Jons Civil
Engineering Co. Ltd.
2025

JONS CIVIL ENGINEERING CO. LTD.
SCOPE 3 PURCHASED GOODS AND SERVICES VALUE CHAIN ANALYSIS REPORT

2025

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Executive Summary

Jons Civil Engineering Co. Ltd. is among the first construction firms in Ireland to adopt the CO_2 Performance Ladder as a strategic framework for reducing greenhouse gas (GHG) emissions across its operations and supply chain. This report presents a detailed analysis of Scope 3 emissions related to Purchased Goods and services, fulfilling requirement 4.A.1 of the CO_2 Performance Ladder.

The CO_2 Performance Ladder is a certified carbon management system that guides organisations through progressive steps to reduce emissions:

Step 1 focuses on direct emissions (Scope 1 & 2).

Step 2 expands to value chain emissions (Scope 3), requiring collaboration with suppliers and customers.

Step 3 demands a long-term climate transition plan, independent validation, and sectoral leadership.

This report identifies and quantifies key Scope 3 purchased good and services emissions, maps the value chain, and highlights reduction opportunities.
Key findings include:

- Purchased Goods and Services ranks as the most material Scope 3 category for Jons, based on emissions volume, control, and savings potential.
- Hotspots include concrete and asphalt

The report concludes with a targeted Action Plan to improve data collection, increase sourcing of low-carbon or recycled materials, engage subcontractors, and embed circular economy principles in procurement and site practices.

Certain specific data may not be fully included for commercial sensitive reasons or if some ongoing research is not finalised.

1. Introduction

As part of its organisational carbon footprint, Jons has prepared a Scope 3 Analysis Report "Scope 3 Value Relevant Emissions Report", which outlines in detail the 15 Scope 3 Categories and their significance to Jons with a full explanation of their ranking .

Below is a snapshot of the top 6 Scope 3 categories, showing the relative importance of each of the top 6 Scope 3 categories. For clarity this report only focuses on the most relevant Scope 3 category, that of *Purchased Goods and Services*.

Ranking	Scope 3 Category	Carbon Emissions	Control	Potential Savings	Relevance (Emissions x Control x Savings)
1	Purchased Goods and Services	5	5	4	100
2	Waste Generated in Operations	4	4	4	64
3	Capital Goods	3	5	3	45
4	Upstream Transportation and Distribution	4	2	5	40
5	Employee Commuting	2	2	4	16
6	Fuel and Energy Related Activities	1	2	5	10

Table 1 Scope 3 Relevance Matrix

Purchased goods and services (Scope 3 Category 1) refers to the indirect greenhouse gas (GHG) emissions from the production of goods and services acquired by a company from third parties. This category includes emissions from activities such as raw material extraction, manufacturing and processing. For Jons it includes:

- Construction Materials including concrete, steel, asphalt and aggregates
- Precast & Fabricated Elements including precast concrete
- Consumables and Site Materials including formwork
- Subcontractors and Consultants
- Temporary Work & Site Services including hired plant and welfare cabins
- Office and Business Services including stationery, IT Equipment, cleaning and security

2. Methodology

This Purchased Goods and Services Value Chain Analysis is conducted in accordance with the CO_2 Performance Ladder (Handbook 3.1 and Version 4, Step 2), the GHG Protocol, and ISO 14064-1. The approach ensures robust, transparent, and auditable identification, quantification, and management of carbon emissions, with a focus on continuous improvement and sector best practice.

2.1 Organisational Boundaries and Scope

- The organisational boundary is defined using the GHG Protocol's "operational control" approach, as recommended by the CO_2 Performance Ladder.
- All relevant legal entities and activities are included, ensuring that emissions from both direct operations and significant projects are captured.

2.2 Identification and Prioritisation of Relevant Emissions

Purchased Goods and Services related emissions are identified and prioritised using a relevance assessment, considering

- Relative volume of carbon emissions Jons generates
- The level of influence or control Jons has over those emissions
- The potential opportunities for reduction of emissions

2.3 Data Collection and Emission Quantification

- Emission quantification follows the GHG Protocol Scope 3 Standard's 15 categories, with purchased goods and services (Category 1) as the primary focus.
  - Data is currently collected on site by various means such as supplier and subcontractor invoices, dockets, reports, laying records and Environmental Product Declarations (EPDs) where available.
- CIF Carbon Calculator has been implemented with several key suppliers and subcontractors having provided carbon data for 2024
- Where direct measurement is not possible, industry-standard emission factors are applied, prioritising national databases (e.g., DEFRA, SEAI, etc.) and sector-specific LCA/ EPD data. All conversion factors are set out in table below.

Source	Use
ICE (2013), CESMM4 Carbon & Price Book 2013	Construction materials Clearance and excavation activities
Sustainable Energy Authority of Ireland (2019), Conversion Factors	Electricity (Ireland Specific) Fuels (Ireland Specific)
UK Government (2021), Greenhouse Gas Reporting Conversion Factors	Passenger Vehicles (except light rail) Freight vehicles (HGV only) Material disposal (reuse, recycling, landfill)

Table 2 Carbon Emission Factor Sources

2.4 Value Chain Mapping

- The analysis maps the full purchased goods and services value chain, from material procurement and design through to production and manufacturing, transport, on site use, and final disposal or recycling.
- The mapping includes both upstream and downstream activities.

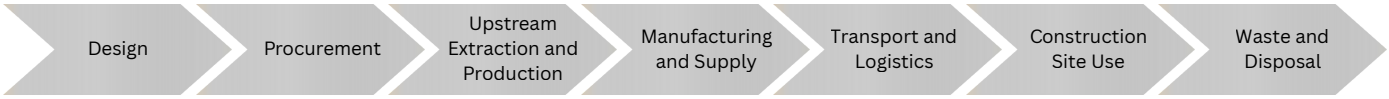
2.5 Continuous Improvement and Verification

- The methodology is subject to annual review and improvement, in line with the Ladder's "Plan-Do-Check-Act" cycle.
- All findings, assumptions, and data sources are documented for audit and external verification.

2.6 Gaps and Limitations

- As this is Jons first value chain analysis, detailed carbon emissions are still being generated for purchased goods and services data. For this initial baseline, industry conversion factors have been used to provide indicative values for typical construction materials where specific EPDs were not available.
- Where data gaps exist, these are clearly highlighted in the analysis.
- Plans for data improvement and stakeholder engagement are included to address these gaps in future reporting cycles.

3. Mapping the Value Chain



While the value chain was mapped primarily in relation to purchased goods, the same principles and stages also apply to purchased services. Many of the activities that contribute to Scope 3 emissions — such as design, procurement, subcontractor engagement, on-site operations, and waste management — involve services as well as materials. For example, emissions associated with subcontracted construction, design consultancy, and specialist engineering services follow similar upstream and downstream pathways as material purchases. Therefore, the mapped value chain provides a useful framework for understanding and managing carbon impacts across both goods and services, ensuring that Jons takes a consistent and comprehensive approach to its Scope 3 Purchased Goods and Services emissions.

3.1 Design

The Design stage sits at the very beginning of the Purchased Goods and Services value chain. It is where project concepts, specifications, and material requirements are first defined — often before procurement or construction begins.

For Jons, the design phase determines what materials and services will be needed, how much carbon they will embody, and how efficiently they can be used or reused later in the project lifecycle. In essence, design decisions lock in a significant proportion of future Scope 3 emissions. In addition if the project is a Design and Build any operational emissions from this design work are included in Purchased Goods and Services.

Although the Design stage itself does not generate large direct emissions, it has a major indirect influence on the total Purchased Goods and Services footprint.

Design decisions affect:

- Material type and volume — which determine embodied carbon intensity.
- Construction methods — influencing subcontractor and service-related emissions.
- Waste generation potential — through accuracy of quantities and reusability.
- Maintenance and lifecycle impacts — where design affects longevity and replacement frequency.

There is substantial interaction with stakeholders, the client, and the designers to discuss material choices, sourcing options, and strategies to reduce embodied emissions.

3.2 Procurement

Procurement determines what materials, products, and services are purchased and how carbon-intensive they are. This stage is where Jons can exert strong influence over upstream Scope 3 emissions.

Although Jons does not own manufacturing operations, its purchasing power and coordination capabilities allow it to reduce embedded emissions and improve supply chain sustainability.

Strategic procurement that prioritises low-carbon materials, local sourcing, and efficient logistics can transforms this stage from a passive purchasing function into an active emissions reduction tool within the Purchased Goods and Services value chain.

3.3 Upstream Extraction and Production

They include all activities involved in sourcing and processing raw materials that will eventually become the products, components, and materials Jons purchases. It captures the embedded carbon in every material and service.

These stages generate some of the most carbon-intensive emissions in the entire value chain, including:

- Fossil fuel combustion in extraction and manufacturing processes.
- Process emissions from chemical reactions (e.g., CO_2 released during cement clinker production).
- Electricity use for smelting, grinding, and mixing.
- Transportation of raw materials between extraction sites and processing facilities.

Although these emissions occur far upstream, Jons can influence them by leveraging procurement power, choosing low-carbon materials, and working with transparent, sustainable suppliers.

3.4 Manufacturing and Supply

It is where suppliers and their subcontractors transform raw materials into the goods and services Jons uses — such as concrete, steel rebar, precast concrete, asphalt, ducting, or structural components.

The Manufacturing and Supply stage generates substantial upstream emissions due to energy-intensive industrial processes.

Key sources include:

- Electricity and heat use in factories (smelting, welding, heating, curing, etc.).
- Combustion of fuels in manufacturing equipment and onsite power generation.
- Process emissions (e.g., from chemical curing of polymers or composite materials).
- Waste and scrap materials generated during manufacturing.
- Packaging materials (plastics, wood, paper, etc.) and their disposal.

Although Jons doesn't directly control manufacturing facilities, it can drive emissions reduction through sustainable procurement and design.

3.5 Transportation and Logistics

Purchased goods and services are transported using third-party haulers or logistics providers from suppliers to the site, or between sites as needed. While these emissions are not captured as part of Scope 3 Category 1 Purchased Goods and Services and are instead captured in category 4 Upstream Transport and Distribution, depending on the quantity of goods and the distance travelled, transportation can form a significant part of the overall carbon footprint and needs to be considered.

3.6 Use on site

The Use on site stage represents the point at which Jons consumes the purchased materials, components, and services during project delivery.

Even though these emissions are embodied in purchased goods, how materials are used on-site affects overall carbon performance. Decisions about material efficiency, supplier selection, and on-site management determine how much embodied carbon actually enters each project.

Key emission sources include:

- Embodied carbon in materials used or wasted.
- Inefficient material use (over-ordering or over-specification).
- Subcontractor activities with embedded emissions in their services or materials.
- Packaging waste from delivered goods.
- Construction waste from material offcuts or errors

At the construction stage, Jons can exert significant influence over both embodied and operational emissions linked to purchased goods and services.

3.7 Maintenance & End-of-Life Considerations

Purchased goods and services may require maintenance, replacement parts, or specific handling during their use. At the end of their life, goods may be recycled, reused, or disposed of, typically via third-party providers. While the emissions are not captured in Purchased Goods and Services, how goods are treated at end-of-life significantly affects the overall carbon impact of purchased goods and services.

4.Purchased Goods & Services Analysis

Jons has only begun recording detailed emissions from the Purchased Goods and Services (Scope 3, Category 1) category in a significant way this year. Work in this area started at the end of 2024, when the company identified two priority areas for improvement in data collection — Construction Materials and Subcontractors.

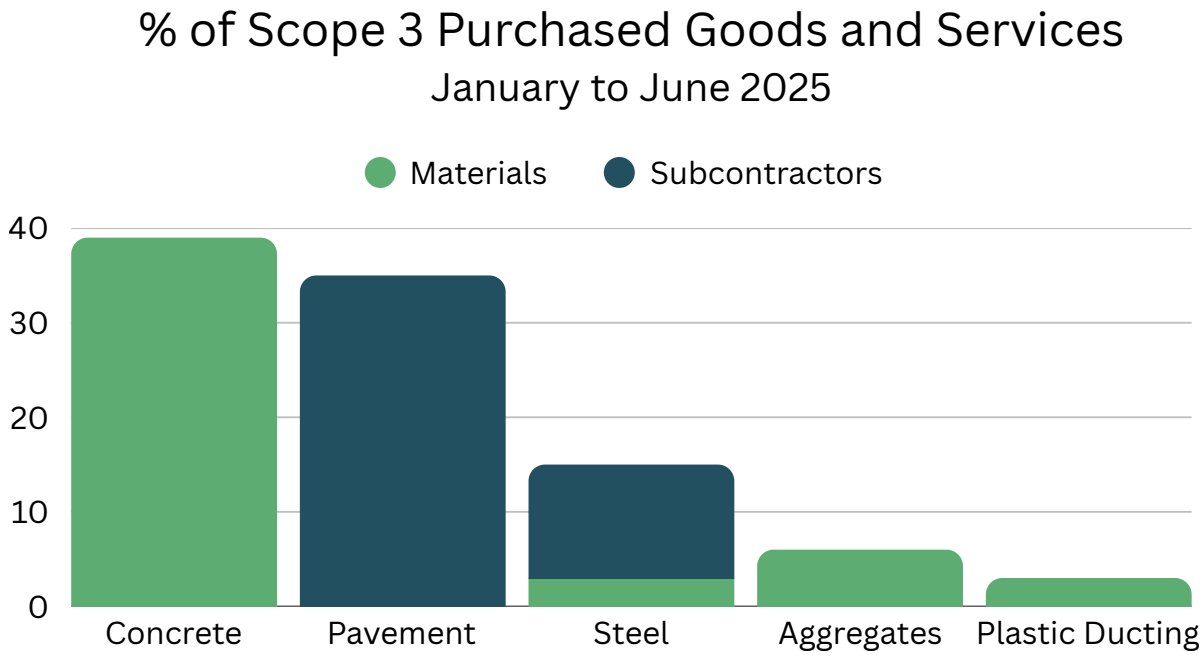
To understand what data was already available, Jons reviewed existing site data to determine which materials and activities were being recorded, and which could be easily captured moving forward. A trial was then carried out to pull this data, which helped identify practical ways to collect consistent and reliable information across projects. Based on this learning, new dashboards were developed for site teams to begin using in 2025, using carbon factors from ICE (2013), designed to make it easier for them to record key construction materials and quantities directly at project level.

In parallel, Jons joined the CIF Carbon Calculator programme, collaborating closely with several key suppliers and subcontractors who provided carbon data in May 2025. This partnership allowed Jons to integrate verified supplier data with its own site-level records to build a more accurate picture of its upstream emissions. Using both the CIF data and actual records from the dashboards, Jons has calculated the total carbon associated with Purchased Goods and Services for the period January to June 2025.

The analysis shows that five material sources account for 98% of the recorded emissions in this category:

1. **Concrete (39%)** – All emissions from directly purchased materials used on construction projects.
2. **Asphalt/Pavement (35%)** – Primarily associated with subcontractor works on road and surfacing projects.
3. **Steel and Reinforcement Materials (15%)** – A combination of directly purchased materials and emissions embedded in subcontractor works.
4. **Aggregates (6%)** – Emissions from the extraction, processing, and transport of stone and fill materials.
5. **Plastic Ducting (3%)** – Emissions from the manufacture and use of polymer-based ducting and associated fittings.

This initial analysis establishes a solid foundation for expanding data coverage and improving accuracy in future reporting years. As data quality and supplier engagement continue to improve, Jons aims to refine its calculations, increase transparency across its supply chain, and identify targeted opportunities for carbon reduction within its Purchased Goods and Services footprint.



Building on the progress made in the first half of 2025, Jons plans to expand the scope and accuracy of its Purchased Goods and Services reporting throughout the remainder of the year and into 2026. The immediate focus will be on increasing data coverage across all projects by embedding the new site dashboards into standard reporting procedures and ensuring consistent use by site teams. Jons also intends to broaden supplier engagement, working with additional key material providers and subcontractors to obtain more primary carbon data rather than relying on generic emission factors. The company will continue its collaboration with the CIF Carbon Calculator, using the platform to validate and benchmark emissions data. In parallel, Jons will begin developing a baseline year for comparison, enabling year-on-year tracking of performance improvements and emission reductions. Ultimately, the goal is to integrate carbon data fully into procurement and project management processes, allowing Jons to make informed, low-carbon purchasing decisions and drive measurable progress toward its long-term sustainability targets.

5.Hotspot Identification

The analysis of Purchased Goods and Services identified two main emission hotspots — concrete and asphalt — which together account for the majority of Jons recorded emissions in this category. Concrete, representing 39% of total emissions, is primarily from directly purchased materials used across multiple projects. Its high embodied carbon is linked to cement production and mix design. Asphalt, which contributes 35% of emissions, is largely associated with subcontractor works, particularly in road and pavement construction. These findings highlight the importance of both material selection and supplier engagement, as reducing emissions in these two areas will deliver the most significant impact within Jons Purchased Goods and Services footprint.

6. Reduction Opportunities

6.1 Optimise Work Methodology

Review our project planning and delivery methodology to assess whether it is possible to reduce the quantity and carbon impact of purchased goods and services required for the works.

6.2 Sustainable Procurement of Materials and Services

Consider the following when procuring materials and services to reduce embodied carbon:

- Lifespan and durability of goods to reduce replacement frequency
- Recyclability or reusability at end-of-life
- Maintenance requirements that may drive additional material use or emissions
- Sourcing from suppliers with low-carbon or circular economy practices
- The optimal quantities and specifications to avoid over-ordering

6.3 Reuse and Circular Economy Initiatives

Implement circular economy initiatives across the supply chain, encouraging the reuse of materials or components where possible, and specifying products that can be recycled or repurposed at the end of their use.

6.4 Optimisation of Transportation

Optimise the transportation of purchased goods and services by consolidating deliveries, selecting suppliers or logistics providers close to the works, and considering low-carbon transport options.

6.5 Collaboration with Suppliers and Subcontractors

Engage early with suppliers and subcontractors to reduce embodied carbon in purchased goods and services. This could include sourcing low-carbon materials, switching to sustainable supply options, or collaborating with suppliers and subcontractors to pilot innovative lower carbon solutions (e.g. low carbon concrete or recycled asphalt)

6.6 Training and Awareness

Provide training and awareness programmes for procurement teams and site staff to make low-carbon purchasing decisions, understand the carbon impact of materials and services, material efficiency and support circular economy initiatives.

7. Action Plan

Action	Category	Responsibility	Timeline	Monitoring / KPI
Implement revised procurement methodology to reduce quantity and carbon impact of purchased goods	Purchased Goods & Services	Project Managers / Procurement Team	Ongoing, applied to projects where feasible	Number of projects applying revised methodologies; tonnes CO_2e avoided
Increase sourcing of low-carbon or recycled materials	Purchased Goods & Services	Procurement Manager / Sustainability Officer	2025–2030	% of materials sourced with low-carbon credentials; uptake of Environmental Product Declarations
Optimise delivery and logistics of purchased goods (consolidated shipments, low-emission transport)	Purchased Goods & Services	Site Managers / Waste Contractors	From 2025	Delivery logs; CO_2e emissions per tonne-km of materials transported
Supplier engagement to encourage low-carbon products and circular economy initiatives	Purchased Goods & Services	Procurement Manager / Sustainability Officer	2025–2028	Number of suppliers engaged; proportion of purchased goods meeting circularity criteria
Collaborate with Suppliers/Subcontractors to pilot innovative materials	Purchased Goods & Services	Site Managers / Sustainability Officer	From 2024	Number of initiatives implemented
Training and awareness for procurement teams and site staff on low-carbon purchasing	Purchased Goods & Services	Sustainability Officer / Procurement Team	Annual from 2025	Training sessions delivered; staff feedback surveys; uptake of sustainable procurement practices
Improve records and data collection for purchased goods, including embodied carbon and transport	Purchased Goods & Services	Procurement Manager / Sustainability Officer	From 2025	Accuracy and completeness of procurement carbon data; dashboards updated quarterly
Improve baseline year for Purchased Goods and Services	Purchased Goods & Services	Sustainability Officer	2025	CO_2e footprint of 2025 measured
Interim CO_2 reduction targets for purchased goods & services (e.g., 10% by 2026, 15% by 2028, 25% by 2030)	All relevant categories	Board & Sustainability Officer	2026–2030	Annual CO_2 report; noted in our ESG Strategy
Implement CIF / carbon calculator to track emissions of key suppliers	Purchased Goods & Services	Procurement Manager / Sustainability Officer	From 2025	% of high-volume suppliers tracked; CO_2e footprint of top suppliers monitored; reduction actions identified

***Specific actions and targets are fully outlined in Jons Internal Energy Management Action Plan**

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LET'S WORK TOGETHER TOWARDS A
SUSTAINABLE FUTURE

Jons Civil
Engineering Co. Ltd.

(041) 982 3682
www.jonscivil.ie
info@jonscivil.ie
Carranstown, Duleek, Co.Meath, A92 K654