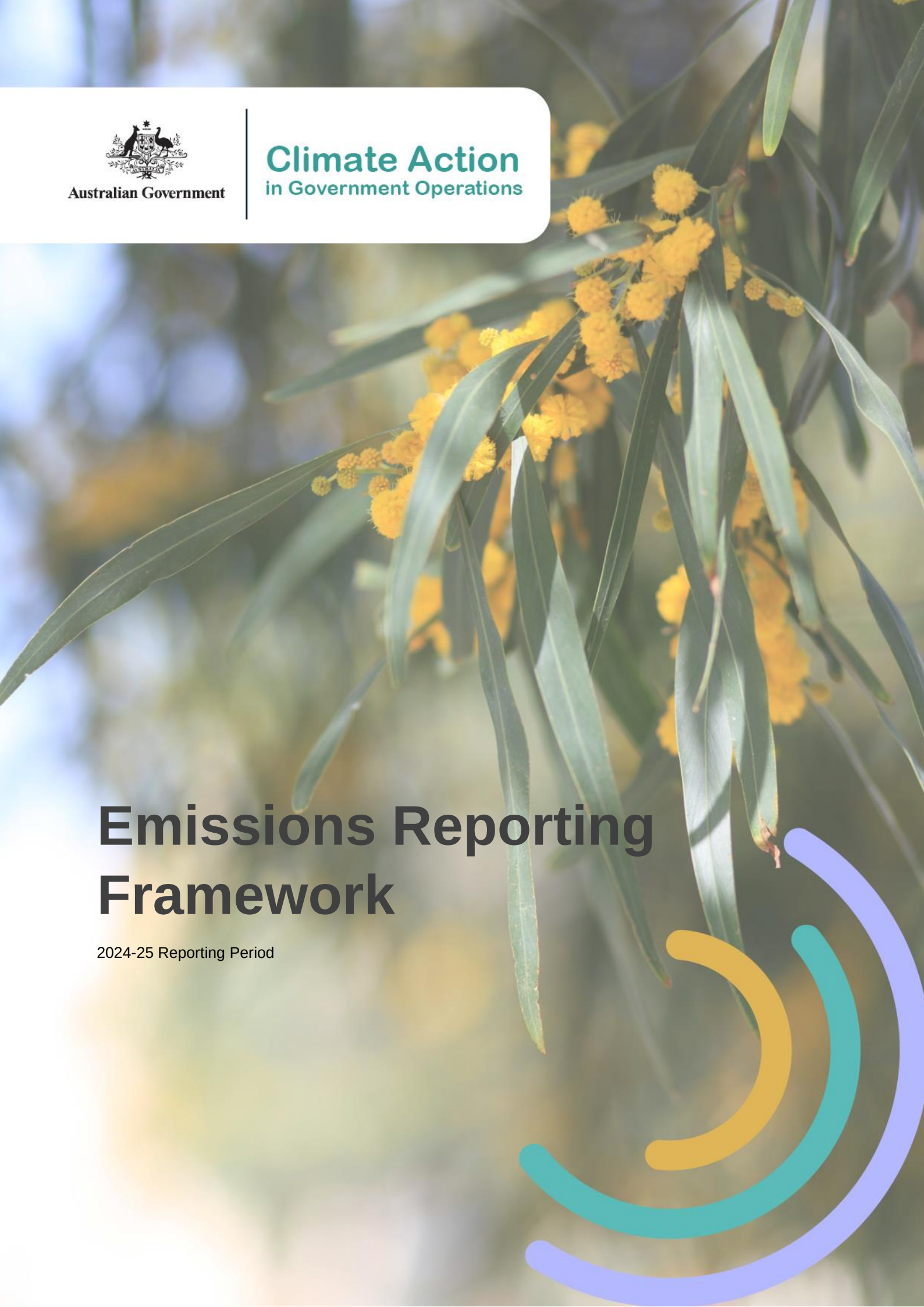

Australian Government

Climate Action
in Government Operations

Emissions Reporting Framework

2024-25 Reporting Period

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Contents

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Version history

Status	Version	Date	Comments
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Overview

The Emissions Reporting Framework (the Framework) is the methodology for Commonwealth entities and Commonwealth companies to use when producing their annual greenhouse gas (GHG) emissions inventories. The Framework enables tracking progress towards the APS Net Zero 2030 target (refer to Net Zero in Government Operations (NZGO) Strategy). It is also a key part of the Commonwealth Climate Disclosure (CCD) initiative, specifically the targets and metrics component.

The Framework uses best practice from existing GHG emissions reporting frameworks and seeks to align with relevant policies (refer to Related polices and standards) to ensure data collected and emissions calculations are suitable for Australian Government operations.

The Framework provides:

- detailed guidance on key areas to assist reporting agencies accurately report their emissions
- consistent, standardised and transparent emissions reporting methodology and calculations for Commonwealth entities and companies for the 2024-25 reporting period
- the emissions reporting boundary and included emissions sources for the 2024-25 reporting period.

The Framework is designed for reporting agencies to follow and implement emissions reporting and will involve a continuous improvement cycle as reporting matures. Over time, the emissions reporting boundary may expand to encompass additional emissions sources as data quality and methodologies improve.

Related polices and standards

Nationally Determined Contribution

In 2022, through the Nationally Determined Contribution (NDC) submission under the Paris Agreement, the Australian Government committed to reducing the GHG emissions of Commonwealth Government agencies to net zero emissions by 2030 (excluding defence and security agencies).

The NZGO Strategy gives effect to this commitment. The Framework is designed for reporting emissions in Australia and Australian territories to support Australia's 2030 NDC commitment.

Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories

The Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories (IPCC Guidelines) provide detailed methods for calculating GHG emissions from various sectors at a national level. The emissions reported under the Framework can be

reported in line with Paris Agreement reporting in the NZGO Annual Progress Report (APR). Several principles, terms and definitions, methodologies and inventory guidance referenced throughout the Framework are from the IPCC Guidelines.

National Greenhouse and Energy Reporting Scheme

The National Greenhouse and Energy Reporting (NGER) Scheme is Australia's national framework for reporting and publishing company information about GHG emissions, energy production and energy consumption. Activity and GHG data collected under the NGER Scheme informs how Australia reports under IPCC Guidelines.

Under the Framework, the activity data required to calculate scope 1 and scope 2 GHG emissions is the same as the activity data required for Method 1 under the NGER Scheme. If reporting agencies are using Methods 2, 3 or 4, the Department of Finance (Finance) can work with them to ensure alignment and comparability.

Information required by the Framework above and beyond the NGER Scheme, relates to:

- certain elements of property data which will enable further analysis
- scope 3 sources and emission factors that are not included in the NGER Scheme
- reporting both location-based and market-based electricity emissions.

The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard

The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol) includes accounting principles, terms, definitions, methodologies and inventory compilation guidance that have been incorporated and referenced throughout the Framework.

The main differences between the Framework and the GHG Protocol include:

- The reporting boundary for reporting agencies is set under the Framework rather than requiring reporting agencies to do this themselves, reducing the burden on reporting agencies while also maintaining completeness and comparability across Commonwealth entities and companies.
- The requirement to report both location-based and market-based electricity emissions.
- The emissions calculations are set under the Framework.
- The specification of which scope 3 emissions are required to be reported by Commonwealth entities and companies.
- The requirement to only report on activities that takes place within Australia and its territories, regardless of operational boundary.

The Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard

The Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (the Scope 3 Standard) helps companies measure emissions across their value chain and identify areas for reduction.

Under the Framework, reporting agencies can categorise these emissions into 15 categories as outlined in the Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Further detail can be found in Annex A: Scope 3 categories in Greenhouse Gas Protocol and Framework.

International Organisation for Standardisation (ISO) 14064-1:2018 Standard

The ISO 14064-1:2018 Standard focuses on organisational GHG management. It includes principles and requirements for designing, developing, managing, reporting, and verifying an organisation's GHG inventory. It is designed to be program neutral, meaning that it can be used in conjunction with various GHG programs and regulatory requirements.

ISO 14064-1:2018 contains several accounting principles, terms, definitions, and general guidance that are referenced throughout the Framework.

GHG emissions accounting and inventory principles

The following GHG emissions accounting and inventory principles clarify expectations for reporting agencies, ensuring a consistent approach to emissions accounting.

The IPCC guidelines, ISO 14064-1:2018 and GHG Protocol, contain specific principles that have been incorporated into the Framework (Table 1 refers).

Reporting agencies and Finance are expected to act according to these principles, ensuring that the emissions accounting and inventories are aligned with practices that exist across the IPCC guidelines, ISO 14064-1:2018 and GHG Protocol. These responsibilities are outlined in Tables 2 and 3.

Table 1: Emissions accounting and GHG inventory principles

Principle	IPCC Guidelines (Chapter 1. Introduction to 2006 Guidelines)	ISO 14064-1:2018 (Section 4. Principles)	GHG Protocol (Chapter 1. GHG Accounting and Reporting Principles)	Emissions Reporting Framework
Transparency	✓	✓	✓	✓
Accuracy	✓	✓	✓	✓
Consistency	✓	✓	✓	✓
Comparability	✓			✓
Completeness	✓	✓	✓	✓
Relevance		✓	✓	✓

Table 2: Responsibilities of reporting agencies

Principle	Reporting agencies are required to uphold the emissions accounting principles by:
Transparency	• Providing sufficient and clear documentation to create a credible audit trail. • Documenting the methodology and assumptions, so that intended users can understand how the emissions inventory was compiled and make decisions with reasonable confidence. • Justifying any modifications, deviations or exceptions to the Framework, and documenting this alongside the reporting agency's emissions inventory.
Accuracy	• Being responsible for the accuracy of their activity data. • Providing associated documents for assurance purposes. • Improving and maintaining the correctness and precision of activity data. • Reducing errors, bias and uncertainties in activity data so that users can confidently rely on the integrity of the reported information. • In the event of an audit, confirming that information provided to auditor is accurate and complete.
Consistency	• Adhering to the requirements of the Framework, ensuring a reporting agency's inventory is consistent with past inventories. • When there are changes in methods, calculations, and data sources between reporting periods, these changes are to be reflected across the whole time series to ensure accurate reflection of real annual fluctuations in the inventory without the distortions caused by varying methodologies across different years. • Documenting any methodological changes required to maintain time series consistency.
Comparability	• Adhering to the requirements of the Framework ensuring a reporting agency's inventory is reported in a way that allows it to be compared with other inventories from other reporting agencies. • Using reporting guidance, tables, use of classifications, and definition of categories of emissions, as outlined in the Framework. • Justifying any modifications, deviations or exceptions to the Framework, and documenting this alongside the reporting agency's emissions inventory.
Completeness	• Adhering to the requirements of the boundary, ensuring all emissions sources are reported where the emissions source occurs for the reporting agency. • Reporting on emissions sources in a way that does not compromise national security for defence and security agencies.
Relevance	• Giving priority to the activity data collection for emissions sources with a significant quantity of emissions within the Framework, where there are operational constraints that limit or delay data collection and emissions reporting. • Meeting the requirements of the Framework before exploring further relevant emissions sources outside of the Framework.

Table 3: Responsibilities of Finance (through the CAIGO Unit).

Principle	CAIGO is required to uphold the emissions accounting principles by:
Transparency	• Analysing emissions and developing the NZGO APR which includes: – GHG emissions inventories aggregated at a whole-of-Australian-Government level. – reporting on the targets and measures from the NZGO Strategy. – the aggregated performance across reporting agencies in achieving net zero.
Accuracy	• Maintaining the Framework, including emissions factors and methodologies in consultation with the Department of Climate Change, Energy, the Environment and Water (DCCEEW). • Enhancing the robustness and credibility of the activity data collected by prioritising emissions sources that have: – the potential for a large quantity of GHG emissions from the source. – robust activity data, noting that with time, data quality and quantity is expected to improve as capability uplift improves. – easier data accessibility to reduce undue cost and effort to the reporting agencies. • Enhancing the robustness and credibility of the emissions inventory created by prioritising emissions sources that have robust emissions calculation methods and emission factors.
Consistency	• Validating activity data to ensure it meets adequate standards for use. • Calculating emissions data from reporting agencies. • Collating activity data from Property Service Providers (PSPs) and Whole-of-Australian-Government (WoAG) arrangements and prefilling Emission Reporting Tools (ERTs) with activity data, where available, to reduce burden on both reporting agencies and the PSPs and WoAG providers. Finance is not responsible for the accuracy of the activity data but is responsible for the emissions calculations.
Comparability	• Providing reporting agencies with advice and guidance, including a helpdesk, user manual, and other support services. • Streamlining the decision-making process, ensuring that reporting agencies focus on relevant and significant emissions sources minimising duplication of effort or discrepancies. • Maintaining the relevant Resource Management Guide (RMG) documents and associated webpages. • Producing emissions inventory tables on behalf of reporting agencies, for agency verification and sign off.
Completeness	• Working with defence and security agencies to have the most accurate and complete reporting as possible, where it does not compromise national security.
Relevance	• Determining relevant emissions sources from Australian Government operations to ensure that all reporting agencies adhere to the same criteria for comparability and completeness. • Considering the needs of the intended users when creating the Framework.

Framework boundary

International context

Australia's NDC and the NZGO Strategy do not include activities that take place outside of Australia or its territories, such as international air and international marine travel. However, Activities that take place under Australia's Antarctic program, or in Australia's external territories are included.

In accordance with the NZGO Strategy, reporting agencies that undertake activities outside of Australia or its territories will act as appropriate to reduce their emissions in the relevant local context as an aspirational goal for the Australian Government to demonstrate leadership and advance Australia's climate diplomacy objectives.

Organisational boundaries using the operational control approach

The operational control approach boundary is where the reporting agency has full authority to introduce and implement its own operating policies and procedures, and/or has the ability to influence the number of emissions resulting from its daily operations.

This includes operations carried out by any person on behalf of the reporting agency, including employees, contractors, subcontractors, apprentices, trainees, students, volunteers and anyone else who performs work for the reporting entity.

The operational control approach is used to set organisational boundaries within Australia and its external territories. By adopting the operational control approach, reporting agencies account for 100% of the GHG emissions from operations over which they have control.

The Framework does not use a financial control approach to determine organisational boundaries.

The possibility of double counting within and across reporting agencies can be difficult to remove completely. The occurrence of double counting does not diminish the importance of the information reported and corrections can be made in future reports. The possibility of double counting can be reduced by determining operational control between reporting agencies.

Determining a reporting agency's obligations using the operational control approach

The concept of operational control is central to determining a reporting agency's obligations.

Operational control is deemed to be present when the reporting agency has the authority to implement the following:

- operating policies (for example hours of operation, production processes, staff training, procurement)

- health and safety policies (for example evacuation procedures, protective clothing requirements, incident reporting)
- environmental policies (for example waste disposal, energy use, GHG management).

OR

- Where more than one agency has the authority to introduce and implement any or all of the policies mentioned above, the agency that has the greatest authority to introduce and implement the operating and environmental policies has operational control over the facility.

OR

- In cases where neither of the above can be determined, Finance, in consultation with the reporting agencies, will help to determine which reporting agency has operational control over the facility. This may occur where more than one agency has the authority to introduce and implement any or all of the policies mentioned above, and no one agency has the greatest authority to introduce and implement operating and environmental policies.

Operational Control Scorecard

The Operational Control Scorecard is a tool designed to help reporting agencies assess and determine which agency holds operational control over a facility and associated assets. It evaluates the extent of authority an agency has in implementing operating, health and safety, and environmental policies. This scorecard is used to ensure accurate emissions reporting where there are multiple reporting agencies with the authority to introduce and implement policies. The scorecard can be found in Annex B: Operational Control Scorecard.

The Operational Control Scorecard can be used where Machinery of Government changes occurred, or reporting agencies ceased operations within the reporting period. Reporting agencies are encouraged to seek advice from Finance to ensure that data is attributed to the appropriate reporting agency in the event of a Machinery of Government change.

Greenhouse gases

The following GHGs are included within the emissions boundary:

- carbon dioxide (CO_2)
- methane (CH_4)
- nitrous oxide (N_2O)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs)
- sulphur hexafluoride (SF_6)
- nitrogen trifluoride (N_3).

For reporting purposes emissions of the seven gases listed above are aggregated into a single carbon dioxide equivalent (CO_2-e) estimate.

Emissions from these gases can be aggregated into CO_2-e using conversion factors known as global warming potentials (GWPs). Given the varying radiative forcing and atmospheric residence time of different GHGs, converting emissions into a CO_2-e over a 100-year horizon allows for the integrated effect of emissions to be compared on an equivalent basis.

Emissions sources

Reporting agencies are to report emissions sources as defined below, giving priority to those sources with the largest GHG emissions. The emissions sources have been determined by employing a matrix, as shown in Annex A to the NZGO Strategy, that evaluated the accessibility of data and anticipated size of associated emissions.

Scope 1 emissions

Scope 1 emissions are direct GHG emissions from sources that are owned or controlled by the reporting agency. This includes emissions from the combustion of fuels in stationary sources (such as boilers and generators) and mobile sources (such as fleet vehicles). Examples of scope 1 emissions include emissions produced from manufacturing processes, the burning of diesel fuel in trucks, and fugitive emissions such as methane from coal mines.

Emissions reporting is to include the following scope 1 emissions sources:

- **Natural gas**, incorporating direct usage.
- **Other energy including diesel fuel**, incorporating direct usage, both stationary and mobile energy.
- **Fleet vehicles**, including mobile energy, incorporating direct usage.
- **Refrigerants**, incorporating the emissions associated with heating, ventilation, and air conditioning operations in buildings. Refrigerants are included in the boundary under a phased approach and are included when all three of the following conditions are met:
  - Building meets Net Lettable Area (NLA) thresholds for the Reporting year as per Table 4.
  - The total volume of refrigerant gas contained within equipment (the charge) is more than 100 kilograms (kg) of refrigerant for each unit.
  - The refrigerant is a GHG with a GWP of more than 1000.

Table 4: Refrigerants phased approach

First year to report refrigerants which meet the threshold	Net lettable area (NLA) in square meters (m^2)
2024-25	Above 20,000 NLA
2025-26	15,000-19,999 NLA
2026-27	10,0000-14,999 NLA

Scope 2 emissions

Scope 2 emissions are indirect GHG emissions from the consumption of purchased electricity, steam, heating and cooling. These emissions are physically produced by the combustion of fossil fuels at the power plant, but they are accounted for in the reporting agency's GHG inventory because they result from the reporting agency's energy use.

Emissions reporting is to include the following scope 2 emissions sources:

- **Electricity** in buildings, incorporating the indirect emissions of the electricity generation.

Scope 3 emissions

Scope 3 emissions are all other indirect emissions that occur in the value chain of the reporting organisation, both upstream and downstream, within Australia and its external territories. Emissions reporting includes scope 3 emissions sources where the:

- quantity of GHG emissions is likely to be large
- activity data is likely to be robust
- activity data is easy to access
- emission calculations and emission factors are robust.

Scope 3 emissions sources included, along with their GHG Protocol Scope 3 Standard category, are listed below:

- **Indirect emissions** from the extraction, production, and transportation of the energy source (GHG Protocol Category 3: Fuel- and Energy-Related Activities not Included in scope 1 or scope 2).
- **Transmission and distribution losses** associated with electricity production and consumption (GHG Protocol Category 3: Fuel- and Energy-Related Activities not Included in scope 1 or scope 2).
- **Waste** disposal and treatment, incorporating the emissions associated with waste sent to landfill (GHG Protocol Category 5: Waste Generated in Operations).
- **Domestic commercial flights,** incorporating the emissions associated with fuel usage (GHG Protocol category 6 Business travel)
- Employee domestic business travel, incorporating the emissions associated with **hire car use** and **accommodation** (GHG Protocol Category 6: Business Travel).

Scope 3 emissions exclusions

Scope 3 emissions sources not mentioned above are excluded from the Framework. This includes, but is not limited to, the scope 3 emissions sources where data accessibility is difficult to collect across the Commonwealth, and the quantity of emissions is either small or difficult to

assess. These scope 3 emissions sources will be considered for possible expansions of the Framework.

Reporting agencies are required to meet the requirements of the Framework before exploring scope 3 emissions sources outside of the Framework.

Any additional sources outside of the Framework will need to be documented and reported separately to the standard emissions inventory table in the Annual report requirements 2024-25 section, but can be in the same section of the annual report.

Further information on the scope 3 categories under the Greenhouse Gas protocol can be found in Annex A: Scope 3 categories in Greenhouse Gas Protocol and Framework.

For all emissions sources reported, including those outside of the Framework, the reporting agency must, at a minimum, as per CCD requirements disclose the:

- Metric tonnes of CO_2 equivalent (t CO_2-e), as per M3.a.
- Approach, inputs, assumptions and methodologies used to measure its GHG emissions, including any changes from the previous reporting period, as per M3.b.
- Categories included within the entity's measure of scope 3 GHG emissions, as per M3.f.i.

For audit and/or review purposes, it is strongly recommended that reporting agencies keep a record of information, such as:

- activity data types (such as GJ, kWh, L)
- activity data sources (such as internal data systems, purchase records, utility bills, supplier questionnaires, and industry databases)
- emission factor types (such as t CO2-e per activity data)
- emission factor sources (such as life cycle databases, government agencies, industry associations, and supplier-specific data).

Reporting agencies are strongly encouraged to refer to the GHG Protocol Scope 3 Standard and associated guidance for supplementary information. Where there are differences between the Framework and the GHG Protocol Scope 3 Standard, reporting agencies are required to follow the Framework.

Land Use, Land Use Change, and Forestry and agricultural emissions

Land Use, Land Use Change, and Forestry (LULUCF) and agricultural emissions sources and sinks are excluded from the Framework, allowing reporting agencies to prioritise other more significant sources of emissions in their inventory. The contribution to LULUCF and agricultural emissions is likely to be relatively small compared to scope 1 and scope 2 emissions sources, due to the limited scope of agricultural activities and land management practices conducted directly by Australian Government agencies.

Reporting agencies that may have LULUCF and agricultural emissions sources are to apply the requirements above before exploring further options to include additional emissions sources.

Activity data processes

Data accuracy refers to improving and maintaining activity data correctness and precision. Reporting agencies are accountable for the accuracy of data provided to Finance.

Reporting period

The reporting period is when the activity occurs. The emissions reporting period is from 1 July to 30 June. If a reporting agency has a different annual reporting period, alternative approaches may be considered in consultation with Finance.

Activity data is required from all activities occurring in the reporting period from within the emissions boundary. Table 5 outlines the types of data required for each source.

Table 5: Examples of activity data for emissions sources

Emission Source	Activity Data
Electricity	Kilowatt hours (kWh) or megawatt hours (MWh) of electricity State, GreenPower Usage (kWh).
Natural gas	Gigajoules (GJ) of natural gas delivered by pipeline State, Metro/Non-Metro.
Solid waste	Tonnes (t) or cubic metres (m^3) of municipal solid waste or other waste type.
Refrigerants	Kilograms (kg) of sulphur hexafluoride (SF_6) or other refrigerant type.
Fleet	Litres (L) of unleaded petrol or other fuels, asset class.
Other vehicles	Kilolitres (kL) or gigajoules (GJ) of kerosene for use as fuel in an aircraft or other fuels.
Commercial flights	Kilometres (km) travelled, departure country, arrival country, cabin class.
Hire car	Kilometres (km) travelled or litres (L) of petrol.
Hotel accommodation	Number of nights and number of rooms.
Other energy - Stationary energy	*Gaseous fuels:* cubic metres (m^3) or gigajoules (GJ) of biomethane or other gaseous fuel. *Liquid fuels:* kilolitres (kL), gigajoules (GJ) or tonnes (t) of automotive gasoline or other liquid fuels. *Solid fuels:* gigajoules (GJ) or tonnes (t) of dry wood or other solid fuels.

Actual data

Actual data for the reporting period is required to calculate emissions. Despite best efforts, actual data may be incomplete or unavailable at the time of data collection. This may occur due to data availability, reporting timeframes, remoteness of assets, or other elements outside the control of the reporting agency. In these instances, reporting agencies are required to provide a public and transparent explanation of the data that is incomplete or unavailable, and the actions

they are taking to obtain actual data. Further information is provided in Annual report requirements 2024-25 section.

Primary data

Primary data is likely to be the best source for actual data. Primary data is more likely to be representative of the reporting agency's activities compared to secondary data.

Primary data may be sourced internally or externally through PSPs or other WoAG arrangements.

Examples of primary data include:

- fuel consumption records from meters or invoices
- electricity usage data from utility bills
- direct emissions measurements from monitoring equipment
- vehicle mileage logs for fleet emissions
- electricity generation data (for example kilowatts of solar energy produced by behind the meter).

Secondary data

Secondary data refers to the use of pre-existing data, often from averages or publicly available sources, to estimate GHG emissions, particularly when direct, entity-specific data is unavailable or difficult to obtain. Secondary data sources are often derived from models, assumptions, or industry averages, and include estimated and extrapolated data.

Estimated data

Estimated data is when actual data from another source is used to approximate the activity data for a related emissions source. For example, the amount of fuel used by a delivery van might not be known, but the distance travelled is known.

Examples of estimated data used in emissions reporting:

- Use of vehicle type and tailpipe CO_2 when fuel use is not known for hire cars.
- Leakage rates for the calculation of refrigerants.
- Volume (in m^3) or average weight (in t) of municipal solid waste or other waste type, when actual weight is not known.
- Distance between departure and arrival airports and cabin class, as approximation for fuel usage in flights.
- Number of nights and rooms used for hotel accommodation.

Reporting agencies are required to consult with Finance before considering using estimating data for emission sources other than those listed above. Estimated data can only be used when actual data is unavailable, and the estimated data provides an accurate reflection of the unavailable activity data. If a reporting agency uses estimated data, they are required to:

- Provide a public and transparent explanation of the estimated data and the actions they are undertaking to obtain the actual data.
- Provide a justification for the appropriateness of estimation with respect to data availability and the relative size of the emissions source.
- Use conservative approaches in estimation in that it does not underestimate emissions.
- Document and explain the quality of the data used in estimation and the assumptions applied.

Extrapolated data

Extrapolated data is where partial year data or a representative sample or survey data, is modelled to create a full data set.

Reporting agencies are required to consult with Finance before considering extrapolating data. Extrapolated data can only be used when actual data is unavailable or incomplete, and the extrapolated data provides an accurate reflection of the missing activity data. If a reporting agency uses extrapolated data, they are required to:

- Provide a public and transparent explanation of the extrapolated data and the actions they are undertaking to obtain the actual data.
- Provide a justification for the appropriateness of extrapolated with respect to data availability and the relative size of the emissions source.
- Use conservative approaches in extrapolation in that it does not underestimate emissions.
- Document and explain the quality of the data used in extrapolation and the assumptions applied.

Audit readiness

Reporting agencies are accountable for the information they provide during an audit and/or review. In the event of an audit and/or review, reporting agencies may be required to confirm the completeness and accuracy of information provided during the audit and/or review, such as via a Management Representation Letter.

Reporting agencies are encouraged to consider which information they may need to provide during an audit and/or review and embed processes throughout the reporting period to prepare for this.

Information that may be required during an audit and/or review includes:

- How the operational control approach was used in the collection of activity data, including any assumptions made, deviations from the Framework, and reasons for those changes.
- The details, selection and management of the primary and/or secondary data sources, including any assumptions made, deviations from the Framework, and reasons for those changes.
- Processes for collecting, processing, consolidating and reporting activity data and information.
- Systems, processes and personnel that ensure the accuracy of the activity data and information system, including activities for ensuring data quality and system maintenance.
- Procedures to verify the accuracy and completeness of the data collected, including automated checks and manual reviews.
- Governance policies to oversee data management practices, ensuring data integrity, security, and compliance with regulations.
- Details of electricity contractual instruments, such as Large-scale Generation Certificates (LGC), GreenPower, renewable energy certificates, used in the calculations of market-based method electricity emissions, if such instruments exist.
- The results of previous audits or reviews, if available and appropriate.

Data collection period

The data collection period is when reporting agencies are required to collate and verify their activity data for the reportable period. Each year this runs from July to August, approximately.

Where a reporting agency has requirements under the NGER Scheme, the data collection period is extended. If a reporting agency cannot meet the deadline, in special circumstances Finance may grant an extension.

Emissions Reporting Tool

Finance develops tools and guidance that reporting agencies are required to adhere to, including an Emissions Reporting Tool (ERT) and an accompanying User Manual. The ERT is a Microsoft Excel collection tool. Emissions calculations are performed by Finance on behalf of reporting agencies using the data from the ERT.

WoAG Procurement arrangements

Where data is available, Finance, on behalf of reporting agencies, collaborates with PSPs and Whole-of-Australian-Government (WoAG) arrangement providers to gather appropriately formatted activity data. This process is applicable to most non-corporate Commonwealth entities (NCEs) who have WoAG arrangements in place.

This activity data is used to prefill the ERTs, which Finance sends to reporting agencies. This process reduces the burden on reporting agencies, PSPs and WoAG providers.

There are no changes made to raw activity data except in the case of fleet vehicle classifications, which are mapped based on make, model and build, to allow accurate emissions calculations.

For reporting agencies participating in WoAG procurement arrangements led by Finance, data is sourced from the following:

- Natural gas, electricity, solid waste and stationary fuels (where available) from PSPs.
- Fleet vehicle fuel usage from the fleet management and leasing services provider.
- Flights, accommodation, and hire cars from WoAG Travel Arrangements.

Own arrangements

For reporting agencies with their own arrangements, prefilled data is not available. In this case unfilled ERTs will be provided to reporting agencies prior to the data collection period, and reporting agencies are required to complete their own activity data.

Data sign off and submission

At the end of the data collection period, reporting agencies are required to get approving official sign off confirming the accuracy and completeness of the activity data in their ERTs. The approving official level is at the discretion of the reporting agency, but should have sufficient oversight or responsibility of the main Business Units involved in the collection and completion of the activity data.

Emissions Calculations

Data validation

In a process referred to as data validation, Finance will validate submitted activity data by inspecting the submitted ERTs for incorrect data formatting.

Any activity data that is outside of the Framework is removed and not used to calculate emissions. This can include data outside of:

- the relevant reporting period
- Australia and its external territories
- flown domestic commercial flights.

Any incorrect data formatting or data removals are communicated to the reporting agencies.

Emissions calculations

Once data validation is completed, Finance uses the methodologies outlined in Annex C: Emissions calculations, to calculate emissions data in t CO_2-e from activity data, by applying the appropriate emission factors. Once data validation is completed, Finance uses the methodologies outlined in Annex C: Emissions calculations, to calculate emissions data in t CO_2-e from activity data, by applying the appropriate emission factors.

Emission factors are created in a process performed outside of the emissions calculations performed by Finance. The primary source of emission factors in the Framework is the Australian National Greenhouse Accounts Factors, which generally publish factors as CO_2-e. When emissions factors are sourced, or in other formats, this is documented in Annex C: Emissions calculations.

An emission factor, as a CO_2-e metric, is created by multiplying the mass of a GHG by its GWP. This CO_2-e metric shows the mass of carbon dioxide emissions that would produce the same warming effect over a 100-year period. This method allows for comparison of GHGs on an equivalent basis, which is otherwise not possible due to differences in radiative forcing and atmospheric residence time for the seven GHG emissions. GWPs used in these calculations align with the Paris Agreement as per the IPCC 5th Assessment Report.

Once these CO_2-e emission factors are created, activity data is converted into CO_2-e by multiplying the quantity of the activity (e.g. GJ of natural gas) by the relevant source-specific emission factor. When an emission factor is given as kg CO_2-e /GJ but the activity data is not in GJ, then an energy content factor, or conversion factor, is applied to the activity data. The energy content factor is the amount of energy contained in the fuel, measured in gross calorific value. Conversion factors are outlined in Annex C: Emissions calculations.

The emissions data in CO_2-e is then populated into the Greenhouse Gas Emissions Inventory, as per Annual report requirements 2024-25 with emissions data in t CO_2-e.

Finalised ERTs are stored on the Department of Finance SharePoint, which is on a Protected network. Where an agency has identified sensitivities with their ERT content, accessibility of the content is subject to additional security controls and considerations.

Annual report requirements 2024-25

This section provides a Climate Statement Template for 2024-25 Reporting Period for inclusion in a Commonwealth entity's or Commonwealth company's FY2024-25 annual report. This template has been prepared to support Commonwealth entities and Commonwealth companies to meet emissions reporting requirements under the Framework.

The emissions reporting template should be considered in conjunction with reporting requirements under the Net Zero in Government Operations Strategy, Commonwealth Climate Disclosure (CCD) and the relevant resource management guide (RMG), 135 (Annual reports for non-corporate Commonwealth entities), 136 (Annual reports for corporate Commonwealth entities) or 137 (Annual reports for Commonwealth companies).

Emissions inventories should be included in a suitable appendix of an entity's or company's annual report, such as a sustainability report, climate statement or climate disclosure.

The following Climate Statement Template for 2024-25 Reporting Period meets minimum emissions reporting requirements including requirements under CCD Criteria M1(b), M3(a), M3(b), M3(e) and contributes to M6(c) Refer to Metrics and Targets under CCD Application Guidance.

Commonwealth entities and Commonwealth companies are encouraged to disclose more detail than outlined in the emissions reporting template, including any additional information or caveats that may enable annual report users to understand an entity's or company's emissions. Any additional emission sources outside of the Framework will need to be documented and reported separately to the emissions inventory template, but in the same section of the annual report.

Emissions inventories are required to be presented in a standardised format, which includes tables, graphs, and narrative summaries. This format ensures clarity and facilitates the comparison of emissions data across different reporting agencies. Commonwealth entities and Commonwealth companies should include in their Annual Reports the following:

- An Emissions Reporting section or Climate-related Metrics section.
- The 2024-25 Greenhouse Gas Emissions Inventory – Location-based method table which includes:
  - gross GHGs emissions generated during the reporting year, expressed as metric tonnes of CO_2 equivalent (t CO_2-e). These are then classified as scope 1 GHG emissions, scope 2 GHG emissions (location-based method) and scope 3 GHG emissions, for select scope 3 GHG emissions as per the Framework.
- The Electricity Greenhouse Gas Emissions table outlining:
  - Market-based scope 2 and scope 3 GHG emissions for electricity-related GHG emissions, including where relevant, information about any contractual instruments necessary to inform users' understanding of its scope 2 and scope 3 electricity-related GHG emissions.

If the emissions of a Commonwealth entity or Commonwealth company are encompassed in the emissions inventory of another Commonwealth entity or Commonwealth company, both entities or companies should specify in their annual reports that the emissions are aggregated and identify which emission sources are aggregated.

If a reporting agency deviates from the Emission Reporting Framework, this must be clearly stated within the Emissions Reporting or Climate-related Metrics section. Examples could include your entity disclosing more scope 3 emissions sources than required or aggregating some emissions sources for national security reasons.

Climate Statement Template for 2024-25 Reporting Period

Emissions reporting/climate-related metrics

As part of the Net Zero in Government Operations Strategy, and the reporting requirements under section 516A of the *Environment Protection and Biodiversity Conservation Act 1999,* non-corporate Commonwealth entities, corporate Commonwealth entities and Commonwealth companies are required to report on their operational greenhouse gas emissions.

The Greenhouse Gas Emissions Inventory and Electricity Greenhouse Gas Emissions tables present greenhouse gas emissions over the 2024–25 financial year. The greenhouse gas emissions reported are calculated on the basis of Carbon Dioxide Equivalent (CO_2-e) and in line with the Emissions Reporting Framework. This is consistent with a Whole-of-Australian Government approach, outlined in the Net Zero in Government Operations Strategy, and Commonwealth Climate Disclosure requirements.

Not all data sources were available at the time of the report and amendments to data may be required in future reports.

Reporting on refrigerants is being phased in over time as emissions reporting matures.

2024-25 greenhouse gas emissions inventory – location-based method

Emission Source	Scope 1 t CO_2-e	Scope 2 t CO_2-e	Scope 3 t CO_2-e	Total t CO_2-e
Electricity (location-based method)	n/a	—	—	—
Natural gas	—	n/a	—	—
Solid waste	n/a	n/a	—	—
Refrigerants*	—	n/a	n/a	—
Fleet and other vehicles	—	n/a	—	—
Domestic commercial flights	—	n/a	—	—
Domestic hire car	n/a	n/a	—	—
Domestic travel accommodation	n/a	n/a	—	—
Other energy	—	n/a	—	—
Total t CO_2-e				

Note: The table above presents emissions related to electricity usage using the location-based accounting method. CO_2-e = Carbon dioxide equivalent.

* Reporting on refrigerants is being phased in over time as emissions reporting matures and may be an optional source in 2024-25 emissions reporting. Refer to the Emissions Reporting Framework for more details.

2024-25 electricity greenhouse gas emissions

	Scope 2 t CO_2-e	Scope 3 t CO_2-e	Total t CO_2-e	Electricity kWh
Location-based electricity emissions	—	—	—	—
Market-based electricity emissions	—	—	—	—
Total renewable electricity consumed	n/a	n/a	n/a	—
Renewable Power Percentage[1]	n/a	n/a	n/a	—
Jurisdictional Renewable Power Percentage[2, 3]	n/a	n/a	n/a	—
GreenPower[2]	n/a	n/a	n/a	—
Large-scale generation certificates [2]	n/a	n/a	n/a	—
Behind the meter solar[4]	n/a	n/a	n/a	—
Total renewable electricity produced	n/a	n/a	n/a	—
Large-scale generation certificates [2]	n/a	n/a	n/a	—
Behind the meter solar[4]	n/a	n/a	n/a	—

Note: The table above presents emissions related to electricity usage using both the location-based and the market-based accounting methods. CO_2-e = carbon dioxide equivalent. Electricity usage is measured in kilowatt hours (kWh).

[1] Listed as Mandatory renewables in 2023-24 Annual Reports. The renewable power percentage (RPP) accounts for the portion of electricity used, from the grid, that falls within the Renewable Energy Target (RET).

[2] Listed as Voluntary renewables in 2023-24 Annual Reports.

[3] The Australian Capital Territory is currently the only state with a jurisdictional renewable power percentage (JRPP).

[4] Reporting behind-the-meter solar consumption and/or production is optional. The quality of data is expected to improve over time as emissions reporting matures.

Continuous Improvement

The Framework is designed to assist reporting agencies to take responsibility for identifying and implementing climate action and will involve a continuous improvement cycle as reporting matures. Finance and reporting agencies will practice continuous improvement in climate-related data reporting. Data quality is expected to be enhanced over time as emissions reporting matures.

Time series consistency

Time series show historical emissions trends and can be used to track the effects of emission reduction strategies. Efforts are made by Finance to calculate time series using the same methods and data sources in all years.

As GHG reporting matures scientifically, changes are expected in emissions measurements, data collection methods, calculation methodologies and reporting requirements. These changes impact on time series consistency.

Strategies to ensure consistency across the time series have been implemented from commencement of the Government emissions reporting and will be continually added and improved upon as required.

These strategies include:

- Applying the Intergovernmental Panel on Climate Change (IPCC) emissions estimation guidelines on time series consistency, including transparently documenting:
  - Approaches to emissions estimation including particular methods, emission factors and data sources, and explaining why this approach was appropriate.
  - Changes to the emissions estimation approach and why that change was appropriate.
  - How time-series consistency was maintained following changes to an emission estimated approach, including a quantification of the change throughout the time series.
- Disaggregation of data to observe changes in activity levels. Efforts are made to report activity data disaggregated into appropriate subcategories, future proofing against potential consistency issues with analysis and reporting.
- Updates to the Framework, including, where required, relevant methodologies, data sources and caveats to provide transparency across the time series. The yearly NZGO APR may also include updates as required.

Data amendment process

Emissions reporting is to be disclosed with the most accurate and complete data at the time of submission. Ongoing efforts are required by the reporting agencies and Finance, to identify and resolve any uncertainties, inaccuracies, or issues, in order to improve accuracy and

completeness. Despite best efforts to report accurately, some factors remain beyond the control of reporting agencies and Finance.

The data amendment process is an opportunity for Finance to provide updates and for reporting agencies to revise and update their activity data after the data collection period closes.

An amendment is defined as a correction of a reported or published error or reconciliation of activity data and calculated emissions and emissions inventories.

The amendment process follows similar stages to the data collection process; however, the amendment period is extended and during this period reporting agencies are invited to correct or update data from any previous reporting period.

- The amendment period opens at the start of each calendar year, allowing agencies to submit amendments for previous reporting periods between 1 January and 31 May, approximately.
- Finance works with PSPs, where applicable, to source any reconciled activity data and sends affected agencies amended data during the amendment period. For reporting agencies who do not use a PSP, the reporting agency will source reconciled activity data themselves.
- Submitted data is validated by Finance and any issues that are identified are communicated to the reporting agencies for correction.
- The reporting agency's emissions are calculated by Finance and amended emissions inventories are returned to reporting agencies.
- Reporting agencies review their emissions inventories with an opportunity to correct any issues or provide sign-off by an approving official.
- Amended data is included in the following year's NZGO APR.

Reporting amendments

Reporting agencies may publish amendments to prior year emissions inventory data on the relevant agency's website. Additional enhancements to the amendments reporting process are under investigation.

Annex A: Scope 3 categories in Greenhouse Gas Protocol and Framework

Location in supply chain	Category	Category description	Minimum boundary	Name in the Framework
Upstream	1. Purchased goods and services	Extraction, production, and transportation of goods and services purchased or acquired by the reporting company in the reporting year, not otherwise included in Categories 2 – 8	All upstream (cradle-to-gate) emissions of purchased goods and services	Not included – refer to Scope 3 emissions
Upstream	2. Capital goods	Extraction, production, and transportation of capital goods purchased or acquired by the reporting company in the reporting year.	All upstream (cradle-to-gate) emissions of purchased capital goods	Not included – refer to Scope 3 emissions exclusions
Upstream	3. Fuel- and energy related activities (not included in scope 1 or scope 2)	Extraction, production, and transportation of fuels and energy purchased or acquired by the reporting company in the reporting year, not already accounted for in scope 1 or scope 2, including:		Not included – refer to Scope 3 emissions exclusions
		a. Upstream emissions of purchased fuels (extraction, production, and transportation of fuels consumed by the reporting company)	For upstream emissions of purchased fuels: All upstream (cradle-to-gate) emissions of purchased fuels (from raw material extraction up to the point of, but excluding combustion)	The extraction, production and transport of energy sources
		b. Upstream emissions of purchased electricity (extraction, production, and transportation of fuels consumed in the generation of	For upstream emissions of purchased electricity: All upstream (cradle-to-gate) emissions of purchased fuels (from raw material extraction	The transmission and distribution losses associated with electricity use

Location in supply chain	Category	Category description	Minimum boundary	Name in the Framework
		electricity, steam, heating, and cooling consumed by the reporting company)	up to the point of, but excluding, combustion by a power generator)	
		c. Transmission and distribution (T&D) losses (generation of electricity, steam, heating and cooling that is consumed (i.e., lost) in a T&D system) – reported by end user	For T&D losses: All upstream (cradle-to-gate) emissions of energy consumed in a T&D system, including emissions from combustion	
		d. Generation of purchased electricity that is sold to end users (generation of electricity, steam, heating, and cooling that is purchased by the reporting company and sold to end users) – reported by utility company or energy retailer only	For generation of purchased electricity that is sold to end users: Emissions from the generation of purchased energy	Not included – refer to Scope 3 emissions exclusions
Upstream	4. Upstream transportation and distribution	Transportation and distribution of products purchased by the reporting company in the reporting year between a company's tier 1 suppliers and its own operations (in vehicles and facilities not owned or controlled by the reporting company)	The scope 1 and scope 2 emissions of transportation and distribution providers that occur during use of vehicles and facilities (e.g. from energy use)	Not included – refer to Scope 3 emissions exclusions
		Transportation and distribution services purchased by the reporting company in the reporting year, including inbound logistics, outbound logistics (e.g. of sold products), and transportation and distribution between a company's own facilities (in vehicles	Optional: The life cycle emissions associated with manufacturing vehicles, facilities, or infrastructure	Not included – refer to Scope 3 emissions exclusions

Location in supply chain	Category	Category description	Minimum boundary	Name in the Framework
		and facilities not owned or controlled by the reporting company		
Upstream	5. Waste generated in operations	Disposal and treatment of waste generated in the reporting company's operations in the reporting year (in facilities not owned or controlled by the reporting company)	The scope 1 and scope 2 emissions of waste management suppliers that occur during disposal or treatment. Optional: Emissions from transportation of waste	Solid waste disposal and treatment.
Upstream	6. Business travel	Transportation of employees for business-related activities during the reporting year (in vehicles not owned or operated by the reporting company)	The scope 1 and scope 2 emissions of transportation carriers that occur during use of vehicles (e.g. from energy use) Optional: The life cycle emissions associated with manufacturing vehicles or infrastructure	Domestic Hire car
				Domestic Accommodation
				Domestic Air Travel
Upstream	7. Employee commuting	Transportation of employees between their homes and their worksites during the reporting year (in vehicles not owned or operated by the reporting company)	The scope 1 and scope 2 emissions of employees and transportation providers that occur during use of vehicles (e.g. from energy use) Optional: Emissions from employee teleworking	Not included – refer to Scope 3 emissions exclusions
Upstream	8. Upstream leased assets	Operation of assets leased by the reporting company (lessee) in the reporting year and not included in scope 1 and scope 2 – reported by lessee	The scope 1 and scope 2 emissions of lessors that occur during the reporting company's operation of leased assets (e.g. from energy use) Optional: The life cycle emissions associated with manufacturing or constructing leased assets	Not included – refer to Scope 3 emissions exclusions
Downstream	9. Downstream transportation and distribution	Transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations	The scope 1 and scope 2 emissions of transportation providers, distributors, and retailers that occur during use of	Not included – refer to Scope 3 emissions exclusions

Location in supply chain	Category	Category description	Minimum boundary	Name in the Framework
		and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company)	vehicles and facilities (e.g. from energy use) Optional: The life cycle emissions associated with manufacturing vehicles, facilities, or infrastructure	
Downstream	10. Processing of sold products	Processing of intermediate products sold in the reporting year by downstream companies (e.g. manufacturers)	The scope 1 and scope 2 emissions of downstream companies that occur during processing (e.g. from energy use)	Not included – refer to Scope 3 emissions exclusions
Downstream	11. Use of sold products	End use of goods and services sold by the reporting company in the reporting year	The direct use-phase emissions of sold products over their expected lifetime (i.e., the scope 1 and scope 2 emissions of end users that occur from the use of: products that directly consume energy (fuels or electricity) during use; fuels and feedstocks; and greenhouse gases and products that contain or form greenhouse gases that are emitted during use) Optional: The indirect use-phase emissions of sold products over their expected lifetime (i.e., emissions from the use of products that indirectly consume energy (fuels or electricity) during use)	Not included – refer to Scope 3 emissions exclusions
Downstream	12. End-of-life treatment of sold products	Waste disposal and treatment of products sold by the reporting company (in the reporting year) at the end of their life	The scope 1 and scope 2 emissions of waste management companies that occur during disposal or treatment of sold products	Not included – refer to Scope 3 emissions exclusions
Downstream	13. Downstream leased assets	Operation of assets owned by the reporting company (lessor) and leased to other entities in the reporting year,	The scope 1 and scope 2 emissions of lessees that occur during operation of leased assets (e.g. from energy use). Optional:	Not included – refer to Scope 3 emissions exclusions

Location in supply chain	Category	Category description	Minimum boundary	Name in the Framework
		not included in scope 1 and scope 2 – reported by lessor	The life cycle emissions associated with manufacturing or constructing leased assets	
Downstream	14. Franchises	Operation of franchises in the reporting year, not included in scope 1 and scope 2 – reported by franchisor	The scope 1 and scope 2 emissions of franchisees that occur during operation of franchises (e.g. from energy use) Optional: The life cycle emissions associated with manufacturing or constructing franchises	Not included – refer to Scope 3 emissions exclusions
Downstream	15. Investments	Operation of investments (including equity and debt investments and project finance) in the reporting year, not included in scope 1 or scope 2	Companies that use a control approach account only for those equity investments that are under the company's control in scope 1 and scope 2. Investments not included in the company's scope 1 or scope 2 emissions are included in scope 3, in this category	Refer to Year 3 CCD Requirements

Annex B: Operational Control Scorecard

Overview

The Operational Control Scorecard (the Scorecard) may be used to assess and determine which agency holds operational control over a facility and associated assets. It evaluates the extent of authority an agency has in implementing operating, health and safety, and environmental policies. The Scorecard can also be used where Machinery of Government changes have occurred, or entities ceased operations within the reporting period. Seek advice from the Emissions Accounting Team to ensure that data is attributed to the appropriate reporting agency.

Instructions

Step 1: Identify the building: On the Scorecard provide the Site Name (name of the building), the Building Address, and the AGPR Building ID, if applicable to that building.

Step 2: Identify the other parties: Identify all Commonwealth entities or Commonwealth companies that may have authority over the facility. Along with your agency's name, write the name of each additional reporting agency in the Scorecard. Where the other party is an external agency and not a Commonwealth entity or Commonwealth company make note of this in the Scorecard.

Step 3: Complete the building questions: Answer each of the questions provided. Record your answers in the Answers column, either by providing a written answer or selecting the appropriate option.

Step 4: Answer the policy control questions: Please complete each question in the Question column by ticking the appropriate box. Ensure that for each question, only one box is ticked based on who has the MOST authority or the final say in these matters. Consider the overall site and common property, rather than areas exclusive to your reporting agency.

Step 5: List the assets: Where responses to Building questions and Policy control questions do not identify operational control, create a detailed list of assets within the facility that are relevant to its operation. Record these assets on the Scorecard for reference.

Step 6: Contact Emissions Accounting Team: If no agreement is reached, please seek further guidance from the Emissions Accounting Team at emissionsaccounting@finance.gov.au

Step 7: Document findings: Maintain detailed records of findings and decisions using a Scorecard for each building. Ensure documentation is thorough and accessible for audit and compliance purposes. Reporting agencies may implement a standardised process for reassessing operational control whenever ownership or management changes.

Operational Control Scorecard

Completed by (include role/title)	

Building

Site name	
Building Address	
AGPR Building ID (if applicable)	

Parties

Name of party	Contact Details
Reporting agency	Name: Email Address: Phone Number:
Landlord	Name: Email Address: Phone Number:
Other	Name: Email Address: Phone Number:

Building questions

Questions	Answers
Does the reporting agency own this property/building?	Yes/No
Is this property or part of this property leased?	Yes/No
Is the reporting agency a tenant (lessee) or lessor?	Tenant/Lessor
If the reporting agency is lessor, is the tenant/lessee a Commonwealth entity or Commonwealth company, or an external entity?	Names of tenants/lessees
	Type of entity (Commonwealth/ external entity)
If this facility has tenants, what is the proportion (%) of Gross Floor Area (GFA) occupied by the reporting agency at this property?	%
In case of multiple agencies having control over operating, health and safety or environmental policies, does the reporting agency have greater authority in decision making and implementation of any of these policies?	Yes/No

Policy control questions

Questions	Reporting agency	Landlord	Other	N/A	Notes
Work, Health & Safety:					
Who is responsible for the site's overall workplace safety standards					

Questions	Reporting agency	Landlord	Other	N/A	Notes
and ensuring compliance for common areas?					
Who is responsible for conducting regular safety audits or risk assessments for the site?					
Who is responsible for conducting emergency drills for the site?					
Who made decisions about whether the site stayed open during COVID-19? Or other site safety protocols during COVID-19?					
Operations:					
Who controls physical access to the site and decides on the implementation of site security measures (e.g. entry systems, visitor logs or access restrictions)?					
Is there a central management office? If so, who engaged them?					
Who chooses suppliers and contractors for the site e.g. cleaners, security guards?					
Who is responsible for maintaining or upgrading site infrastructure e.g. HVAC systems, lighting?					
Energy:					
Who determines which electricity provider to use, or whether to source renewable energy for the site?					
Who controls the timing and usage of shared energy systems like heating, ventilation and air con (HVAC)?					
Who decides on the installation or maintenance of on-site renewable energy systems (e.g. solar panels)?					
Waste:					
Who decides how shared waste streams are segregated, treated, or disposed of? Who selects the site's the waste providers?					
Who establishes policies for general waste reduction or recycling programs for shared/communal waste?					
Water:					

Questions	Reporting agency	Landlord	Other	N/A	Notes
Who determines water usage policies, including conservation strategies?					
Who decides on the installation of water-saving technologies for the site (e.g. low-flow fixtures, rainwater harvesting)?					

Findings

Asset name	Agency with operational control	Data collection plan

Annex C: Emissions calculations

Electricity

GHG emissions from electricity using the Location-based method

$$\text{t } CO_2\text{-e} = \frac{Q \times EF}{1000}$$

Where:

- $\mathbf{t\ CO_2\text{-}e}$ is the GHG emissions, in tonnes carbon dioxide equivalent
- $\mathbf{Q}$ is the quantity of electricity consumed, in kilowatt hours (kWh)
- $\mathbf{EF}$ is the location specific emissions factor, in kilogram carbon dioxide equivalent (kg CO_2-e) per kWh

To convert from kilograms (kg) to tonnes (t), divide by 1000. Conversely, to convert from t to kg, multiply by 1000.

Table 6: Location-based method emission factors

Location	Net scope 2 emission factor kg CO_2-e/kWh	Net scope 3 supply chain emission factor kg CO_2-e/kWh
Australian Capital Territory (ACT)	0.66	0.04
New South Wales (NSW)	0.66	0.04
Northern Territory (NT) - Darwin Katherine Interconnected System (DKIS)	0.56	0.07
Queensland (QLD)	0.74	0.10
South Australia (SA)	0.23	0.05
Tasmania (TAS)	0.15	0.03
Victoria (VIC)	0.77	0.09
Western Australia (WA) - South West Interconnected System (SWIS)	0.51	0.06
Western Australia (WA) - North West Interconnected System (NWIS)	0.61	0.09
Other - National location based	0.63	0.07

Source: DCCEEW (Department of Climate Change, Energy, the Environment and Water) (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:8-9; table 1, accessed 14 February 2025.

GHG emissions from electricity using the Market-based method

Market-based scope 2 and scope 3 electricity-related GHG emissions are calculated by Finance, using the electricity-related activity data provided. To support disclosure, reporting agencies should include a brief explanation of any formal contractual arrangements in place with another

agency to support deployment of low emissions electricity (for example, GreenPower), where applicable.

$$t\,CO_2\text{-}e = \left(\left(Q - Q_{exempt}\right) \times \left(1 - (RPP + JRPP)\right) + \left(Q_{exempt} \times (1 - JRPP)\right) - (REC_{surr} - REC_{onsite}) \times 1{,}000\right) \times \frac{RMF1 + RMF2}{1{,}000}$$

Where:

- $\mathbf{t\,CO_2\text{-}e}$ are the GHG emissions, in tonnes carbon dioxide equivalent
- $\mathbf{Q}$ - quantity of electricity purchased or acquired, and consumed, in kilowatt hours (kWh)
- $\mathbf{Q_{exempt}}$ - quantity of electricity exempt from Renewable Energy Target (RET) liability, measured in kWh
- **RPP** - Renewable Power Percentage for the applicable period, averaged across previous and current calendar years. For example, calendar years 2024 and 2025 are used for the calculation of the financial year 2025 RPP
- **JRPP** - Jurisdictional RPP for the applicable period and activity state. Calculated as the number of eligible Renewable Energy Certificates surrendered by or on behalf of the jurisdictional authority divided by total electricity consumption in the jurisdiction. As of 2025, the ACT is the only jurisdiction with a JRPP.
- $\mathbf{REC_{surr}}$ - eligible RECs voluntarily surrendered in the reporting year, equivalent to megawatt hours (MWh)
- $\mathbf{REC_{onsite}}$ - eligible RECs that have been or will be issued for electricity produced on-site during the year and consumed from the operation of the facility, equivalent to MWh
- **RMF1** - scope 2 residual mix factor (RMF), in kg CO_2-e emissions per kWh
- **RMF2** - scope 3 RMF, in kg CO_2-e emissions per kWh
- Note: As the sum of $RMF1$ and $RMF2$ is given in kg CO_2-e emissions per kWh, it is necessary to divide by 1000 to convert to t CO_2-e

An eligible Renewable Energy Certificate (REC) is:

- a Large-scale Generation Certificate (LGC) that is voluntarily surrendered through the Renewable Energy Certificate Registry in the reporting year with a generation date of less than 36 months prior to the end of the reporting year; or
- a purchase of GreenPower electricity from an accredited GreenPower Provider.

Table 7: Residual Mix Factors (RMF)

Location	Scope 2 residual mix factor kg CO_2-e/kWh	Scope 3 residual mix factor kg CO_2-e/kWh
National	0.81	0.11

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:9; table 2, accessed 14 February 2025.

Table 8: Renewable Power Percentage (RPP)

Year	Renewable power percentage %
2024 Calendar year	18.48
2025 Calendar year	17.91
2024-25 Financial year average	18.195

Source: CER (Clean Energy Regulator) (2025) *Renewable Power Percentage*, CER website, accessed 22 May 2025.

Table 9: Jurisdictional Renewable Power Percentage (JRPP)

Location	Year	Jurisdictional renewable power percentage %
ACT	2024-2025	79.51

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:11, accessed 14 February 2025.

Natural gas

$$\text{t } CO_2\text{-e} = \frac{Q \times EF}{1000}$$

Where:

- $\mathbf{t\ CO_2\text{-}e}$ is the GHG emissions, in tonnes carbon dioxide equivalent
- $\mathbf{Q}$ is the quantity of natural gas consumed, in gigajoules (GJ)
- $\mathbf{EF}$ is the location specific emissions factor, in kilogram carbon dioxide equivalent (kg CO_2-e) per GJ

To convert from kilograms (kg) to tonnes (t), divide by 1000. Conversely, to convert from t to kg, multiply by 1000.

Table 10: Stationary combustion - emission factors of natural gas

Location	Remoteness classification[c]	Net scope 1 emission factor[d] kg CO_2-e/GJ	Net scope 3 supply chain emission factor[e] kg CO_2-e/GJ
NSW/ACT	Metro	51.53	13.1
NSW/ACT	Non-metro	51.53	14.0
QLD	Metro	51.53	8.8
QLD	Non-metro	51.53	7.9
SA	Metro	51.53	10.7
SA	Non-metro	51.53	10.6
VIC	Metro	51.53	4.0
VIC	Non-metro	51.53	4.0
WA	Metro	51.53	4.1

WA	Non-metro	51.53	4.0
TAS[a]	Metro	51.53	4.0
TAS[a]	Non-metro	51.53	4.0
NT[b]	Metro	51.53	4.0
NT[b]	Non-metro	51.53	4.1

[a] Tasmania uses the scope 3 emissions factor for Victoria.

[b] The Northern Territory uses the scope 3 emissions factor for Western Australia.

[c] Metro is defined as located on or east of the dividing range in NSW, including Canberra and Queanbeyan, Melbourne, Brisbane, Adelaide or Perth. Otherwise, the non-metro factor should be used.

[d] Scope 1 Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:17; table 5, accessed 14 February 2025.

[e] Scope 3 Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:18; table 6, accessed 14 February 2025.

Solid waste disposal to landfill

If weight of waste is known:

$$\text{t } CO_2\text{-e} = Q \times EF$$

If weight is not known:

$$\text{t } CO_2\text{-e} = m^3 \times CF \times EF$$

Where:

- $\mathbf{t\ CO_2\text{-}e}$ is the GHG emissions, in tonnes carbon dioxide equivalent
- $\mathbf{Q}$ is the weight of waste produced, in tonnes (t)
- $\mathbf{EF}$ is the waste type or waste stream emissions factor, t CO_2-e per t of waste
- $\boldsymbol{m^3}$ is the volume of waste produced, in cubic metres (m^3)
- $\mathbf{CF}$ is the conversion factor of volume to mass as per Table 11 and Table 12

Table 11: Solid waste disposal – waste type

Waste Type	Net scope 3 emission factor t CO_2-e/t	Volume to mass conversion factor t/m^3
Food	2.1	0.50
Paper and cardboard	3.3	0.09
Garden and green	1.6	0.24
Wood	0.7	0.15
Textiles	2.0	0.14
Sludge	0.4	0.72
Nappies	2.0	0.39

Rubber and leather	3.3	0.14
Inert waste (including concrete/metal/ plastics/glass)	-	0.42

Note: Only applicable for waste sent to landfill and does not consider any landfill gas capture.

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:34-35; table 15, accessed 14 February 2025.

Table 12: Solid waste disposal – waste stream

Waste stream	Scope 3 emission factor t CO_2-e/t	Volume to mass conversion factor t/m^3
Municipal solid waste	1.6	0.36
Commercial and industrial waste	1.3	0.33
Construction and demolition waste	0.2	0.39

Note: Only applicable for waste sent to landfill and does not consider any landfill gas capture.

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:35; table 16, accessed 14 February 2025.

Refrigerants

Under the Framework, emissions from fugitive refrigerant gases are calculated as annual emissions from estimated leakage rates. Leakage is estimated using rates published by the Australian National Greenhouse Accounts Factors, the National Inventory Report or provided by reporting agency or equipment owner. This is the same as Method 1 under section 4.102 of the NGER Measurement Determination.

$$\text{t } CO_2\text{-e} = \frac{\text{GWP} \times \text{charge} \times \text{leakage rate}}{1000}$$

Where:

- **t CO_2-e** are the GHG emissions, in tonnes carbon dioxide equivalent
- **GWP** is the global warming potential of refrigerant gas, as per Table 13
- **Charge** is the amount of refrigerant gas contained within the appliance, in kilograms (kg)
- **Leakage rate** is the percentage of the refrigerant gas leaked from the appliance each year, as per Table 14

To convert from kilograms (kg) to tonnes (t), divide by 1000. Conversely, to convert from t to kg, multiply by 1000.

Only refrigerants that meet a quantity and type threshold are required to be reported:

a. The total volume of refrigerant gas contained within equipment (the charge) is more than 100 kilograms (kg) of refrigerant for each unit; and

b. The refrigerant is a GHG with a Global Warming Potential (GWP) of more than 1000.

Table 13: Refrigerant Global Warming Potentials

Refrigerant	Chemical Formula	Global Warming Potential (AR5)
Sulphur hexafluoride[a]	SF_6	23,500
Hydrofluorocarbons (HFCs)		
R-23 (HFC-23)a	CHF3	12,400
R-32 (HFC-32)[b]	CH_2F_2	677
R-125 (HFC-125)[a]	C_2HF_5	3,170
R-134 (HFC-134)[a]	$C_2H_2F_4$ (CHF_2CHF_2)	1,120
R-134a (HFC-134a)[b]	$C_2H_2F_4$ (CH_2FCF_3)	1,300
R-143a (HFC-143a)[a]	$C_2H_3F_3$ (CF_3CH_3)	4,800
R-227ea (HFC-227ea)[a]	C_3HF_7	3,350
R-236fa (HFC-236fa)[a]	$C_3H_2F_6$	8,060
R-4310mee (HFC-43-10mee)[a]	$C_5H_2F_{10}$	1,650
Hydrochlorofluorocarbons (HCFCs)		
R-22 (HCFC-22)[b]	$CHClF_2$	1,760
R-142b (HCFC-142b)[a]	CH_3CClF_2	1,980
Blends		
R-404a[b]	44% HFC-125, 52% HFC-143a, 4% HFC-134a	3,943
R-410a[b]	50% HFC-32, 50% HFC-125	1,924
R-513a[c]	44% R-134a, 56% R-1234yf	573
Perfluorocarbons (PFCs)		
PFC-14[a]	CF_4	6,630
PFC-116[a]	C_2F_6	11,100
PFC-218[a]	C_3F_8	8,900
PFC-31-10[a]	C_4F_{10}	9,200
PFC-318[a]	$c\text{-}C_4F_8$	9,540
PFC-41-12[a]	C_5F_{12}	8,550
PFC-51-14[a]	C_6F_{14}	7,910
PFC-91-18[a]	$C_{10}F_{18}$	7,190

Note: AR5 is the Fifth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC).

[a] Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:47; table 23, accessed 14 February 2025.

[b] Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:30; table 11, accessed 14 February 2025.

[c] Source: The R-513a global warming potential was sourced from the manufacturer, Honeywell, which uses the brand name Solstice® 513A (R-513A).

Table 14: Refrigerants – equipment leakage rates

Equipment type	Leakage rates %
Commercial air conditioning[a]	6.0
Chiller[a]	6.0
Large commercial refrigeration[a]	13.0
Industrial refrigeration[a]	17.5
Transport refrigeration[a,b]	15.7
Heavy vehicle air conditioning[a,b]	10.8
Insulated switchgear and circuit breakers[c]	0.89
Specialist scientific equipment[c]	Various

Note: Leakage rates represent average annual leakages from operation and not leakages during installation or disposal of equipment.

[a] Source: DCCEEW (2022) *National Inventory Report 2022*, DCCEEW, 2:111; table A5.4.1.9, accessed 4 July 2024.

[b] Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:30; table 12, accessed 14 February 2025.

[c] Source: Provided by reporting agency or equipment owner

Fleet and other vehicles

$$\text{t } CO_2\text{-e} = \frac{Q \times EC \times EF}{1000}$$

Where:

- $\mathbf{t\ CO_2\text{-}e}$ are the GHG emissions, in tonnes carbon dioxide equivalent
- $\mathbf{Q}$ is the activity data, in units other than gigajoules (GJ), for example, kilolitres (kL)
- $\mathbf{EC}$ is the energy content factor of the fuel, for example GJ/kL, as per Table 15 to Table 19
- $\mathbf{EF}$ is the source specific emissions factor, in kg CO_2-e per GJ, as per Table 15 to Table 19

To convert from kilograms (kg) to tonnes (t), divide by 1000. Conversely, to convert from t to kg, multiply by 1000.

Table 15: Mobile combustion – emission factors for vehicles where vehicle type is not known

General vehicle type	Fuel types	Activity data unit	Energy content factor (EC)	Net scope 1 emission factor	Net scope 3 supply chain

			GJ per unit	kg CO2-e/GJ	emission factor kg CO2-e/GJ
Heavy duty trucks and buses	Diesel	Kilolitres (kL)	38.6	70.50	17.3
Other vehicles	Diesel	Kilolitres (kL)	38.6	70.41	17.3
Other vehicles	Biodiesel	Kilolitres (kL)	34.6	2.50	Not available
Other vehicles	Ethanol mix	Kilolitres (kL)	33.12	60.898	15.48
Other vehicles	Pure ethanol	Kilolitres (kL)	23.4	0.40	Not available
Other vehicles	Gasoline	Kilolitres (kL)	34.2	67.62	17.2
Other vehicles	Liquid petroleum gas (LPG)	Kilolitres (kL)	26.2	61.00	20.2
Other vehicles	Other biofuels	Kilolitres (kL)	23.4	2.50	Not available

* Ethanol mix assumes a mix of 10% ethanol and 90% gasoline (E10). Energy content factors and emissions factors were calculated as the addition of the EC or EF of gasoline multiplied by 90% and the EC or EF of pure ethanol multiplied by 10%.

Note: Emissions factors for other vehicles are applied to other off-road vehicles, domestic marine, motorcycles and heavy-duty trucks and buses, with exceptions for:

– LPG, biodiesel, or diesel, which are not applicable to motorcycles.

– LPG, which is not applicable domestic marine.

– Diesel in heavy-duty trucks and buses, which use the emission factors for Euro i, Euro iii, Euro iv or higher diesel oil. Refer to Table 17.

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:25-26; table 9, accessed 14 February 2025.

Table 16: Mobile combustion –emission factors for cars and light commercial vehicles

Transport Type	Fuel	Activity data unit	Energy content factor (EC) GJ per unit	Net scope 1 emission factor kg CO_2-e/GJ	Net scope 3 supply chain emission factor kg CO_2-e/GJ
Cars and light commercial vehicles	Biodiesel	Kilolitres (kL)	34.6	2.50	Not available
Cars and light commercial vehicles	Diesel oil	Kilolitres (kL)	38.6	70.41	17.3
Cars and light commercial vehicles	Ethanol mix*	Kilolitres (kL)	33.12	60.898	15.48
Cars and light commercial vehicles	Pure ethanol	Kilolitres (kL)	23.4	0.40	Not available

Transport Type	Fuel	Activity data unit	Energy content factor (EC) GJ per unit	Net scope 1 emission factor kg CO_2-e/GJ	Net scope 3 supply chain emission factor kg CO_2-e/GJ
Cars and light commercial vehicles	Fuel oil	Kilolitres (kL)	39.7	74.18	18.0
Cars and light commercial vehicles	Gasoline	Kilolitres (kL)	34.2	67.62	17.2
Cars and light commercial vehicles	Liquid petroleum gas (LPG)	Kilolitres (kL)	26.2	61.00	20.2
Cars and light commercial vehicles	Other biofuels	Kilolitres (kL)	23.4	2.50	Not available

* Ethanol mix assumes a mix of 10% ethanol and 90% gasoline (E10). Energy content factors and emissions factors were calculated as the addition of the EC or EF of gasoline multiplied by 90% and the EC or EF of pure ethanol multiplied by 10%.

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:25-26; table 9, accessed 14 February 2025.

Table 17: Mobile combustion – emission factors for heavy duty vehicles

Transport Type	Fuel	Activity data unit	Energy content factor (EC) GJ per unit	Net scope 1 emission factor kg CO_2-e/GJ	Net scope 3 supply chain emission factor kg CO_2-e/GJ
Heavy duty vehicles	Compressed natural gas	Cubic metres (m^3)	0.0393	54.50	18.0
Heavy duty vehicles	Diesel oil - Euro i	Kilolitres (kL)	38.6	70.50	17.3
Heavy duty vehicles	Diesel oil - Euro iii	Kilolitres (kL)	38.6	70.40	17.3
Heavy duty vehicles	Diesel oil - Euro iv or higher	Kilolitres (kL)	38.6	70.37	17.3
Heavy duty vehicles	Liquefied natural gas	Kilolitres (kL)	25.3	54.50	18.0

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:25-26; table 9, accessed 14 February 2025.

Table 18: Mobile combustion – emission factors for light duty vehicles

Transport Type	Fuel	Activity data unit	Energy content factor (EC)	Net scope 1 emission factor	Net scope 3 supply chain

			GJ per unit	kg CO_2-e/GJ	emission factor kg CO_2-e/GJ
Light duty vehicles	Compressed natural gas	Cubic metres (m^3)	0.0393	59.00	18.0
Light duty vehicles	Liquefied natural gas	Kilolitres (kL)	25.3	59.00	18.0

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:25-26; table 9, accessed 14 February 2025.

Table 19: Mobile combustion – emission factors for aircraft

Transport Type	Fuel	Activity data unit	Energy content factor (EC) GJ per unit	Net scope 1 emission factor kg CO_2-e/GJ	Net scope 3 supply chain emission factor kg CO_2-e/GJ
Aircraft	Gasoline for use as fuel in an aircraft	Kilolitres (kL)	33.1	67.66	18.0
Aircraft	Kerosene for use as fuel in an aircraft	Kilolitres (kL)	36.8	70.21	18.0

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:25-26; table 9, accessed 14 February 2025.

Domestic commercial flights

Emissions from domestic commercial flights are calculated based on the total number of kilometres (km) travelled, the flight category, which is determined by the flight length, and the cabin class.

$$\text{t } CO_2\text{-e} = \frac{Q \times EF}{1000}$$

Where:

- $\mathbf{t\ CO_2\text{-}e}$ is the GHG emissions, in tonnes carbon dioxide equivalent
- $\mathbf{Q}$ is the distance travelled, in kilometres (km)
- $\mathbf{EF}$ is the source specific emissions factor, in kilogram carbon dioxide equivalent (kg CO_2-e) per km, as per Table 20

To convert from kilograms (kg) to tonnes (t), divide by 1000. Conversely, to convert from t to kg, multiply by 1000.

Table 20: Domestic commercial flights – emission factors for aircraft where distance travelled is known

Flight category	Flight Length (km)	Cabin class	Indirect scope 3 emission factor (kg CO_2-e/km)	Supply chain scope 3 emission factor (kg CO_2-e/km)	Total scope 3 emissions factor (kg CO_2-e/km)
Long	Greater than 3,700 km	First class	0.47246	0.09844	0.57090
Long	Greater than 3,700 km	Business	0.34252	0.07137	0.41389
Long	Greater than 3,700 km	Premium economy	0.18897	0.03937	0.22834
Long	Greater than 3,700 km	Economy	0.11812	0.02461	0.14273
Short	Between 400 km and 3,700 km	Premium economy, business and first class	0.16191	0.03373	0.19564
Short	Between 400 km and 3,700 km	Economy	0.10794	0.02249	0.13043
Very short	Less than 400 km	All classes	0.16098	0.03350	0.19448

Notes: Commercial flight emission factors represent CO_2, CH_4 and N_2O emissions. Emissions factors are without Radiative Forcing (RF) and can be applied to both domestic and international flights.

Supply chain emissions factors are Well-to-Tank (WTT) emission factors. WTT is an average of all the emissions released into the atmosphere from the production, processing and delivery of a fuel to the point where it is put into an aircraft.

Source: Department for Energy Security & Net Zero (2024) *Conversion Factors 2024: full set (for advanced users)* [data set], gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2024 , Government of the United Kingdom, accessed 14 February 2025.

– Indirect scope 3 emission factors sourced from sheet 'Business travel – air', cells I23:36.

– Supply chain scope 3 emission factors sourced from sheet 'WTT - business travel – air', cells F20:33.

Domestic hire car

Hire car emissions are calculated based on the total number of kilometres (km) travelled, and the grams of CO_2 produced by the specific vehicle make and model per km (tailpipe CO_2). The availability of the make and model data of vehicles is inconsistent from vehicle rental companies.

For vehicles rented from Hertz Australia Pty Ltd (Hertz), the tailpipe CO_2 was sourced directly from Hertz for specific vehicles. Analysis of the data sourced from Hertz found the tailpipe CO_2 values reasonably matched those published by the Green Vehicle Guide.

For vehicles rented from other rental companies, a tailpipe CO_2 value was estimated for either the fuel type and body type, or for the drive type and body type. Average tailpipe CO_2 was calculated using Green Vehicle Guide data from approximately 3000 vehicles. If fuel/body type or drive/body type is unknown the emissions of the hire car cannot be estimated.

$$\text{t CO}_2 = \frac{\text{Q} \times \text{EF}}{1{,}000{,}000}$$

Where:

- $\mathbf{t\ CO_2}$ is the GHG emissions, in tonnes carbon dioxide (t CO_2)
- $\mathbf{Q}$ is the distance travelled, in kilometres (km)
- $\mathbf{EF}$ is the vehicle specific tailpipe CO_2, in grams carbon dioxide per km (g CO_2/km)

To convert from grams (g) to tonnes (t) divide by 1,000,000.

Table 21: Hire car – emission factors for vehicles where fuel type, body type and distance travelled is known

Fuel type	Body type	Tailpipe CO_2 g CO_2/km
Diesel	Cab-chassis	210
Diesel	Convertible	132
Diesel	Coupe	133
Diesel	Hatch	112
Diesel	Light bus	248
Diesel	Sedan	152
Diesel	SUV	184
Diesel	Utility	206
Diesel	Van	184
Diesel	Wagon	177
Electric/Diesel	Cab-chassis	199
Electric/Diesel	Sedan	203
Electric/Diesel	SUV	204
Electric/Diesel	Utility	196
Electric/Diesel	Wagon	193
Plug-in Electric/Diesel	SUV	50
Electric/Petrol	Convertible	175

Fuel type	Body type	Tailpipe CO_2 g CO_2/km
Electric/Petrol	Coupe	189
Electric/Petrol	Hatch	93
Electric/Petrol	Sedan	144
Electric/Petrol	SUV	172
Electric/Petrol	Utility	225
Electric/Petrol	Wagon	144
Petrol	Cab-chassis	256
Petrol	Convertible	213
Petrol	Coupe	218
Petrol	Hatch	150
Petrol	Sedan	190
Petrol	SUV	194
Petrol	Utility	295
Petrol	Van	166
Petrol	Wagon	189
Plug-in Electric/Petrol	Coupe	110
Plug-in Electric/Petrol	Hatch	36
Plug-in Electric/Petrol	Sedan	48
Plug-in Electric/Petrol	SUV	50
Plug-in Electric/Petrol	Utility	46
Plug-in Electric/Petrol	Wagon	50
Electric		0

Note: Average tailpipe CO_2 was calculated using Green Vehicle Guide data from approximately 3000 vehicles.
Source: DITRDCA (Department of Infrastructure, Transport, Regional Development, Communications and the Arts) (2024) *Green Vehicle Guide* [data set], www.greenvehicleguide.gov.au, DITRDCA, accessed 29 January 2025.

Table 22: Hire car – emission factors for vehicles where drive type, body type and distance travelled is known

Drive type	Body type	Tailpipe CO_2 g CO_2/km
Electric	-	0
Hybrid	Cab-chassis	199
Hybrid	Convertible	175
Hybrid	Coupe	136
Hybrid	Hatch	83
Hybrid	Sedan	90
Hybrid	SUV	142
Hybrid	Utility	172
Hybrid	Wagon	115
Internal combustion engine	Cab-chassis	211
Internal combustion engine	Convertible	213
Internal combustion engine	Coupe	211
Internal combustion engine	Hatch	148
Internal combustion engine	Light bus	248
Internal combustion engine	Sedan	186
Internal combustion engine	SUV	192
Internal combustion engine	Utility	213
Internal combustion engine	Van	182
Internal combustion engine	Wagon	185

Note: Average tailpipe CO_2 was calculated using Green Vehicle Guide data from approximately 3000 vehicles.
Source: DITRDCA (Department of Infrastructure, Transport, Regional Development, Communications and the Arts) (2024) *Green Vehicle Guide* [data set], www.greenvehicleguide.gov.au, DITRDCA, accessed 29 January 2025.

Domestic travel accommodation

Emissions from travel accommodations are calculated based on the total number nights per room, and the location specific emissions factor. Location specific emissions factors are only

available for some major cities in Australia. When a specific emissions factor was unavailable the Australia-wide emissions factor is applied.

$$\text{t } CO_2\text{-e} = \frac{\text{R x N} \times \text{EF}}{1000}$$

Where:

- $\mathbf{t\ CO_2\text{-}e}$ is the GHG emissions, in tonnes carbon dioxide equivalent
- $\boldsymbol{R}$ is the total number of rooms
- $\boldsymbol{N}$ is the number of nights per room
- $\mathbf{EF}$ is the location specific emissions factor, in kilogram carbon dioxide equivalent (kg CO_2-e) per room, per night

To convert from kilograms (kg) to tonnes (t), divide by 1000. Conversely, to convert from t to kg, multiply by 1000.

Table 23: Travel accommodation – emission factors by location

Accommodation location	Emission factor kg CO_2-e per room, per night
Sydney	35.7
Melbourne	39.5
Brisbane	34.0
Perth	22.2
Australia-wide (median)	34.1

Source: Ricaurte E and Jagarajan R (2024) *Hotel sustainability Benchmarking Index 2024* [data set], Cornell University Library website, accessed 21 February 2025.

Other Energy

When an emission factor is given as kg CO_2-e /GJ but the activity data is not in GJ, then an energy content factor is also included in the calculation. The energy content factor is the amount of energy contained in fuel, measured in gross calorific value.

$$\text{t } CO_2\text{-e} = \frac{\text{Q} \times \text{ EC} \times \text{EF}}{1000}$$

Where:

- $\mathbf{t\ CO_2\text{-}e}$ are the GHG emissions, in tonnes carbon dioxide equivalent
- $\mathbf{Q}$ is the activity data, in units other than gigajoules (GJ), for example, kilolitres (kL) or cubic metres (m^3)
- $\mathbf{EC}$ is the energy content factor of the fuel, for example, GJ/kL, as per Table 24 to Table 27
- $\mathbf{EF}$ is the source specific emissions factor, in kg CO_2-e per GJ, as per Table 24 to Table 27

To convert from kilograms (kg) to tonnes (t), divide by 1000. Conversely, to convert from t to kg, multiply by 1000.

Table 24: Stationary combustion - emission factors of gaseous fuels

Fuel	Activity data unit	Energy content factor (EC) GJ per unit	Net scope 1 emission factor kg CO_2-e/GJ	Net scope 3 supply chain emission factor kg CO_2-e/GJ
A biogas that is captured for combustion, other than those listed	Cubic metres (m^3)	0.037	6.43	Not available
Biomethane	Cubic metres (m^3)	0.0393	0.13	Not available
Compressed natural gas (reverting to standard conditions)	Cubic metres (m^3)	0.0393	51.53	18.00
Gaseous fossil fuels other than those listed	Cubic metres (m^3)	0.039	51.53	Not available
Landfill biogas that is captured for combustion (methane only)	Cubic metres (m^3)	0.0377	6.43	Not available

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:17-18; table 5, accessed 14 February 2025.

Table 25: Stationary combustion - emission factors of solid fuels

Fuel	Activity data unit	Energy content factor (EC) GJ per unit	Net scope 1 emission factor kg CO_2-e/GJ	Net scope 3 supply chain emission factor kg CO_2-e/GJ
Biomass, municipal and industrial materials, if combusted to produce heat or electricity	Tonnes (t)	12.2	1.80	Not available
Dry wood	Tonnes (t)	16.2	1.20	Not available
Green and air-dried wood	Tonnes (t)	10.4	1.20	Not available
Primary solid biomass fuels other than those listed	Tonnes (t)	12.2	1.80	Not available

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:14-15; table 4, accessed 14 February 2025.

Table 26: Stationary combustion - emission factors of liquid fuels

Fuel	Activity data unit	Energy content factor (EC) GJ per unit	Net scope 1 emission factor kg CO_2-e/GJ	Net scope 3 supply chain emission factor kg CO_2-e/GJ
Automotive gasoline/petrol	Kilolitres (kL)	34.2	67.80	17.2
Biodiesel	Kilolitres (kL)	34.6	0.28	Not available
Diesel oil	Kilolitres (kL)	38.6	70.20	17.3
Liquefied petroleum gas (LPG)	Kilolitres (kL)	25.7	60.60	20.2
Other natural gas liquids	Tonnes (t)	46.5	61.28	Not available
Petroleum based greases	Kilolitres (kL)	38.8	3.50	18.0
Petroleum based oils (other than petroleum-based oil used as fuel), e.g. lubricants	Kilolitres (kL)	38.8	13.90	18.0
Petroleum based products other than those listed	Kilolitres (kL)	34.8	69.92	18.0
Kerosene other than for use as a fuel in an aircraft	Kilolitres (kL)	37.5	69.11	18.0

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:21-22; table 8, accessed 14 February 2025.

Table 27: Stationary combustion - emission factor of liquefied petroleum gas

Fuel	Activity data unit	Energy content factor (EC) GJ per unit	Net scope 1 emission factor kg CO_2-e/GJ	Net scope 3 supply chain emission factor kg CO_2-e/GJ
Liquefied petroleum gas (LPG)	Kilolitres (kL)	25.7	60.60	20.2

Source: DCCEEW (2024) *Australian National Greenhouse Accounts Factors*, DCCEEW, 2024:21-22; table 8, accessed 14 February 2025.

Glossary

100-year horizon (GWP-100)	A standard timeframe used to accurately compare the Global warming potential (GWP) of different greenhouse gases based on their impact on climate change over a 100-year period. The 100-year horizon was chosen for the Framework to align with the Paris Agreement. Although shorter (20-year) and longer (500-year) horizons exist, the 100-year horizon has become more commonly used as it balances the short- and long-term impacts of emissions and is on a time scale for meaningful climate action.
Activity	A practice or ensemble of practices that take place on a specified area over a given period of time.
Activity data	Data on the size of a human activity resulting in emissions or removals taking place during a given period of time. Data on energy use, metal production, land areas, management systems, lime and fertiliser use and waste arisings are examples of activity data. Within the Framework, examples include kilowatt hours of electricity consumed, gigajoules of natural gas or other fuels consumed, tonnes of waste sent to landfill and so forth.
Actual data	Also known as ‘actuals’. The real or true figures from operations that occurred over a specific period, as opposed to projections or extrapolated data. It can be from direct measurement, primary or secondary data sources.
Amendment	A correction of a reported or published error, or the reconciliation of activity data, calculated emissions and emissions inventories. Refer to Errors for explanation of an error and Reconciliation for explanation of reconciliations.
Annual Progress Report	The Net Zero in Government Operations Annual Progress Report, reports GHG emissions for the whole of Australian Government and tracks progress towards net zero emissions.
APS Net Zero 2030 Target (the Target)	Part of Australia’s international climate commitments, including Australia’s Nationally Determined Contribution under the Paris Agreement. The Target applies to all non-corporate Commonwealth entities, excluding defence and security agencies, and covers the entirety of the department’s organisation. Corporate Commonwealth entities and Commonwealth Companies can opt into the APS Net Zero 2030 Target. The timeframe for achieving the net GHG

	emissions target is from 16 June 2022 to 30 June 2031. Refer to APS Net Zero Emissions by 2030 for further details.
Atmospheric residence time	Also called residence time or atmospheric lifetime, is how long a GHG remains in the atmosphere. For example, once released into the atmosphere, methane stays for about 10 years, while nitrous oxide stays for more than 100 years. Because many greenhouse gases remain in the atmosphere for a long time, their warming effects last for decades or even centuries.
Australian Accounting Standards Board (AASB)	An independent non-corporate Commonwealth entity of the Australian Government that develops, issues and maintains accounting standards and develops sustainability standards applicable to entities in the private and public sectors of the Australian economy.
Australian Sustainability Reporting Standard (ASRS)	Refers to the Australian Accounting Standards Board's AASB S1 General Requirements for Disclosure of Sustainability-related Financial Information and AASB S2 Climate-related Disclosures that were released in September 2024.
Carbon dioxide equivalent or CO_2 equivalent (CO_2-e)	A measure that allows the direct comparison between emissions of different greenhouse gases, based on their global warming potentials. It is effectively an equivalence measure, as the different greenhouse gases absorb heat energy differently.
Climate Action in Government Operations Emissions Reporting Framework (the Framework)	The Framework provides a consistent approach to emissions reporting across the APS. It is designed to help the Commonwealth meet its reporting obligations as outlined in Australia's Nationally Determined Contribution under the Paris Agreement.
Commonwealth Climate Disclosure (CCD)	An initiative to ensure that Commonwealth entities and companies transparently report on their exposure to climate risks and opportunities, as well as their actions to manage them. This policy aims to deliver transparent and consistent climate disclosures to the Australian public. The following CCD requirements are achieved by following the Framework. • M3(a) GHG emissions generated in tonnes CO_2-e • M3(b) GHG emissions approach, inputs, assumptions and methodologies • M3(e) Scope 2 and 3 GHG emissions using location-based and market-based for electricity-related GHG emissions

	• M3(f) Confirmation of the scope 3 emissions categories included.
Commonwealth company (CC)	A company established under the *Corporations Act 2001* that the Commonwealth controls. A Commonwealth company is legally and financially separate from the Commonwealth.
Contractual instruments	Any type of contract between a reporting agency and another party for the sale and purchase of energy bundled with attributes about the energy generation or for unbundled energy attribute claims. Unbundled energy attribute claims relate to the sale and purchase of energy that is separate and distinct from the GHG attribute contractual instruments. Various types of contractual instruments are available in different markets. Common instruments include LGCs and Greenpower.
Corporate Commonwealth entity (CCE)	A body corporate that has a separate legal personality from the Commonwealth, and can act in its own right exercising certain legal rights such as entering into contracts and owning property. Most CCEs are financially separate from the Commonwealth.
Cradle-to-gate	Refers to a partial assessment of a product's environmental impact, focusing on the stages from raw material extraction ("cradle") up to the point where the product leaves the manufacturer's factory gate before it's transported to the consumer. It excludes the use and disposal phases of the product's life cycle.
Data collection period	The data collection period is the time period in which reporting agencies are required to collate, review, verify and provide their emissions activity data that is reportable under the Framework, using the provided tools, to Finance. For example, the data collection period for the 2023-24 reporting period was between 1 July 2024 and 31 August 2024. Where a reporting agency has requirements under the NGER Scheme, the data collection period is extended. If a reporting agency cannot meet the deadline, in special circumstances Finance may grant an extension.
Direct emissions measurement	Capturing and measuring GHG emissions at the source. If a reporting agency uses direct measurement to measure its GHG emissions, they are required to convert the GHG emissions into a CO_2-e value using GWP values based on a 100-year horizon, using the Fifth Assessment Report, IPCC.
Double counting	Double counting refers to when the same GHG emissions are counted more than once, either within a single reporting agency or across different reporting agencies.

Emissions inventory	An emissions inventory, or GHG inventory, comprises of estimates of GHG emissions and removals from the operations of a reporting agency for a given reporting period. In the context of the Framework, the inventory covers the seven direct greenhouse gases under the Paris Agreement and select sources. References to 'inventory' or 'inventories' mean the whole process from data collection, emissions calculations and reporting.
Emissions Reporting Tool (ERT)	The Emissions Reporting Tool (ERT) is provided by the Department of Finance to reporting agencies to collect activity data. It is used by Finance to calculate emissions which agencies are required to use to report their emissions against the Framework. For reporting of activity data from FY2022-23 and FY2023-24 a Microsoft Excel version of the ERT was provided to reporting agencies.
Emissions source	Any process or activity which releases a GHG, an aerosol or a precursor of a GHG into the atmosphere. Emissions sources can be categorised into direct (scope 1) and indirect emissions (scope 2 and scope 3).
Errors	Omissions from, and misstatements in, an agency's emissions reporting for one or more prior reporting periods. Such errors arise from a failure to use, or the misuse of, reliable activity data that: a) was available during a data collection period; and b) could reasonably be expected to have been obtained and considered in the preparation of annual emissions inventories. Examples of such errors include the effects of mathematical miscalculations, mistakes in applying the Framework, oversights or misinterpretations of facts and fraud. Also referred to as 'prior period errors' by the Australian Sustainability Reporting Standard AASB S2 Climate-related Disclosures.
Estimated data	Estimated data is where actual data from another source is used to estimate the activity data for a related emissions source. For example, the amount of fuel used by a delivery van might not be known, but the distance travelled is known.
External territories	Regions that are not part of the mainland of Australia but are under the jurisdiction of the Australian Government. Includes several external territories including Christmas Island, the Cocos (Keeling) Islands, Norfolk Island, Heard and McDonald Islands.
Extrapolated data	Extrapolated data is where partial year data or a representative sample survey data, is modelled to create a full data set.

Financial control	Where the reporting agency has the ability to control the financial and operational policies of its activities, for the purpose of gaining economic benefits. This approach is not used in the Framework in determining the organisational boundary.
Financial Year (FY)	A period of twelve months from 1 July of one year to 30 June of the following year.
Global warming potential (GWP)	A factor describing the radiative forcing impact (degree of harm to the atmosphere) of one unit of a given GHG relative to one unit of CO_2. The Framework uses GWPs aligned with the Paris Agreement as per IPCC Fifth Assessment Report. For more details of Global Warming Potentials refer to Chapter 8, Anthropogenic and Natural Radiative Forcing, Appendix 8.A, Table 8.A.1 (page 731) of the IPCC 5th Assessment Report.
Greenhouse gas (GHG)	Any gas (natural or produced by human activities) that absorbs infrared radiation in the atmosphere, leading to warming effects.
Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol)	Provides requirements and guidance for organisations preparing a corporate-level GHG emissions inventory. It is a widely used international accounting tool that helps governments and businesses understand, quantify, and manage GHG emissions. It provides standards and guidance for measuring and managing emissions from operations, value chains, and mitigation actions.
Gross calorific value	The calorific value of a fuel measures its heating ability. It is the heat released from a unit of fuel during complete combustion. There are two types: • Gross Calorific Value (GCV): Total heat released, including the condensation of water. • Net Calorific Value (NCV): Heat released without the condensation of water.
Gross greenhouse gas emissions target	A gross GHG emissions target explains the total reduction in the amount of GHG emissions being achieved by an entity (or country) without the use of offsetting or other removals. The scope of the gross GHG emissions target is defined by the reporting agency.
Intergovernmental Panel on Climate Change (IPCC)	The IPCC is a United Nations body dedicated to assessing the science related to climate change. It provides scientific information and technical guidance to the United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement.
International Organization for	An independent, non-governmental international organisation that develops and publishes standards to ensure the quality, safety, efficiency, and interoperability of products, services, and systems.

Standardization (ISO)	
IPCC Guidelines for National Greenhouse Gas Inventories	Developed by the IPCC, these guidelines are a comprehensive tool for parties to estimate and report their country's GHG emissions.
Land Use, Land Use Change, and Forestry (LULUCF)	The GHG inventory sector covering emissions and removals from land and forests caused by human activities such as settlements, commercial uses, land-use change, and forestry activities. This sector does not include emissions from livestock or fertilisers applied to croplands, which are covered by emissions reported for the agriculture sector.
Large-Scale Generation Certificates (LGCs)	Tradable certificates created for eligible large-scale renewable energy power stations. Refer to Clean Energy Regulator - LGCs.
Location-based and market-based emissions	The location-based method looks at the average emissions from the grid where the electricity is consumed. It does not distinguish between different energy sources (like renewable energy or fossil fuels) but instead uses the overall emissions figures from the local grid's energy mix to estimate emissions from electricity use. The market-based method shows a business's electricity emissions in the context of its investments in different electricity products and markets. This includes from voluntary purchases of renewable electricity and mandatory schemes like the Large-scale Renewable Energy Target. The Market-based method assigns an emissions factor of zero for a business's sourcing of renewable electricity and uses a Residual Mix Factor to calculate emissions from any remaining electricity consumption. Both location-based and market-based emissions reporting apply to scope 2 and scope 3 emission categories.
Management Representation Letter	Written statements provided by members of management to assurance practitioners confirming, amongst other things, that the information provided to the assurance practitioner is complete and accurate to the best of their knowledge and belief. Representations by management will vary from one entity to another and from one period to the next. The auditor and/or the relevant assurance standard, (e.g. ASSA 5000), will specify the representations that must be included in the Management Representation Letter.
National Greenhouse and	The NGER scheme is established by the National Greenhouse and Energy Reporting Act 2007 (NGER Act) and is a single national framework for reporting and disseminating company information about GHG emissions, energy production, energy consumption and other

Energy Reporting (NGER) Scheme	information specified under NGER scheme legislation. NGER scheme data are a key input into calculating Australia's emissions from the energy, industrial processes and product use and waste sectors.
Nationally Determined Contribution (NDC)	Under the Paris Agreement, Parties are required to submit Nationally Determined Contributions every five years. NDCs are the vehicle for Parties' mitigation commitments. Developed countries are required to submit economy-wide emissions reduction commitments, with developing countries to move towards these over time.
Net greenhouse gas emissions target	An entity's targeted gross GHG emissions minus any planned offsetting efforts.
Net Zero in Government Operations Strategy	The approach for implementing the Australian Government's commitment to achieve net zero emissions in government operations by 2030. It sets out the activities, emissions sources and Commonwealth entities that are included in the APS Net Zero 2030 target and reporting, and action required by entities.
Non-corporate Commonwealth entity (NCE)	Non-corporate Commonwealth entities (NCEs) are legally and financially part of the Commonwealth. Examples of NCEs include departments of state, parliamentary departments or listed entities.
Operational control	Where the reporting agency has full authority to introduce and implement operating policies, and/or has the ability to influence the number of emissions resulting from its daily operations. For the Framework, the organisational boundary is to be determined based on operational control.
Organisational boundary	A boundary that determines all emissions that need to be reported.
Primary data	Data from the reporting agency's operations sourced for the purpose of emissions reporting. Considered to more accurate and reliable than secondary data sources.
Radiative forcing	Radiative forcing, also called climate forcing, is a measure of the amount of warming or cooling produced by a change in the earth's Energy Balance. Changes that have a warming effect are called 'positive' forcing, while changes that have a cooling effect are called 'negative' forcing. When positive and negative forces are out of balance the result is a change in the earth's average surface temperature. Greenhouse gases absorb heat from the earth's surface and re-emit the heat back towards the surface, which results in a 'positive' radiative forcing. The larger the radiative forcing value, the bigger

	the change in the average global temperature. Radiative forcing is measured in watts per square meter (Wm^{-2}).
Reconciliation	The correction of activity data reported for a reporting period during the data's collection period to the actual activity data usage over the reporting period. Reconciliations can occur due to billing periods differing from the reporting period.
Renewable Energy Certificate (REC)	A tradable certificate that represents 1 megawatt-hour (MWh) of electricity generated from renewable sources like solar, wind, or hydro. An eligible REC is: • a Large-scale Generation Certificate (LGC) that is voluntarily surrendered through the Renewable Energy Certificate Registry in the reporting year with a generation date of less than 36 months prior to the end of the reporting year; or • a purchase of GreenPower electricity from an accredited GreenPower Provider.
Reporting agency	All non-corporate and corporate Commonwealth entities and Commonwealth companies that are subject to the Public Governance, Performance and Accountability Act 2013, are collectively referred to as 'reporting agencies'. The PGPA Act Flipchart serves as a reference for the list of all non-corporate and corporate Commonwealth entities and Commonwealth companies.
Reporting period	The period of time in which a reporting agency is required to report activity data from their operations. For the Framework, the reporting period is based on the financial year. For example, the 2023-24 reporting period was between 1 July 2023 and 30 June 2024. Where a reporting agency has a different timeframe for their Annual Reports, alternative approaches may be considered in consultation with Finance.
Resource management Guides (RMGs)	Guidance documents which support PGPA Act entities and companies in meeting the requirements of the PGPA framework. As guides, RMGs explain the legislation and policy requirements in plain English. RMGs support accountable authorities and officials to apply the intent of the PGPA Framework. It is an official's responsibility to ensure that RMG guidance is monitored regularly for updates, including changes in policy/requirements.
Scope 1, 2 and 3 (emissions)	Scope 1 emissions reflect emissions from sources owned or controlled by Government, including the stationary combustion of fuels (boilers, generators) and transportation (vehicle fleet).

	Scope 2 emissions are indirect emissions which occur because of the activities that generate electricity, which is consumed by an entity, but is generated outside that entity's boundaries. They are physically produced by the burning of fossil fuels by the generator of the electricity. Scope 3 emissions reflect other indirect emissions produced through Government activities.
Significance	Taking into account the emissions from operations, 'significant' and 'significance' is determined by each reporting agency, on a case-to-case basis.
Sink	Any process, activity or mechanism which can absorb and store greenhouse gases, an aerosol or a precursor of a GHG from the atmosphere. Examples of sinks include soil, vegetation or the ocean are carbon sinks.
Source	Activities or processes that release a GHG, an aerosol or a precursor of a GHG into the atmosphere. Examples of sources include emissions from volcanic activity, wildfires, burning of fossil fuels, some agricultural practices and mining.
United Nations Framework Convention on Climate Change (UNFCCC)	The UNFCCC is a Rio Convention, one of two opened for signature at the Rio Earth Summit in 1992. The Convention supports the global response to climate change, with the ultimate aim of preventing dangerous human interference with the climate system. It has near-universal membership, with the 198 countries that have ratified the Convention called Parties to the Convention.
Well-to-Tank (WTT)	Refers to the GHG emissions that occur during the entire upstream process of fuel production, processing, and transportation until the fuel is ready for use in a vehicle or facility.
Whole-of-Australian Government Emissions Inventory	The Whole-of-Australian Government Emissions Inventory aggregates GHG emissions data from reporting agencies. It includes emissions from different sources such as electricity consumption, natural gas, solid waste, refrigerants, fleet and other vehicles, domestic commercial flights, and more. The data is presented in terms of Carbon Dioxide Equivalent (CO_2e) emissions and is calculated using both the location-based and market-based methods.

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