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Calculating Upfront Carbon

Australia's spend-based factor for calculating Scope 3 construction emissions

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As Australian companies prepare to disclose their Scope 3 emissions from 2026, construction presents a significant – and often overlooked – source of emissions. Slattery's carbon accounting team offers a credible Australian-first method to construction spend into carbon impact.

Introduction

Construction is carbon-heavy – even when it's not your core business.

Australia's new climate disclosure regime commenced on 1 January 2025. Large businesses must report Scope 3 emissions – the indirect emissions across their value chain – from 2026.

For organisations outside the construction sector, this can present a blind spot.

Construction may not be your core business, but it may account for a meaningful share of your Scope 3 footprint. Capital works are common, carbon-intensive and financially significant.

Unlike operational emissions, which can be reduced over time, embodied carbon is locked in from day one.

Yet most finance teams are unprepared for how difficult construction-related emissions are to calculate.

The challenge for finance teams

For most spend categories, emissions can be estimated using publicly available factors. But there is currently no credible, publicly available spend-based emissions factor for embodied carbon in Australian construction.

Some data exists, but it is often locked behind paywalls, tailored for niche applications, or not suited to broad industry adoption.

> “Finance teams looking for a simple equation – a reliable way to translate dollars spent on construction into tonnes of CO_2e – will quickly discover a gap.”

The Green Building Council of Australia’s Scope 3 Emissions discussion paper outlines the challenge of “translating the emissions of an asset to a corporate account”, noting that international guidance “is not consistent, and in some cases, may not be appropriate for Australian conditions”.

Slattery’s paper presents a conservative, spend-based factor for embodied carbon, developed specifically for Australian construction.

Why conservative?

Because a cautious estimate – of more carbon, not less – encourages further investigation. If low-carbon materials, recycled products or adaptive reuse strategies are used, for instance, actual emissions may be lower.

Until better data is available, a conservative baseline creates the conditions for deeper conversations. When the cost of offsets is high, the case for better data – and emissions reduction – becomes even stronger.

This is not a definitive answer – but a practical starting point.

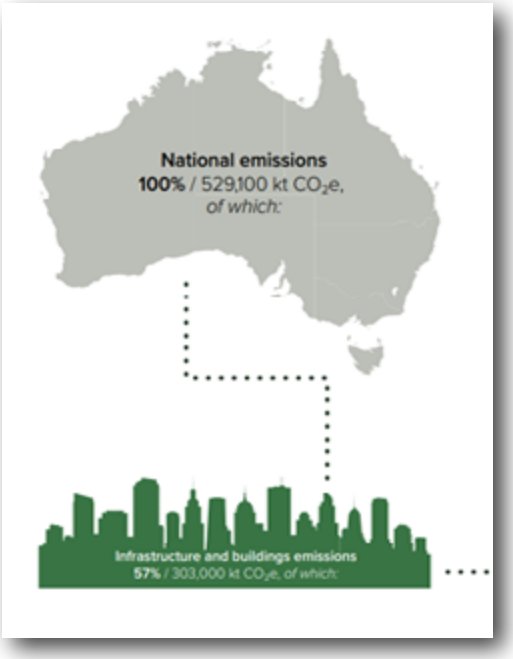

Exhibit 1

Source: Infrastructure Australia, 2023.

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The figure

This spent-based factor provides a high-level estimate for embodied carbon based on dollars spent.

For every dollar spent on construction, applying a factor of 0.21 estimates the embodied carbon emissions (in kilograms of CO_2e equivalent).

For example:

- A company spends $25 million on construction in FY26
- Applying the Slattery factor of 0.21 yields 5,250,000 kilograms (5,250 tonnes) of embodied carbon (CO_2e)
- This equates to approximately 1 tonne of CO_2e for every $5,000 spent.

This figure is designed to be conservative and is not a substitute for first principles measurement of materials or the advice of a trusted quantity surveyor.

In most cases, a more granular assessment will yield a lower emissions figure.

This figure is based on new building projects and does not currently apply to industrial developments, which have different material compositions and cost structures.

When we split the data by building type, we see variation. Fitouts, for example, are typically lower, with early estimates suggesting figures closer to 0.12 $kgCO_2e$ per dollar. Further breakdowns by asset class will be shared in future updates.

A full methodology is provided in Appendix A.

Exhibit 2

Slattery estimate for embodied carbon based on dollars spent.

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Next steps

Australia's mandatory sustainability reporting and climate-related disclosures, introduced on 1 January 2025, requires reporting entities to disclose their Scope 3 emissions from 2026.

The Australian Securities & Investments Commission acknowledges that some data may be "too hard or costly to obtain" and permits larger businesses to use "estimates and industry averages rather than directly sourcing the information from their value chain".

Slattery's conservative estimate offers a practical first step – a provisional baseline for entities facing construction-related emissions for the first time.

In time, more sophisticated tools and standards will emerge – and Slattery is currently developing an online carbon calculator to contribute to this body of knowledge.

In the interim, a standardised, spend-based figure offers companies a clear foundation for disclosure, can support capability building over time, and generate better-quality data for investors, insurers and regulators.

It will incentivise more detailed measurement by allowing those who invest in better data to demonstrate lower emissions profiles and stronger sustainability performance.

Our estimate can:

Provide a consistent basis for internal reporting and emissions strategy

Highlight data gaps that warrant further investigation

Encourage early engagement with carbon accountants or consultants

Guide smarter, more sustainable capital allocation

Improve confidence in reported Scope 3 data

Better manage regulatory and reputational risk

Help avoid overpayment on offsets caused by inaccurate estimation

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Appendix A. *Slattery methodology*

Our spend-based emissions factor was calculated from a robust dataset of building projects within the Slattery database.

Our dataset is unique, as it includes projects where both embodied carbon planning advice and detailed cost planning services have been provided. This integrated dataset enables direct comparison between total upfront embodied carbon and the corresponding total project expenditure, forming the basis of the spend based factor.

Scope and boundaries

- The dataset is building projects only. It excludes infrastructure or horizontal works, which may exhibit materially different emissions profiles and are outside the scope of this factor's applicability.
- Embodied carbon measurements focus on life cycle stages A1 to A5, covering material extraction, manufacturing, transport and onsite construction processes. Demolition and end-of-life stages are excluded.
- Cost data represents the total project cost, incorporating all project phases including contingencies and associated project costs.

Data sources

- Emissions factors are sourced from the AusLCI life cycle inventory database, accessed through the Etool software platform.
- When available, Environmental Product Declarations (EPDs) for specific materials or products are incorporated.
- Standard Etool assumptions were used transport and construction calculations (A4 and A5). The exception is when we have overseas-sourced product with an EPD, we will include the additional freight required.

Dataset characteristics and limitations

- Projects included have proactive teams that engaged in carbon planning services. This may suggest a sample bias toward clients with stronger commitments or motivations to reduce carbon emissions. This may skew the dataset towards lower embodied carbon intensity profiles relative to the broader market.
- Notwithstanding this, the calculated spend-based factor is conservative, as it is based on the highest project emissions intensity values present in the dataset.
- Despite this conservative approach, our factor remains lower than the current Climate Active spend-based emissions equivalency figure.

Exclusion of industrial sector projects

- Analysis identified industrial sector projects as statistical outliers. These projects were therefore excluded to avoid distortion of the general factor.
- This exclusion results in a spend-based factor more accurately reflective of mainstream building projects.

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Appendix B. *Literature review*

A scan of available data sources confirms a clear gap in publicly accessible, standardised, spend-based emissions factors for construction in Australia. While there is substantial work underway across government, industry and academia, none of these efforts yet provide the practical, Australia-specific spend-based emissions factor that finance and sustainability teams need.

Key sources reviewed:

- **Greenhouse Gas Protocol:** Allows for spend-based estimates as one of three accepted calculation methods (alongside average data and supplier-specific methods). However, it does not provide construction-specific spend-based emissions factors, nor does it offer detailed guidance tailored to construction procurement or capital works.
- **Climate Active:** Uses IELab (Industrial Ecology Lab) data to supply spend-based emissions factors across many categories. Access is limited to members. Climate Active is currently under review.
- **IELab** and **Footprint Lab:** IELab's data is based on 20 years of academic modelling but is highly technical and not designed for practical industry application. IELab's commercial offshoot, Footprint Lab, provides spend-based estimates behind a paywall.
- **Infrastructure NSW:** The Embodied Carbon Measurement for Infrastructure: Technical Guidance provides some guidance on Page 62, based on earlier modelling for Infrastructure Australia. This is not suitable for broader application.

Industry and government support

Industry discussion about Scope 3 emissions has been underway for some time but these are, in the main, targeting construction or sustainability audiences.

- **NABERS Embodied Carbon:** Measures, verifies and compares upfront embodied carbon of new buildings, covering material, transport, and construction emissions. Does not include spend-based emissions factors for general construction.
- **Green Building Council of Australia:** The GBCA's *Scope 3 discussion paper* (2024) notes the need for benchmarking data to support reporting entities, particularly for fitouts.
- **Australian Sustainable Built Environment Council:** ASBEC's policy roadmap, *Our upfront opportunity* (2025), recommends investment in an "aligned national framework and tools to baseline, measure, benchmark, disclose and reduce embodied carbon through a unified methodology and common database".
- **Infrastructure Australia:** *Embodied Carbon Projections for Australian Infrastructure and Buildings* (2024) recommends governments "continue developing a nationally standardised embodied carbon measurement system, which allows for consistent methods to collect, measure, and assess data about embodied carbon."
- **GRESB:** In 2024, GRESB surveyed infrastructure asset participants and found inconsistent Scope 3 reporting and no universally agreed definition of materiality.
- **PCAF, CRREM** and **GRESB:** The Partnership for Carbon Accounting Financials (PCAF), Carbon Risk Real Estate Monitor (CRREM) and GRESB released technical guidance for *Accounting and Reporting of GHG Emissions from Real Estate Operations* (2023), but this does not include spend-based emissions factors.
- **Property Council of Australia:** Its 2023 submission on climate disclosure reporting identified the need for a standard Scope 3 methodology for capital works.
- **Australian Sustainable Finance Institute:** Expects to release the Australian Sustainable Finance Taxonomy mid-2025. Spend-based benchmarks are not included.

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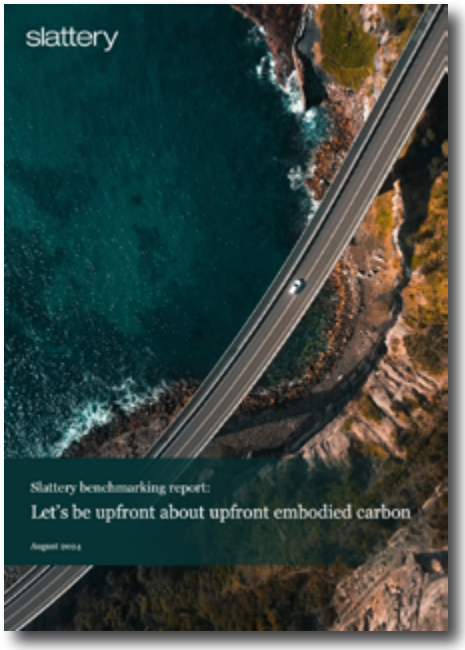
About Slattery and Kaizen

Slattery is a national property and construction advisory firm, helping clients plan, adapt and invest with confidence. We partner with clients to uncover value, reduce risk, and deliver smarter, more sustainable outcomes across Australia's cities and communities.

With data-driven insights, deep expertise, and a collaborative approach, we're trusted advisors guiding decisions that shape a better future.

Our Kaizen papers share knowledge, ideas and cost information to move our industry further and faster together. Kaizen is the Japanese word for improvement, reflecting a business philosophy focused on change for the better.

Explore our knowledge base of Kaizens at www.slattery.com.au/thought-leadership



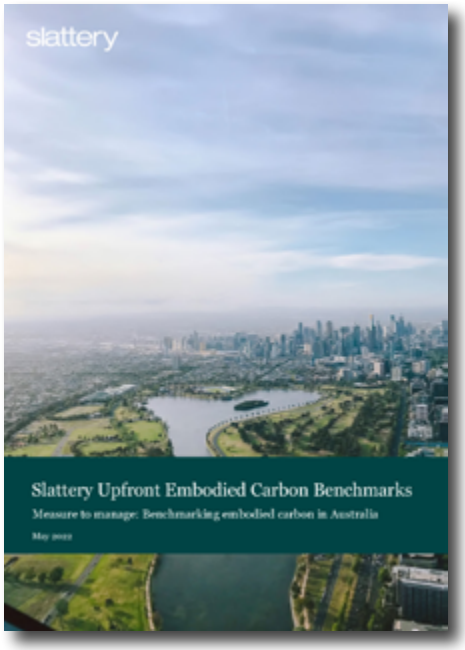


Image:
Slattery Warrang
Sydney Collection

Slattery Carbon Planning

In 2021, Slattery was the first quantity surveying firm in Australia to launch a carbon planning service. We help our clients to address upfront embodied carbon on current and future developments, and to achieve their net zero and sustainability targets.

Read more about Slattery's carbon planning offering at www.slattery.com.au/carbon-planning

Slattery is proud to hold membership with:

AIQS | MECLA | Green Building Council Australia

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