

# UNDERSTANDING *EMBODIED* *CARBON* IN STEEL



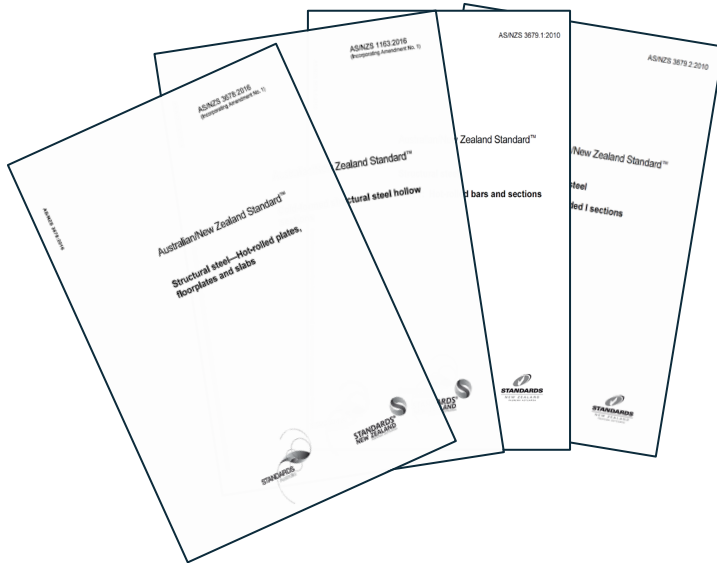
**Australasian  
Certification Authority for  
Reinforcing & Structural  
Steels**





# PRODUCT CERTIFICATION

## Structural Steels



## Reinforcing Steels



Independent Third-Party Certification Since 2001



# TRACEABILITY



ACRS Cloud 2023



# SUSTAINABILITY

## ACRS - CARES SUSTAINABILITY PARTNERSHIP



Independent Sustainable Construction Steel Scheme





**ACRS Sustainable Construction Steels (SCS)**  
*Traders and Processors*

*Independent – Expert – Rigorous*

# Our upfront opportunity:

Australia's policy roadmap to reduce upfront carbon in the built environment

## PRELIMINARY FINDINGS

Jeremy Mansfield OAM, ASBEC Project Manager







# AUSTRALIAN SUSTAINABLE BUILT ENVIRONMENT COUNCIL



Scaling and deepening **NABERS'**



Supporting the **supply chain** to deliver better products and services



Supporting the **value chain** to deliver better design and construction



Adapted to the **needs of different segments and sectors**



# The project

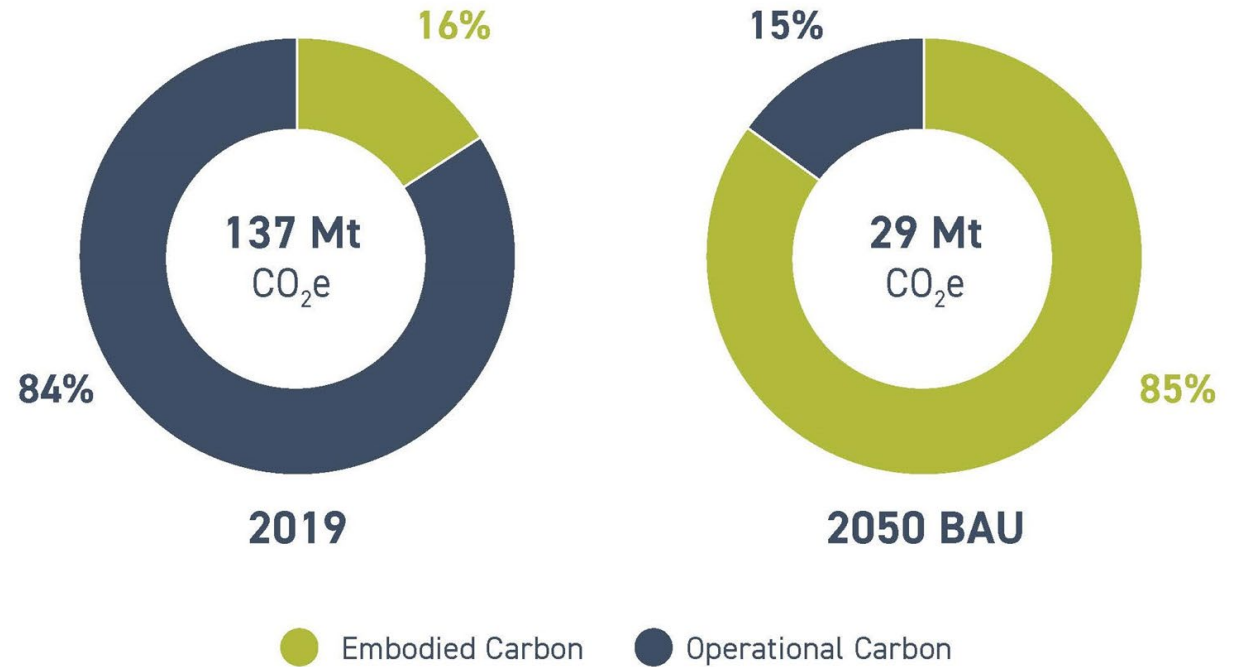
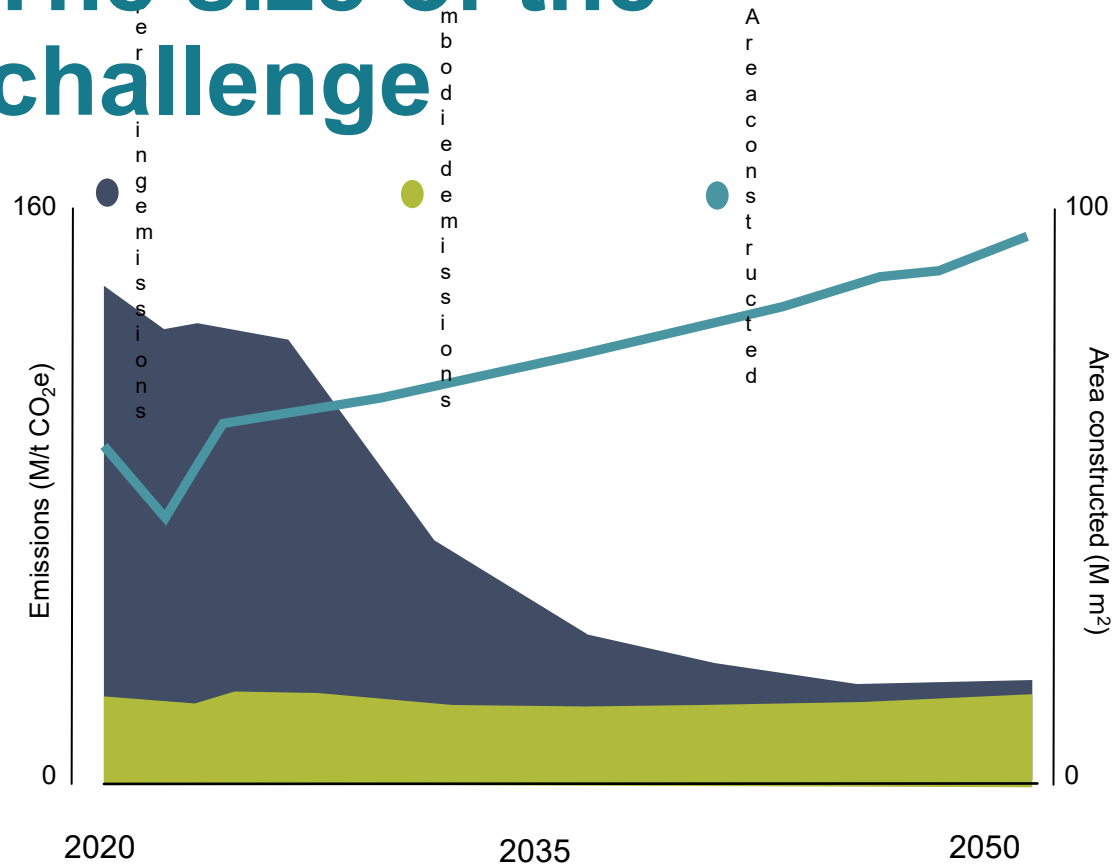


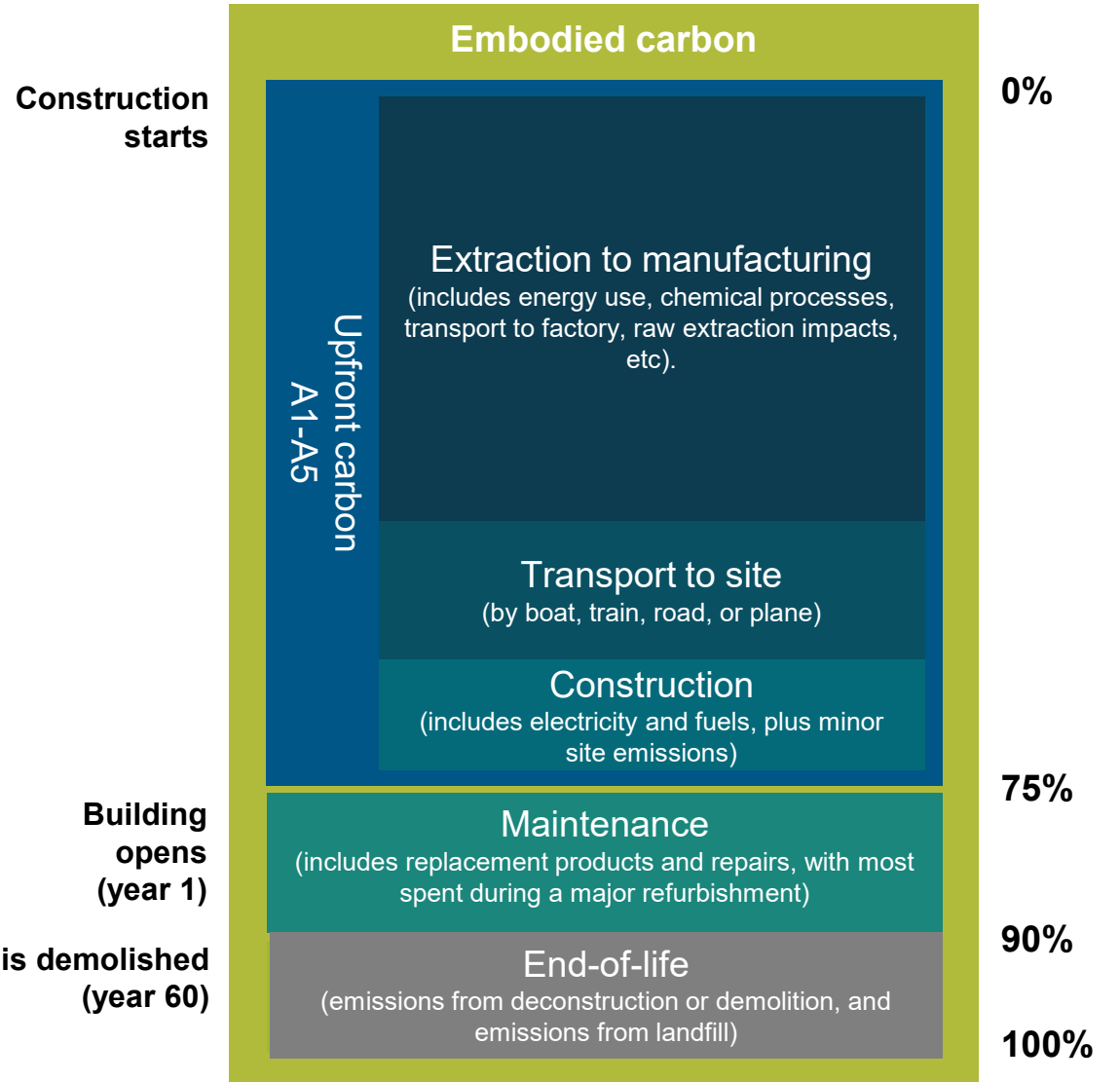
Figure 1. GBCA and thinkstep-anz (2021): Embodied Carbon and Embodied Energy in Australia's Buildings.



# The size of the challenge

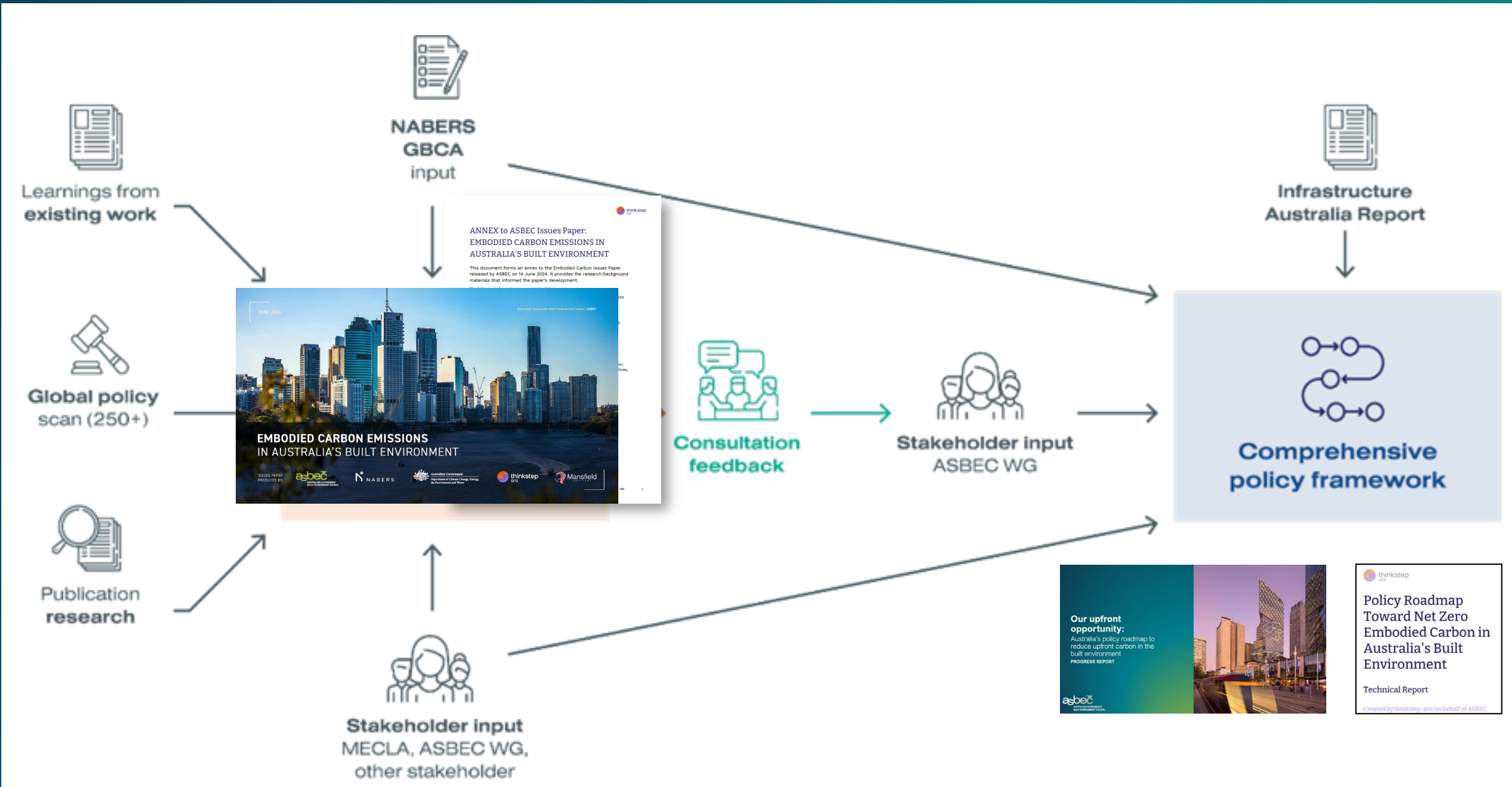








## Where is the embodied carbon?\*



\*Source: Embodied Carbon Projections for Australian Infrastructure and Buildings, Infrastructure Australia, 2024





 <p><b>1. DIRECTION</b> Bringing lower-carbon construction to the mainstream</p>	 <p><b>2. DEVELOP</b> Building industry capacity to decarbonise</p>	 <p><b>3. DISCLOSE</b> Methods, data and reporting</p>	 <p><b>4. DEMAND</b> Clarity, consistency and confidence</p>	 <p><b>5. DESIGN</b> The best decisions from concept to completion</p>	 <p><b>6. DETAIL</b> The best product options</p>	 <p><b>7. DELIVER</b> Delivering lower-carbon assets</p>
<p>The <b>direction</b> governments set in guidance and regulations is the minimum standard for most construction: it must include upfront carbon.</p>	<p>Industry-wide change to lower carbon construction will only happen when we <b>develop</b> industry capacity to deliver.</p>	<p>Manufacturers, builders and asset owners need to <b>disclose</b> data and outcomes in credible, transparent and consistent formats.</p>	<p>Establishing broad, consistent, reliable <b>demand</b> for low-carbon construction will support faster industry transformation.</p>	<p>Using <b>design</b> to enable lower carbon outcomes is a key step to minimising upfront carbon.</p>	<p>The <b>detail</b> of product manufacturing, data, performance and standards must unite towards rapid decarbonisation.</p>	<p>Government and industry need to show how to <b>deliver</b> low-carbon assets.</p>



JUNE 2024

Australian Sustainable Built Environment Council | ASBEC

# EMBODIED CARBON EMISSIONS IN AUSTRALIA'S BUILT ENVIRONMENT

ISSUES PAPER PRODUCED BY:





**250**

250 national, state and city regulations, policies and action plans from over 20 countries, including 104 regulatory instruments were reviewed.



**34**

34 sources were researched using a defined parameter set to extract critical information to inform Australia's directions for government and industry.



**30**

30 leading policy sources from 11 countries were analysed.





# Lots of progress...

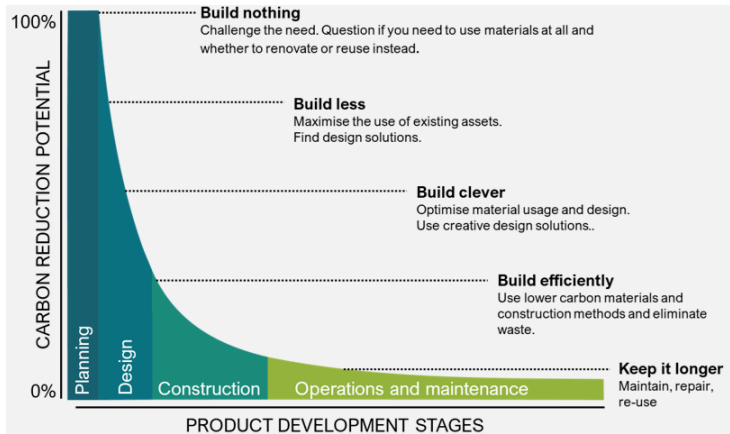
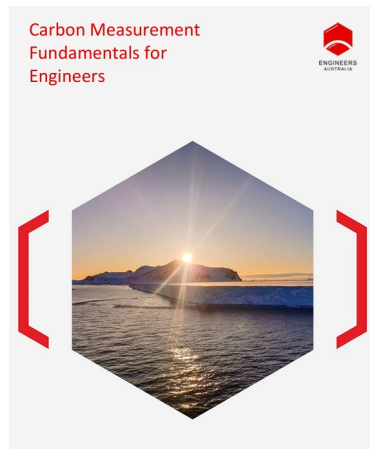
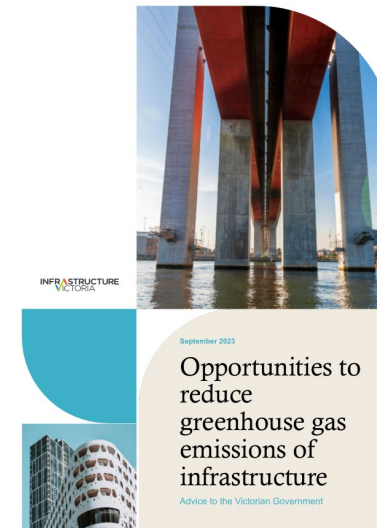
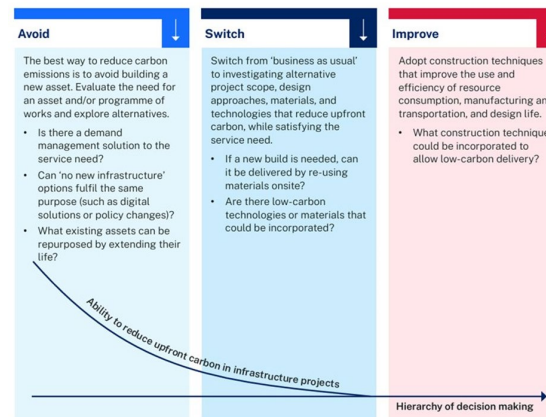


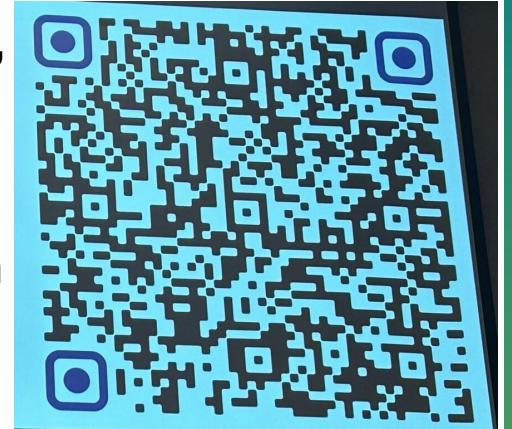
Figure 4: The Carbon Reduction Hierarchy<sup>21</sup>



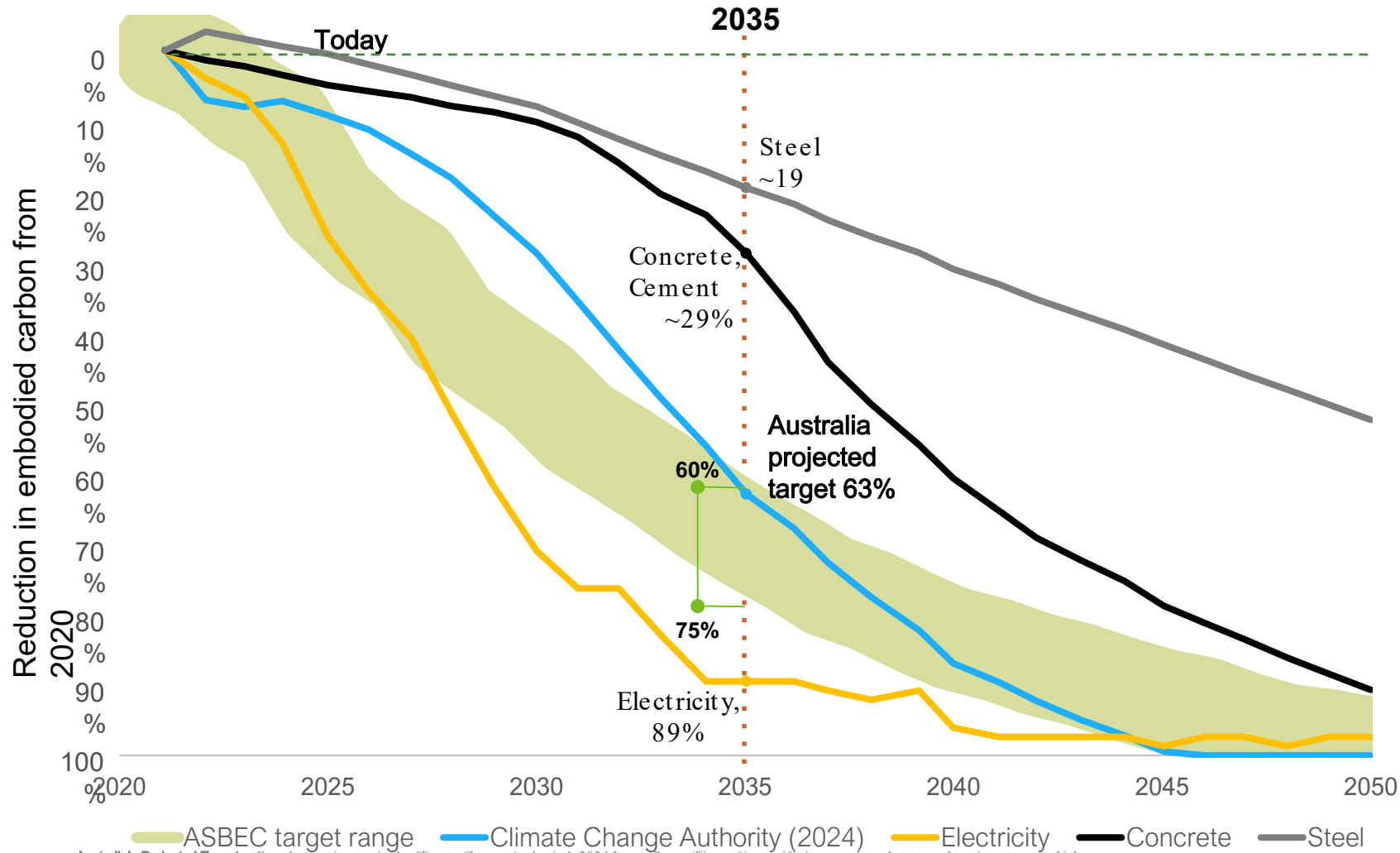


**For NABERS Embodied Carbon ratings, key materials are defined as the following:**

- a) Substructure: all concrete, reinforcing steel, structural steel, and structural timber in components including slabs, columns, footings and anchors in the substructure.
- b) Superstructure: all concrete, reinforcing steel, structural steel, structural timber, and aluminium, in components including framing, suspended floors, columns, beams, rafters and lift shafts.
- c) Envelope: all cladding, roof, curtain wall, windows and brickwork/blockwork.
- d) External works: all concrete and reinforcing steel, blockwork associated with a carpark hardstand, and retaining walls or hard landscaping.
- e) Any material that uses a product-specific emission factor (see Section 9.4).



# The built environment needs to reach at least 60% upfront embodied carbon reduction by 2035



• ASBEC target range : ASBEC target range  
 • Climate Change Authority (2024) : Climate Change Authority (2024)  
 • Electricity : Electricity  
 • Concrete : Concrete  
 • Steel : Steel  
 • Australia's Projected Target : Based on estimates in the Climate Change Authority's 2024 Issues Paper (Figure 6), considering announced state and territory targets. [Link](#)  
 • Electricity Grid Decarbonization : Data from AEMO's 2022 Integrated System Plan (ISP). [Link](#)  
 • Cement Decarbonization Pathway : Adapted from Mission Possible's 2021 report, *Making Net Zero Concrete and Cement Possible*. [Link](#)



## How do we get there?

### Possible pathways (under review in detail)

2035

Supply chain decarbonisation and using low carbon materials



- Renewable Energy Transition
- Regulatory and Market Incentives
- Research and Transparency
- Market Disclosure / Adoption and Streamlining

Building design and material efficiency



- Mandatory Disclosure – start with Commercial buildings
- Incentives for design solutions for low carbon materials focus
- Mandate % reduction targets in upfront carbon

Fossil fuel free transport and construction



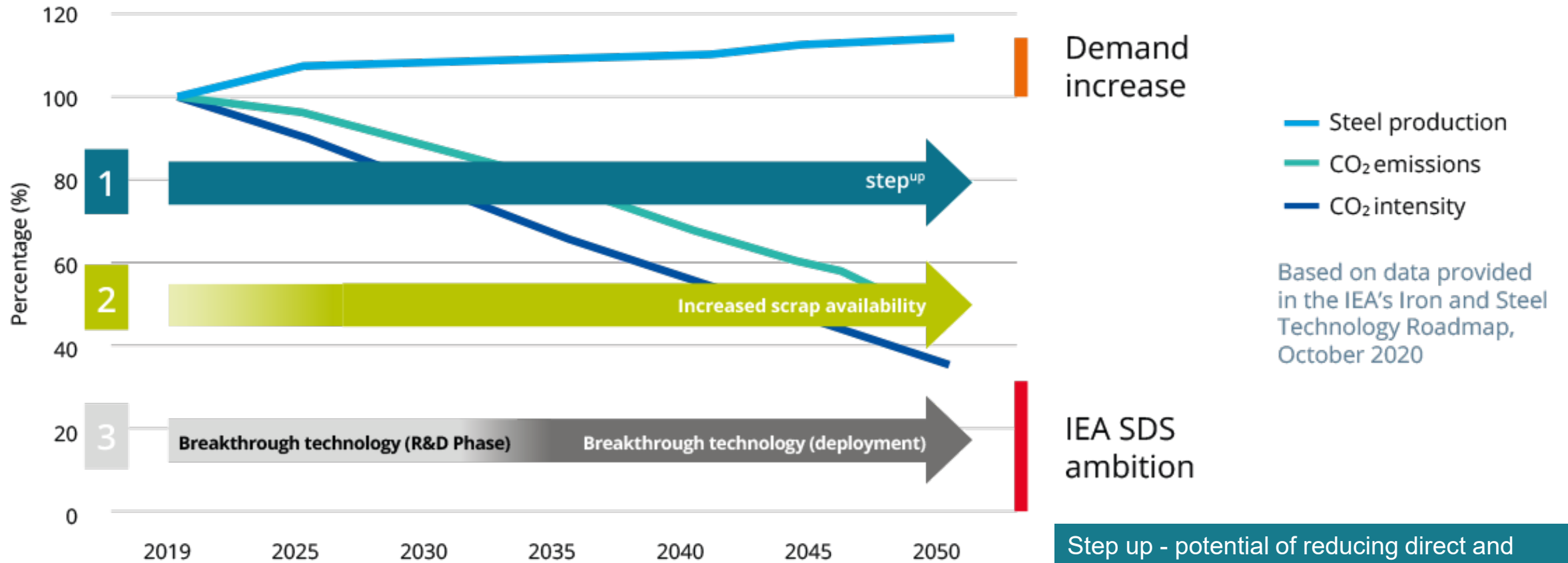
- Fossil fuel free construction equipment and machinery
- Transition sites to renewable energy sources and electrify
- Eliminate use of fossil fuels in all construction activities

Better planning and procurement



- Retrofit First Policy and Incentives
- Government action on standards and procurement processes

# Steel production, total CO2 emissions and CO2 intensity, 2019 – 2050 under the International Energy Agency (IEA) Sustainable Development Scenario (SDS)



Source: <https://worldsteel.org/climate-action/climate-change-and-the-production-of-iron-and-steel/>

Step up - potential of reducing direct and indirect emissions by up to 20% at the average ore-based steelmaking site, and up to 50% at the average scrap-based facility

# To achieve our net zero goals, we need to reduce our embodied carbon emissions by at least 60% before 2035.



Embodied carbon from buildings and infrastructure contributes 10% of the national emissions. Reducing it is key to achieving Australia's net zero commitment.



Reducing embodied carbon requires a systemic approach across the sector – from design improvements in how we build to investing in our supply chains.



Most embodied emissions occur upfront, in contrast to operational emissions, which accumulate over time.



Tackling upfront carbon provides immediate emissions savings.



Immediate action on embodied carbon is essential for significant climate impact.



**Industry is on the journey, but we need Government to step in and help us get there.**

# ACRS SUSTAINABLE CONSTRUCTION STEELS (SCS) SCHEME

## PROCESSORS AND TRADERS

Dr Leo Frawley  
ACRS





## ABOUT ACRS

- Leading certifier to AS/NZS standards
- Independent, not for profit & accredited by JAS-ANZ
- ACRS certification provides end-users confidence in sourcing steel products
- ACRS has approximately 300 certificate holders from 150 companies in 27 countries
- Certification includes reinforcing & structural steel producers and down stream processors.



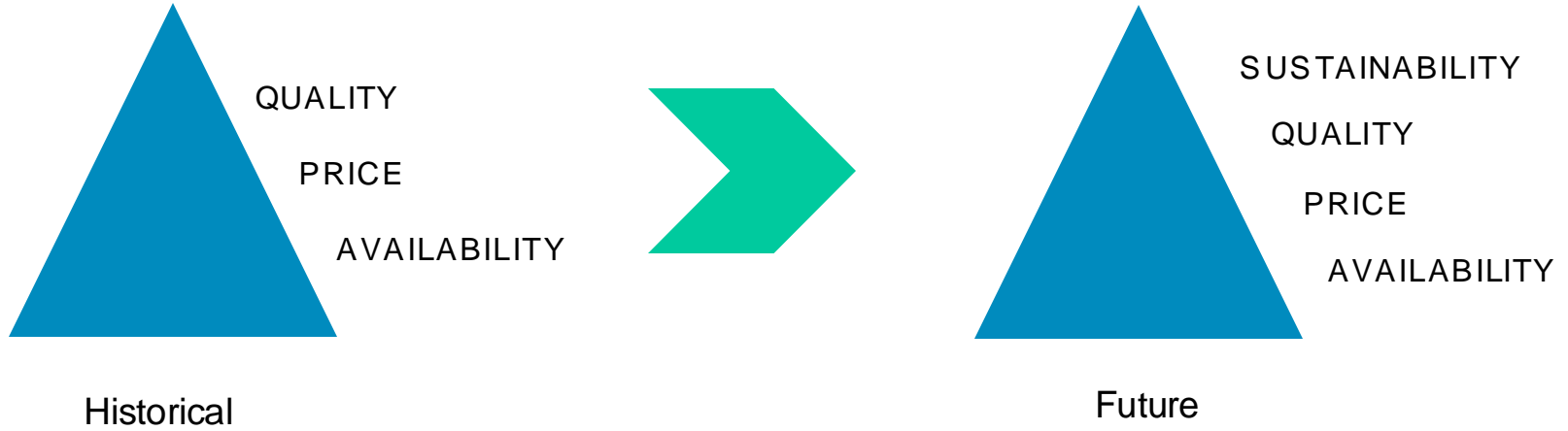


# Australia – Paris agreement

- Australia has signed the Paris agreement
- Committed to reduce emissions to 43% below 2005 levels by 2030
  - *predominantly through replacing coal fired power with renewable*
- Net zero emissions by 2050
- Built environment contributes around 40% of Australia's CO<sub>2</sub> emissions
- 15% of these emissions are attributed to embodied carbon in building materials
  - *predominantly CO<sub>2</sub> emissions from steel and cement manufacture*
- Growing demand for “low emission” or “low embodied carbon” steel



# STEEL PROCUREMENT DECISION MAKING





## ACRS Certified reinforcing mills – “state of play” - GWP’s

- Australian mills:
  - IB’s GWP’s: Reinforcing rod 1750kg, bar 1330kg, Sense 600 966kg
  - Proposed Green Steel WA with energy efficient Danieli micro-mill GWP ~400kg
  
- SE Asia:
  - GWP: 1000 ~ 1200kg. (NatSteel 490kg)
  
- China /India
  - Predominantly using iron ore/BF route for reinforcing GWP 2400~3500kg
  
- Middle East:
  - Big EAF’s fed with scrap & DRI using cheap natural gas
  - GWP: 1600 ~ 2600kg
  
- Europe:
  - EAF’s benefit from relatively low emission (50 ~ 300g/kwh) electricity
  - Relatively low emissions GWP: 400 ~ 900kg



# Steel Industry – Sustainability Schemes

- Sustainability Schemes for **Steel Manufacturers**
  - Sustainable Construction Steel (SCS) – ACRS/CARES
  - Responsible Steel
  - Suststeel from Eurofer
  - Others
  
- Sustainability Schemes for Australian Steel Processors
  - Steel Sustainability Australia (SSA) – ASI
  - Sustainable Construction Steels for Processors & Traders (ACRS)
  
- Green Star Rating Schemes
  - GBCA rewarding a mills broader sustainability credentials (RPV)
  - NABERS (National Aus Built Environment Rating Scheme) emissions intensity in buildings



## Sustainable Construction Steel (SCS) Certification – Steel Mills

- ACRS promoting SCS to certified mills
- Developed by UK CARES, Launched in 2009, Ver. 10 due 2025
- Specifically developed for the construction steel supply chain.
- Scheme includes reinforcing, structural & hot rolled flat steel, rail steel, PC wire & strand, etc.
- Applies to primary manufacturers of steel and processors
- Accredited to BS8902 “Responsible Sourcing Sector Certification Schemes for Construction Products”
- Mills are assessed against 140 criteria
- 15 ACRS Certified Mills with SCS certification

SCS requires a threshold emissions factor to achieve certification





# ACRS Sustainable Construction Steel (SCS) – for Processors & Traders

## Scope of Certification Scheme

- Scheme based on SCS for Steel Mills
  - tailored for traders and processors in Australia
- Scheme designed for the steel downstream value chain
  - Processors and distributors of structural steels
  - Processors and distributors of reinforcing steels (e.g. bar, coil & mesh)
  - Other steel products and/or processes made to a standard acceptable to ACRS
  - Traders of construction and other steels
- ACRS plan to have scheme JAS-ANZ certified
- Upstream steel producers are outside the scope of this scheme

Certification is designed to align with the principles of the GBCA's Responsible Product Framework.



## ACRS SCS – Processors & Traders

Category	Criterion number	Criterion	Level 1 - Mandatory		Level 2 – Well Managed		Level 3 – Best Practice	
Responsible Practices	4.1	Responsible Practices						
	4.1.1	Accountability	P	T	P	T	P	T
	4.1.2	Responsible Business Conduct	P	T	P	T	P	T
	4.1.3	Stakeholder Engagement	P	T	P	T	P	T
	4.1.4	Communications, competence and training	P	T	P	T	P	T
	4.1.5	Risk based approach to responsible business conduct	P	T	P	T	P	T
	4.1.6	Transparency and reporting			P	T	P	T



# ACRS SCS – Processors & Traders

Category	Criterion number	Criterion	Level 1 - Mandatory		Level 2 – Well Managed		Level 3 – Best Practice	
Environmental Responsibility	4.2	Environmental Responsibility						
	4.2.1.1	Environmental Management System	P	T	P	T	P	T
	4.2.1.2	Environmental Management System certification					P	T
	4.2.2.1	Decarbonisation strategy	P	T	P	T	P	T
	4.2.2.2	Renewable energy use	P	T	P	T	P	T
	4.2.3.1	Transport impacts			P	T	P	T
	4.2.3.2	Transport impacts reporting					P	T
	4.2.4.1	Environmental Product Declaration (EPD)	P	T	P	T	P	T
	4.2.4.2	Carbon footprint	P	T	P	T	P	T
	4.2.4.3	Carbon footprint Verification					P	T



## ACRS SCS – Processors & Traders

Category	Criterion number	Criterion	Level 1 - Mandatory		Level 2 – Well Managed		Level 3 – Best Practice	
Healthy	4.3	Healthy						
	4.3.1.1	Occupational Health and Safety (OHS) Management System	P	T	P	T	P	T
	4.3.1.2	OHS Management System certification					P	T
	4.3.1.3	Worker compensation	P	T	P	T	P	T
	4.3.1.4	Safety Reporting			P	T	P	T
	4.3.2	Paints and coatings	P	T	P	T	P	T
	4.3.3.1	Chemicals disclosure	P	T	P	T	P	T
	4.3.3.2	Chemicals substitution			P	T	P	T
	4.3.4	Health impacts declaration	P	T	P	T	P	T
	4.3.5	Socially accountable			P	T	P	T



# ACRS SCS – Processors & Traders

Category	Criterion number	Criterion	Level 1 - Mandatory		Level 2 – Well Managed		Level 3 – Best Practice	
Positive	4.4	Positive						
	4.4.1	Customer service	P	T	P	T	P	T
	4.4.2	Responsible sourcing and traceability						
	4.4.2.1	Product conformity	P	T	P	T	P	T
	4.4.2.2	Traceability	P	T	P	T	P	T
	4.4.2.3	Provenance			P	T	P	T
	4.4.3	Supplier management systems and approvals						
	4.4.3.1	OHS management systems			P	T	P	T
	4.4.3.2	Certified OHS management systems					P	T
	4.4.3.3	Environmental management systems			P	T	P	T
	4.4.3.4	Certified Environmental management systems					P	T
	4.4.3.5	Labour and human rights management systems			P	T	P	T
	4.4.3.6	Modern Slavery	P	T	P	T	P	T
	4.4.3.7	Anti-bribery and corruption			P	T	P	T
4.4.3.8	Certified Anti-bribery and corruption system					P	T	

*Waive*





## ACRS SCS – Processors & Traders

Category	Criterion number	Criterion	Level 1 - Mandatory		Level 2 – Well Managed		Level 3 – Best Practice	
Circular	4.5	Circular						
	4.5.1.1	Circularity principles	P	T	P	T	P	T
	4.5.1.2	Resource management plan	P	T	P	T	P	T
	4.5.1.3	Resource reporting			P	T	P	T
	4.5.1.4	Waste reduction			P	T	P	T
	4.5.2	Recycled content	P	T	P	T	P	T



## ACRS SCS – Processors & Traders

- Aligns with the Green Building Council of Australia (GBCA) Responsible Product Framework
- RPV Score currently under review by GBCA

Available RPV Score	Level 1 Mandatory	Level 2 Well Managed	Level 3 Best Practice
	Potential RPV Score	Potential RPV Score	Potential RPV Score
<b>22</b>	<b>13</b>	<b>21</b>	<b>22</b>



## ACRS SCS Processors & Traders – Application Process

- Contact ACRS for application
- ACRS Provide - Copy of Scheme Rules / Guidance document / Self Assessment Workbook
- Client completes Application Document & Self Assessment Workbook
- Assessor performs desk-top review. Gaps identified.
- On-site verification audit undertaken and NC's issued
- Assessor prepares recommendation to ACRS Audit Committee (AAC)
- Once Certification approved, “Certificate of Approval” and “Balanced Score Card” issued



Dr Leo Frawley

# UNDERSTANDING *EMBODIED* *CARBON* IN STEEL



**Australasian  
Certification Authority for  
Reinforcing & Structural  
Steels**





**ESG**

**CONTRACTOR  
PERSPECTIVE**



## Who we are

# Transforming lives

We're Australia and New Zealand's leading end-to-end integrated infrastructure, building, rail and multi-modal transport company.



**\$13.5bn**

Work in hand



**\$12.5bn**

Contributed to Australia's  
GDP between 2016 & 2020



**80+**

Projects across  
Australia



**1,409**

Subcontractors



**8,000+**

Suppliers



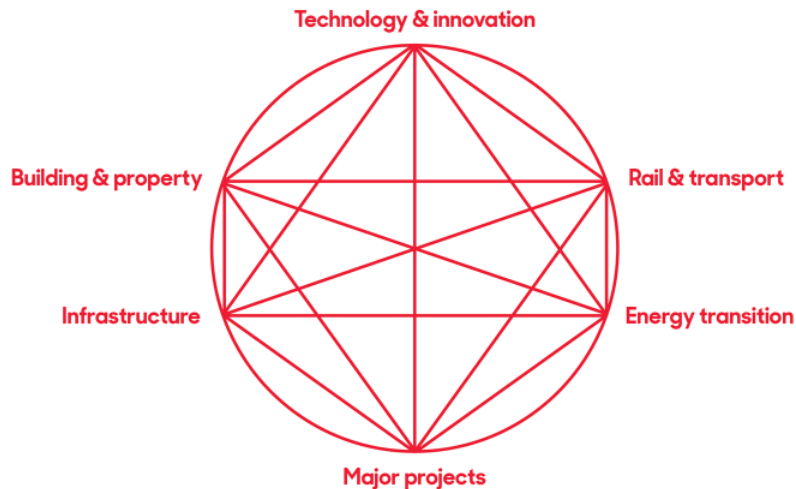
**6,620**

Direct employees

## What we do

# Fully integrated, deep expertise across diverse sectors

Which makes us great at solving problems and unlocking new solutions.



Our national business

# Building & property

We're shaping Australia's built environment, delivering some of the country's most innovative and award-winning projects.



**\$5bn**

Work in hand



**\$1.4bn**

Revenue in 2023



**15+**

Projects across  
Australia



**\$16M+**

Indigenous businesses  
and social enterprise  
spend since 2022



**3,400+**

Suppliers and  
subcontractors



**734+**

Employees

Where we work

## Regions

Vic/Tas/SA

NSW/ACT

Qld/NT



## Sectors

Commercial

Health

Justice & corrections

Education & research

Tourism & stadia

Precincts & transport

Accommodation & living

# SUSTAINABILITY AT JOHN HOLLAND

- John Holland has been driving positive change in Australia for **70+ years** and we are committed to leaving a legacy for communities which is just as important as the physical places we build.
- Sustainability is a priority for John Holland. Sustainability is about how we consider **our people, the community, clients, our supply chain and the environment in running our business.**
- Together, we work to deliver **better, smarter assets** for our customers and communities, and continue our commitment to building a **resilient and sustainable industry.**
- We are **genuinely committed to transforming lives** through the work we do and the care we take in doing it.

A photograph showing a worker in a white hard hat and orange jacket planting a sapling in a garden. A young boy is assisting with the task. The scene is outdoors with green foliage in the background.

Why is ESG important to John Holland and our clients?





## CLIMATE POLICY

UP FOR THE CHALLENGE OF TRANSFORMING LIVES

### OUR COMMITMENT

We recognise that what we do today has an impact on future generations. In line with our purpose to transform lives, we are committed to understanding and mitigating climate change impacts across all areas and activities of our business. To that end, we will develop a pathway to Net Zero emissions and implement carbon reduction initiatives that are aligned with the goals of the Paris Agreement and 1.5-degree global target, and at the same time meet the expectations of our employees, customers and the communities in which we operate.

### OUR APPROACH

John Holland's four values of caring, empowering, imaginative and future-focused underpin everything we do, including our approach to climate.

#### Caring



We care deeply about what we do and how it affects the climate, now and for the future by:

- Driving a strong culture across our business operations and the industry at large to respect people and the climate.
- Having a transparent risk management process that helps us to identify opportunities and improvements to adapt to and mitigate climate change.
- Providing best practice training and education for our people to build awareness and capability to manage climate risk.

#### Empowering



We gain trust through action by:

- Encouraging business and supply chain participation, collaboration, and research and development to reduce emissions and address climate change risk.
- Empowering our people and partners to work together to reduce our climate change impacts.
- Driving accountability by defining climate governance, ensuring everyone is responsible for contributing to reducing our carbon footprint.
- Reporting and disclosure in relation to climate.

#### Imaginative



We push the boundaries by:

- Embedding proactive decision-making across the business to address climate change risk.
- Exploring and embedding new and emerging leading practice technologies to transition to a low emission business and industry.
- Focusing on continual learning and improvement by reviewing carbon emissions performance, capturing and sharing lessons learnt and celebrating successes.

#### Future-focused



We're in it for the long, long term by:

- Establishing and maintaining an effective management system and risk-based pathway to meet climate science.
- Meeting customer, legislative and other regulatory climate requirements.
- Leaving a positive legacy for communities and environments in which we work and operate. That safeguards our chance for future generations.



Glenn Pain  
Chief Executive  
Officer  
November 2024

## SUSTAINABILITY POLICY

UP FOR THE CHALLENGE OF TRANSFORMING LIVES

### OUR COMMITMENT

We value the environment and communities in which we work.

Our goal across all our business activities is to drive economic growth, environmental resilience and social progress. In collaboration with our customers and stakeholders, we strive to create a positive legacy for the communities in which we work.

### OUR APPROACH

John Holland's core values drive our everyday interactions and guide our approach to sustainability.

#### Caring



We care deeply about what we do and how it affects lives, now and for future generations, by:

- driving a strong culture that balances social, environmental and economic needs and creates positive sustainability experiences for our people, customers and stakeholders.
- Integrating environmental and socially responsible sourcing into our procurement processes, and seeking opportunities to collaborate with our supply chain to drive innovation and create mutual value.
- nurturing talent diversity and wellbeing across our organisation, with the aim of creating a safe and inclusive environment that fosters high performance.

#### Empowering



We gain trust through action by:

- Empowering our people, partners and subcontractors to drive social betterment through honest, ethical behaviour.
- Participating and collaborating widely to embed sustainability principles across the broader industry leading each other to success, ensuring we each understand our contributions and the role they play in supporting sustainable outcomes.
- Providing information that is transparent and accurate.

#### Imaginative



We push the boundaries by:

- Continuously learning and improving—reviewing our performance, capturing and sharing lessons learnt and celebrating our successes.
- Exploring and introducing new technologies, products and approaches that support our sustainability goals.
- Emphasising sustainable solutions in our decision-making at every level of the business, and through all stages of the project lifecycle.

#### Future-focused



We're in it for the long, long term by:

- Exceeding customer requirements and positioning our business to proactively respond to changing industry expectations.
- Establishing and maintaining an effective management system to reduce risk, drive sustainable outcomes and identify opportunities for improvement.
- Ensuring we leave a positive legacy for people and planet by considering our footprint and relationships in everything we do.
- Adapting and embracing change and championing innovation, with the aim of driving continual improvement and going beyond business as usual.



Glenn Pain  
Chief Executive  
Officer  
November 2024

# OUR COMMITMENT

- We consider the social, environmental and economic impacts of what we do and how we run our business.
- Both our Sustainability and Climate Policies details our commitments how we demonstrate this commitment via our values
- Our Sustainability procedure and framework guide and shape the delivery of Sustainability outcomes on our projects
- We implemented an industry first Sustainability Linked Loan Bonding Facility in 2021 linked to four ESG related KPIs
- We have renewed the Sustainability Linked Loan Bonding Facility for another four years to 2028 with four new KPIs

# John Holland Sustainability reporting

- Monthly tracking
  - Energy (Scope 1 & 2)
  - Water
  - Waste
  - Materials
  
- Material inputs
  - Material type
  - Use
  - Manufacturer
  - Quantities
  - Certification

- Asset Owners
  - Environmental, Social & Governance Reporting
  - Internal Carbon Reduction targets
  - Social Procurement targets
  
- Mandatory climate-related financial disclosure
  
- Third Party Certification
  - Green Star
  - ISC
  - NABERS

# Industry Drivers – Green Star



## Responsible Products

- Credit 5 Responsible Procurement
- Credit 6 Responsible Structure



## Positive

- Credit 21 Upfront Carbon
- Credit 26 Life Cycle Impacts

*— Do you need an EPD*



## People

- Credit 33 Procurement and Workforce Inclusion



## Leadership

- Circular Economy

# Industry Drivers – ISC



- Governance - Sustainable Procurement
  - Spr-1 Sustainable Procurement
  - Spr-2 Supplier Assessment and Selection
- Environment
  - Rso-6 Material Life Cycle Impact Measurement and Management
  - Rso-7 Sustainability Labelled Products and Supply Chains
- Social
  - Leg-1 Leaving a Lasting Legacy
  - Wfs-1 Jobs, Skills and Workforce Planning



## Industry Drivers – NABERS Embodied Carbon



- Industry and Sector Benchmarking
- Centralised Data
  - Consistent reference emissions intensity
  - EPD Database
- Incorporation into Green Star credit 21 Upfront Carbon

# Shared Responsibility

What do we need from our trade partners?

- Supporting our reporting requirements for mandatory Climate-Related Disclosures – Materials (Our Scope 3)
- Low Carbon materials
  - Manufacturing to Gate
- Understanding of Sustainable Procurement requirements
  - Environmental, Social and Governance risks
  - Reporting and transparency
- Verification
  - Accurate data i.e. EPDs
  - Third party verification for wider Sustainability outcomes
  - Innovation via development and technical data
- Data Sharing – Business to Business

# Certification Requirements Summary

	Green Star	ISC	NABERS	Requirement
<b>Environment</b>	Credit 6 Credit 21 Credit 26 Credit 5	Rso-7 Rso-7	Embodied Carbon tool	<ul style="list-style-type: none"> <li>• EPDs</li> <li>• 3<sup>rd</sup> Party verification</li> </ul>
<b>Social</b>	Credit 33	Leg-1 Wfs-1		<p>Subcontractors:</p> <ul style="list-style-type: none"> <li>• Understanding of workforce and supply chain</li> <li>• Association Membership – Social Traders, Buyability Supply Nation</li> </ul>
<b>Governance</b>	Credit 5 Credit 6	Spr-1 Spr-2		<ul style="list-style-type: none"> <li>• Supporting ISO20400 reporting</li> <li>• ISO14001</li> <li>• 3<sup>rd</sup> Party Verification – GreenTag, GECA</li> </ul>



Thank you

[johnholland.com.au](http://johnholland.com.au)



**JOHN  
HOLLAND**



# Supplying Processed Steel with Sustainable Credentials

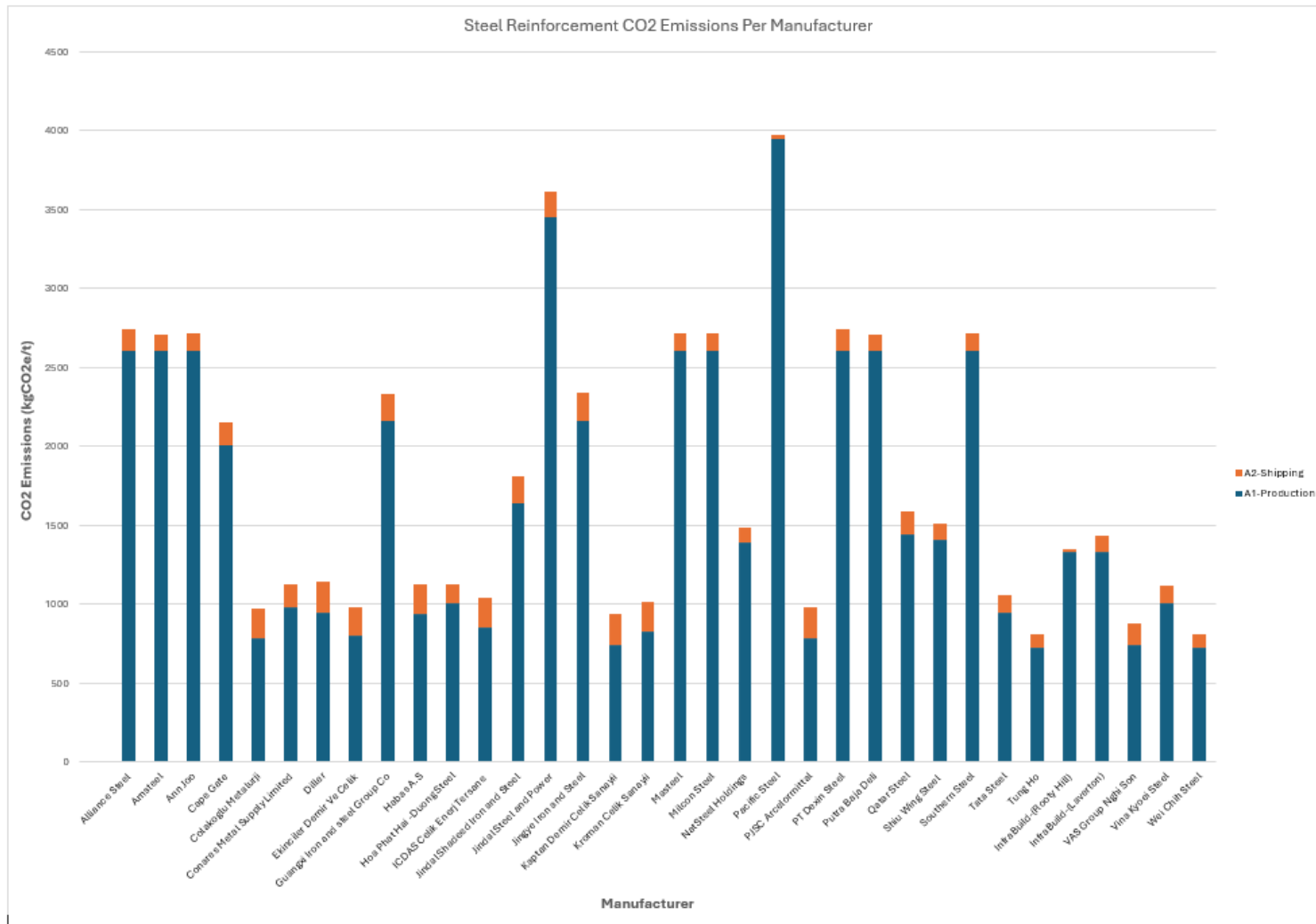
By: Julian Borgert



# Sustainable Infrastructure is the holy grail

- Global supply chains
- Intermediate parties - steel traders
- Sustainability rules are not consistent world wide
- Some mills manufacture their own steel others purchase billet from multiple sources
- Traceability is paramount

# Calculating the carbon footprint and GWP/T is the easy part...



# *Calculating the carbon footprint and GWP/T is the easy part...*

What about ensuring:

- Modern slavery provisions
- Social accountability
- Health and safety of products used to manufacture the Goods
- Environmental performance of supply chain
- Circular economy and how to accurately report on this

# The CARES / ACRS SCS Scheme

- Scheme has been modelled on the world class Cares Mill scheme
- Modified to suit Traders and Processors
- Provides a uniform approach to dealing with sustainability on projects
- Assists upstream Clients
- Provides sustainability assurance
- Dovetails well with current ACRS scheme certification
- Helps embrace circular economy through sustainable credential traceability
- Rates very highly vs other schemes

*Providing a uniform approach in a world of differing requirements*

# Implementation in a nut-shell - Step 1



## ACRS Sustainable Constructional Steels (SCS) Processors and Traders Certification Scheme

Version No: Initial Issue (v00)

Date: Aug-24

### ANNEX 1 - SELF ASSESSMENT AND AUDIT WORKBOOK GUIDANCE FOR SELF-ASSESSMENT

#### Scheme Context

The ACRS Sustainable Constructional Steel (SCS) Certification Scheme ensures that construction steel used in Australia and New Zealand meets the highest global sustainability standards. This scheme is designed to:

- \* Focus in on the expectations and needs of Australia and New Zealand construction and infrastructure buyers and leading steel companies
- \* Include some of the highest standards linked to the latest science a broad scope of issue coverage to enable responsible supplier selection and supply chain management
- \* Set reasonable minimum threshold levels for performance in relation to material aspects
- \* Enable certified organisations to be recognised for demonstrating higher levels of performance and management across the full range of material sustainability aspects through its Rating System
- \* Align with and build on the principles of the Green Building Council of Australia (GBCA) Responsible Product Framework, tailored for processors and traders
- \* Allow processors and traders to demonstrate to clients, specifiers, engineers, contractors and other stakeholders responsible practices and how to gain credits under the GBCA Green Star rating system.





# Implementation in a nut-shell - Step 2



## ACRS Sustainable Constructional Steels (SCS) Processors and Traders Certification Scheme Complete Requirement List, Scoring and Rating

Summary requirements to meet the defined ACRS certification levels are listed below.

There are differentiated requirements for Processors (P) and Traders (T).

Level 1 is the mandatory expectation to be certified under this scheme. Credit can be obtained by meeting the Level 2 - Well Managed and Level 3 - Best Practice requirements.

### ACRS SCSScoring and Rating

Alignment to the Green Building Council of Australia (GBCA)

Responsible Product Framework

ME: Min Expectation, CA: Credit Achievement, HP: High Performance, EP: Exceptional Performance

Category	Criterion number	Criterion	ACRS SCSScoring and Rating						Alignment to the Green Building Council of Australia (GBCA) Responsible Product Framework													
			Level 1 Mandatory		Level 2 Well Managed		Level 3 Best Practice		Requirement	Available RPV Score	Level 1 Mandatory		Level 2 Well Managed		Level 3 Best Practice							
			P ACRS Score	T ACRS Score	P ACRS Score	T ACRS Score	P ACRS Score	T ACRS Score			P RPV Score	T RPV Score	P RPV Score	T RPV Score	P RPV Score	T RPV Score						
Environmental Responsibility	4.1.1	Accountability	P	T	P	T	P	T														
	4.1.2	Responsible Business Conduct	P	T	P	T	P	T														
	4.1.3	Stakeholder Engagement	P	T	P	T	P	T														
	4.1.4	Communications, competence and training	P	T	P	T	P	T														
	4.1.5	Risk based approach to responsible business conduct	P	T	P	T	P	T														
	4.1.6	Transparency and reporting			P	T	P	T			1	1	1	1	Transparent Chain of Custody - CA	2			2	2	2	2
	4.2.1.1	Environmental Management System	P	T	P	T	P	T							Environmental Management - CA	1	1	1	1	1	1	1
	4.2.1.2	Environmental Management System certification					P	T					1	1								
	4.2.2.1	Decarbonisation strategy	P	T	P	T	P	T							Corporate Commitment on Climate - CA	1	1	1	1	1	1	1
	4.2.2.2	Renewable energy use	P	T	P	T	P	T							Energy Use Reduction - CA	1	1	1	1	1	1	1
4.2.3.1	Transport impacts			P	T	P	T			1	1	1	1									

# Carbon Footprint and EPDs - step 3

## PRODUCT CARBON FOOTPRINT



### GWP

This quantifies a product's contribution towards global warming. This is referred to as carbon footprint, global warming potential and also embodied carbon.

### CARBON FOOTPRINT

Declared unit	1 ton
Mass of declared unit (kg)	1000
GWP-fossil, A1-A3 (kg CO <sub>2</sub> e)	1,21E+03
GWP-total, A1-A3 (kg CO <sub>2</sub> e)	1,21E+03

### STANDARDS

These are ISO 14021 self-declared results, calculated according to ISO 14040 and ISO 14044 standards. The results follow ISO 21930/EN 15804+A2.

### SCOPE OF ASSESSMENT

The results have a cradle-to-gate scope, comprising raw materials extraction and supply (A1), transport (A2) and manufacturing (A3).



### MANUFACTURER AND PRODUCT

Manufacturer	Precisions Precast Reinforcement
Address	10 Torrens Avenue, Cardiff, NSW, 2285
Website	<a href="https://precisionprecast.com.au/">https://precisionprecast.com.au/</a>
Product name	General Steel Products
Product reference	
Place of production	Australia
Period for data	2023

### PRODUCT DESCRIPTION

The products are manufactured from imported DBIL and DBIC from ACRS suppliers. Material is kept on-site until it is placed into PPRs machinery to be manufactured to, by, either or in combinations with the following procedures: cutting, bending, splicing, overlapping, coupling, and welding, to the client's specifications.

### SYSTEM BOUNDARY

Product stage	Construction					Use stage							End of life stage				Beyond the system boundary		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D	
X	X	X																	
Raw materials	Transport to site	Manufacturing	Construction	Use	Maintenance	Repair	Replacement	Redundant	Operational energy	Operational water	Decommission	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling		

Generated with One Click LCA. This is a self-declared carbon footprint report, not an Environmental Product Declaration (EPD). If you require EPDs, visit the [One Click LCA website](#) for more information.



## Carbon Footprint Report Precision Precast Reinforcement

### Introduction

The purpose of this document is to fulfill the requirements as set out in the ACRS/CARES sustainable constructional steel fabricators and traders certification schemes (SCSFTC), pursuant to various clauses. As required by the clauses Precision Precast Reinforcement (PPR), have undertaken a Life Cycle Assessment (LCA) of their manufactured products with a weighted average of Global Warming Potential total (GWPT). PPR have also produced a self-declared environmental product declaration (SDEPD) for their process in manufacturing steel reinforcement for the pre-cast concrete industry.

This document will also form the basis for which PPR will plan to outline its process to further reduce its GWPT for its products, that will be monitored on an annual basis and reported in updated editions of this document.

As per the Australian government's commitment to net zero by 2050, and to assist with keeping the gain in temperature of 1.5°C. By 2030 there is to be reduction in emissions of 43% as compared to 2005 emission levels. [Stronger Action On Climate Change | Prime Minister of Australia \(pm.gov.au\)](#). As PPR was founded after 2005, there is no emission factor to measure against. The reduction will be made from calculating the factors in Aus LCI 1.42 for reinforcing steel, at plant, material (1500kg/t CO<sub>2</sub>-eq) and hot treatment, cold impact extrusion, steel, processing (160kg/t CO<sub>2</sub>-eq). This gives a total of 1660kg/t CO<sub>2</sub>-eq. With PPR committing to a 43% reduction by 2030 their target is 946kg/t CO<sub>2</sub>-eq.

The Calander year of 2023 was selected as the year for benchmarking the GWPT for PPR and its processes

### Results Summary

This section will summarise the results of the LCA for each given Calander year with variations presented based on the previous year. Reporting GWPT (kg CO<sub>2</sub>-eq), manufactured volumes (t), annual waste (t).

Manufacturing Year	GWPT (kg CO <sub>2</sub> -eq/t)		Manufacturing Volumes (t)		Annual Waste (t)	
	Result	% Difference	Result	% Difference	Result	% Difference
2023	1210	N/A	4173.7	N/A	65.096	N/A
2024						

## Environmental Product Declaration

SDEPD of multiple products, based on average results of the product group. In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

### Steel Deformed Reinforcing Bar

from  
Precision Precast Reinforcement



Programme:	The International EPD® System, <a href="http://www.epd.org/au">www.epd.org/au</a>
Programme operator:	EPD International AG
SDEPD registration number:	SFD-0001.1
Publication date:	2024-08-28
Valid until:	2029-08-27
Multiple product grouping:	SDEPD of multiple products, based on the average results of the product group

An SDEPD should provide current information and may be updated if conditions change. The data validity is therefore subject to the national registration and publication of [www.epd.org/au](http://www.epd.org/au)



# Some new policies - step 4

## Chemical of Concern and Substitution for Steel suppliers - 2023

Supplier	Chemicals of Concern	Chemical substitution	ACRS Score
1	Asking Trader	N/A	
2	Page 17 of EPD, none found	N/A	
3	Page 12 of EPD, none found	N/A	
4	Asking trader		
5	Page 11 of EPD, none found	N/A	
6	Page 4 of EPD, none found	N/A	
7	Asking trader		
8	Page 6 of EPD, none found	N/A	
9	None declared with proxy EPD	N/A	
Average ACRS score			

## Responsible Sourcing and traceability for Steel suppliers - 2023

Supplier	ACRS or Equivalent Certified	ACRS or ISO9001 or Equivalent certified	ACRS Score
1	ACRS accredited, Cert number 100501	CARES ISO 9001	
2	ACRS certified, page 31 of ESG report 2022, cert 110304	ISO 9001:2015 certified, page 31 of ESG report 2022	
3	ACRS accredited 2019 <a href="https://www.putrabajadeli.com/product.html">https://www.putrabajadeli.com/product.html</a>	ISO 9001 accredited 2019 <a href="https://www.putrabajadeli.com/product.html">https://www.putrabajadeli.com/product.html</a>	
4	Asking trader	ISO 9001 <a href="https://www.shiuwingsteel.com/sustainability">https://www.shiuwingsteel.com/sustainability</a>	
5	Asking trader	Asking trader	
6	Asking trader	Asking trader	
7	Asking trader	Asking trader	
8	EU 333/2011 certified, cert IGQ n.0104-2020	ISO 9001:2015 certified, cert IGQ 9208A	
9	ACRS accredited, cert 110508	ISO 9001:2015 certified, cert 0070898	
Average of ACRS score			

## Supplier management systems and approvals 4.4.3.1 and 4.4.3.2 - 2023

Supplier	4.4.3.1	4.4.3.2	ACRS Score
1	N/A see 4.3.2	Certificate to ISO 45001 RC 24 UKAS	
2	Asking trader	Asking trader	
3	Asking trader	Asking trader	
4	Asking trader	Asking trader	
5	OHS stated on website <a href="https://www.dongkuksteel.com/en/csr/safety_management">https://www.dongkuksteel.com/en/csr/safety_management</a>	Asking trader	
6	Asking trader	Asking trader	
7	Asking trader	Asking trader	
8	N/A see 4.3.2	ISO 45001:2018 certified, cert IGQ S2K01	
9	N/A see 4.3.2	ISO 45001:2018 certified, cert 717S002-01	
Average ACRS score			

## Supplier management systems and approvals 4.4.3.3 and 4.4.3.4 - 2023

Supplier	4.4.3.3	4.4.3.4	ACRS Score
1	N/A see 4.3.4	Certificate to ISO 14001 RC 24 UKAS	
2	Asking trader	Asking trader	
3	N/A see 4.3.4	ISO 14001 accredited <a href="https://www.putrabajadeli.com/product.html">https://www.putrabajadeli.com/product.html</a>	
4	Is CIC Green Certified <a href="https://www.shiuwingsteel.com/sustainability">https://www.shiuwingsteel.com/sustainability</a>	Asking trader	
5	OHS stated on website <a href="https://www.dongkuksteel.com/en/csr/safety_management">https://www.dongkuksteel.com/en/csr/safety_management</a>	Asking trader	
6	Asking trader	Asking trader	
7	Asking trader	Asking trader	
8	N/A see 4.3.2	ISO 14001:2015 certified, cert IGQ A2J04	
9	N/A see 4.3.2	ISO 14001:2015 certified, cert 7M8E002-08	
Average ACRS score			

# What are the biggest drawbacks from the point of view of Processors?

The biggest single problem faced by people within the supply chain currently is the non-uniformity of requirements from asset owners / purchasers:

- Non uniformity of reporting
- Non uniformity of measurement
- Multi Client facilities may have difficulty in splitting the performance of the whole factory to the particular supply for a single client. One solution GWP/T of finished product at the factory gate + delivery
- There needs to be a level playing field in terms of sustainability performance and measurement - the SCS scheme provides this but matching it to competitive schemes may be a challenge for the end user.
- The SCS scheme will only be end to end when all players in the supply chain are accredited until then it is sustainable traceability + processor reporting. Many steel mills are still on the journey to accreditation.



# UNDERSTANDING *EMBODIED* *CARBON* IN STEEL



**Australasian  
Certification Authority for  
Reinforcing & Structural  
Steels**

