



Australian Government

Department of Climate Change, Energy,
the Environment and Water

National Greenhouse and Energy Reporting (NGER) Scheme

2024 Amendments

Consultation Outcomes Paper

National Inventory Systems and International Reporting Branch
Department of Climate Change, Energy, the Environment and Water



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Cataloguing data

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Acknowledgement of Country

We acknowledge the Traditional Custodians of Australia and their continuing connection to land and sea, waters, environment and community. We pay our respects to the Traditional Custodians of the lands we live and work on, their culture, and their Elders past and present.

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2024 NGER Amendments- consultation outcomes

The National Greenhouse and Energy Reporting (NGER) scheme is Australia's national system for reporting greenhouse gas emissions and energy production and consumption by corporations. It underpins the operation of the Safeguard Mechanism, and reported data informs climate and energy policy development. The department reviews the NGER scheme annually to increase the accuracy of reported data in line with Australia's international reporting obligations, and improve its operation, based on latest available data, research, practices and technologies.

The department [released](#) a consultation paper in late April 2024 outlining the following proposed updates to the NGER scheme.

Sixty four submissions were received. Submissions not requested to remain confidential are published on the department's consultation web page. Further information about the feedback received through consultation and the Australian Government's response is below.

Following the consultation, updates to NGER legislation have been made and are available on the Federal Register of Legislation:

- [National Greenhouse and Energy Reporting Amendment \(2024 Measures No. 1\) Regulations 2024](#) (the Update Regulations); and
- [National Greenhouse and Energy Reporting \(Measurement\) Amendment \(2024 Update\) Determination 2024](#) (the Update Determination).

The Update Determination and the Update Regulations are the first stage of the government's response to the Climate Change Authority's (CCA) 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 has been [published](#). The CCA made 25 recommendations for the NGER scheme and the government agreed fully to 11 of the CCA's recommendations; in principle to 13 recommendations and has noted 1 recommendation.

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;
- reinstate a method for estimating emissions of methane from mud de-gassing activities during oil or gas exploration and development;
- make 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.

Fugitive methane emissions

Submissions

A number of submissions raised proposals or concerns about the way the NGER scheme estimates fugitive methane emissions that went beyond the scope of the consultation paper. Several submissions expressed strong support for implementation of recommendations from the CCA's 2023 review of the NGER scheme. This included suggestions around phasing out of Method 1 for a wider range of sources; developing or reviewing more higher order methods; introducing requirements for direct measurement of sources coupled with site-wide top-down verification approaches; and investing in new scientific studies to improve understanding of emerging technologies and approaches for detecting and estimating fugitive methane emissions.

Outcomes

The amendments that have been made are the first stage of the Government's response to the CCA's review. The government has published its full response to review and has agreed to recommendations relating to improving understanding of emerging emissions detection and quantification approaches and developing and reviewing higher order methods.

Open-cut coal mines: phasing out Method 1

The consultation paper proposed phasing out Method 1 for fugitive emissions from open-cut coal mines, beginning with facilities covered by the Safeguard Mechanism that produced more than 10 million tonnes of coal from their open-cut mine in FY2023 from 1 July 2025, and other Safeguard Mechanism facilities from 1 July 2026. This would partially implement recommendation 15 from the 2023 CCA Review of the NGER scheme.

Submissions

Some submissions supported the phase out of Method 1 for extraction of coal from open cut mines covered by the Safeguard Mechanism. Several submissions advocated for the phase out to be applied to non-safeguard entities. Some submissions advocated for a faster phase out. Other submissions advocated for the phase out to be over a longer period, or to be delayed until Method 2 for this source is reviewed or a new method is developed using direct measurement.

Some submissions sought additional guidelines on how to apply existing provisions in Method 2 and 3 for abatement of open-cut mine methane through pre-drainage of the gas prior to extraction.

Outcomes

The Update Determination phases out the use of Method 1 for extraction of coal from open cut mines covered by the Safeguard Mechanism as proposed in the consultation paper. This approach will cover approximately 92% of fugitive methane emissions reported for open-cut mines using Method 1 in FY2023, enhancing the accuracy of fugitive emissions reported for this source. Staggering the transition over two years will promote compliance by helping to manage competition for the necessary resources to implement the materially different requirements of the higher order methods, which in large part must be completed prior to the commencement of the reporting year to which the higher order method is applied.

The Clean Energy Regulator (the Regulator) has indicated it will prioritise facilities using Method 2 or 3 in its audit and assurance program, addressing some of the concerns about facilities applying the method improperly.

Method 2 for extraction of coal from open cut mining is the most sophisticated 'bottom-up' method for this source in the world. As a result, reviewing the method will be complex and is likely to take some time. In that context, delaying the phase out of Method 1 until after the review of Method 2 and implementation of any findings would not have been consistent with recommendation 15 from the CCA. The government has agreed to the review of Method 2 in the context of its response to the CCA Review.

The department will consider additional guidance on the application of provisions for pre-drainage from open-cut coal mines. in the context of the government's response to the CCA review recommendation to review Method 2.

Underground coal mines: introduction of a new “matters to be identified”

The consultation paper proposed requiring reporters to identify whether they use continuous emissions monitoring (CEM) or periodic emissions monitoring (PEM) for the estimation of fugitive methane emissions from underground mines. The intention of this proposal was to collect information on how many and which open-cut mines use PEM, to inform consideration of its phase out.

Submissions

Some submissions supported phase out of PEM now. Submissions from industry groups advised that facilities typically use a mixture of PEM and CEM consistent with state and territory coal mine safety regulations. Industry submissions also advised that PEM can be more effective than CEM for monitoring the airflow component of the emissions calculation as CEM equipment is prone to blockage; potentially resulting in underestimation of emissions.

Outcomes

The proposed amendment will not be implemented given the information sought through the amendment was obtained through the public consultation. In the context of broader priorities to further improve the accuracy of fugitive methane emissions estimates, the department will consult underground mine experts to test the assertions around the comparative accuracy of CEM and PEM and with state and territory governments to understand the implications of any changes to these requirements in the context of coal mine safety monitoring requirements.

Natural gas fugitive emissions

Venting

The consultation paper proposed 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. The paper noted that a consequence of the proposed amendments was that reporters would be required to calculate the uncertainty of reported emissions, rather than using the default uncertainty factors under the Method 1 approach.

Submissions

Some submissions supported the proposed amendment. Other submissions advocated the phase out of all instances of Method 1 for natural gas venting activities and the development of higher order methods for all sources, including direct measurement, and the use of site-wide top-down approaches to verify source level estimates.

Some submissions sought further guidance about how to calculate the uncertainty of emissions estimated for natural gas venting of methane using methods re-categorised as Method 2.

Outcomes

The Update Determination implements the amendments as proposed in the consultation paper. The amendments are the first stage of the Government's response to the CCA's review as they relate to enhancing the estimation of fugitive methane emissions from natural gas activities. As noted above, the government has published its full response to the CCA review, including agreeing to the CCA recommendations relating to developing and reviewing higher order methods and improving understanding of emerging top-down emission detection and estimation approaches.

The Regulator has confirmed it will update its uncertainty calculators and guidance materials to support the methods for natural gas venting re-categorised as Method 2.

Mud de-gassing

The consultation paper proposed reinstating a method for the estimation of methane emissions from natural gas mud de-gassing activities.

Submissions

There was general support for this proposed amendment, with a couple of submissions suggesting inclusion of an engineering calculation option or development of a revised emissions factor.

Outcomes

The Update Determination implements the amendment as proposed in the consultation paper. It is noted that, in most cases, emissions from drilling mud degassing are expected to be below the NGER scheme incidental provisions threshold. Under such circumstances, reporters may use their own method provided it aligns with the general principles specified under section 1.13 of the NGER Measurement Determination. This includes methods in the category of engineering calculations.

Produced water

The consultation paper proposed amending the definition of W_i in the Method 2 calculation for produced water from oil and gas exploration and development activities. The proposal amended W_i to mean the net quantity of water produced, rather than the total quantity, which allows for reinjected water to be excluded in those instances where it has not been exposed to atmosphere.

Submissions

There was general support for this proposed amendment. One submission proposed broadening the update to include situations where facilities avoid methane leaks by capturing and recycling the gas back into their system.

Outcomes

The Update Determination includes the proposed change and extends it to situations 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. This expansion draws on established methodologies available in the landfill and coal mine emissions sectors and is consistent with the objective of incentivising on-site abatement. The Update Determination amendments to this method relates to a small fugitive methane emissions source (about 0.1% of FY2022 emissions).

Oil and natural gas sector provisions: miscellaneous clarifications

The consultation paper proposed amendments to facilitate compliance by clarifying the intended operation of the Measurement Determination. The amendments clarified that multiple samples may be used to calculate a representative sample (see Sampling of Gaseous Fuels section for further details) and corrected a typographical error and table cross reference.

Submissions

There was general support for these proposed amendments, with one submission noting the clarification to sampling requirement would help to minimise errors that could result from sample contamination.

Outcomes

The Update Determination implements the amendment as proposed in the consultation paper.

Flaring

The consultation paper proposed amendments to introduce an additional Method 2 for the estimation of methane emissions from natural gas flaring activities, and consequential additional Method 2 for the estimation of carbon dioxide emissions from natural gas flaring activities, both based on a mass balance approach. The amendments were proposed to mitigate identified barriers to uptake of the current higher order method.

Submissions

Some submissions supported the proposed amendments, including suggestions for further improvement. Other submissions advocated the replacement of all Method 2 with a direct measurement Method 4 approach, and eventual incorporation of source-site reconciliation using top-down measurement approaches. Another submission encouraged consideration of existing and proposed Energy Attribute Certificates (EAC) schemes which use mass balance to track fuel characteristics to specific supply chain points. A further submission raised concern with the 98% destruction efficiency, on the grounds its facility was capable of 99%.

Outcomes

The Update Determination implements a revised version of the proposed amendments. Feedback on the Method 2B equation for estimating methane emissions was reviewed and the equation updated to reflect only the methane component of gas flared, rather than all hydrocarbon content. Feedback regarding the existing Method 2A will be considered as part of a future annual NGER scheme update.

No changes have been made to the 98% destruction efficiency in the method equations. That destruction efficiency remains best practice guidance and is consistent with the *2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories*. As part of annual NGER scheme updates, the department will continue to monitor this issue, noting there is currently conflicting evidence for flaring efficiencies higher and lower than 98%.

Considering the fact that the NGER scheme is not a lifecycle reporting framework, the suggestion to consider EAC schemes in the context of fugitive methane emission estimation would be a novel approach; requiring consideration of its relevance to scope 1 emissions reporting under the NGER scheme and consistency with Paris Agreement reporting requirements.

As mentioned in the context of the natural gas venting method amendments, the Update Determination amendments to the natural gas flaring amendments are the first stage of the Government's response to the CCA's review. The government has published its full response to the CCA review, including agree to the CCA recommendations relating to developing and reviewing higher order methods and improving understanding of emerging top-down emission detection and estimation approaches.

Fugitive methane emissions: new transparency arrangements

The consultation paper proposed an amendment to the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015* (Safeguard Rule) to require the Regulator to publish by 15 April each year the method used by each Safeguard Mechanism facility to estimate fugitive methane emissions for the previous financial year from coal mining, oil and natural gas sources.

Submissions

Submissions were generally supportive of the proposed improvements to transparency. Some submissions advocated for broader application of the transparency requirements.

Outcomes

This proposal has been implemented through a separate process to amend the [Safeguard Rule](#). Some of the feedback seeking broader improvements to transparency have been considered in the government's full response to the 2023 CCA Review of the NGER legislation.

Scope 2 emissions from consumption of electricity

State and territory specific Residual Mix Factors (RMF)

Following feedback received during the 2023 NGER update process when optional market-based reporting was introduced, RMFs disaggregated by state and territory were developed and proposed in this amendment cycle. This proposed amendment reflected a commitment from the government to further refine the market-based method for the reporting of scope 2 emissions over time.

Submissions

Feedback on proposed introduction of disaggregated RMFs under the voluntary market method for scope 2 emissions was mixed. Some stakeholders strongly supported the use of state based RMFs while other stakeholders were concerned about challenges arising from introducing a state-based element to a national market for renewable generation, and the impacts this could have on the market for large generation certificates.

Outcomes

The government will defer the proposed changes to the scope 2 market method so the issue can be considered further. The department will examine alternative approaches to disaggregation such as grid-based factors. The department will also consider future opportunities for refinement to scope 2 market-based methods in the context of alignment with the Renewable Energy Guarantee of Origin certification process under development.

The government has updated the location and national market factors for the estimation of scope 2 emissions from the consumption of purchased or acquired electricity. This amendment was not made in amendment instrument that entered into force on 1 July 2024 but was included in the [Safeguard rule update](#) process as outlined above.

Schedule 4, Part 7 - new reportable item to flag overlap of scope 1 and scope 2 emissions estimates of a corporation

The consultation paper proposed the introduction of new matters to be identified under Schedule 4 of the Measurement Determination to enable identification of circumstances in which there exists an overlap between a company's reported scope 1 and scope 2 emissions.

Submissions

Submissions supported the proposal.

Outcomes

The Update Determination implements the amendments as proposed in the consultation paper. Market-based approach for reporting scope 1 emissions from renewable aviation kerosene and renewable diesel.

Market-based approach for renewable liquid fuels

The consultation paper proposed to introduce a market-based approach for determining scope 1 emissions that occur when renewable aviation kerosene (RAK) and renewable diesel (RD) (collectively, drop-in renewable fuels), are consumed after they have been co-mingled with their fossil fuel equivalents and supplied through shared infrastructure systems.

Submissions

There was general support for the proposal to introduce a mandatory market method for renewable fuels.

Several submissions advocated broadening the method to include biodiesel. This proposal was raised in targeted stakeholder meetings and no objections were raised.

Some submissions advocated for a book and claim approach which enables decoupling of fuel supply and consumption.

Some submissions sought further clarity on the definition of shared infrastructure and the need for a physical link between the supply and use of the fuel.

Several submissions advocated for the development of market-based methods for other fuel types with many submissions raising biomethane.

Outcomes

The Update Determination includes 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, renewable diesel, 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).

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 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; or
- 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.

The evidence requirements include reporters being able to demonstrate that:

- They have purchased the amount of 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
- The renewable liquid fuel they are reporting has been delivered into the shared infrastructure, evidenced for example, by a delivery or blending certificate
- 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.

Reporters also cannot report to have combusted more renewable liquid fuel than the amount of blended fuel physically drawn from the shared infrastructure.

Any fuel drawn from shared infrastructure that is not supported by the evidence required 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 department has commenced work on the development of a market method for renewable gas including biomethane, with the aim of being ready for consideration in next year’s NGER update.

The development of market methods for other fuel types and production scenarios (including co-processing) will be considered for future NGER update cycles informed inter alia by the identification of priority products under guarantee of origin certification framework.

The Update Determination also 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.

Submissions

One submission supported this amendment. No submissions opposed this amendment.

Outcomes

The Update Determination includes a new matter to be identified when using method 1 to estimate the emissions of methane from solid waste disposal on land to require landfills reporting emissions of over 100kt CO₂-e to provide an estimate of gross emissions from non-legacy waste.

Emissions of methane released from landfills – update to terminology.

Submissions

One submission supported this amendment. No submissions opposed this amendment.

Outcomes

The Update Determination implements the amendment as proposed in the consultation paper. The term 'collection efficiency amount' and 'CEA' has been updated to 'collection efficiency limit' and 'CEL' where appropriate in section 5.4, 5.15, 5.15A and 5.15B to achieve consistency of terminology with section 5.15C.

These updates do not impact the application of the collection efficiency methods in the Measurement Determination.

Other amendments

Carbon capture and storage and enhanced oil recovery – update to injection method

Submissions

Two submissions supported this amendment. No submissions opposed this proposed amendment.

Outcomes

The Update Determination implements the amendment as proposed in the consultation paper. Method 2 for estimating emissions from the injection of carbon dioxide (Section 3.96) has been updated with the equivalent method for natural gas production.

Sampling of gaseous fuels

Submissions

Two submissions supported this amendment. No submissions opposed this proposed amendment.

Outcomes

The Update Determination implements the amendment as proposed in the consultation paper. The requirement for samples to be derived from composites has been removed from section 2.23 (general requirements for sampling under method 2 for estimating emissions for carbon dioxide from the combustion of gaseous fuels).