RD with diesel oil in a tank at a fuel terminal, storage, or distribution facility, from which blended fuel is dispensed for delivery directly to an NGER facility.

The amendments are not intended to enable a ‘book and claim’ style market-based accounting model whereby the scope 1 emissions attributes of renewable liquid fuels are fully decoupled from the physical supply of fuel. For example, the amendments are not intended to allow the physical supply of renewable liquid fuel into the broader fuel pool in Brisbane, but the reporting of combustion of that fuel by an NGER facility in Darwin which has no physical connection to the fuel.

Reporting use of the blended fuel provisions under matters to be identified

The Update Determination adds new matters to be identified for fuel combustion sources. The addition will require NGER reports which contain estimates of scope 1 emissions from combustion of blended fuels to include information about how the blended fuel provisions in Part 2.6 of the Measurement Determination have been used make the estimates.

This information will provide useful insights into how the blended fuel provisions are being used, and for which fuel types, and support the reconciliation and verification of reported emissions.

Emissions from waste

Reporting gross emissions from non-legacy waste under matters to be identified

This update adds a new matter to be identified when using Method 1 to estimate emissions of methane from solid waste disposal on land (Schedule 4, Part 6 of the Measurement Determination). The addition will require landfills reporting over 100 kt CO₂-e to provide an estimate of gross emissions from non-legacy waste.

This update will provide information which is used for the calculation of annual baselines under the Safeguard Mechanism.

Method 1 for estimating emissions of methane released from landfills – collection efficiency limit

Section 5.4 of the Determination provides a default method (Method 1) to estimate emissions of methane released from landfills (other than from flaring of methane). Sections 5.4B, 5.4C and 5.4D of the current method reference a previously applicable collection efficiency threshold (0.75). This threshold was updated in the preceding section of the Determination, 5.4, in 2023 and now refers to an amount calculated in accordance with section 5.15C. The Update Determination amends text in sections 5.4B, 5.4C and 5.4D to replace references to achieve consistency throughout Method 1 provisions.

Sections 5.4, 5.15, 5.15A and 5.15B are also updated to achieve consistency of terminology with section 5.15C by replacing references to “collection efficiency amount” and “CEA” with “collection efficiency limit” and “CEL”, respectively.

Scope 2 emissions from consumption of electricity

The Update Determination introduces new matters to be identified under Schedule 4 to enable identification of circumstances in which there exists an overlap between a company’s reported scope 1 and scope 2 emissions.

Other amendments

The Update Instrument makes other amendments to:

- align Method 2 for estimating emissions from the injection of carbon dioxide (section 3.96) with the equivalent method for natural gas production;
- avoid risk of measurement error from air contamination by removing the requirement in section 2.23 (general requirements for sampling under Method 2 for estimating emissions of carbon dioxide from the combustion of gaseous fuels) for samples to be derived from composites.

National Greenhouse and Energy Reporting (Measurement) Amendment (2024 Update) Determination 2024

Section 1 – Name

This section provides that the title of the instrument is the *National Greenhouse and Energy Reporting (Measurement) Amendment (2024 Update) Determination 2024* (the Update Determination).

Section 2 – Commencement

This section provides for the commencement of certain provisions of the Update Determination.

Schedule 1, item 6 commences on 1 July 2025.

Schedule 1, item 7 commences on 1 July 2026.

Any part of the instrument aside from these items would commence on 1 July 2024.

Section 3 – Authority

This section outlines that the Update Determination is made under subsection 10(3) of the Act. The power to make legislative instruments under this subsection includes the power to amend or revoke instruments that have already been made, with any doubt about this resolved by subsection 33(3) of the *Acts Interpretation Act 1901*.

Section 4 – Schedules

This section provides that the amendments are outlined at Schedule 1.

Schedule 1 – Amendments

| Item | Name | Description |
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| 1. | Section 1.4 (note) | Updates the note at the end of section 1.4 to reflect amendments made to the NGER Regulations by the <i>National Greenhouse and Energy Reporting Amendment (2024 Measures No. 1) Regulations 2024</i> . |
| 2. | Section 1.8 (Definitions) | <p>Inserts definitions of <i>2021 API Compendium</i> and <i>shared infrastructure</i>.</p> <p><i>2021 API Compendium</i> means the document entitled <i>Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry</i>, published in November 2021 by the American Petroleum Institute. This is a technical document which assembles emission factors and methodologies relevant to the petroleum industry. Consistent with subsection 10(4) of the Act and section 14 of the Legislation Act 2003, it is incorporated here as originally published in November 2021.</p> <p>The existing definition of <i>API Compendium</i>, referring the 2009 version of the document, continues to apply where referenced in other provisions of the Measurement Determination.</p> <p>At the time the Update Determination was made, all versions of the API Compendium were free and accessible on the website of the American Petroleum Institute: https://www.api.org/~media/Files/Policy/ESG/GHG/2021-API-GHG-Compendium-110921.pdf https://www.api.org/~media/files/ehs/climate-change/2009_ghg_compendium.pdf</p> <p><i>shared infrastructure</i> means fuel supply infrastructure from which fuel may be drawn by multiple facilities, for example a Joint User Hydrant Installation.</p> |
| 3. | Subsections 2.23(1) and 2.23(2) | <p>Subdivision 2.3.3.2 deals with sampling and analysis when using Method 2 for estimating emissions of carbon dioxide from combustion of gaseous fuels.</p> <p>Feedback from some reporters indicated that the combining of amounts of gaseous fuels into a composite as previously required by subsection 2.23(1) introduces technical difficulty and risk of measurement error due to air contamination.</p> <p>This item removes this risk by repealing and replacing subsections 2.23(1) and 2.23(2) with a new subsection (1) providing that samples must be collected on enough occasions to be representative.</p> |

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| 4. | Section 2.67 (notation) | Inserts a note that the application of section 2.67 is subject to the newly added section 2.67B (see item 5 below). |
| 5. | Chapter 2, Part 2.7 | <p>Inserts a new section 2.67B that introduces a new market-based approach for determining the amount of renewable liquid fuel in a blended fuel that is supplied through shared infrastructure.</p> <p>Previously, reporters were required to determine the amount of each kind of fuel that is in a blended liquid fuel in accordance with the options specified under section 2.67, which only allowed reporting of the amount of renewable fuel that they physically consumed.</p> <p>Subsection 2.67B(1) sets out that where a renewable liquid fuel is supplied through shared infrastructure as a component of a blended fuel (co-mingling of a renewable liquid fuel and its fossil fuel equivalent will manifest a blended fuel irrespective of whether the renewable liquid fuel added to the shared infrastructure was itself a neat fuel or part of a blended fuel immediately before being added), section 2.67 is not to be used to determine the amount of each kind of fuel that is in the blended fuel. This ensures that, subject to meeting the requirements in section 2.67B, reporters who pay for renewable fuel which is supplied to them via shared infrastructure will be able to exclusively report the full emissions benefit of their renewable liquid fuel purchase. This is the case even if the fuel is not physically consumed by the purchaser due to it being distributed through a shared infrastructure and physically consumed by multiple entities. On the other hand, reporters who do not pay for renewable liquid fuel will no longer be able to rely on section 2.67 to report consumption of the part share of renewable liquid fuel they physically consume.</p> <p>Subsection 2.67B(2) sets out the requirements that must be met by reporters for them to report to have combusted an amount of renewable liquid fuel in an amount of blended fuel drawn from shared infrastructure.</p> <p>Subparagraph 2.67B(2)(a)(i) requires that a reporter must retain and be able to provide to the Regulator invoices evidencing that they purchased the quantity of renewable liquid fuel they are reporting to have combusted. A reporter must also retain evidence that they have purchased the total quantity of blended fuel they physically draw from the shared infrastructure for combustion at the facility. This subsection recognises that the vendor issuing invoices to fulfil subsection 2.67B(2)(a)(i)(A) and (B) could be different vendors.</p> <p>Subparagraph 2.67B(2)(a)(ii) requires that a reporter must retain and be able to provide to the Regulator written evidence</p> |

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| | | <p>from the vendor, or other responsible party, that the amount of renewable liquid fuel reported has been delivered into the shared infrastructure on behalf of the facility. This is intended to ensure that the fuel being reported has been physically added to the shared infrastructure, rather than being purchased but not delivered or consumed. The evidence could include a delivery or blending certificate. The evidence must demonstrate that the renewable liquid fuel being reported has been delivered to the shared infrastructure which is the same shared infrastructure referenced under subparagraph 2.67B(2)(a)(ii) from which the blended fuel combusted from the operation of the facility was physically drawn. This is intended to establish a physical link between where the fuel is supplied and the reporting of its consumption.</p> <p>Subparagraph 2.67B(2)(a)(iii) requires that a reporter must retain and be able to provide to the Regulator a certificate or declaration from the vendor demonstrating that the renewable liquid fuel delivered into the shared infrastructure is derived or recovered from biomass. Given the additional flexibility provided by these new market-based reporting arrangements, it is appropriate to require extra assurance of the renewable attributes of the fuel being reported.</p> <p>Subparagraph 2.67B(2)(b) confirms that reporters cannot report to have combusted more renewable liquid fuel than the amount of blended fuel physically drawn from the shared infrastructure.</p> <p>Subsection 2.67(3) sets out that the remaining amount of blended fuel combusted that is not being reported as renewable liquid fuel must be reported as the fossil fuel equivalent. The fossil fuel equivalent to each renewable liquid fuel is defined in subsection 2.67(6) to mean kerosene for use as fuel in an aircraft for renewable aviation kerosene, and diesel oil for renewable diesel and biodiesel. For example, a reporter pays to have 100 kL of renewable aviation kerosene added to shared infrastructure on their behalf and pays to draw 200 kL of blended fuel from the shared infrastructure. The reporter claims consumption of 100 kL of renewable aviation kerosene and must report the balance of 100 kL (which is 200 kL minus 100 kL) as the fossil fuel equivalent, kerosene for use as fuel in an aircraft. If a reporter pays to have 100 kL of renewable aviation kerosene added to shared infrastructure on their behalf and pays to draw 100 kL of blended fuel from the shared infrastructure, the balance would be 0 and they would not have report combustion of any fossil fuel equivalent.</p> <p>Subsection 2.67(4) covers reporters who draw blended fuel from shared infrastructure but do not pay for any renewable liquid fuel to be added. This subsection clarifies that in this situation, reporters must report all the blended fuel they draw</p> |

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| | | <p>as the relevant fossil fuel equivalent. For example, if a reporter draws a blend of diesel oil and biodiesel from shared infrastructure but only paid to have diesel oil added to the shared infrastructure, all of the diesel oil-biodiesel blend they draw must be reported as diesel oil.</p> <p>Subsection 2.67(5) specifies that renewable liquid fuel is defined to mean renewable aviation kerosene, renewable diesel or biodiesel.</p> |
| 6. | After section 3.19(2) | <p>Inserts a new subsection 3.19(2A) with a commencement date of 1 July 2025. This item removes the use of Method 1 under section 3.20 by facilities covered by the Safeguard Mechanism that reported more than 10 million tonnes run-of-mine coal extracted from their open-cut mine operations during the 2022-23 financial year in estimating methane emissions from the extraction of coal. From 1 July 2025, these facilities would need to use either Method 2 under section 3.21 or Method 3 under section 3.26.</p> |
| 7. | Subsection 3.19(2A) | <p>Commences on 1 July 2026 and amends subsection 3.19(2A) created in item 6 above. This item phases out the use of Method 1 under section 3.20 by facilities covered by the Safeguard Mechanism altogether.</p> |
| 8. | Section 3.42 | <p>Inserts a new subsection (g) to section 3.42 to add mud degassing as an activity to which Division 3.3.2 - Oil or gas exploration and development - fugitive emissions from system upsets, accidents and deliberate releases applies.</p> |
| 9. | Subsection 3.46A(2) | <p>Makes minor changes to subsection 3.46A(2) by reordering the components of the phrase 'system upsets, accidents and deliberate releases from process vents'. This item ensures consistency in drafting within the subdivision.</p> |
| 10. | Paragraph 3.46A(2)(a) | <p>Updates paragraph 3.46A(2)(a) to add mud degassing as an activity where Method 1 under section 3.46AC must be used in estimating emissions for methane and carbon dioxide from systems upsets, accidents and deliberate releases from process vents during oil or gas exploration and development.</p> |
| 11. | Subsection 3.46A(3) | <p>Makes minor changes to subsection 3.46A(3) by reordering the components of the phrase 'system upsets, accidents and deliberate releases from process vents'. This item ensures consistency in drafting within the subdivision.</p> |
| 12. | Division 3.3.2, Subdivision 3.3.2.3.1 | <p>Inserts a new section 3.46AC which sets out Method 1 for estimating emissions resulting from mud degassing processes with reference to section 6.2.1 in the 2021 API Compendium.</p> |

| Item | Name | Description |
|------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13. | Subsection 3.73NB(1) | Updates Method 2 for the estimation of fugitive emissions of methane (other than emissions that are vented or flared) from produced water to enable reporters to better reflect on site operations. The definition of the quantity of produced water (W_i) is updated to mean the net volume of water produced, allowing for reinjected water to be excluded in those instances where it has not been exposed to atmosphere. $Q_{j,cap}$ is also included in the method to allow reporters to reflect instances where facilities are able to capture and recycle methane back into the gathering line rather than allowing it to dissolve into the resource pond and leak into the atmosphere. |
| 14. | Subsection 3.73Q(3) (definition EF_{ijs} and Q_i) | Corrects a typographical error in the definitions of EF_{ijs} and Q_i . |
| 15. | Sections 3.85A, 3.85B, 3.85K, 3.85L, 3.85M and 3.85N | Updates the categorisation of all Methods 1 listed in sections 3.85A, 3.85B, 3.85K, 3.85L, 3.85M and 3.85N, as Methods 2. These methods do not conform to the typical Method 1 approach of multiplying activity data by default emission factors. Instead, they require a more sophisticated approach, using engineering approaches from the API Compendium based on facility-specific information, thereby resulting in a level of accuracy more consistent with Method 2 approaches in the Measurement Determination. Categorising these methods as Methods 2 improves consistency with the naming of other methods across the Measurement Determination. |
| 16. | Sections 3.85A, 3.85K and 3.85M (notations) | Makes changes consequential to the preceding item by updating the notations in sections 3.85A, 3.85K and 3.85M to specify that there is no Method 1 in each of these sections. |
| 17. | Sections 3.85B, 3.85L and 3.85N | Replaces references to the words “as described” with the words “the engineering calculations provided”, in relation to methods used in natural gas production. This amendment is intended to clarify that the engineering calculation formulae set out in the prescribed section of the API Compendium must be used. |
| 18. | After subparagraph 3.85T(1)(a)(ii) | Updates subparagraph 3.85(1)(a) to add a Method 2B as an option for the estimation of carbon dioxide release from gas flared from natural gas production, using the method set out in section 3.87B. |
| 19. | After subparagraph 3.85T(1)(b)(ii) | Updates subparagraph 3.85(1)(b) to add a Method 2B as an option for the estimation of methane release from gas flared from natural gas production, using the method set out in section 3.87B. |

| Item | Name | Description |
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| 20. | After subsection 3.85T(1) | Inserts a new subsection (1A) in section 3.85T (Natural gas production (emissions that are flared)) providing that if Method 2B under section 3.87B has been used to estimate emissions of either methane or carbon dioxide released from flaring in natural gas production, then it must be used to estimate emissions of both gases. |
| 21. | Section 3.87A (definition EF_{hij}) | Replaces reference to “section 3.85(2)” with “section 3.86(2)” to resolve an incorrect reference to a table used in the application of Method 2A for estimating fugitive methane or nitrous oxide emissions from natural gas production. |
| 22. | At the end of section 3.87A | <p>Inserts new Methods 2B for the estimation of methane and carbon dioxide emissions from gas flared from natural gas production based on mass balance approaches. These Methods 2B are an alternative approach to the pre-existing methods for reporting such emissions.</p> <p>Section 3.87B(1) for estimating methane emissions from gas flared from natural gas production is based on the mass balance approach set out in Equation 5-5 of the 2021 API Compendium.</p> <p>Section 3.87B(2) for estimating carbon dioxide emission from gas flared from natural gas production is based on the mass balance approach set out in Equation 5-3 of the 2021 API Compendium.</p> <p>A mass balance applies the concept of conservation of mass to the analysis of a physical system – in this case, because the quantity of carbon atoms in the gas cannot be destroyed in any part of the process, the total mass of carbon that is tracked entering the facility must therefore be equal to the total mass of carbon that leaves the system through any means, including through the product stream, or venting, leaking and flaring routes. Effectively this process acts like a chain of custody model, where the carbon is tracked through the flaring system.</p> <p>The approach will be supported by gas composition sampling of the input gases and the flare feed, rather than the flare point; leveraging sampling arrangements currently undertaken as part of usual business practices, where those arrangements meet representativeness requirements, as per Subdivision 2.3.3.2 of the Measurement Determination. This approach to the new Methods 2B mitigates identified barriers to uptake of a higher order method for this emissions source. The retention of sampling requirements in the new Methods 2B ensure inputs to the mass balance are representative of the facility’s gas composition, thus maintaining the accuracy of emissions estimates at a level equivalent to the pre-existing Method 2A.</p> |

| Item | Name | Description |
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| 23. | Section 3.96 | <p>Updates Method 2 for estimating fugitive emissions associated with the injection component of Carbon Capture and Storage (CCS) operations to align with the updated natural gas production method in section 3.73B.</p> <p>Emissions from the injection of carbon dioxide for CCS operations involve processes and equipment similar to those used in natural gas production. As such, section 3.96 directs reporters to apply the emission factors provided in industry guidance for natural gas production in estimating emissions associated with the CCS injection component.</p> <p>Since the introduction of methods associated with CCS operations, the provisions relating to natural gas production have been updated to reflect improved methods and practices. This item updates method 2 to reflect improvements in industry practices and updated emission factors for CCS injection equipment.</p> |
| 24. | Subsections 5.4(2), 5.4(3), 5.15(3), 5.15(4), 5.15(5), 5.15A(1), 5.15B(1) | Replaces references to ‘collection efficiency amount’ wherever occurring with references to ‘collection efficiency limit’ to align with the wording used in section 5.15C. |
| 25. | Subsections 5.4(3) and 5.15(4) (definition of CEA) | Replaces references to ‘CEA’ wherever occurring with references to ‘CEL’ to reflect the amendments made by the preceding item. |
| 26. | Subsections 5.4(3) and 5.15(4) | Replaces the references to ‘CEA’ wherever occurring in the equation with references to ‘CEL’ to reflect the amendments made by items above. |
| 27. | Subsection 5.15A(3) (Note 2) | Replaces references to ‘collection efficiency amount’ wherever occurring in Note 2 with references to ‘collection efficiency limit’ to align with the wording used in section 5.15C. |
| 28. | Subsection 5.4B(1) | Updates section 5.4B to ensure alignment with subsection 5.4(3), which was amended in 2023 to increase the maximum collection efficiency applicable under the Method 1 calculation as calculated under section 5.15C. Section 5.4B now applies if the result of the first equation in subsection 5.4(3) is greater than the collection efficiency limit for the landfill calculated in accordance with section 5.15C for the reporting year. This change is important to ensure the accuracy of emissions estimates calculated using Method 1. |
| 29. | Subsection 5.4B(3) (Note 2) | Makes changes to Note 2 of subsection 5.4B(3) to reflect the amendment made by the preceding item. |

| Item | Name | Description |
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| 30. | Subsection 5.4C(1) | Updates section 5.4C to ensure alignment with subsection 5.4(3), which was amended in 2023 to increase the maximum collection efficiency applicable under the Method 1 calculation as calculated under section 5.15C. Section 5.4C now applies if the result of the first equation in subsection 5.4(3) is greater than the collection efficiency limit for the landfill calculated in accordance with section 5.15C for the reporting year. This change is important to ensure the accuracy of emissions estimates calculated using Method 1. |
| 31. | Section 5.4D (Note 4) | Makes changes to Note 4 of subsection 5.4D to reflect the amendments made by the preceding items. |
| 32. | Subsection 5.15A(3) (Note 2) | Replaces references to ‘collection efficiency amount’ wherever occurring in Note 2 with references to ‘collection efficiency limit’ to align with the wording used in section 5.15C. |
| 33. | After section 9.17 | <p>Inserts new section 9.18. Subsections (1) and (2) state the financial years to which items in the Update Determination apply. The amendments set out in items 1 to 5 and 8 to 42 apply in relation to the financial year starting on 1 July 2024 and later financial years. The amendments set out in items 6 and 7 apply in relation to the financial year beginning on the relevant dates set out in section 2 of the Update Determination and later financial years.</p> <p>Subsection (3) allows a facility to continue to use Method 1 for the estimation of fugitive methane emissions from open-cut mine coal extraction for a given reporting year after the commencement of items 6 or 7, if that facility has the Regulator’s approval.</p> <p>Subsection (4) sets out the process for applying for the Regulator’s approval, including the content of the written application and deadline for submission to the Regulator. The note to this new subsection provides that an application can only relate to a single (not multiple) reporting years. Subsequent applications in relation to future reporting years may be made, which will be assessed by the Regulator based on the criteria set out in subsection (4).</p> <p>In deciding whether to approve an application, the Regulator may consider issues including, but not limited to, the timeliness of actions taken to transition to Method 2 or 3, availability of services, equipment and personnel to undertake drilling, sampling, testing, modelling, review and assurance consistent with those methods, the complexity and number of gas domains within a facility to be sampled consistent with Methods 2 or 3, regulatory approvals required in relation to these activities, and weather factors.</p> |

| Item | Name | Description |
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| | | <p>Examples of the types of written information that a facility could consider submitting under subsection (4) to inform the Regulator’s decision include:</p> <ul style="list-style-type: none"> • Written documentation of early work on preparatory arrangements for Method 2 or 3, such as dated correspondence with prospective third-party service providers or regulatory authorities; • Written documentation of early and substantive progress to implement Method 2 or 3 pre-reporting cycle requirements such as: signed and dated contracts for relevant services, dated invoices from third-party service providers, and dated draft and final results of sampling and testing provided by third parties; • Written documentation that, despite reasonable and early efforts, the facility is a risk of not being able to apply Method 2 or 3 within the prescribed timeframe, such as dated correspondence from third party service providers/regulatory authorities demonstrating options for securing services/approvals within the prescribed timeframe were exhausted; and, dated correspondence from third party (eg Estimator or independent peer review) advising further round(s) of drilling are required to satisfy ACARP Guidelines requirements due to complexity or scale of the coal deposit. <p>Subsection (5) provides for applicants to seek the Regulator’s agreement to submit an application less than three months prior to the commencement of the relevant reporting year. Such requests to the Regulator should only be made in exceptional circumstances.</p> <p>Subsection (6) requires the Regulator to notify an applicant if it does not approve its application and to provide reasons for its decision.</p> <p>Subsections (7)-(11) sets out the process through which an applicant can seek reconsideration of the Regulator’s decision under subsection (6) to not approve an application, including the form, content and timing of an application for reconsideration.</p> <p>Subsection (12) provides that an application may be made to the Administrative Appeals Tribunal for review of a decision of the Regulator made under subsection (9).</p> |
| 34. | Schedule 4 (under the Schedule heading) | Updates the explanatory text below the heading to Schedule 1 to reflect amendments made to the NGER Regulations by the <i>National Greenhouse and Energy Reporting Amendment (2024 Measures No. 1) Regulations 2024</i> . |

| Item | Name | Description |
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| 35. | Before Part 1 of Schedule 4 | <p>Introduces a new Part 1A – Fuel combustion to Schedule 4. Item 1 in the table to Part 1A specifies matters to be identified for any method set out in Parts 2.2, 2.3, 2.4 or 1.3. Matters must be identified for each blended fuel combusted at a facility. For example, if, across a reporting period, a facility combusts a blend of diesel oil and renewable diesel and also combusts a blend of gasoline (other than for use as fuel in an aircraft) and ethanol for use as a fuel in an internal combustion engine, the information required by paragraphs (a) to (c) in column 3 for Item 1 must be separately reported for each of these types of blended fuel. If a facility does not combust any blended fuel, the matters to be identified for Item 1 do not need to be reported.</p> <p>The note to the table to Part 1A clarifies that the matters to be identified for Item 1 should be reported for the cumulative amount of each type of blended fuel combusted at the facility during the reporting period, not on a batch-by-batch basis. For example, if, during a reporting period, a facility receives and combusts two batches of a blend of diesel oil and renewable diesel and determines the amount in each using the section 2.67B, the total amount of blended fuel and amounts of each type of fuel contained in the blended fuel to be reported should be cumulative amounts from both batches.</p> <p>Adds new matters to be identified in Schedule 4 in relation to estimates of emissions from for fuel combustion. The newly included item requires NGER reports which contain estimates of scope 1 emissions from combustion of blended fuels to identify the section of Part 2.6 used to determine the amounts of each kind of fuel in the blended fuel, the amount of blended fuel combusted, and the amount of each type of fuel determined to be contained in that blended fuel.</p> <p>This information will provide useful insights into how the blended fuel provisions are being used, and for which fuel types, and support the reconciliation and verification of reported emissions.</p> |
| 36. | Schedule 4, Part 2 (Table under Source 2R— Onshore natural gas production—venting) | Makes corresponding changes to item 15 which corrects the categorisation of Methods 1 in Sections 3.85B, 3.85L, 3.85N as Method 2 to ensure consistency with the naming of other methods of similar sophistication across the Measurement Determination. |
| 37. | Schedule 4, Part 2 (Table under Source 2S— Offshore natural gas production—venting) | Makes corresponding changes to item 15 which corrects the categorisation of Methods 1 in Sections 3.85B, 3.85L, 3.85N as Method 2 to ensure consistency with the naming of other of |

| Item | Name | Description |
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| | | similar sophistication methods across the Measurement Determination. |
| 38. | Schedule 4, Part 2, under Source 2T—Onshore natural gas production—flaring (after Table item 2) | <p>Specifies matters to be identified under Schedule 4 when using the new Method 2B for estimating emissions of methane and carbon dioxide from flaring of gas in onshore natural gas production.</p> <p>When using Method 2B to estimate emissions of methane, specified matters are (a) the tonnes of flared gas, and (b) the tonnes and gigajoules of methane within the flared gas, calculated through a mass balance.</p> <p>When using Method 2B to estimate emissions of carbon dioxide, specified matters are (a) the tonnes of flared crude oil and liquids (hydrocarbon component) within the flared gas, calculated through a mass balance.</p> |
| 39. | Schedule 4, Part 7, under Source 2U—Offshore natural gas production—flaring (after Table item 2) | <p>Specifies matters to be identified under Schedule 4 when using the new Method 2B for estimating emissions of methane and carbon dioxide from flaring of gas in offshore natural gas production.</p> <p>Specified matters are the same as those specified in relation to onshore natural gas production by the preceding item.</p> |
| 40. | Schedule 4, Part 6, Source 4A—Solid waste disposal on land (Table item 1, column headed ‘Matters to be identified’, after clause (i)(viii)) | <p>Adds a new matter to be identified in Part 6 of Schedule 4 when using Method 1 to estimate emissions from solid waste disposal on land using sections 5.4 (Method 1—methane released from landfills (other than from flaring of methane)) and 5.22 (Method 1—emissions of methane and nitrous oxide from biological treatment of solid waste).</p> <p>The addition will require landfills reporting over 100 kt CO₂-e to provide an estimate of gross emissions from non-legacy waste.</p> |
| 41. | Schedule 4, Part 7 (Scope 2 emissions) | <p>Updates the format of Part 7 of Schedule 1 to reflect amendments made to the NGER Regulations by the <i>National Greenhouse and Energy Reporting Amendment (2024 Measures No. 1) Regulations 2024</i>.</p> <p>Item 1 of the inserted table retains matters previously specified in relation to the market-based method in section 7.4.</p> <p>Item 2 of the inserted table introduces new matters to be identified, when using both location- and market-based methods, to enable identification of circumstances in which there exists and overlap between a company’s reported scope 1 and scope 2 emissions.</p> |

Statement of Compatibility with Human Rights

Prepared in accordance with Part 3 of the Human Rights (Parliamentary Scrutiny) Act 2011

National Greenhouse and Energy Reporting (Measurement) Amendment (2024 Update) Determination 2024

This Legislative Instrument is compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

Overview of the Legislative Instrument

The *National Greenhouse and Energy Reporting (Measurement) Amendment (2024 Update) Determination 2024* makes minor amendments to the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* in order to:

- phase out the use of Method 1 for estimating fugitive methane emissions from the extraction of coal from open-cut mines covered by the Safeguard Mechanism;
- add a Method 2B for the estimation of fugitive methane and carbon dioxide emissions from flaring of gas in natural gas production, providing a mass balance approach,
- update Method 2 for the estimation of fugitive methane emissions from produced formation water occurring in oil or gas operations, to reflect onsite operations where the water has not been exposed to atmosphere and where facilities capture and recycle methane back into the gathering line rather than allowing it to dissolve into the resource pond and leak into the atmosphere;
- correct the categorisation of specified instances of Method 1 for estimating emissions of methane from natural gas venting activities that are consistent with Method 2 requirements;
- update Method 2 for the estimation of fugitive emissions of greenhouse gases from the injection of a greenhouse gas into a geological formation to align with Method 2 for onshore natural gas production;
- reinstate a method for estimating emissions of methane from mud de-gassing activities during oil or gas exploration and development;
- enable the market-based reporting of scope 1 emissions from renewable liquid fuels when they are co-mingled with their fossil fuel equivalents and supplied through shared infrastructure as recommended by the review.
- enable identification of circumstances in which there exists an overlap between a company's reported scope 1 and scope 2 emissions;

- introduce a reporting requirement for landfills reporting over 100 kilotonnes of carbon dioxide equivalent to provide an estimate of gross emissions from non-legacy waste; and
- make other minor updates.

Human rights implications

This Legislative Instrument does not engage any of the applicable human rights or freedoms.

Conclusion

This Legislative Instrument is compatible with human rights as it does not raise any human rights issues.

The Hon Chris Bowen MP
Minister for Climate Change and Energy



Joanna Abhayaratna
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Dear Joanna

Certification as Impact Analysis Equivalent – 2023 Climate Change Authority Review of the National Greenhouse and Energy Reporting Legislation

I am writing to certify that the independent review by the Climate Change Authority (**Attachment A**) undertook a process and analysis that, when considered in conjunction with supplementary analysis and regulatory burden estimate prepared by the department, is equivalent to an Impact Analysis (IA) for the proposed amendments to the National Greenhouse and Energy Reporting (NGER) scheme for the estimation of fugitive methane emissions from coal extraction from open cut coal mining.

The attached Climate Change Authority (CCA) review made 25 recommendations for targeted improvements to the NGER scheme. One of these was to *“Phase out Method 1 estimation methodologies for fugitive methane emissions, including as a matter of urgency for the extraction of coal in open cut coal mining.”* (Recommendation 15). Consistent with this recommendation, the government has prioritised proposed amendments to the NGER scheme to phase out Method 1 for open cut coal mining. Based on data reported in 2022-23, the proposed amendments will address over 90% of the emissions reported using that Method 1. The government will respond to the recommendation as it relates to the phase out of Method 1 for estimating other fugitive methane emissions in its full response to the CCA review in mid-2024.

The Impact Analysis Equivalent covers the scope of the policy proposal with the exception of details on the selection of the proposed NGER scheme amendments as the best option, and how the proposed amendments would be implemented and evaluated. To address these gaps in the analysis I also certify the attached supplementary information document (**Attachment B**). Therefore I am satisfied that, with this addition, the scope of the certified documents matches the policy proposal.

I certify these documents adequately address all seven IA questions, and are submitted to the Office of Impact Analysis for the purposes of satisfying the regulatory impact analysis requirements of a major decision point.

The estimated regulatory burden to business, community organisations or individuals of the proposed amendments is quantified in the table below, based on the Australian Government's *Regulatory Burden Measurement* framework, industry feedback and publicly available information. No regulatory burden is expected to be incurred by individuals or community organisations. The regulatory burden estimates for the business sector are indicative and presented as a range, rather than an average, of the estimated regulatory costs for all affected facilities in each of the two key stages in the proposed amendments' implementation ('transitional' and 'ongoing').

This approach is necessary due to the considerable variability of affected facilities, the facility-specific emissions measurement requirements of the proposed amendments, and the absence of publicly available information regarding the cost and time required to implement the amendments in each of the affected facilities. Much of the information needed to calculate an average will only become available during the transitional stage. The ranges for 'transitional' and 'ongoing' costs stages are based on industry feedback, including cost estimates for affected facilities based on three categories. These categories estimated cost based on different coal mine seam lengths ('strike length'), and the assumption that the longer the strike length the more complex a mine's geology and gas resource, and therefore the higher the regulatory burden. Publicly available information on the affected facilities' strike length was then used to determine an indicative range of estimated regulatory burden.

For the same above-mentioned cost and time variability reasons, the 'Transitional' estimate in the table is presented as an aggregate rather than annual figure. The majority of affected facilities are expected to transition within 2 years however some may incur these costs over a longer transition period if they satisfy the above-mentioned requirements for a temporary extension of time to transition to Method 2 or 3. The 'Ongoing' estimates in the table are presented as an indicative annual range based on the above-mentioned three categories of mine-type. They reflect estimated indicative costs to all affected facilities from the annual preparation and assurance of annual fugitive methane emissions estimates based on the facility-specific gas models developed in the 'transitional' stage.

While the regulatory burden estimate for business is material it has a high degree of uncertainty with regard to each affected facility, due to information paucity and variability between affected facilities. The regulatory burden can also be considered in the context of the sector's contribution to Australia's fugitive methane emissions and operating profits. In financial year 2022-23 Australia's coal mine sector operating profits before tax were \$73.3 billion¹. In financial year 2021-22, open-cut mines fugitive methane emissions accounted for 9 million tonnes carbon dioxide equivalent.

Further detail on these estimates, including estimates for the other options considered, is provided on pages 9-11 of **Attachment B**.

¹ Australian Bureau of Statistics (2022-23), [Australian Industry](#), ABS Website, accessed 6 June 2024.

Regulatory burden estimate table

| Regulatory cost estimates of proposed amendments (from business as usual): transitional and ongoing | | | | |
|-----------------------------------------------------------------------------------------------------|----------|-------------------------|-------------|-----------------------|
| Change in costs (\$ million) | Business | Community organisations | Individuals | Total change in costs |
| Total, by sector | \$ | \$0 | \$0 | \$ |
| <i>Transitional*</i> | 80-100 | | | 80-100 |
| <i>Ongoing**</i> | 3-4 | | | 3-4 |

* Costs expected to be incurred over one or more years to complete the preparatory work required to transition affected facilities to annual reporting using emission estimation Method 2 or 3.

** Costs expected to be incurred on an annual basis in the reporting of emissions estimates using Method 2 or 3, once transition is completed.

Accordingly, I am satisfied that the attached documents are consistent with the *Australian Government Guide to Policy Impact Analysis*.

Yours sincerely



Kushla Munro

Deputy Secretary

Department of Climate Change, Energy, the Environment and Water

~~Wrote~~ 7 June 2024

Attachment A: Independent review for certification

Attachment B: Supplementary Impact Analysis, Amendments to the National Greenhouse and Energy Reporting Scheme: open cut coal mining

Independent review for certification

Climate Change Authority (2023), *2023 Review of the National Greenhouse and Energy Reporting Legislation*, December 2023. Available at:

<https://www.climatechangeauthority.gov.au/sites/default/files/documents/2023-12/2023%20NGER%20Review%20-%20for%20publication.pdf>

Amendments to the National Greenhouse and Energy Reporting Scheme: open cut coal mining

Supplementary information to the Impact Analysis Equivalent

June 2024

Introduction

This supplementary Impact Analysis has been prepared by the Department of Climate Change, Energy, the Environment and Water (the department) to inform Australian Government legislative decisions in regard to the enhancement of fugitive methane emissions estimation from the extraction of coal at open-cut mines in the National Greenhouse and Energy Reporting (NGER) scheme.

This supplementary analysis complements the certification by the department that the Climate Change Authority (CCA) 2023 review of the NGER legislation has undertaken process and analysis equivalent to an impact analysis (IA) for these legislative decisions. The Office of Impact Analysis (OIA) found the scope of the independent review covered questions 1 to 5 of the Impact Analysis Framework, and recommended that a supplementary impact analysis be prepared to address questions 6 and 7 of that Framework; specifically:

- What is the best option from those you have considered and how will it be implemented?
- How will you evaluate your chosen option against the success metrics?

This supplementary analysis also provides a summary of additional stakeholder consultation undertaken by the department on the proposed legislative decisions, and feedback received through that process.

Background

National Greenhouse and Energy Reporting (NGER) scheme

The NGER scheme is Australia's national system for reporting greenhouse gas emissions, energy consumption and energy production by Australian corporations.

The NGER scheme is a key data source which supports Australia's international and domestic reporting obligations and informs domestic climate and energy policies. Emissions reported under the NGER scheme underpin the operation of the Safeguard Mechanism. The Safeguard Mechanism requires Australia's highest greenhouse gas emitting facilities (those that emit more than 100,000 tonnes carbon dioxide equivalent in a year) to reduce their emissions in line with Australia's emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050.

NGER scheme legislation includes:

- the *National Greenhouse and Energy Reporting Act 2007* (the Act);
- the *National Greenhouse and Energy Reporting Regulations 2008* (the Regulations); and
- the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* (the Measurement Determination).

The NGER scheme requires the reporting of greenhouse gas emissions from:

- the combustion of fuel for energy;
- the extraction, production, flaring, processing and distribution of fossil fuels, and from 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, from management of wastewater or from waste incineration.

Companies are required to register under the NGER scheme if the emissions, energy production or energy consumption from facilities within their operational control exceed specified thresholds.

In most instances, the NGER scheme allows reporters to choose from a number of emissions estimation methods to accommodate their individual circumstances. Available methods align with Intergovernmental Panel on Climate Change emission estimation guidelines adopted under the UN Framework Convention on Climate Change and Paris Agreement.

Methods are ranked by number, with higher numbered methods in-principle providing greater accuracy but requiring more active measurement effort. Emissions sources can have one or more available methods, including:

- Method 1, which typically involves the use of default emission factors,
- Methods 2 and Method 3, which involve greater use of facility-specific information, and
- Method 4, which requires direct measurement of emissions.

The requirements of Methods 1 to 3 differ for each source for which they are available. The requirements of Method 4, wherever available, are set out in Part 1.3 of the Measurement Determination, which specifies standards to be met regarding positioning of equipment, frequency of monitoring, and how to determine gas concentrations and flow rates.

The NGER scheme is administered by the Clean Energy Regulator (the Regulator). Further information on NGER scheme reporting is available at the [Regulator's website](#).

Each year the department reviews and updates the NGER scheme as part of its continuous improvement program and in response to feedback from users and other stakeholders. These updates are also informed by the CCA's five-yearly review of the NGER scheme. The CCA's last review of the NGER scheme was released in December 2023. See pp 4-5 for further detail on this review.

Current policy settings: estimation of fugitive methane emissions from open cut coal mines

Division 3.2.3 of the Measurement Determination provides for the estimation of 'fugitive' greenhouse gas emissions, including methane, from the extraction of coal from open-cut mining. Currently NGER scheme reporters have the option of estimating fugitive methane emissions from open-cut mines in accordance with Method 1, 2 or 3.

- Method 1: applies state-specific emissions factors to facility-level activity data (tonnes of methane (CO₂-e) per tonne of run-of-mine coal extracted).
- Method 2: involves estimating the total gas contained by gas bearing strata, modelled, sampled and analysed in accordance with the Australian Coal Industry's Research Program (ACARP) guidelines and relevant Australian Standards.
- Method 3: is the same as Method 2, with an increased expectation in regard to standards used.

Methods 2 and 3 are equivalent to the highest (most sophisticated) Intergovernmental Panel on Climate Change (IPCC) method tier. Australia is the only country in the world to use such a method tier for the estimation of fugitive methane and carbon dioxide from coal extraction from open-cut mines.

In financial year 2022-2023 (FY2023), 37 facilities (including 21 facilities covered by the Safeguard Mechanism) used Method 1 and 39 (including 27 Safeguard Mechanism facilities) used Method 2 to estimate fugitive methane emissions from open-cut mines. No facilities currently use Method 3. Safeguard Mechanism facilities accounted for around 92% of fugitive methane emissions reported using Method 1 in FY2023.

The 2023 Climate Change Authority review

The CCA review found that the NGER scheme is integral to meeting Australia's international energy and emissions reporting obligations, tracking progress on emissions reductions and informing climate change policy development. It made 25 recommendations focused on further enhancements to the NGER scheme's methane emissions measurement, reporting and verification; data transparency; coverage; and administration.

The review included a recommendation to *"Phase out Method 1 estimation methodologies for fugitive methane emissions, including as a matter of urgency for the extraction of coal in open cut coal mining."* (Recommendation 15). Consistent with this recommendation, the government has prioritised proposed amendments to the NGER scheme regarding Method 1 for the estimation of fugitive emissions from the extraction of coal from open cut coal mines. The government will

respond to the recommendation as it relates to the phase out of Method 1 for estimating other fugitive methane emissions in its full response to the CCA review in mid-2024.

The CCA review is certified as an Impact Analysis Equivalent for the purpose of this legislative proposal. The review describes the policy problem that is being addressed through the proposed NGER scheme amendments, the objectives of government intervention and provides recommendations for policy change. Extensive consultation was undertaken to inform the review and the department has undertaken further targeted and public consultation on the government's legislative proposal to implement the review's recommendation (see Annex A).

Supplementary Information document

This document:

- Is intended to inform understanding of the final design of 2024 amendments to the NGER scheme to further enhance the estimation of fugitive methane emissions from the extraction of coal from open cut coal mines,
- Provides supplementary information to the CCA review, which has been certified as an Impact Analysis Equivalent, in particular:
 - outlines the two options considered to implement the CCA review recommendation 15 as it relates to open-cut coal mines,
 - addresses the Impact Analysis questions not covered by the CCA review:
 - What is the best option from those you have considered and how will it be implemented?
 - How will you evaluate your chosen option against the success metrics?
 - outlines further consultation undertaken by the department (see Annex A),
 - is Certified by the department.

What is the best option from those you have considered and how will it be implemented?

Two options were considered for implementing the CCA Review’s recommendation 15 in relation to the phase out of Method 1 for estimating fugitive methane emission from open cut coal mines.

These options were compared with the reference (business-as-usual) option, reflecting the current policy settings for the NGER scheme. These options are summarised in Table 1 and provided in more detail below.

Table 1: Summary of Policy Options

| Policy option | Policy setting |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference option (BAU) | <ul style="list-style-type: none"> No amendments made to the NGER Measurement Determination. Facilities may continue to report emissions using Method 1, 2 or 3. |
| Option 1 (Method 1 repealed for all) | <ul style="list-style-type: none"> Method 1 is repealed from the NGER Measurement Determination with all facilities required to use Method 2 or 3. |
| Option 2 (Method 1 repealed for Safeguard facilities only) | <ul style="list-style-type: none"> Method 1 is phased out for Safeguard Mechanism facilities: <ul style="list-style-type: none"> from 1 July 2025, Safeguard Mechanism facilities that produced more than 10 million tonnes of coal in FY2023 must estimate fugitive methane emissions from open-cut mines using Method 2 or 3; from 1 July 2026, all remaining Safeguard Mechanism facilities must estimate fugitive methane emissions from open-cut mines using Method 2 or 3. A facility can apply to the Clean Energy Regulator for a limited extension of time to transition to Method 2 or 3 if it satisfies prescribed requirements. |

Option 2 was identified as the preferred option. This decision was informed by the analysis contained within the Impact Analysis Equivalent (CCA review), further analysis of the options undertaken by the department with regard to the differences in facility and emissions coverage, regulatory burden, and implications for the accuracy of emissions data. Feedback from additional stakeholder consultation undertaken by the department (Annex A) was also considered.

This option best supports the objective of enhancing the accuracy of fugitive methane emissions reported by facilities from the extraction of coal from open-cut mines, while minimising regulatory burden on business. A summary of this assessment is set out below.

By maintaining the status quo, the reference option does not achieve the objective of enhancing the accuracy of reported fugitive methane emissions from open-cut mines. Nor is it consistent with the CCA review Recommendation 15 to phase out Method 1 methods for fugitive methane emissions estimation.

Both Options 1 and 2 would support the objective of enhancing the accuracy of reported fugitive methane emissions from open-cut mines because both options would require facilities currently using Method 1 to transition to Method 2 or 3. Method 1 provides a simple, low-cost option for estimating fugitive methane emissions from open-cut mines. Method 1 estimates an open-cut mine's fugitive methane emissions by applying state-specific emissions factors prescribed in the Measurement Determination to facility-level activity data (quantity of run-of-mine coal extracted during the reporting year). The emission factors are based on best available data sources, including state government petroleum datasets and methane flux studies, to derive the average methane content of coal across a given state. Such emission factors do not reflect the mine-specific methane content, which can vary both between coal basins and within the same basin.

In contrast, Methods 2 and 3 would enhance the accuracy of reported fugitive methane emissions through the use of facility-specific data. The methods require the development of a mine-specific model for the in-situ methane in place prior to extraction. This model is used to estimate the fugitive emissions of methane each year when extracting coal from the open-cut mine. Modelling, sampling and analysis must be conducted in accordance with the Australian Coal Industry's Research Program (ACARP) guidelines and relevant Australian Standards. Key components of these methods are set out below and provided in further detail in the Regulator's *Estimating emissions and energy coal mining guideline* ([cer.gov.au](https://www.cer.gov.au)).

- A framework for data collection, including borehole sampling and gas testing of coal and gas bearing strata, which ensures representative and unbiased sampling. Third parties are used for gas sampling and testing. The "Estimator" (see below) must also be satisfied that the competence and approach taken by those performing the required sampling and testing meets appropriate standards, and that finding documented.
- Guidelines and standards for data analysis and interpretation.
- An approach for estimating gas in near-surface zones characterised by very low gas contents.
- Guidelines on utilising the collected data to produce a model of gas distribution describing the gas content and composition with a defined three-dimensional volume. The process and supporting data for the modelling must also undergo a documented independent peer review by an appropriate professional and demonstrate due diligence.
- Guidelines on estimating the emissions released from the in-situ gas stock as blocks of strata within the mine are extracted for coal production.
- Minimum qualifications of persons ("Estimator") who are permitted to estimate emissions

from an open-cut mine using the higher order method. It should be evidenced, through the creation and storage of appropriate documentation, that the Estimator (either an individual or a team) used meets the professional and qualification requirements set out in the ACARP guidelines.

- NGER scheme reports are subject to rigorous monitoring and compliance measures administered by the Clean Energy Regulator, including desktop reviews, Greenhouse and energy audits, site visits and data analysis to identify anomalies and reporting errors. Further information on the Regulator's approach to monitoring and compliance is available at [Our compliance approach | Clean Energy Regulator \(cer.gov.au\)](https://www.cer.gov.au/our-compliance-approach).

When Options 1 and 2 were compared, Option 2 was found to better support the objective of enhancing the accuracy of fugitive methane emissions reported by facilities from the extraction of coal from open-cut mines through design features that could be expected to promote higher compliance while minimising regulatory burden and addressing stakeholder concerns to the greatest extent possible. These design features are summarised below:

Prioritisation of facilities covered by the Safeguard Mechanism

Based on FY2023 data, Option 1 would require 37 facilities to access the same limited pool of physical equipment and qualified personnel simultaneously in order to comply with the requirements of Methods 2 or 3. These requirements are materially different to Method 1, and in large part must be completed prior to the commencement of the reporting year.

Option 2 reduces the number of affected facilities seeking to access those resources to 21 (43% reduction). It therefore better supports the submission of high quality Method 2 or 3-consistent emissions data by mitigating the risk of incorrect application of the method due to delays in accessing necessary resources.

This approach would still realise a significant increase in fugitive emissions estimated using Method 2 or 3, given Safeguard Mechanism facilities accounted for 92% of fugitive methane emissions reported using Method 1 in FY2023. Prioritising enhanced accuracy in emissions reporting by such facilities is also consistent with the important role the Safeguard Mechanism plays in the achievement of Australia's national emission reduction targets.

Staged phase out of Method 1

In addition to prioritising Safeguard Mechanism facilities for transition to Methods 2 or 3, Option 2 staggers those facilities' transition over two years. A small number of Safeguard Mechanism facilities that each produced more than 10 million tonnes of run-of-mine coal in FY2023 (latest reported year) would be required to apply Methods 2 or 3 from 1 July 2025. All remaining facilities covered by the Safeguard Mechanism would be required to apply Methods 2 or 3 from 1 July 2026.

This staged phase out approach would achieve a material increase in emissions reported using Methods 2 or 3 in FY2026. Based on FY2023 data, the facilities that would transition in the first year

of the phase out reported around 41% of fugitive methane emissions estimated using Method 1 in that year. The approach would also better promote compliance and enhanced accuracy in reported emissions compared to Option 1 by spreading the demand for equipment and personnel over two years and recognising that the time required to complete the transition will vary from facility to facility.

Provision for temporary extension of time to transition to Methods 2 or 3

Option 2 includes provision for the NGER scheme administrator, the Regulator, to provide a facility a temporary extension of time to transition to Methods 2 or 3. The Regulator would have the discretion to provide such an extension where a facility has provided evidence that demonstrates reasonable efforts have been made to transition but a genuine need remains for a temporary extension to avoid incorrect application of the method that could impact the accuracy of the reported emissions estimates.

This aspect of Option 2 reflects consultations with industry stakeholders. Industry advised that, based on more than 10 years' experience in implementing Method 2 and their understanding of affected facilities varied circumstances, it was possible that some facilities may encounter difficulties meeting the transition timeframes for implementing Method 2 or 3 despite best efforts. Potential difficulties were stated to include issues accessing drilling equipment, laboratories and qualified personnel in a timely fashion, weather delaying drilling, complex or extensive ore bodies requiring significant or repeated rounds of sampling and analysis, and the need to complete related federal and state regulatory processes within the proposed timeframes.

Regulatory burden

Option 2 would be expected to result in lower regulatory burden on individual facilities and the industry as a whole, compared to Option 1. Staging the phase out should help dampen increases in the cost of equipment and personnel that otherwise could have been driven by requiring all facilities to transition over the same time period. By excluding non-Safeguard Mechanism facilities, which in FY2023 were responsible for under 8% of Method 1 emissions, Option 2 addresses stakeholder concerns that the proposal could impose compliance costs on those facilities that were disproportionate to the enhancement in emissions accuracy achieved through transition to Method 2.

While the design of Option 2 will minimise regulatory costs to individual facilities, the material difference between Method 1 and Methods 2 and 3 will result in an increase in regulatory costs for each facility required to apply those methods. The estimated regulatory burden for each policy option is provided in Table 2, along with the number of facilities impacted based on FY23 NGER scheme reported data and the proportion of emissions reported using Method 1 in FY23, which would be covered by the transition to Methods 2 or 3.

No regulatory burden is expected to be incurred by individuals or community organisations. As the Reference Option represents Business as Usual, that option imposes no additional regulatory

burden on business. The estimated costs to business from Options 1 and 2 are based on the Australian Government's *Regulatory Burden Measurement* framework, industry feedback and publicly available information. Estimated costs are separated into the two key stages in the implementation of Options 1 and 2:

- "Transitional costs": incurred by a facility prior to commencing estimation of fugitive methane emission in accordance with Methods 2 or 3. They are costs to a facility associated with acquiring data on its gas resource and then completing a gas assignment model. Examples of these costs include acquisition of drilling rig, sample testing/laboratory and technical and assurance/review services. Some of these costs may also be incurred at different times in the future for various reasons including mine expansions and changes to mine design/plan.
- "Ongoing costs": incurred each year by a facility to fulfil requirements under Methods 2 or 3 to report fugitive methane emissions from coal extraction for a given reporting year by applying the above gas assignment model. Examples of these costs include technical resources to prepare the annual emissions estimate and related assurance activities.

The regulatory burden estimates in Table 2 for each of the above two stages are indicative and presented as a range rather than an average of the estimated costs for all affected facilities. This approach is necessary due to the considerable variability of affected facilities, the facility-specific emissions measurement requirements of the proposed amendments, and the absence of publicly available information regarding the cost and time required to implement the amendments in each of the affected facilities. Much of the information needed to calculate an average would only become available during the transitional stage.

The ranges in Table 2 are based on industry feedback, including cost estimates for affected facilities based on three categories. These categories estimated cost based on different coal mine seam lengths ('strike length'), and the assumption that the longer the strike length the more complex a mine's geology and gas resource, and therefore the higher the regulatory costs. Publicly available information on the affected facilities' strike length was then used to determine an indicative range of estimated regulatory burden. For the same above-mentioned cost and time variability reasons, the 'Transitional' estimate in Table 2 is presented as an aggregate rather than an annual figure. The majority of affected facilities are expected to transition within 2 years however some may incur these costs over a longer transition period if they satisfy the above-mentioned requirements for a temporary extension of time to transition to Method 2 or 3. The 'Ongoing' costs in Table 2 are presented as an indicative annual range, also based on the above-mentioned three categories of mine-type.

While the regulatory burden estimates are material they have a high degree of uncertainty with regard to each affected facility, due to information paucity and variability between affected facilities. The regulatory burden can also be considered in the context of the sector's contribution to Australia's fugitive methane emissions and the value of its production. In financial year 2022-23

Australia’s coal mine sector profits before tax were \$73.3 billion². In financial year 2021-22, open-cut mines fugitive methane emissions accounted for 9 million tonnes carbon dioxide equivalent. Submissions from industry to the NGER scheme public consultation on the proposed amendments did not raise potential regulatory burden as an obstacle to implementation.

As indicated in Table 2 and mentioned above, regulatory burden costs associated with Option 1 would be expected to be higher on both an individual facility and sectoral basis than Option 2. Option 1 would result in an additional 16 facilities competing for the same limited pool of equipment and technical personnel required to implement Methods 2 or 3. Such a situation could be expected to place upward pressure on regulatory costs, however the exact quantum of the increase cannot be reliably determined given the range of cost inputs and complexity of predicting the magnitude of price increases across those inputs.

Table 2: Regulatory burden estimates with the estimated proportion of emissions reported using Method 1 for each option where affected facilities are determined on the basis of FY23 data.

| Policy option | Estimated regulatory cost to all affected facilities (\$million) | No. of facilities affected (FY2023 data) | Estimated proportion of emissions reported by affected facilities using Method 1 (FY2023) |
|------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------|
| Reference option (BAU) | 0 | 0 | 0 |
| Option 2: Preferred (Method 1 repealed for Safeguard facilities only) | | | |
| <i>Transitional costs (a)</i> | 80-100 | 21 | 92% |
| <i>Ongoing annual costs (b)</i> | 3-4 | 21 | 92% |
| Option 1 (Method 1 repealed for all facilities) | | | |
| <i>Transitional costs (a)</i> | 80-100+ | 37 | 100% |
| <i>Ongoing annual costs (b)</i> | 3-4+ | 37 | 100% |

(a) Estimated and indicative range of costs expected to be incurred over the course of one or more years.

(b) Estimated and indicative range of costs expected to be incurred on an annual basis after transitional arrangements completed.

² Australian Bureau of Statistics (2022-23), [Australian Industry](#), ABS Website, accessed 6 June 2024.

Implementation

Implementation

The chosen option (Option 2) will be implemented through an amendment to Division 3.2.3 of the Measurement Determination. This amendment will be made on 1 July 2024 and will take effect as follows:

- From 1 July 2025, all facilities covered by the Safeguard Mechanism that reported more than 10 million tonnes of run-of-mine coal was extracted during FY2023 must estimate fugitive methane emissions from open-cut mines using Method 2 or 3.
- From 1 July 2026, all remaining facilities covered by the Safeguard Mechanism must estimate fugitive methane emissions from open-cut mines using Method 2 or 3.
- The Regulator will be provided the discretion to extend the transition period in relation to a particular facility where it is satisfied, based on evidence provided by that facility, that reasonable efforts have been made to transition within the prescribed timeframe, but a genuine need remains for a temporary extension to avoid non-compliance.

Figure 1 summarises the implementation timeline.

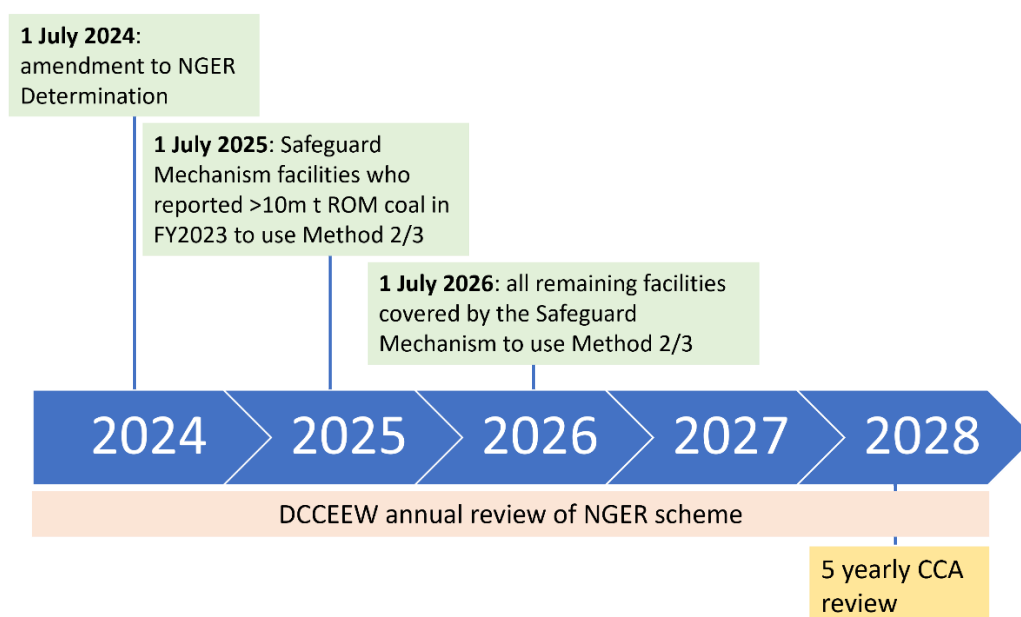


Figure 1: Implementation timeline.

Risks to implementation and mitigation measures

There are three main risks to the implementation of phasing out Method 1 for open cut coal mines: a lack of familiarity with Methods 2 or 3 leading to incorrect application of the methods; insufficient equipment and personnel to meet demand; and the complexity of transition for particular facilities.

These risks and the associated mitigation measures are summarised in Table 3 and explained in greater detail below.

Table 3: Summary of risks to implementation and associated mitigation measures

| Risk | Likelihood | Impact | Mitigation measure |
|----------------------------------------------------------|------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lack of familiarity with the methods | Moderate | Low | <ul style="list-style-type: none"> Regulator’s education, monitoring, compliance and enforcement arrangements, ranging from guidance material and workshops to the requirement to resubmit non-compliant data |
| Insufficient equipment and personnel to meet demand | Moderate | High | <ul style="list-style-type: none"> Option 2 spreads demand for equipment and personnel over two years and provides discretion for Regulator to extend transition period |
| Unanticipated complexity or scale of facility operations | Low | Low | <ul style="list-style-type: none"> The Regulator will have discretionary power to extend the transition period for a particular facility based on genuine need |

Lack of familiarity with the methods

Poor compliance is a possibility when a facility applies a method for the first time. As discussed previously, the requirements for compliance with Methods 2 and 3 are materially different to those for Method 1. It is noted, however, that the methods have been in use by the industry for over 10 years and around 40% of the facilities that will be required to transition to Methods 2 or 3 are owned by companies that use Method 2 for other open-cut mine facilities.

The Regulator has over 10 years’ experience in supporting facilities’ compliance with Method 2. Compliance will continue to be promoted through the Regulator’s education, monitoring compliance and enforcement arrangements. These arrangements include helping scheme participants to understand how to comply with their obligations through tools such as guidance documents, workshops, discussion forums and web-based frequently asked questions (FAQs), as well as an overall approach to deter, detect and respond to non-compliance to ensure ongoing scheme integrity.

Supply of required equipment and insufficient personnel to meet demand

Industry stakeholders have advised that the pool of equipment and personnel required for compliance with Methods 2 and 3 may not be sufficient to meet the needs of all facilities within the transition period.

Option 2 is designed to spread demand for such resources across two years to mitigate this risk. In addition, this option makes provision for the Regulator to extend the transition period for a particular facility where it is satisfied, based on evidence provided by that facility, that reasonable efforts have been made to transition within the prescribed timeframe, but a genuine need remains

for a temporary extension to avoid incorrect application of the method that could impact the accuracy of the reported emissions estimates.

Complexity of facility transition

Industry stakeholders have advised that the transition period may be insufficient for facilities in complex situations, including facilities with complex or extensive ore bodies that will require significantly more sampling and analysis than simpler ore bodies to produce a reliable and representative model of the mine's gas content and composition.

These situations are expected to be limited, with mitigation taking the form of the Regulator's discretionary power to extend the transition period for a particular facility where it is satisfied, based on evidence provided by that facility, that reasonable efforts have been made to transition within the prescribed timeframe, but a genuine need remains for a temporary extension to avoid incorrect application of the method that could impact the accuracy of the reported emissions estimates.

How will you evaluate your chosen option against the success metrics?

The objective of this amendment to the NGER scheme is to enhance the accuracy of facility-level emission estimations from open cut coal mines. Industrial facility-level emissions and energy data from the NGER scheme are integral to the development, implementation and monitoring of climate policy, including the Safeguard Mechanism, Australian Carbon Credit Units scheme, national net zero and sectoral decarbonisation plans and mandatory corporate climate-related financial disclosure requirements, as well as implementation of international and domestic emissions and energy reporting obligations under the Paris Agreement and *Climate Change Act 2022*. As such, effective evaluation of this amendment is critical.

The success of this amendment will be monitored through the following metrics.

Compliance

Compliance with Method 2 or 3 will be determined through the Regulator's monitoring, compliance and enforcement program. The Regulator monitors compliance with the NGER scheme through systematic analysis of reported data for qualitative or quantitative errors and through consideration of findings from its annual audit program. Where reporting errors are identified and confirmed, the Regulator may require that the data is corrected through resubmission. In its monitoring and compliance activities, the Regulator will prioritise reporters who are implementing Method 2 for the first time and will continue its current practice of publishing quarterly Compliance Updates which includes information on compliance activities associated with the NGER scheme.

Transition rates

A high rate of transition to Method 2 or 3 will indicate a small number of facilities seeking extensions for transition. This will be monitored by the Regulator who will have the discretionary power to grant such extensions.

The Government is publicly consulting on proposed amendments that would make information on this metric publicly available. It has proposed introducing a requirement for the Regulator to publish by 15 April each year the methods used by facilities to estimate fugitive methane emissions from coal mining, as well as oil and gas sector activities.

Use of the reported data

NGER scheme facility level data is used in the national inventory when there are sufficient facility-specific estimates for a specific basin. In the absence of a sufficient sample of data, the inventory applies default values (i.e. Method 1) to mitigate possible bias in estimates. High transition rates and compliance will enable facility level data to be incorporated into the national inventory within a reasonable timeframe.

Achievement of this metric will be publicly transparent as Australia's annual national inventory report to the United Nations (UN) describes data sources used in the estimation of fugitive emissions from open cut coal mines. Use of reported data will be subject to UN technical review under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.

Departmental and external review

In addition to the above success metrics, the Department reviews and updates the NGER scheme each year as part of its continuous improvement program and in response to feedback from users and other stakeholders. The implementation of Option 2 will form a part of future annual review, by feedback from reporters, the Clean Energy Regulator and the broader community. Every five years, the annual update is also informed by the Climate Change Authority's review of the operation of the NGER scheme legislation. The Authority's next review of the NGER scheme is expected in 2028.

Annex A: Additional consultation undertaken by the department

In addition to the extensive consultation undertaken through the Impact Analysis Equivalent, detailed on page ii of the CCA review, the department conducted further stakeholder consultation to inform the approach to implementing CCA Recommendation 15 as it relates to the phase out of Method 1 for the estimation of fugitive methane emissions from the extraction of coal from open-cut mines.

An outline of the department's consultation activities and feedback is provided below.

Targeted consultation

Over January to May 2024, the department sought views from the peak industry body, community interest groups, government agencies and members of the scientific community on CCA Recommendation 15 and options for its implementation in relation to open-cut coal mines.

Stakeholders either supported or did not oppose of the removal of Method 1, however, feedback was mixed regarding timing of the phase out. Some stakeholders sought phase out from 1 July 2024, while the peak industry body shared concerns that phase out within 3 to 5 years may present difficulties for some facilities. Such difficulties were stated to include issues accessing drilling equipment, laboratories and qualified personnel, delay due to weather, sampling complex or extensive ore bodies and completing related state regulatory processes.

Public consultation

Over 29 April to 24 May 2024, the department invited public submissions on the proposed legislative amendment to implement CCA Recommendation 15 in relation to open-cut mines (Option 2). The proposed amendment was included in the department's [*National Greenhouse and Energy Reporting \(NGER\) scheme: 2024 Proposed Amendments consultation paper*](#) made available on the department's website. Awareness of the public consultation was raised through social media and email notification of NGER scheme facilities, the peak industry body and community interest groups.

23 submissions on the proposed legislative amendment were received. 12 submissions supported the amendment as proposed. One submission supported the proposed phase out of Method 1 but suggested that, rather than applying the second tranche to all Safeguard Mechanism facilities, it should apply to open-cut mines that produced an (unspecified) lower run-of-mine coal per annum than 10 million tonnes. Other submissions supported the approach to the phase out of Method 1 but proposed it occur over a longer time period, in conjunction with a review or phase out of

Method 2, or the development of higher order emissions estimation methods. The CCA review of the NGER scheme made recommendations in regard to the review of Method 2 and the development of higher order methods for all fugitive methane emission sources. The government response to all CCA review recommendations is scheduled for mid-2024.