

INQUIRY INTO EMISSIONS FROM THE FOSSIL FUEL SECTOR

Organisation: NSW Department of Climate Change, Energy, the Environment
and Water (DCCEEW)

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NSW Government submission

Inquiry into emissions from the fossil fuel sector

Introduction

The Joint Standing Committee on Net Zero Future will inquire into and report on the scale and nature of current and likely future direct greenhouse gas emissions from fossil fuel projects and related infrastructure in New South Wales.

The inquiry's terms of reference include consideration of:

- fossil fuel greenhouse gas emissions in NSW
- quantification of greenhouse gas emissions from fossil fuel extraction
- NSW emissions projections modelling
- abatement technology
- economic costs of greenhouse gas emissions
- any other matters.

The NSW Government's submission has been prepared by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) with input from the Environment Protection Authority (EPA), Department of Primary Industries and Regional Development (DPIRD), Department of Planning, Housing and Industry (DPHI), NSW Treasury and The Cabinet Office (TCO).

The submission provides (1) contextual information and (2) responses to the points in the inquiry's terms of reference.

1. Contextual information

Coal and gas industry in NSW

Coal is a major contributor to the NSW economy, as an important source of revenue, jobs, and economic activity. In 2023–24, around 25,000 people were employed in NSW across all coal mines, either as an employee of a mine operator or as a contractor. At least another 100,000 people were indirectly employed as part of the supply chain for the NSW coal industry or in providing local goods and services to those employed in the industry.

In 2023–24, coal mining represented nearly 23% of NSW's export value, contributed 4% to NSW's Gross State Product and paid \$2.7 billion in royalties. The NSW Government acknowledges that while global demand for coal is expected to decline over time, coal mining in NSW is likely to continue for several decades. This is based on the industry meeting continued export demand, supply needs for local power stations and indicative NSW mine closure dates. In this context, coal mining will continue to provide an important economic contribution for coal-producing regions throughout this period.

The NSW Government is committed to helping the resources sector reduce emissions. Coal mining will continue to be a key contributor in the NSW economy but there are opportunities for this sector to reduce emissions as the

world shifts to low-carbon alternatives. Coal exploration and mining activities are subject to a robust regulatory framework that considers the environmental impacts of mining as part of the approval process.

Approximately 95% of the total fugitive emissions from fossil fuel extraction are from coal mining, while approximately 5% are from gas extraction, processing and distribution.

Regulation of industry in NSW

The EPA plays a critical role in protecting the environment from the threat of climate change and delivering actions that will support NSW to achieve net zero emissions by 2050. As a regulator, the EPA's remit crosses several sectors, with its licensees responsible for emitting 50 to 60% of the state's emissions.

The *Climate Change Policy* and *Climate Change Action Plan 2023–26* outlines the EPA's regulatory approach and actions to address the causes and consequences of climate change in NSW. They support and build upon the NSW Government's climate change policies and initiatives and assist with meeting the net greenhouse gas emission reduction targets in the *Climate Change (Net Zero Future) Act 2023*.

Key initiatives already delivered under the plan include the NSW Guide for Large Emitters, which requires proponents of large greenhouse gas emitting proposals to prepare a greenhouse gas assessment as part of the planning assessment process. The following initiatives are currently on public consultation and further aim to reduce emissions from licensees:

- Proposed Climate Change Licensee Requirements.
- Climate Change Mitigation and Adaptation Plans – Proposed Mitigation Requirements.
- Proposed Greenhouse Gas Mitigation Guide for NSW Coal Mines, the first of several planned industry guides.

These can be accessed at: <https://yoursay.epa.nsw.gov.au/climate-change-licensee-requirements>.

Managing the economic benefits and environment impacts through the planning system

The *Environmental Planning and Assessment Act 1979* (the EPAA Act) provides the statutory framework for assessing fossil fuel projects and related infrastructure in NSW. The EPAA Act explicitly embeds the objective of ecologically sustainable development by requiring decision makers to consider economic, environmental and social impacts in all environmental planning and assessment matters.

The NSW Government, led by DPHI, undertakes comprehensive all-of-government assessments of coal mining and petroleum production projects. These assessments are underpinned by consideration of ecologically sustainable development with careful evaluation of the benefits, impacts and public interest by the consent authority before a decision is made.

The Government's policy is that entities involved in assessment and decision-making processes under the planning system – including DPHI and the Independent Planning Commission (IPC) – should consider NSW's emissions-reduction targets and, to the extent relevant, the Climate Change Act's guiding principles when examining new developments.¹

¹ [Ministerial statement | NSW Climate and Energy Action](#)

NSW Climate Change Policies

The *Climate Change (Net Zero Future) Act 2023* (Climate Change Act) legislates our ambitious approach to addressing climate change, including:

- guiding principles for action to address climate change that consider the impacts, opportunities and need for action in NSW
- emissions reduction targets for NSW:
 - 50% reduction on 2005 levels by 2030
 - 70% reduction on 2005 levels by 2035
 - net zero by 2050
 - a requirement that interim emissions reduction targets also be set for 2040 and 2045.
- an objective for NSW to be more resilient to a changing climate
- establishing an independent, expert Net Zero Commission to monitor, review, report and advise on progress towards these targets.

Net Zero Commission

The Net Zero Commission was established under the Climate Change Act in December 2023, with Commissioners appointed in July 2024. The Net Zero Commission operates independently but is accountable to the NSW Parliament. The Joint Standing Committee on Net Zero Future, established in June 2024, monitors and reviews the Commission's functions under the Climate Change Act. The Commission delivered its first annual report in November 2024, which identified the need for NSW to accelerate action to meet its emissions reduction targets.

Climate Change Network

A whole-of-government Climate Change Network has been established to drive accountability, collaboration and progress towards emissions reduction targets and adaptation objectives. The network brings together all NSW Government portfolios to develop clear actions, track progress, share data and insights, and build capacity.

Net Zero Plan

This Net Zero Plan Stage 1: 2020–2030 was established to set out how the NSW Government will achieve net zero emissions by 2050. Acknowledging the importance of a whole-of-economy approach to emissions reduction, the NSW Government has commenced work on an ambitious new Net Zero Plan for the next 10 years that will build on the current plan to chart a path for NSW to achieve its 2030 and 2035 emissions reduction targets and stay on track for net zero by 2050.

The new plan will refocus and reset our priority actions, reflecting the Government's policy that all sectors need to reduce their emissions to meet NSW's legislated targets, while acknowledging that each sector will decarbonise at different rates.

NSW Government's position on coal exploration and mining, and gas

The NSW Government has committed to updating the Strategic Statement on Coal Exploration and Mining in NSW, and the Future of Gas Statement during this term of government.

2. Response to the terms of reference

The NSW Government has responded to each of the specific terms of reference below.

Fossil fuel greenhouse gas emissions in NSW

- a) the relevance and consequences of fossil fuel greenhouse gas emissions for achieving New South Wales emissions reductions targets and complying with the guiding principles and purposes of the Climate Change (Net Zero Future) Act 2023

Overview

Fossil fuel extraction, production, distribution and consumption contributes to NSW emissions across almost all sectors of the NSW economy. The extraction of fossil fuels is inventoried in the IPCC² category '*Fugitives emissions from fuels*'. Most of the emissions in this sector come from coal mining. The end use consumption of fossil fuels occurs across many sectors, including electricity generation, transport, industrial processes and other energy end users including buildings, agriculture and manufacturing. The end use consumption is either for energy (e.g. combustion of fuels for electricity, energy or heat) or for as an industrial feedstock (e.g. using natural gas in steam methane reforming to produce hydrogen).

The majority of emissions occur within the energy end use category, noting that like other sectors, the fossil fuel extraction sector is also a consumer of energy and therefore also contributes to end use consumption.

Inventoried emissions for 2023 by gas type and sector are presented in Figure 1 (excluding the Land Use, Land Use Change and Forestry (LULUCF) sink).

² Intergovernmental Panel on Climate Change

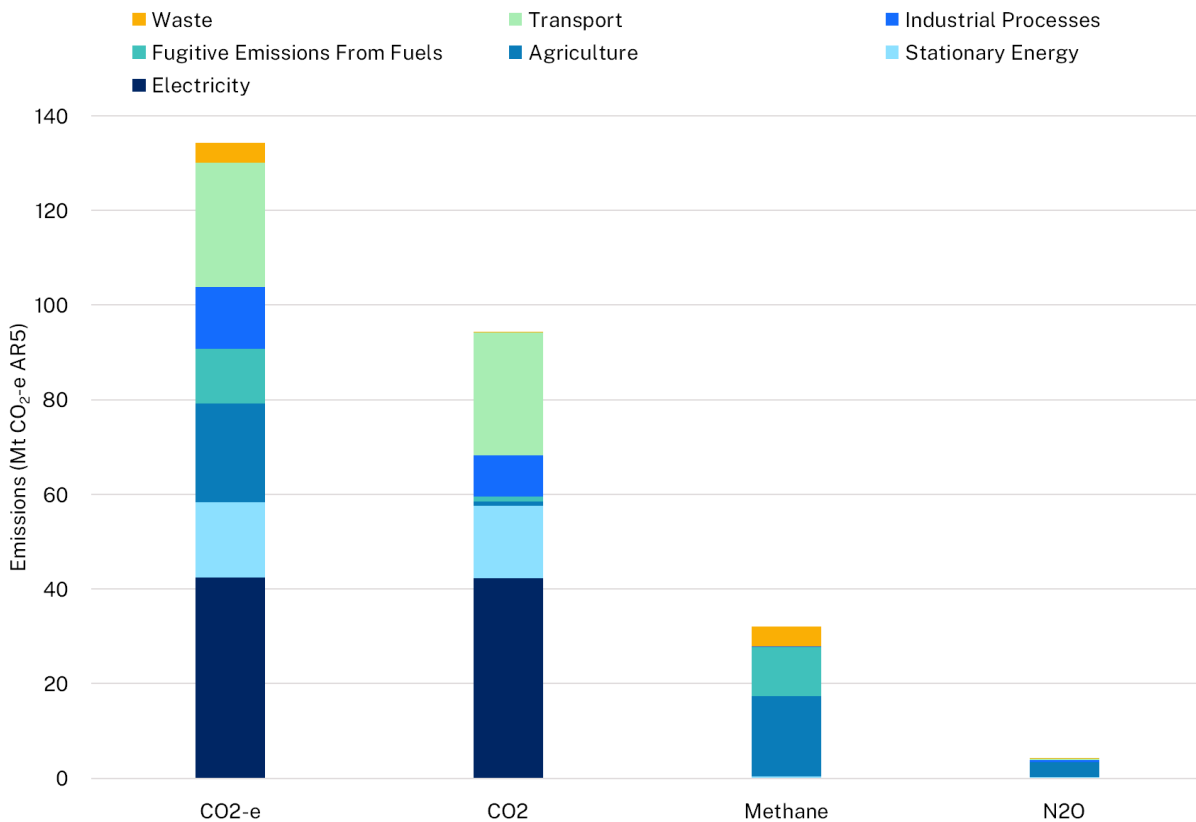


Figure 1 NSW GHG emissions as inventoried (2023) by gas type and sector (excluding LULUCF)

Based on emissions in 2023:

- The end use consumption of fossil fuels is responsible for 69% of NSW emissions (when the LULUCF sink is excluded).
 - The largest contributing end use sectors are electricity generation and transport, which combined are responsible for 75% of end use consumption of fossil fuels.
 - The largest contributing fuels for end use consumption are coal and petroleum products, which combined are responsible for 63% of end use consumption of fossil fuels.
 - 99% of the emissions from end use consumption of fossil fuels is released as CO₂.
- Fugitive emissions from fossil fuel extraction are responsible for 9% of NSW emissions in 2023 (when the LULUCF sink is excluded).
 - The largest contribution of fugitive emissions from fossil fuels extraction is coal mining, responsible for 95% of fugitive emissions.
 - 91% of fugitive emissions from fossil fuels extraction is methane (CH₄).
 - Fugitive emissions from fossil fuels extraction is responsible for approximately 30% of NSW methane emissions, with the majority of the remaining methane coming from Agriculture (50%).

Projected future emissions from fossil fuel extraction and consumption

DCCEEW’s latest GHG emissions projections update shows that under current policy settings emissions from the **electricity sector** are projected to decline significantly between now and 2050, due to the increased uptake of renewable energy for electricity generation, supported by the NSW Electricity Infrastructure Roadmap. The latest

modelling assumes enough renewable generation build to bring forward the retirement of two coal generating units in 2029. Relative to 2005, electricity sector emissions have already decreased by 25% in 2023, with projected reductions of 66% in 2030, 85% by 2035 and 98% by 2050. Approximately 87% of coal consumption is currently used for electricity generation in NSW, therefore emissions from the end use consumption of coal are expected to also decline significantly by 2050.

Under current policy settings emissions from the **transport sector** are also projected to decline between now and 2050, primarily within the light-duty vehicles subsector, due to market and policy driven uptake in electric vehicles (EVs). The latest modelling assumes NSW is on track to meet EV sales targets set by the NSW Electric Vehicle Strategy. Relative to 2005, transport sector emissions have increased 10% in 2023, with a projected increase of 0.3% by 2030, and then a reduction of 18% by 2035 and 72% by 2050.

Fugitives emissions from fossil fuels are projected to decline between now and 2050 under current policy settings. The modelled scenario includes a forecast of coal production for currently approved mines and planned modifications, continuation and expansion. Following an initial increase in emissions, the decline is driven by a reduction in forecast coal production, mine closures, as well as assumed uptake of emission reduction technology due to NSW EPA and Commonwealth regulation. Relative to 2005, sector emissions have decreased by 42% in 2023. A short-term increase in emissions is projected by 2030, due to an increase in mining activity (reduction of 34% in 2030 relative to 2005), followed by a reduction of 62% by 2035 and 91% by 2050.

Tracking to emission reduction targets

The *Climate Change (Net Zero Future) Act 2023* legislates NSW's greenhouse gas (GHG) emissions reduction targets of 50% reduction on 2005 levels by 2030, 70% reduction on 2005 levels by 2035 and net zero by 2050.

DCCEEW's latest GHG emissions projections update shows that under current policy settings, NSW is not on track to achieve its emissions reduction targets. NSW GHG emissions are projected to be 46% below 2005 levels by 2030 and 62% below 2005 levels by 2035 (Figure 2). The reduction in emissions under current policy projections across all sectors is presented in Figure 3.

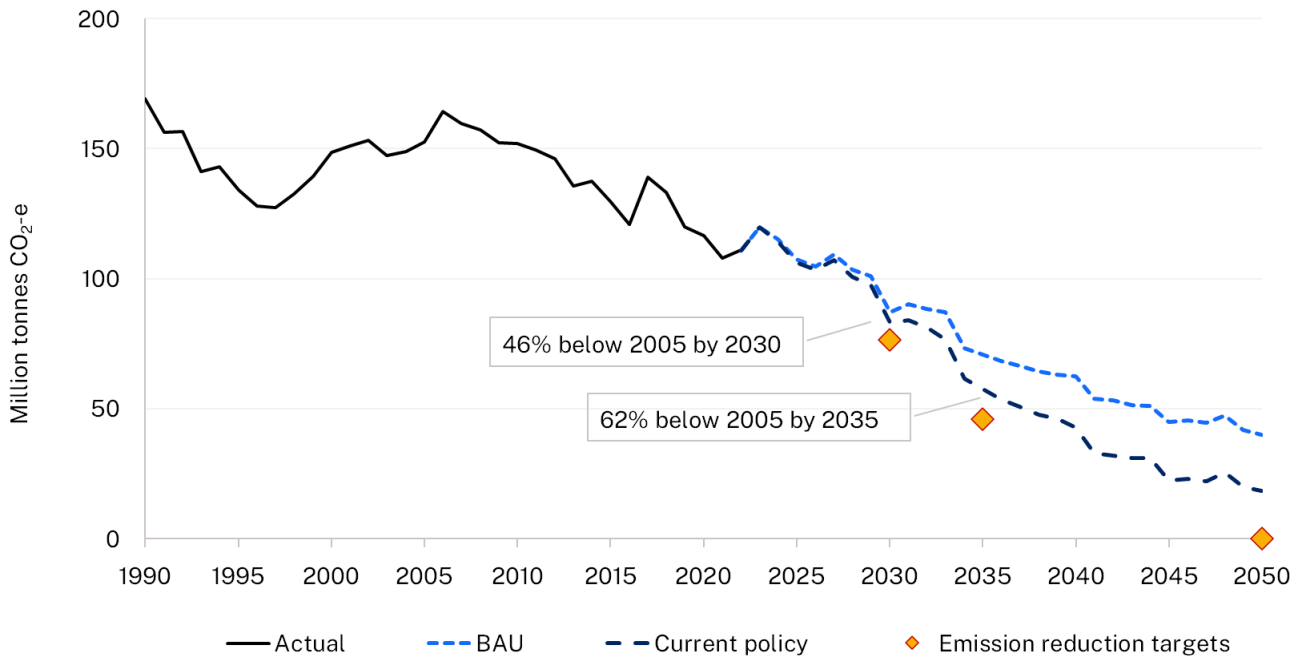


Figure 2 NSW GHG emissions as inventoried (1990–2022) and projected (2023–2050)

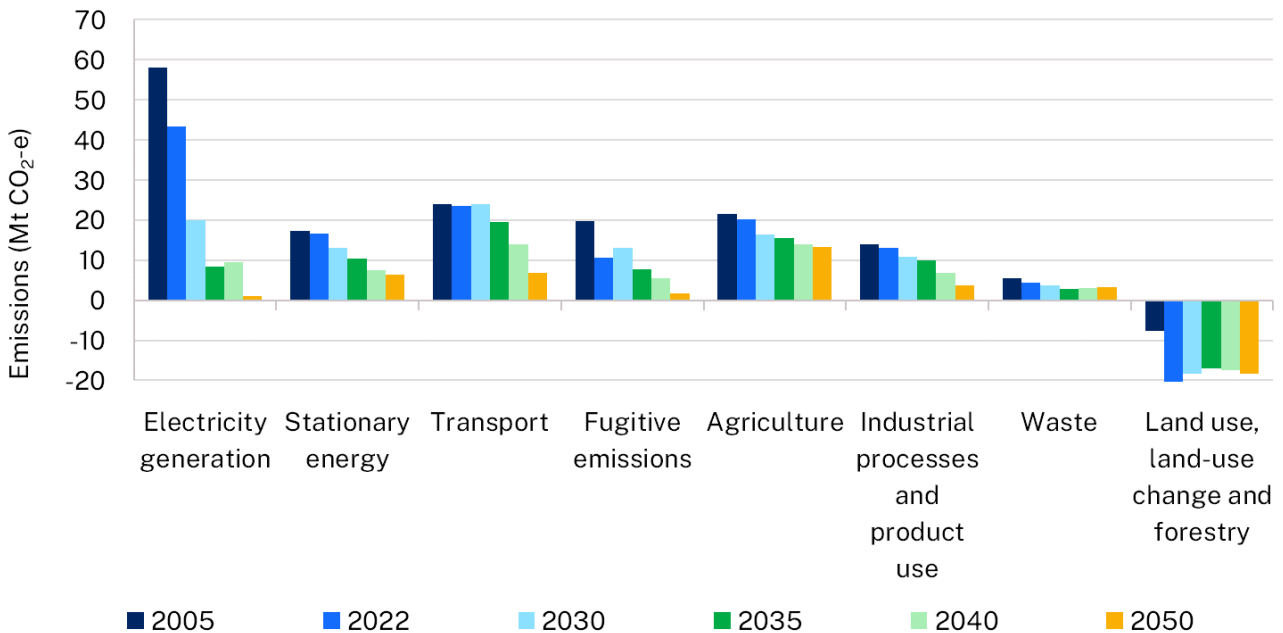


Figure 3 NSW emissions by sector for selected years based on inventory estimates (2005, 2022) and under the current policy scenario for future years

Based on the latest current policy emissions projections, the projected relative reduction in emissions by sector, compared to 2005, is shown in Table 1.

Table 1: Emission reduction by sector

Sector	Emission reduction relative to 2005		
	2030	2035	2050
Electricity	-66%	-85%	-98%
Fugitive emissions	-34%	-62%	-91%
Transport	+0.3%	-18%	-72%
Stationary energy	-25%	-40%	-62%
Industrial processes	-22%	-28%	-73%
Agriculture	-24%	-28%	-38%
Waste	-33%	-50%	-40%

The NSW Government is taking action

The NSW Government Response to the Net Zero Commission 2024 Annual Report and the committee's inquiry into the report³ acknowledges the need to remain steadfast in taking action on climate change.

The NSW Government has already taken a number of actions that are consistent with the guiding principles of the Climate Change Act, including:

- Establishing a whole-of-government Climate Change Network to identify opportunities to drive action across all parts of government and all sectors of the economy.
- Commenced development of a new Net Zero Plan for the next 10 years to chart a path for NSW to achieve its 2030 and 2035 emissions reduction targets, and stay on track for net zero by 2050.
- Comprehensive all-of-government assessments of coal mining and petroleum production projects are underpinned by consideration of '*ecologically sustainable development*' with careful evaluation of the benefits, impacts and public interest.
- Implementing the EPA's Climate Change Policy and Action Plan which sets out a comprehensive program of increasing regulatory requirements to reduce emissions and provide '*clean, healthy and sustainable environment*'
- The Electricity Infrastructure Roadmap is a nation-leading, coordinated plan to transition and modernise the State's existing electricity system as our aging power stations reach the end of their life and are retired.
- The Net Zero Industry and Innovation Program is providing more than \$1 billion to help high emitting manufacturing and mining facilities reduce their emissions, establish low-emissions industries and develop new technologies.

³ <https://www.energy.nsw.gov.au/sites/default/files/2025-06/NSW-DCCEEW-response-to-Net-Zero-Commission.pdf>

Quantification of greenhouse gas emissions from fossil fuel extraction

- b) quantification and measurement of coal-mine and gas industry methane and related greenhouse gas emissions in New South Wales including fugitive emissions, in particular:
 - i. the accuracy of emissions reporting from coal mines and gas fields
 - ii. the relevance of using a twenty-year versus one-hundred-year global warming potential to assess short term climate impact
 - iii. current measurement, reporting and verification methods and whether they reflect best practice

Emissions reporting under NGERs

Emissions reporting for coal mines and gas fields in NSW use techniques that are prescribed in the National Greenhouse and Energy Reporting (Measurement) Determination 2008⁴. The NGER Measurement Determination allows for different methods, generally increasing in accuracy and complexity from Method 1 to Method 4 (see Table 2 for examples).

Table 2: NGER methods and use in NSW

NGER method	Description	Example of use in NSW coal mines
Method 1	Default emission factors (EFs), potential for reduced accuracy	Used at <u>one</u> open cut coal mine in NSW. Default EFs also used for decommissioned underground mines
Method 2	Industry-based sampling, provides more accurate facility-specific estimates	Used at <u>all other</u> open cut coal mines in NSW
Method 3	Industry-based sampling, but with additional standards requirements for sampling	
Method 4	Direct monitoring of emissions, for example direct measurements of emissions from mine ventilation shafts	Used at <u>all</u> underground coal mines in NSW,

Accuracy and uncertainty

Accuracy is considered a key principle for good practice in NGER reporting, with specific requirements to ensure that uncertainties in emissions estimates are minimised, and that estimates are neither over- nor underestimates of the true values at a 95% confidence interval⁵. Examples of the requirements to reduce uncertainty include data sufficiency and bias determination, sample duration and frequency.

The Australian Government National Inventory Report (NIR) includes uncertainty estimates across all sectors. The latest NIR (NIR 2023, released in 2025), includes the following uncertainty estimates for fugitive emissions, based on data reported under NGERs. Uncertainty estimates reflect the measurement method, for example lower uncertainty is reported for underground mines as their methane emission are directly measured (see Table 3).

⁴ <https://www.dccew.gov.au/climate-change/emissions-reporting/national-greenhouse-energy-reporting-scheme>

⁵ <https://cer.gov.au/document/estimating-emissions-and-energy-coal-mining-guideline>

Table 3: Reported uncertainty values for fugitive emissions in the NIR

Source	Uncertainty (%)		
	CO ₂	CH ₄	N ₂ O
Underground mines	±16.7	±16.7	NA
Surface mining	±33.9	±33.9	NA
Oil	±7.1	±49.1	±50.0
Natural gas	±10.4	±72.0	±50.0
Venting and flaring	±7.1	±44.5	±50.0

Best practice measurement, reporting and verification

Methods provided under Chapter 3-Fugitive Emissions of the NGER Determination (2008) are currently considered best practice and are deployed across the fossil fuel sector for emissions measurement and reporting. The primary estimation principles for good practice in NGER reporting includes transparency, comparability, accuracy and completeness. Registered reporters must thus keep records of the data they used to prepare their NGER reports, with records being made easily accessible for inspection and audit. The record-keeping includes source and activity data capture and processing of the data using the general estimation principles.

Work is underway to review the applicability and suitability of alternative top-down emission estimation methods, including the use of satellite data, for example:

- Australian Government expert panel is examining new approaches to estimating fugitive methane emissions, by combining atmospheric detection of methane with modelling and other analysis. The panel will advise whether the estimation of fugitive methane emissions can be enhanced and ensure the NGER scheme continues to provide a robust evidence base.
- NSW Government has started work on the establishment of a regional monitoring network for greenhouse gases to measure in-situ atmospheric concentrations of methane, help validate emission inventories through modelling and inform the regulation and mitigation of emissions.
- EPA commissioned the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to conduct a review of methane measurement technologies for fugitive methane emissions. The EPA and CSIRO have co-authored a report with the key findings and recommendations from the review and the EPA will progressively implement the recommendations. The report is available here: <https://www.epa.nsw.gov.au/Your-environment/Climate-change/Greenhouse-gas-measurement/measurement-fugitive-methane-emissions>

Global warming potential and short-term climate impacts

Global warming potential values or GWPs allow the climate impact of several different greenhouse gases in the atmosphere to be compared. Carbon dioxide is the benchmark for comparing how different greenhouse gases trap heat in the atmosphere. The heat-trapping ability of a gas measured against carbon dioxide is its GWP.

The Parties to the Paris Agreement, which includes Australia, currently use the GWP values provided in the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) for international greenhouse

gas reporting. To maintain consistency with Australian Government reporting, the NSW Government also uses AR5 GWP values in all published GHG data.

The IPCC uses 100-year GWPs as a standard for comparing the warming impact of different greenhouse gases because it provides a balance between considering the warming effects of both short-lived and long-lived gases, and it aligns with the time scales relevant for meaningful climate action.

NSW emissions projections modelling

- c) the transparency, timeliness and integrity of New South Wales' emission modelling and how this modelling is used to inform New South Wales' planning decisions

Transparent and robust emission modelling updated annually

DCCEEW is responsible for economy-wide modelling of GHG emissions in NSW. Each year, a comprehensive update to the emission projections across every sector of the NSW economy is published to the NSW Net Zero Emissions Dashboard⁶ on the Sharing and Enabling Environmental Data (SEED) portal. NSW is the first, and to date the only state in Australia to publicly share GHG projections out to 2050, setting a national benchmark for transparency in climate data. The publication of the data and the accompany methods paper supports open data principles and modelling transparency. NSW has published a Methods Paper for the 2021⁷, 2022⁸, 2023⁹ and 2024¹⁰ projections update.

NSW's GHG emissions projections are based on robust national inventory datasets, sector-specific modelling, expert judgement and assumptions about future trends in global and domestic economies, policies and technologies. Emissions are modelled for each year out to 2050, using sectors and subsectors consistent with the Commonwealth's Greenhouse Gas Inventory for NSW and national emissions projections.

Existing methodologies have been subject to independent peer review. Going forward, the whole of Government Climate Change Network, with representatives from each NSW Government department, has endorsed a collaborative cross-agency approach to inform the development of emission projections. Sector specific working groups will be the first point of review and testing of the assumptions and data inputs the Department uses in the projections.

Timing for projections updates

DCCEEW released its first two annual projections updates (2021 and 2022) late in the calendar year. However, the release of the 2023 projections update was in March/April 2024 and the 2024 projections update was released in June 2025. DCCEEW proposes returning to releasing projections late in the calendar year. By consistently releasing annual updates each year, it provides certainty for agencies that refer to the projections, ensures model

⁶ <https://www.seed.nsw.gov.au/net-zero-emissions-dashboard>

⁷ <https://www.environment.nsw.gov.au/publications/nsw-greenhouse-gas-emissions-projections-2021-methods-paper>

⁸ <https://www.environment.nsw.gov.au/publications/nsw-greenhouse-gas-emissions-projections-2022-methods-paper>

⁹ <https://www.environment.nsw.gov.au/publications/nsw-greenhouse-gas-emissions-projections-2023-methods-paper>

¹⁰ <https://www.environment.nsw.gov.au/publications/nsw-greenhouse-gas-emissions-projections-2024-methods-paper>

inputs and assumptions are not out of date on release, and aligns with the timing for the Australian Government's projections.

How emissions modelling is used to inform planning decisions

In 2024, following the Minister for Climate Change's policy statement on emissions reduction, the Minister for Planning and Public Spaces wrote to the Independent Planning Commission to emphasise the need to consider NSW's emissions reduction targets when examining new developments, including coal mine expansions¹¹.

The NSW Government also responded to recommendations from the *Parliamentary Inquiry into the planning system and the impacts of climate change on the environment and communities*¹² and supported (in-principle) a recommendation to consider climate change within the planning system.

Under the State Environmental Planning Policy (Resources and Energy) 2021, the consent authority must consider greenhouse gas emissions and have regard to applicable NSW and Commonwealth policies, programs and guidelines – including the emissions reduction targets.

The NSW EPA's Climate Change Assessment Requirements and Large Emitters Guide includes specific requirements for proposals progressing through the NSW planning system, including:

- an expectation that emissions reduction trajectories are broadly consistent with NSW or industry specific emissions reduction trajectory, and
- where a project does not align with the overall NSW net zero emissions trajectory, the proponent must explain why the emission reduction trajectory still represents a meaningful contribution to NSW's emission reduction targets and/or supports NSW to decarbonise.

The EPA, DPHI and DCCEEW undertake site specific and detailed reviews of greenhouse gas assessments and greenhouse gas management plans for major proposals progressing through the NSW planning system. Reviews consider the accuracy and suitability of greenhouse gas emission estimates, the impact of emissions on the overall NSW net zero emissions trajectory and the suitability of proposed mitigation measures. The detailed site-specific information for these major proposals is also incorporated into DCCEEW emission projections.

¹¹ <https://www.energy.nsw.gov.au/sites/default/files/2025-06/NSW-DCCEEW-response-to-Net-Zero-Commission.pdf>

¹² <https://www.parliament.nsw.gov.au/lcdocs/inquiries/2987/Government%20response%20-%20Report%20No.%2024%20-%20PC7%20-%20Planning%20system%20and%20the%20impacts%20of%20climate%20change%20on%20the%20environment%20and%20communities.pdf>

Abatement technology

- d) the implementation and feasibility of greenhouse gas abatement, including ventilation air methane (VAM) abatement for coal mining

GHG emissions abatement in the fossil fuel extraction sector

As noted above, coal mining is responsible for 95% of fugitive emissions from fossil fuel extraction, therefore much of the mitigation focus is currently on coal mining rather than gas extraction. Of this 95%, underground mines are responsible for 79% and open cut mines are responsible for 16% of fugitive emissions from fossil fuel extraction. The remaining 5% of fugitive emissions is from gas extraction, processing and distribution.

The NSW Government actively monitors the progress of abatement opportunities for the coal and gas sector, for example by engaging with industry through the Net Zero Industry and Innovation Program, developing Industrial Decarbonisation Plans or by commissioning suitable experts to review technical abatement opportunities.

Recent reviews of technical abatement opportunities has led to development of EPA's draft mitigation guide for coal mines, which is currently out for public consultation¹³.

The Mitigation Guide provides state-specific and up-to-date guidance on opportunities for NSW coal mines to reduce greenhouse gas emissions. It sets out the greenhouse gas mitigation measures that will need to be considered by operators of existing coal mines and proponents of new coal mining projects and modifications as part of their planning application or their Climate Change Mitigation and Adaptation Plans.

The mitigation guide signals proposed regulatory requirements for the abatement of emissions from fugitive methane (including drainage gas and ventilation air methane abatement) and diesel combustion (see Table 3). These proposed requirements were developed after extensive research and review by an independent expert panel.

¹³ [Climate Change Licensee Requirements | NSW Environment Protection Authority](#)

Table 44: EPA's proposed regulatory signals in their Mitigation Guide

Mitigation objective	Proposed EPA requirement and expected commencement	Criteria
Destroy methane in drainage gas at underground mines	By July 2027: gas drainage with flaring or utilisation is in place.	Active (operational) underground mines that: <ul style="list-style-type: none"> are located outside of the Western coalfields, and emit (or are likely to emit) >25,000 tonnes carbon dioxide equivalent per year (t CO₂-e/year) (scope 1).
Minimise methane entering ventilation air by addressing methane leaks from old mine workings at underground mines	By July 2027: methane leaks have been detected and are managed.	Active (operational) underground mines that: <ul style="list-style-type: none"> emit (or are likely to emit) >100,000 t CO₂-e/year (scope 1)
Destroy ventilation air methane (VAM) at underground mines	By July 2030: VAM abatement is installed on mine shafts. In 2028, the EPA will review whether the safety issues for VAM regenerative thermal oxidation (RTO) have been resolved before implementing mandatory requirements.	Underground mines that: <ul style="list-style-type: none"> will be in an active (operational) mining phase beyond July 2032, and emit (or are likely to emit) >100,000 t CO₂-e/year (scope 1).
Reduce fossil diesel emissions at all coal mines	By July 2030: 5% of fuel used is a low carbon alternative to fossil diesel. By July 2035: 10% of fuel used is a low carbon alternative to fossil diesel. By July 2040: 25% of fuel used is a low carbon alternative to fossil diesel AND 75% of large mining machinery and vehicles are zero emissions. By July 2050: 25% of fuel used is a low carbon alternative to fossil diesel AND 100% of large mining machinery and vehicles are zero emissions.	All mines that: <ul style="list-style-type: none"> emit (or are likely to emit) >25,000 t CO₂-e/year (scope 1). (Large mining machinery and vehicles means >560 kW capacity).

The EPA has proposed an exemptions framework for coal mines that cannot feasibly implement these requirements. Any proposed exemption will need to be supported by a pre-feasibility study and independent review of why the requirements cannot be feasibly implemented.

Appin demonstration project

The Coal Innovation NSW Fund provided a \$15 million grant to help establish a facility at the Appin coal mine in NSW to tackle fugitive methane emissions. This is the only such facility in NSW. The grant will establish a single commercial-scale VAM abatement reactor that will be used to demonstrate the effectiveness of the technology for industry. The demonstration project will help to encourage greater investment in, and uptake of, VAM abatement technologies to significantly reduce fugitive methane emissions from coal mining operations in NSW. A co-contribution of \$4.5 million was initially provided by Illawarra Coal Holdings, who has changed ownership from South32 to GM3 since commencement of the project. Since this change, the grantee's contribution has increased to approximately \$18.1 million.

The operation of the full-scale VAM thermal reactor will demonstrate improved safety and commercial viability of the technology. Long term testing of the technology and safety system will be conducted with results summarised and presented to the NSW Government and the mining industry.

GHG emissions abatement in gas industry

Around 5% of the total fugitive emissions from fossil fuel extraction are from gas extraction, processing and distribution. The Narrabri Gas Project, which is the only gas field currently planned for production in NSW, has a proposed commencement date of FY28 but a financial investment decision for Phase 2 of the project (commercial production phase) has not yet been made.

The proponent has established a Greenhouse Gas Emissions Advisory Group as part of existing consent conditions and the Air Quality and Greenhouse Gas Management Plan is being prepared prior to the commencement of Phase 2. The project area is also subject to regular Leak Detection and Repair (LDAR) inspections by the EPA.

Economic costs of greenhouse gas emissions

- e) economic costs associated with greenhouse gas emissions including indirect costs from climate change related impacts and opportunity costs for other sectors

Overview

The costs of climate change are global in nature, while the costs of mitigation are localised to NSW households, businesses, and natural environments. This presents a dilemma for policymakers when they are principally concerned with benefits and costs to New South Wales.

Carbon values in NSW

Valuing greenhouse gas emissions—and avoided emissions—allows governments to align decisions with the overall public interest. Carbon values can be used to place a monetary value on one tonne of carbon dioxide equivalent (\$/tCO₂-e) in evaluations of climate change mitigation and adaptation policy proposals.

There are three main methods for valuing carbon:

- Social cost of carbon, which quantifies the amount of damage caused by an increase in emissions.
- Marginal abatement cost (MAC), which estimates the marginal cost of reducing emissions along a trajectory required to reach a defined emissions target
- Market prices, where a market is designed to reach an emissions target, with values largely determined by market actions (e.g., emission trading schemes).

The NSW Government Investment Framework (TPG24-34) provides guidance in assessing carbon impacts before investment in NSW Government projects, post investment, or for regulatory changes.¹⁴ TPG24-34 specifies carbon values that NSW Government agencies must use when valuing the impact of greenhouse gas abatement from Government projects in cost-benefit analysis (CBA). The carbon values reflect estimates of marginal abatement costs consistent with NSW's legislated emissions reduction targets for each year to 2050. This ensures that CBAs take account of the social cost of emissions by including the estimated cost of reducing an additional tonne of emissions in each year.

Estimating the economic costs associated with greenhouse gas emissions in NSW

The Bureau of Meteorology and CSIRO's *State of the Climate 2024* report found:

- south-eastern Australia has experienced a 9% fall in April to October rainfall since 1994
- extreme fire weather and the length of the fire season have increased across the continent, including in New South Wales
- oceans around Australia are becoming warmer and more acidic

¹⁴ [Carbon emissions in the Investment Framework | NSW Government](#)

- sea levels are rising, increasing high inundation incidents along the coast.

Australia will continue to experience ongoing changes to its weather and climate, including:¹⁵

- ongoing increases in average temperatures, more heat extremes, and fewer cold extremes
- further decreases in cool season rainfall across southern and eastern Australia, lengthening droughts
- more intense short-duration heavy rainfall events, increasing floods
- further sea level rise and continued warming and acidification of the oceans around Australia
- reduced average snow depth in alpine regions, but with variations from year to year.

Climate change poses risks to people, ecosystems, the built environment, and other assets in and around New South Wales. These include both acute risks, like floods, bushfires, heatwaves, and chronic risks as well as permanent changes in average temperatures causing sea level rise, prolonging droughts, and shifting precipitation patterns.

The *Fiscal Responsibility Act 2012* requires the Treasurer to report on long-term fiscal pressures every five years. These reports have become known as intergenerational reports. The most recent intergenerational report in 2021 assessed climate change costs for the first time.¹⁶ Climate impacts assessed included natural disasters, property and infrastructure damage from sea level rise, lost labour productivity from heatwaves, and changes in crop yields. By 2061:

- the expected total economic costs of natural disasters were projected to increase to between \$15.8 billion and \$17.2 billion (real 2019-20) per year
- between 39,000 and 46,000 properties were estimated to be exposed to coastal erosion or inundation, with annual damages estimated at between \$850 million and \$1.3 billion (real 2019-20)
- between 700,000 and 2.7 million additional days of work were projected to be lost every year due to the higher frequency and intensity of heatwaves
- lost production in agriculture based on pastoral and growing conditions were estimated at between \$750 million and \$1.5 billion (real 2019-20 dollars).

Modelling for the 2026 NSW Intergenerational Report is underway and, at this stage, is expected to identify and, where possible, model the costs of greenhouse gas emissions over 40 years. This is likely to include partial cost estimates for extreme weather events, rising temperatures and the impact of climate change on agricultural production. Qualitative analysis will be provided where economic and fiscal modelling is not possible.

Briefly, anthropogenic climate change may impose a range of costs on New South Wales, including:

- reduced labour productivity, especially for the agricultural, resources, manufacturing, and construction sectors
- reduced yields for crops such as wheat, rice and maize
- destruction and depreciation of public infrastructure and private property
- reduced energy security and reliability
- compromised water security and quality
- diminution of human health, including cardiovascular and respiratory diseases, physical injuries, and mental health

¹⁵ Bureau of Meteorology and CSIRO, State of the Climate 2024

¹⁶ [An indicative assessment of four key areas of climate risk for the 2021 NSW Intergenerational Report](#)

- biodiversity loss – both plant and animal species.¹⁷

Cost benefit analysis for coal mining and petroleum projects

The guidelines for the economic assessment of mining and coal seam gas proposals and associated technical notes provide the framework for undertaking a cost benefit analysis for coal mining and petroleum projects¹⁸. The EPA's NSW Guide for Large Emitters also requires consideration of the cost of carbon emissions in undertaking a greenhouse gas assessment.

Any other matters

- a) any other related matters.

The Performance and Wellbeing Statement, published as part of the 2025–26 Budget, is the first of its kind in New South Wales, reporting on both the performance of government services and wellbeing of the people of New South Wales. It connects the budget decisions of government with the wellbeing of the people. The Statement includes a Sustainable chapter covering performance and key Budget measures in relation to climate change and adaptation, for example total greenhouse gas emissions from domestic production and energy security.

¹⁷ [Impacts of climate change, AdaptNSW](#)

¹⁸ [Guidelines for the economic assessment of mining and coal seam gas proposals and Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals](#)