# Subcontractors and Suppliers Emissions Reporting Guide

## Building a Sustainable Future Together:
Emissions Guidance for Subcontractors and Suppliers

SEPTEMBER 2025

AUSTRALIAN CONSTRUCTORS ASSOCIATION

# Foreword

The construction supply chain is central to reducing greenhouse gas emissions and helping Australia meet its 2030 and 2050 carbon targets. Every step—from importing materials, extracting raw resources, transporting goods, hiring plant, to managing waste—affects our industry's environmental impact. Achieving industry carbon goals requires collaboration across the entire supply chain.

This guideline is designed to align contractors and supply chain partners in a common approach to track, monitor and reduce emissions while delivering essential infrastructure projects nationwide. Establishing a unified language for emissions reporting among all stakeholders is vital for enhancing productivity and efficiency.

The emissions management methods outlined encourage improved measurement, transparency, and the importance of a data-driven approach to emissions oversight. By setting clear and consistent reporting standards, we aim to promote sustainable development and operational excellence.

Reporting is crucial for accurate emissions tracking and compliance with climate legislation. Reporting helps maintain productivity while adhering to legal requirements, allowing us to meet our obligations without compromising on efficiency.

Collaboration is at the heart of our journey toward a sustainable future. As builders, leaders, and innovators, we must work together to create a lasting impact. By committing to standardised emissions reporting and collective action, the construction industry can lead by example and drive real, positive change.

Together, we can build an industry where progress, responsibility, and productivity go hand in hand, leaving a sustainable legacy for generations to come.

Jon Davies CEO, Australian Constructors Association

# Contents

# Introduction

The building and construction industry accounts for 23%[1] share of GHG emissions, making our industry a critical piece of the climate action landscape.

**Successful decarbonisation in the building and construction sector relies on a unified approach to emissions management.**

**23%**
Building and Construction Global Emissions

## The time to act is now

The sense of urgency around carbon management has never been more pronounced. Although the global push for decarbonisation remains the undeniable priority, a critical aspect often overlooked is the need for robust systems to track, calculate, and report emissions accurately. Without these foundational elements, efforts to reduce carbon in operations can become fragmented and ineffective. The building and construction industry with its complex value chain and multitude of stakeholders is grappling with the unprecedented challenge of adopting unified methods for carbon measurement. This complexity has led to a disjointed landscape of carbon measurement practices, making it difficult to establish a cohesive, industry-wide standard.

The ACA is advocating for reliable data collection, consistency in calculation, and transparent reporting as essential elements to ensure accountability and to gauge the true impact of decarbonisation initiatives in our sector. Consistency in our approach will also improve data reliability and enable businesses to track progress against project requirements, adopted targets and comply with emerging legislation.

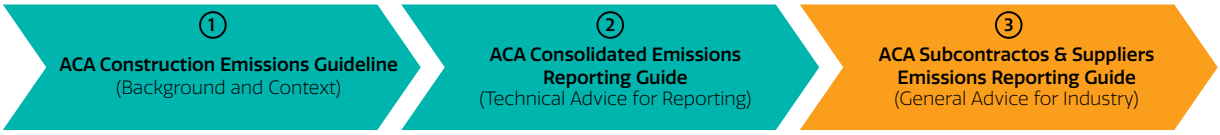
The building and construction industry is uniquely positioned to spearhead the transition to consistent methods of emissions reporting, setting an example for other sectors to follow.

Standardising measurement and reporting will ensure that all stakeholders, from large multi-national corporations to small enterprises understand industry expectations and align in managing our emissions. This consistency is vital for creating a unified approach to decarbonisation that will positively contribute to Australia's 2030 and 2050 emission reduction ambitions. By adopting a clear and consistent reporting framework, we can streamline processes, make more informed decisions that enhance productivity, and drive meaningful progress.

## How to use this guideline

This guideline has been developed by the ACA as one of three guides to help the industry understand each other's roles in tracking and reporting carbon emissions from building and construction activities. The three guidelines and how they fit into the landscape of the sector are highlighted in Figure 1.

Figure 1 – ACA Emissions Guides




The guide is structured around an essential four step process: Track, Calculate, Report and Reduce. This simplified approach has been tailored to make the process clearer and more digestible, ensuring all stakeholders can easily understand and implement effective carbon management practices. The ACA encourages all entities utilising this guideline to be aware that they may be subject to differing measurement requirements and reporting approaches in certain jurisdictions or working with certain clients.

# The mutual benefit

**Collaborating on emissions: essential for compliance, crucial for sectorial productivity**

**Head Contractors**

Subcontractors and suppliers in the building and construction industry are central to achieving compliance with Australia's legislated climate disclosure legislation and advancing our sectors broader sustainability goals.

In 2024, the Australian Federal Government implemented mandatory Climate-related financial disclosure laws, requiring large businesses to disclose information about their climate risks and opportunities and emissions within their annual reports. Those in the Group 1 band, which constitutes a majority of Tier 1 and Tier 2 Civil Contractors, commenced reporting from **January 1st, 2025**.

Subcontractors and suppliers play a crucial role in head a contractors' Scope 3 emissions, often accounting for more than 80% of their entire emission inventory. This significant contribution underscores their importance in the success of climate-related disclosure reporting. As the construction industry and other sectors strive to meet these mandatory reporting standards, the accurate measurement and reduction of supply chain emissions becomes essential.

Engaging subcontractors and suppliers in this process is vital, as their cooperation and transparency in providing emissions data improves the accuracy and audit readiness of the data head contractors need to collect.

**Subcontractors and Suppliers**

**Why its important for subbies and suppliers to get this right:**

- Market capability and competitive edge – strong sustainability offering directly impacts tender box selection on many major government projects
- Productivity in tendering – know what you emit to make bidding simpler
- Tracking carbon enables targeted reduction goals
- Tracking carbon emissions helps to comply with regulations and legislation, to ensure your organisation meets legal requirements.
- Productivity is enhanced as costs are reduced through more efficient resource use (e.g. increased acceptance of recycled materials)
- Social license to operate
- Clients and the community are increasingly expectant that private companies take action
- Many construction supply chain entities will also be required to report under ASRS before 2030 and will increasingly be held to account for emissions data accuracy


## The Why?

Large constructors are typically required to report supply-chain energy focused emissions under the NGERs Act (2007)[2] ; However, new global, federal and state emissions reporting frameworks have been established that will see our sector publicly reporting both energy and materials emissions across the construction lifecycle. Furthermore this, construction is rapidly being seen as a sector that needs to meet emission reduction obligations to enable our collective climate goals. Major road, airport, port, resources, and energy clients across the country are rolling out emissions considerations in their tender assessments as well as calculation and monitoring processes that we need to navigate to successfully win and deliver infrastructure.

Establishing an organisation's carbon inventory is more than just a compliance exercise; it's a strategic leadership approach to moving our sector forward. Australian companies that excel in managing their emissions demonstrate resilience, operational efficiency, and value creation for their clients. Here's why GHG reporting matters:

- **Driving Efficiency and Cost Savings:** Construction companies operate in a dynamic environment with tight margins. Energy costs constitute a significant portion of construction expenses, whether direct or indirect embedded in the cost of materials. By meticulously measuring and managing GHG emissions, organisations can reduce energy consumption, directly impacting their bottom line.
- **Compliance with Legislation:** Governments worldwide are taking decisive steps to curb GHG emissions. In Australia, national policies are in the process of responding to our 2030 and 2050 carbon reduction targets by ramping up reporting and disclosure requirements and installing mechanisms to force heavy polluters to increase annual reductions. Constructors are often at the forefront of these policy objectives, and as such, must move quickly to respond effectively to emission reduction efforts.
- **Meeting Stakeholder and Client Expectations:** Voluntary standards like the Global Reporting Initiative (GRI) guide companies in transparently reporting their environmental impact. Meeting these standards enhances a company's reputation and competitiveness, attracting repeat business opportunities from clients who prioritise sustainability.
- **Supporting Contractor Targets:** Subcontractors and suppliers play a vital role in helping principal contractors achieve their emissions reduction goals, fostering stronger business relationships and opening new opportunities.

## Current State vs Best Practice Emissions Management

The path to disclosing a project's emissions is paved with a wide array of inputs and methods to calculate and estimate the energy and material required to build and maintain the infrastructure asset. Table 1 illustrates how the industry currently estimates a project's emissions on the left, with the right-hand column demonstrating how emissions may be calculated across the country within the coming years and what part subcontractors and suppliers must play in this.

Table 1 Emissions Reporting Vision

| Current Practices | Best Practices |
|---|---|
| **Suppliers** | |
| · At tender time, the Head Contractor estimates emissions using typical emissions factors applied in bulk against BoQs, or external tools are applied to estimate | · Environmental Product Declarations (EPDs) or Life Cycle Assessments (LCAs) are the desired level of disclosure for materials supplied to projects. ACA encourages the adoption of this degree of product emissions visibility for all supplier goods |
| · Quotes are received largely without emissions and lifecycle intelligence | · Inputs at tender time will form the basis of selection and will require allocation against an industry accepted emission factor |
| · Gaps exist in the knowledge base on new products that are difficult to estimate without knowing the products' history | · Contractors will expect a quantity and specific emission factor for supplied materials digitally (e.g. integrated with finance claims or EoM reports). This will provide the degree of audit guarantee to provide Scope 3 reporting with 'Reasonable' legal assurance |
| · Demand for innovative low carbon materials is inconsistent and only likely on major projects | · Tenders are judged on both price and non-price, specifically carbon budgeting where low-carbon materials will be instrumental to winning work as previewed in the Infrastructure NSW Decarbonising Public Infrastructure framework that is being adopted nationwide. |
| **Subcontractors** | |
| · NGERs Act encourages voluntary reporting from subcontractors | · Emissions disclosure is elevated to a legislative requirement and consistently applied to contracts |
| · Subcontracted work packages rarely assessed for carbon performance | · Emissions ownership (between contractor and subcontractor) is allocated during contract negotiation |
| · Contractor is rarely provided breakdowns of fleet / materials / quantities or emissions calculations at tender time and opts to bulk estimate | · Tendering schedules / BoQs will include specific sub-schedules for subcontractors to apply emissions factors and declare their own expected emissions. Fleet engine capacities / age, fuel types allowed for, staff travel distances, product EPDs and approach to managing emissions will be elevated to tender box selection |
| · Subcontractors selecting materials at tender primarily based on price without offering lower emissions alternatives | · Client ESG and carbon targets requires contractor to price against sustainable materials schedules, non-price carbon budget utilised in subcontractor selection |
| · Emissions reported to contractor typically only energy focused (e.g. fuel) | · Contractors will report Scope 3 embodied materials requiring accurate quantities with emissions factors – reasonable assurance of scope 3 materials commences in FY28 under the new ASRS standard |
| · End of month may include bulk materials quantity estimation or costs only from docket collation | · Detailed quantities of every type of material and product supplied or used in subcontract works is provided to the contractor, preferably digitally, to enable 'Reasonable Assurance' to be achieved for related emissions declarations |
| · Sustainable alternatives are typically considered opt-in and are ad-hoc | · The Head Contractor may require adoption of lower emission fuels as-standard to price in at tender (e.g. HVO, Biodiesel) |
| · Supplier to Subcontractor reporting is opaque | · Transparency of sub-tiers of business relationships is evident to ensure minimisation of fugitive emissions. |


# 1.0 Track

**A recent survey[3] revealed that only half of the subcontractor and supplier organisations are actively tracking their emissions, with 66% of respondents indicating that their energy and materials data is difficult to track.**

The importance of accurately tracking carbon emissions cannot be overstated. As the world grapples with the urgent need to address climate change, every sector must play its part in reducing greenhouse gas emissions.

## Why track?

Similarly , many suppliers and subcontractors will themselves soon be required to prepare and submit climate and emissions focused reports to regulatory bodies and may already be subject to state and federal procurement obligations to track and report their emissions. Staying on-top of these requirements is good practice and reduces organisational risks.

## What to track?

Subcontractors and suppliers in building and infrastructure construction should systematically collect and record data on activities that produce greenhouse gas emissions, such as transportation, manufacturing processes and their onsite operations. By way of an example, a Head Contractor may require the following from a subcontractor or supplier in the normal course of procurement and project delivery:

- The cradle to gate emissions incurred from a particular product sold to the job, commonly referred to lifecycle information (see Figure 2)

- Emissions arising from subcontracted construction activities, including energy consumed (e.g. diesel, gas etc), and products deployed to build assets and plant details (e.g. engine capacities, fleet age.)

Tracking also assumes that the supply chain party comes to understand their emission boundaries and they can articulate these during reporting to the Head Contractor. Emissions boundaries are theoretical lines where one companies' responsibility for the emission changes to the next organisation, typically depending on who derives the most value from the arrangement.

## How to track?

Subcontractors and suppliers in civil construction can effectively track emissions by adopting a systematic approach to data collection, using either activity or spend- based methods.

- **Activity-based method:** This method directly measures activities that generate emissions, such as fuel consumption by machinery, energy used in manufacturing, or transportation distances. Activity-based data offers a more accurate view of emissions, as it is based on actual usage rather than financial proxies. However, it requires more time and resources to collect and analyse, necessitating robust tracking systems and processes.

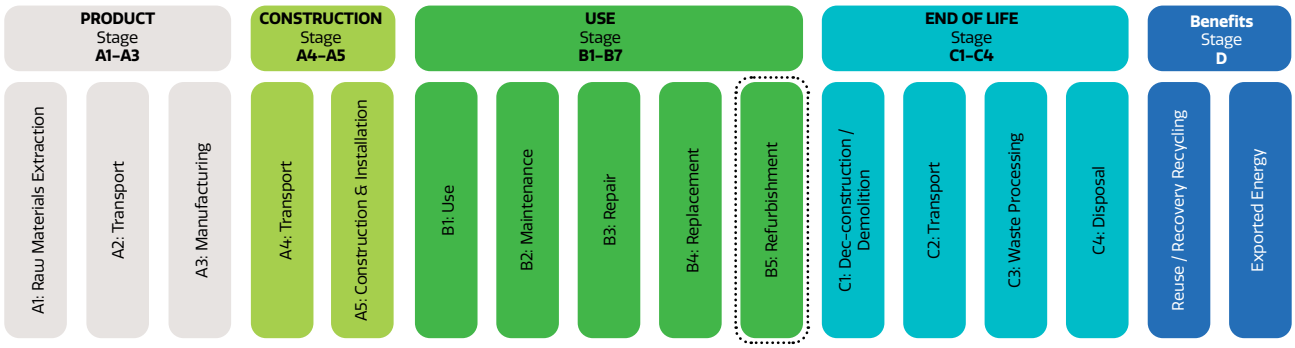
- **Spend-based method:** This method estimates carbon emissions based on financial expenditures. By translating spend on materials, fuel, or services into emissions using industry-specific factors, companies can quickly gather data from well-maintained financial records. However, this approach may not always provide precise emissions data, as it relies on average factors that might not reflect specific circumstances, and external experts are recommended to assist in the creation of records through this method.

To comply with Climate-related disclosures and best practices in emissions reporting, data fidelity must meet ISSA 5000 standards along a timeline that converges for all CRD reporting entities by 2030. Using an aligned and certified method ensures that data collected is accurate, reliable, and suitable for audit purposes.

## Lifecycle Emissions

Emissions from construction products or services occur at various stages, including extraction, manufacturing, transportation, use, and disposal. A Life Cycle Assessment (LCA) tracks emissions across a product's lifecycle, from raw material extraction to disposal. This information can be used to report environmental impacts through an Environmental Product Declaration (EPD), helping organisations manage their carbon footprint and comply with reporting standards.

Figure 2 - EN15978 Sustainability of Construction Works Standard - Building & Construction Lifecycle Stages




# 2.0 Calculate

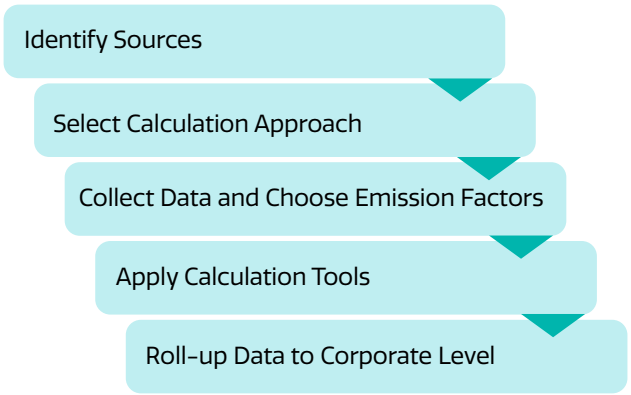
## Why calculate?

After we understand what needs to be tracked from the business' operations, we then need to look at how to quantify the resulting emissions.  By understanding the source and volume of the emissions each product and activity produces, the responsible party will be better informed on the risks and opportunities around future emission reduction requirements. Quantification also allows for the company to set their baseline and facilitate future target setting, which may result a competitive advantage.

## What to calculate?

When calculating emissions, it's essential to quantify the emissions produced by the various activities undertaken by an organisation. This includes direct emissions from owned or controlled sources (**Scope 1**), indirect emissions from the generation of purchased electricity, steam, heating, and cooling (**Scope 2**), and all other indirect emissions that occur in their value chain (**Scope 3**). Suppliers should take particular note to view their product from a Lifecycle perspective as mentioned above in Tracking, to ensure the correct emission are consolidated into the supplied products estimate. Emissions should be measured in standardised units of tons of carbon dioxide equivalent ($tCO_2e$) through an appropriate calculation method.

Figure 3: GHG Protocol[4]




> *"Estimating and reporting energy use and emissions of construction hire fleet will provide more granular and transparent operational cost data to Coates and for our customers. This will help identify opportunities to transition to commercially viable low- or no-emissions technologies."*
>
> **Coates**
>
> Robyn Simpson
> National Manager - Environment & Sustainability

## How to calculate?

Emissions should be calculated using actual data wherever possible, such as purchased fuel quantity with a relevant conversion factor. When this information is unavailable or impractical to collect, emissions can be estimated using appropriate quantity estimates (e.g. quantity surveyor estimates). Estimates should be based on robust metrics like the energy requirements of machinery/plant (e.g., engine capacity), working hours (typical period machinery is in use) and machine efficiency.

The most conventional calculation methods involve applying emissions factors from databases like the Australian National Greenhouse Accounts (NGA) Factors and the Australian Life Cycle Inventory (AUSLCI). These emission factors help convert activity data into $tCO_2e$, accounting for the global warming potential of different GHGs.

For example, if an organisation uses a certain amount of natural gas, the annually updated NGA Factors provide an emission factor to calculate the resulting $CO_2e$ emissions. By systematically applying these factors to all relevant activities, a company can estimate total emissions, establishing comparable results.

**Calculation Examples**

A freight company uses 10,000 kL of automotive diesel for transport in vehicles made after 2004. They estimate Scope 1 and Scope 3 emissions using the 2024 National Greenhouse Accounts Factors[5].

| Tracking Method | Calculation Formula | Data | Emission Factor/s |
|---|---|---|---|
| Activity Data | Example: $tCO_2e = \frac{(Q \times EC \times (EF1+EF3)}{1000}$<br>Actual: $tCO_2e = \frac{(10{,}000 \times 38.6 \times (87.61)}{1000}$<br>tCO2e = 33,813 | Transport (e.g. tracked via litres purchased) | EF1 = Scope 1 emission factor (70.4kg $CO_2e$/GJ)<br>EF3 = Scope 3 emission factor (17.3kg $CO_2e$/GJ)<br>EC = Energy content factor of fuel type (38.6 GJ/kl) |

Available Tools

| Calculators | |
|---|---|
| GHG Protocol<br>Calculation Tools and Guidance | NGER calculators<br>Calculators for 2023–24 |
| The Carbon Estimate and Reporting Tool (CERT) | Infrastructure Sustainability Materials Calculator |
| **Data Sources** | |
| Australian National Life Cycle Inventory Database (AusLCI) | National Greenhouse Accounts Factors |
| EPD Australasia | The Environmental Performance in Construction (EPiC) Database |
| **Other Guides** | |
| PAS2080:2023 Carbon management in buildings and infrastructure | The GHG Protocol Corporate Accounting and Reporting Standard |


# 3.0 Report

**Only 6%** **of subcontractor and supplier organisations surveyed are consistently reporting on the entirety of their Scope 1, 2 and 3 emissions[3].**

In delivering this guideline ACA recognises that our supply chain plays a crucial role in the success of emissions reporting and oversight on our projects. Developing a positive reporting culture built on a foundation of consistency that dispels myths around emissions ownership is paramount to paving the way to a low emissions future. This section of the guideline addresses key steps and recommendations to achieve this goal.

**Reporting Example**

The following outlines an example end of month (or progressively submitted) report on emissions during the contracted activity:

> *"As suppliers we play a key role in this critical decarbonisation journey. By reporting on emissions data and utilising Life Cycle Assessments and Environmental Product Declarations, we empower Contractors to validate material impacts and select a supplier with strong sustainability practices. Leveraging reported data, will drive transformational change."*
>
> Carlos Mira, Head of Business Development & Growth, Vital Chemical

Table 4 – Supply chain report example

<table>
<tr><th colspan="5">Inventory and Report Format</th></tr>
<tr><td>Energy</td><td colspan="4">Include fuel purchased by the organisation for use in plant and machinery in use on, or at, a project. Where materials are manufactured on a construction site (e.g. concrete), then the fuel used in this process should be included. It should not include any fuel used in vehicles travelling on the public highway. Example:
<table>
<tr><th>June – Energy</th><th>Quantity</th><th>Global Warming Potential(kg.$CO_2e$)</th><th>EF Source</th></tr>
<tr><td>Diesel (Stationary)</td><td>85,000L</td><td>2.717826</td><td>National Greenhouse Accounts</td></tr>
</table></td></tr>
<tr><td>Materials</td><td colspan="4">To allow for accuracy of reporting include materials quantities and, where practical, an accurate emission factor (e.g. from EPD / LCA). Example:
<table>
<tr><th>June – Materials</th><th>Quantity</th><th>Global Warming Potential(kg.$CO_2e$)</th><th>EF Source</th></tr>
<tr><td>Portland Cement</td><td>12t</td><td>973.72</td><td>AusLCI</td></tr>
</table></td></tr>
<tr><td>Plant & Equipment</td><td colspan="4">Establishing emissions intensity for a project often requires detailed knowledge of the equipment in use to deliver the works. Reports should include plant identifiers (e.g. make, model, MY') and, where practical, engine capacity. Example:
<table>
<tr><th>June – Plant</th><th>Fuel Type</th><th>Engine Power (kW)</th><th>MY</th><th>Spec</th></tr>
<tr><td>Truck - Tipper - Tandem</td><td>Diesel</td><td>353.0 kW</td><td>2022</td><td>HINO 6x4 Axle 700 series FS 2848 with HINO E13C-BL 12.9-litre diesel</td></tr>
</table></td></tr>
</table>

When reporting emissions using estimates, the company should clearly state the method used and assumptions made. Further guidance may be sought on this from the NSW Embodied Carbon Measurement for Infrastructure Technical Guidance [6] or through reference libraries such that the APCC [7].

Integrating reporting of materials quantities, energy consumed, emissions factors and corresponding activity is best done in a docket or financial claim, this enables a higher degree of confidence for both parties when preparing legislated emissions disclosures. Digital products now exist on the market (e.g. Autodesk EC3) that can assist organisations with carbon estimating or ESG reporting requirements, the primary needs that these platforms should address include:

1. Ease of use and compatibility with the market;

2. Scalability across a large array of subcontractors and suppliers as well as report data inventory items (e.g. Diesel, Petrol, Aggregate, etc.) and their respective emission factors;

3. Integration with other products and enterprise resource planning software as required.

ACA will continue to advocate for the broadscale adoption of EPDs, Material Passports and transparency around material origins.

## Supply Chain and Subcontractor Reporting – Contracts

The following section provides examples of contractually led emissions reporting mechanisms that Head Contractors may pass along in a supply or works agreement. Some key points to contracting emissions reporting include:

- Emissions reporting at end of month or at an agreed timeframe may be required due to legislative requirements (e.g. NGERs reporting) or upstream contractual obligations by infrastructure clients (e.g. State Authorities)

- Including specific clauses in agreements is seen as an effective way to encourage the supply chain to report emissions data.

- These clauses would outline the responsibilities for reporting emissions data.

- Where permitted, clients and contractors are looking to integrate end of month financial and non-financial data in the same claim processes.

Note: Terms referenced in brackets e.g. [**Work Scope**] are interchangeable with terms relevant to the contracting organisation's agreement proformas.

Table 5 – Emissions Reporting Contract Clauses

| Inventory and Report Format | |
|---|---|
| **Standard month–end** | The [***Subcontractor/Supplier***] must provide to the Contractor, by [e.g. 26th of Each Month] after commencement of the Contract of the Works until the Deed of Release is agreed or otherwise as reasonably directed by the Contractor:<br>i. a report on performance against the total [***Work Scope Emissions Forecast***] with sufficient information to evidence the reported performance; and<br>ii. detailed comments on any issues which may affect the accuracy of that report, and details of the measures the Contractor proposes to use to remedy any such issues.<br>The report shall include, as required under the [Work Scope]:<br>i. The type and quantity of energy source (e.g. Diesel, Petrol, LPG, Natural Gas, Ethanol, Waste Oil, Electricity, Solvents and Greases and others used) as required under the National Greenhouse and Energy Reporting Act 2007 (NGER Act) [or other mechanism / contract requirement identified by the contractor]<br>ii. The type and quantity of materials used (e.g. Aggregate, Concrete, Steel) on–site for the purposes of performing the Work Scope under the Contract<br>iii. Quantity of wastes generated, reused, recycled and/or disposed of at a landfill or approved third party site<br>iv. Where applicable and requested, the location of the quantity of energy or materials utilised to perform the [Work Scope] (per the EN15978 Sustainability of Construction Works Standard A1–B5) |
| **Reporting against contracted carbon target** | The [***Subcontractor***] will otherwise promptly notify the Contractor if the [***Subcontractor***] has reason to believe that their [***Work Scope Emissions***] pertaining to the contract will exceed the [***Work Scope Emissions***] Budget, the reasons for such belief and any available mitigation measures. As and when the Contractor reasonably directs, the [***Subcontractor***] must:<br>i. submit an updated [***Work Scope Emissions Forecast***] Report where the Subcontractor notifies the Contractor:<br>a. of an error, omission or inaccuracy in the [Work Scope Emissions Forecast] Report; or<br>b. the contracted work scope has been varied in a way<br>c. that the [***Subcontractor***] has failed to provide the required supporting evidence.<br>[User note: Consider whether to include an acceptance process for the Work Scope Emissions Forecast Reports]<br>ii. meet with the Contractor to discuss:<br>a. the [***Work Scope Emissions Forecast***] Carbon] Budget; and<br>b. the [***Work Scope Emissions Forecast***] Carbon Budget and other notifications provided under this clause.<br>*[Suggestion: Contractors are encouraged to employ incentive programs for reporting of work scope emissions.]* |
| **Supplier specific** | The [***Supplier***] will otherwise promptly notify the Contractor if the [***Supplier***] has reason to believe that their [Work Scope Emissions] pertaining to the contract will exceed the [Work Scope Emissions] Budget, the reasons for the change of forecast emissions and details on any materials or processes substituted for those agreed along with accompanying Environmental Product Declarations (EPDs) or Lifecycle Assessments of the new materials. As and when the Contractor reasonably directs, the Supplier must:<br>i. submit a [***Work Scope Emissions Forecast***] with the execution of this contract along with emissions information (e.g. EPDs) of products to be supplied.<br>ii. submit an updated [***Work Scope Emissions Forecast***] Report where the [***Supplier***] notifies the Contractor:<br>a. of an error, omission or inaccuracy in the [***Work Scope Emissions Forecast***] Report; or<br>b. the [***Supplier's***] work scope has been varied in a way<br>c. that the [Supplier] has failed to provide the required supporting evidence.<br>*[Note: Contractors may include an acceptance process for the Work Scope Emissions Forecast Reports]*<br>iii. meet with the Contractor to discuss:<br>a. the [***Work Scope Emissions Forecast***] Carbon] Budget; and<br>b. the [***Work Scope Emissions Forecast***] Carbon Budget and other notifications provided under this clause.<br>*[Suggestion: Contractors are encouraged to employ incentive programs for reporting of work scope emissions.]* |

## How Are Your Emissions Reported By The Head Contractor?

Correctly identifying who is responsible for reporting carbon emissions is a key focus of ACA's work on emissions consistency, where we are aiming at improving reporting efficiency and eliminating double handling wherever possible.

From the perspective of a Head Contractor, differing legislation between countries or carbon accreditation bodies may see that entity grouping their emissions differently. For instance, if the Head Contractor is an NGER reporting entity, they will report your site-based fuel emissions largely within their Scope 1 for their NGER reporting as they likely have 'Operational Control' of the site. However, for their Climate-related Disclosures ASRS reporting they will want to demonstrate ownership of these emissions just for your company, effectively as their Scope 3. Either way, contractors are increasingly obligated to give a true and accurate account of the emissions that occur on their project's, and as a result will increasingly view those supply chain entities that can assist in making accurate disclosures positively.

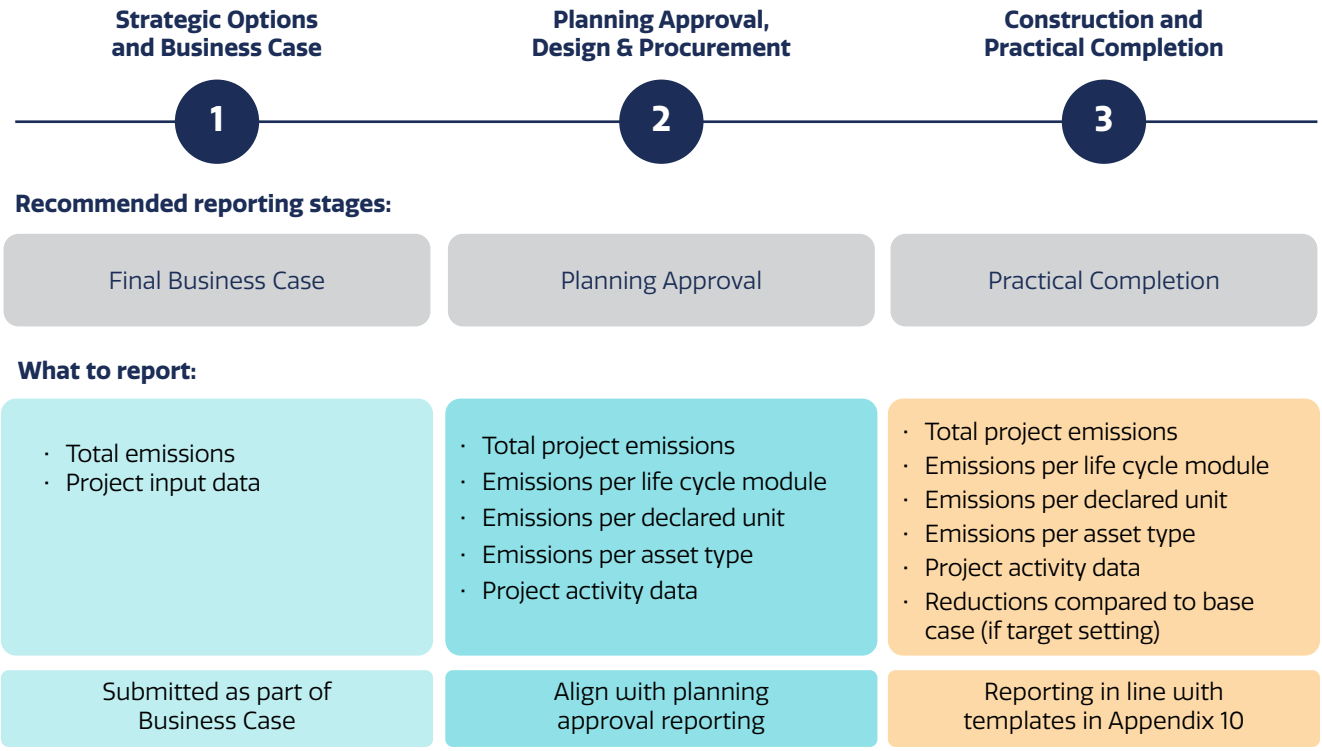
**The ACA recommends** that to help both parties improve their emissions reporting, and especially for subcontractors supplying their own fuel and materials to the site, is for supply chain entities to provide their materials and fuel data with their financial claims and for head-contractors to clearly articulate the need for the data and the requirement in the supply or subcontract agreement.

**Example A**

A subcontracting organisation is contracted to deliver earthworks by a principal contractor on a major project.

If the principal is an NGERs reporter, the emissions from the operation of the fleet (e.g. diesel) will be reported under the NGER Act by the principal, Under Climate-related disclosures, if both parties meet the threshold of a reporting entity, they must follow a suitable guideline to determine who is the most relevant entity to report the emissions as Scope 1 or Scope 3 based on elements like who directed operations or who derived the most financial benefit.

Figure 4: External reporting of carbon emissions at each project stage[6]



# 4.0 Reduce

**With a clearer understanding of your GHG emission inventory and key areas for impactful change, you are ready to begin your decarbonisation journey.**

## Understand your footprint and operations

Every business is different, setting carbon reduction targets will be unique to every business, key starting points include:

- **Follow the Track and Calculate approach** to benchmark your emissions, employing guidelines line the Greenhouse Gas Protocol Corporate Standard[4] wherever possible. The best practice here is to establish a 'baseline year' which you will use to track future reductions from.
- **Targets can be related to absolute emissions** (based on total emissions over time for a given business) **or intensity based** (emissions measured per unit of activity, e.g. per ton of asphalt laid), understanding what suits the organisation best is an important step.

## Set your target

Now that you know your type of target and footprint of emissions, you can set reduction targets:

- **Align with reduction frameworks:** Such as the Science Based Targets initiative (SBTi)[8] or seek an external accreditation to an ISO14064 or seek guidance with Climate Active / Carbon Disclosure Project
- **Define Clear Targets:** Set specific, measurable, achievable, relevant, and time-bound (SMART) targets. For example, aim to reduce emissions by a certain percentage over a set number of years[1].

## Develop a strategy

Reductions will be based upon your key emissions sources, identified through your GHG inventory and the nature of the business. The following will help guide your approach:

- **Start with Scope 1 & 2, then look outwards**, the sphere of control over Scope 1 & 2 will set the emissions reduction journey off on the right foot.
- **Engage Suppliers, Industry and Clients:** Work with your key stakeholders to understand their drivers and how your business needs to pivot in response. This collaborative approach can lead to more significant long-term reductions.
- Across are some examples of tactics that will see worthwhile reductions in your operations (Scope 1 & 2):

## Explore options to improve fuel efficiency

- Conduct emissions assessment at purchase, or hire and specify the use of low-emissions equipment where technology is viable and available
- Identify high emitting legacy plant and integrate retirement timeline
- Right size plant and equipment for the job – e.g. gensets running under capacity or oversized plant will burn excess fuel
- Review haul and transport routes to projects / for efficiency as well as identifying wasted energy (e.g. idling) and engineer out

## Electrify your portfolio

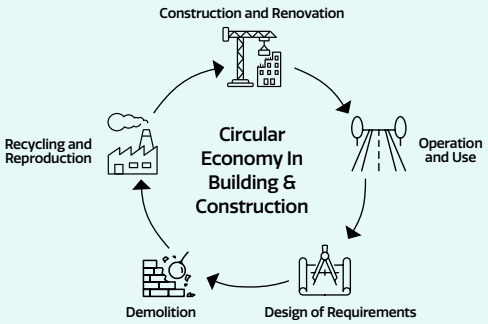
- This may include transitioning LV car fleets to hybrid and battery electric
- Optioning for green power in offices
- Engage with an energy consultant or solar partner to provide alternate energy sources for offices and remote sites
- Employ battery technology to complement grid connection and/or store solar power
- Employ hybrid or electric plant and equipment including smaller tools, lighting and site sheds

## Transition to renewable energy sources and alternative fuels in operations

- Look at operational energy consumption points and explore the market for lower emission alternatives (e.g GreenPower, On-site Solar Arrays, Renewable Diesel)
- Discuss with OEMs the requirements for alternate fuels in current fleet, many now already accept high-blend renewables diesel (e.g. Caterpillar)
- Consider plug & play carbon-capture and storage solutions for diesel burning equipment, some of which are just coming onto market.

## Material innovation to promote circularity

- Circularity of materials can drive enormous carbon reduction potential wherever practical request specification modification with the contractor to allow for increase circularity




- Lower embodied carbon in materials with innovative mixes, request a trial site or reach out during tender to propose an innovation as a tender advantage.

The ACA renewable diesel paper outlines how contractors can transition to renewable diesel usage, along with the ACA guide to Fossil Fuel Free construction approaches.

## Continually Review

Just like normal business processes, plan/do/check/act is the fundamentals of staying on top of company targets. Carbon targeting is no different and can be supported by:

- **Monitoring and Reporting Progress:** Regularly monitor your progress and report it publicly. Transparency helps build credibility and accountability[1].
- **Reviewing and Adjusting:** Periodically review targets and strategies to ensure they remain relevant and effective. Adjust them as necessary based on progress and changes in operations

# Methods of Decarbonisation

| Short Term | |
|---|---|
| Training / awareness and knowledge sharing | Supply chain sustainability school training |
| Waste hierarchy | List current materials and view sites like the ISupply directory to identify low carbon alternatives |
| Fleet transition | Discuss with fleet partners alternatives or engage fleet transition consultants to assist with fleet decarb plans. |
| GreenPower and renewable energy | GreenPower or source through local energy retailers |
| Sustainable procurement – local suppliers, market engagement and low carbon materials | Decarbonising Infrastructure Delivery Policy<br>Green Construction Procurement Library - APCC |

| Medium Term | |
|---|---|
| Construction plant | Decarbonising infrastructure – fossil fuel free construction, University of Queensland |
| Renewable diesel | ACA renewable diesel paper<br>Caterpillar renewable diesel |
| Circularity | Lean into state or federal authorities, like EcologIQ, TfNSW or Federal ESPP |
| Primary Guidelines | Carbon reduction hierarchy - PAS 2080 |
| Technology and innovation | Improving the Sustainability of Sprayed Seals |

# Frequently Asked Questions

| | |
|---|---|
| **We supply a product that we want to measure for emissions so we can advertise it, where do we start?** | You can capture the associated emissions of a product by conducting a life cycle assessment (LCA) (Demonstrated in Figure 2.0 on page 9). This involves evaluating the environmental impacts associated with all stages of a products life, from raw material extraction to disposal. This data can then be used to create transparent and credible sustainability claims for your product. Another valuable tool includes obtaining an Environmental Product Declaration (EPD), which provides a transparent and verified summary of the product's environmental impact, based on the LCA. |
| **We use lots of different products, how do we calculate them all?** | Emissions factory libraries such as the National Greenhouse Accounts Factors or the Australian National Life Cycle Inventory Database (AusLCI) can help provide the basis for calculating a wide array of materials. Likewise EPDs can provide product specific emissions factors such as through the EPD Australasia. |
| **How do I calculate my fleet's emissions?** | As a civil construction subcontractor, your fleet likely represents a significant portion of your overall carbon emissions. You are able to calculate your fleet emissions using the following process:<br>1. **Track** the amount of fuel each of your vehicles in your fleet consumes over a specific period (e.g. monthly) via either fuel purchases (spend) or using vehicle tracking systems to determine distance (activity).<br>2. **Using emissions factors**, your fleets fuel consumption (by volume) into carbon emissions equivalents (e.g. $tCO_2e$). Emissions factors will vary depending on what fuel or energy type is used.<br>3. **Multiply** the total fuel consumption by the appropriate emissions factor (based on fuel type) to understand the total $CO_2$ emissions for your fleet. |
| **How accurate do I need to be in calculating emissions?** | Depending on the reporting requirements, contractors may be seeking estimated or actual activity data, it will often be best to be as accurate as possible and outline any NGERs requires best available information, CRD will require actual activity data by FY2030 and year on year improvements in data accuracy each year to 2030. |
| **How can we set targets and who tracks it?** | To set a carbon reduction target, you must first measure your carbon footprint and establish a baseline. This initial assessment allows you to track progress accurately and set realistic, measurable targets. With this baseline, it is recommended that you establish goals that are specific, measurable, achievable, relevant, and time-bound (SMART). Typically, a dedicated sustainability resource or a cross-functional team tracks and monitors these targets to ensure ongoing progress and accountability. |

# Concluding Remarks

ACA aims to engage our supply chain partners in our current decarbonisation journey, if you or your company are a construction supply chain entity and would like to reach out for guidance or would like to contribute to the body of knowledge that is our collective decarbonisation journey the ACA would welcome any such approaches. Thank you for taking the time to read and engage with the ACA's approach to emissions management consistency.

# Glossary

| | |
|---|---|
| BoQ (Bill of Quantities) | A document that lists the materials, labour, and parts required to complete a construction project |
| Carbon Disclosure Project (CDP) | An international non-profit organisation that helps companies, cities, states, regions and public authorities disclose their environmental impact. |
| Carbon Management | The process of measuring, reducing, and offsetting carbon emissions. |
| Circularity | In the construction industry, circularity means adopting a circular economy approach, focusing on reusing, recycling, and renewing materials and resources throughout a building's lifecycle to minimise waste and maximise resource efficiency. |
| Climate Related Disclosures Legislation | A law in Australia that requires certain businesses and financial institutions to disclose information about climate-related risks and opportunities. |
| Company | The term company is used in this standard as shorthand to refer to the entity developing a scope 3 GHG inventory, which may include any organisation or institution, either public or private, such as businesses, corporations, government agencies, non-profit organizations, assurers and verifiers, universities, etc. |
| Contractor | Means any person or entity engaged by the Client to supply goods or services to the Client in connection with the Contract. |
| Decarbonising | To reduce the levels of carbon emissions (such as carbon dioxide) caused by or involved in (something, such as a facility, process, or organisation). |
| Embodied Carbon Footprint | A measure of the total amount of carbon dioxide ($CO^2$) emitted throughout product production, transportation and usage of a product. |
| Emissions | The release of greenhouse gases into the atmosphere. |
| Emissions Breakdown | |
| Emissions Factors | A factor that converts activity data into GHG emissions data (e.g., kg $CO^2e$ emitted per litre of fuel consumed, kg $CO^2e$ emitted per kilometre traveled, etc.). |
| Emissions Reporting | The process of documenting and reporting the amount of greenhouse gases (GHGs) emitted by a business, organisation, or country. |
| Environmental Product Declaration (EDP) | An independently verified and registered document that communicates transparent and comparable data. |
| Equity Share Approach | A method for accounting for greenhouse gas emissions from operations. |
| GHG Emissions | For the purposes of this standard, GHGs are the six gases covered by the UNFCCC: carbon dioxide ($CO^2$ ); methane ($CH_4$); nitrous oxide ($N_2O$); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride ($SF_6$). |
| 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 $CO^2$. |
| Life Cycle Assessment (LCA) | A method for evaluating the environmental impact of a product, process, or service from start to finish. |
| Material Passports | A digital record that provides information about the materials, products and components of a structure. |
| National Greenhouse Accounts (NGA) Factors | Provides methods that help companies and individuals estimate greenhouse gas emissions. |

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|---|---|
| National Greenhouse and Energy Reporting Scheme (NGERs) | The National Greenhouse and Energy Reporting (NGER) Scheme is a single national framework for reporting company information on greenhouse gas emissions, energy production and energy consumption. The legislation includes the Act, the Regulation, and the Measurement Determination). |
| Operational Control | The process of managing a company's day-to-day operations. It involves monitoring and controlling internal and external events to ensure that activities are consistent with plans. |
| Public Disclosure | A non-confidential communication that reveals information to the public. |
| Resource-Efficient Technologies | Technologies designed to minimise the consumption of natural resources like water, energy, and materials while maximising output. |
| Scope 1 Emissions | Emissions from operations that are owned or controlled by the reporting company. |
| Scope 2 Emissions | Emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting company. |
| Scope 3 Emissions | All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. |
| Subcontractor | Means any person or entity engaged by the Contractor to supply goods or services to the Contractor in connection with the Subcontract. |
| Supplier | An entity that provides or sells products to another entity (i.e., a customer). |
| $tCO^2e$ | Tonnes of Carbon Dioxide Equivalent. |
| Tender | A written offer to supply goods or services for a set price. |
| Value Chain | A series of business activities that a company performs to create and deliver a product or service to a customer. |
| Work Scope Emissions Forecast | An estimate of the total greenhouse gas emissions expected to be generated during the course of a specific project or work activity, taking into account factors like energy consumptions, materials used, transportation, and waste produced throughout the project lifecycle, allowing for proactive planning and mitigation strategies to reduce the environmental impact. |

# References

[1]D.A. Smith et al., The University of Queensland, Planning a Transition to Low and Zero Emission Construction Machinery, (April 2022).

[2]Department of Climate Change, Energy, the Environment and Water, National Greenhouse and Energy Reporting Act 2007, (March 2024).

[3]Supply Chain Decarbonisation Survey, Fulton Hogan Construction, (November 2024).

[4]World Business Council for Sustainable Development, World Resources Institute, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, World Business Council for Sustainable Development, (2004).

[5]Department of Climate Change, Energy, the Environment and Water, National Greenhouse Account Factors, (September 2024).

[6]NSW Government, Embodied Carbon Measurement for Infrastructure Technical Guidance, (April 2024).

[7]Depart of Climate Change, Energy, the Environment and Water, Environmentally Sustainable Procurement Policy and Reporting Framework, 2024

[8]Science Based Targets initiative (SBTi), Buildings Sector Science-Based Target-Setting Guidance: Draft for Pilot Testing, Version 0.2.1, (December 2023).

*This document will be periodically updated to incorporate new standards and reflect changes in methodologies and guidance. The document will be located on the Australian Constructors Association website.*

*The advice within our guidelines is general in nature and should be utilised in conjunction with reference to Australian emissions reporting legislation. Companies are advised that they should seek appropriate internal or external advice on the suitability of emissions reporting frameworks prior to committing to any disclosures or reporting frameworks, and not to base their decisions solely on the advice contained within this guideline. Feedback when applying the guidance is welcomed to increase reporting accuracy and robustness.*

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