

INDUSTRIAL DEEP DECARBONISATION INITIATIVE:

Summary of progress and outlook

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
INTRODUCTION	5
Context	5
Building on success	6
Purpose of this paper	8
GREEN PUBLIC PROCUREMENT	9
Pledge commitments	9
Green public procurement	11
Green private procurement	12
Implementation support for signatories	12
Tracking and accountability on the Pledge	13
Alignment with material standards	13
HARMONIZED STANDARDS FOR STEEL, CONCRETE AND CEMENT	14
Alignment and harmonization of PCRs	14
Boundaries of definitions	15
Product-specific thresholds	16
Product-specific data for EPDs	16
DATA REPORTING AND DISCLOSURE PROTOCOLS	18
Open access to data for driving value	18
Open standards for providing open access	19
Trusted data for delivering net zero	19
Rules addressing public and private needs	20
Open and independent governance of data infrastructure	21
Mandates for engagement in open access	21
ROADMAP	23
Vision	23
GLOSSARY	28

Disclaimer: The purpose of this document is to summarize the work of the Industrial Deep Decarbonisation Initiative (IDDI) to date, serve as a technical evidence base for the policy agenda, and provide a vision to stakeholders on next steps for the initiative.

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EXECUTIVE SUMMARY

Since its inception in June 2021 at the 12th meeting of the Clean Energy Ministerial, the Industrial Deep Decarbonisation Initiative (IDDI) has made great progress in achieving its aim to deliver industrial decarbonization, starting with the construction sector, by stimulating new demand for low and near zero emission steel, cement and concrete. To embark upon achieving this ambitious yet crucial aim, the coalition has sought to first address three key interrelated challenges. The IDDI has since developed a clearer vision of the actions its signatories could take, not only in overcoming the three primary obstacles, but in delivering upon its aim more generally.

The purpose of this paper is in part to summarise the progress made by the IDDI thus far and make the decisions of the initiative transparent, thereby contributing to international discussion on the deep decarbonization of heavy industry. This stocktaking exercise seeks to contribute to the narrative on three priority issues selected by the IDDI that could stimulate the creation of a thriving market for low carbon steel and concrete products. These issues are green public procurement (GPP), low and near zero emissions material definitions, and embodied carbon data reporting.

Considering the potential GPP has to drive the demand and create lead markets for low and near zero emission industrial materials, the IDDI has offered a framework for the procurement of these materials, the so called GPP Pledge. The Pledge addresses political commitment of national and subnational government entities for GPP that includes four levels of ambition. Multiple aspects of the Pledge language were debated amongst the partners, including the specification of crude materials and subproducts for disclosure, an on-ramping approach, the need for four ambition levels, the focus on product emissions in ambition levels 3 and 4, the definition of low emission and near zero cement/concrete and steel, and the consideration of the national context. To facilitate the adoption of the Pledge, the IDDI is working next to develop guidance for policy development, implementation and tracking.

Progress on the Pledge has been aligned with efforts to support the disclosure of crude steel, cement, and subproduct greenhouse gas (GHG) intensity as the IDDI understands that a key step in procurement policy development is the need for standardized, comprehensive data collection mechanisms and environmental assessment methods. The IDDI agreed to use Environmental Product Declarations (EPDs) or otherwise verified Life Cycle Assessments (LCAs) as the basis for standardized reporting and defining GHG intensity levels. Subsequently, the initiative has sought to identify the limitations of current Product Category Rules (PCRs), alongside potential improvements, with the harmonization of PCR approaches for the target materials being accepted as a key deliverable. The IDDI agreed to employ the International Energy Agency (IEA) definitions for low emission and near zero cement and steel production as a robust starting point. Work continues to be undertaken on three key challenges relating to PCR harmonization,

including refinement and extension of IEA definitions along the value chain, the GHG emission boundary definition for each product stage, and the data quality requirements on the use of facility specific GHG reporting data and background data. The IDDI is curating step-by-step guidance on GPP development for signatory countries to deliver upon their minimum pledge requirements.

The IDDI recognised that a central challenge in GPP implementation is the lack of high-resolution data across full value chains. Data siloing throughout the value chain was identified as a central barrier limiting the effective flow of data between organizations. The initiative's partners have subsequently agreed on the need to decentralise the disclosure of emissions data within open interoperable networks to support baselining, target setting and benchmarking. To better understand how to realise this ambition, the IDDI has explored the relative merits of several actions, including the harmonization of open data standards, the promotion of trust in open access, the definition of rules for data sharing, the promotion of independent data governance, and mandates for engagement in open access.

Reflecting upon this progress, the purpose of this paper is also to explain the collective vision and roadmap for the IDDI moving forward. This roadmap outlines the possible actions, targets and interventions that government, finance, business and civil society stakeholders could adopt to deliver upon the goals of the IDDI. The roadmap seeks to support the adoption of GPP to stimulate low and near zero emission industrial materials, in particular steel, cement and concrete. The vision of the IDDI extends beyond just GPP. The ultimate ambition here is to guide the wider global strategy towards a net zero industry.

INTRODUCTION

Context

The materials and products produced by heavy industries, such as steel and cement, play a critical role in our lives. These industries are the engines of our modern world, providing essential goods and services and employment for millions of people. The demand for raw and refined materials from heavy industry has risen substantially in the past decades and is poised to rise as emerging economies continue to industrialise.

The emissions intensity of heavy industries represents a significant challenge in global decarbonization. Industry emissions are responsible for 30% of carbon emissions worldwide ¹. Considering the scale of these emissions, abatement in heavy industry has the potential to turn the tide in the climate crisis. Two specific industrial products, steel and cement, continue to face a unique set of challenges in reducing emissions. They remain as two of the most carbon intensive commodities on the planet, accounting for 14-16% of global energy related CO₂ emissions ². The requirement of continuous high temperature heat for the production of these materials demands a considerable amount of energy that remains largely reliant upon fossil fuels. Moreover, the chemical processes involved in production, particularly for cement making, are an additional source of emissions. Heavy industries are consequently considered “hard-to-abate” sectors as they lack a straightforward path to emissions reduction. Despite the growing range of promising low carbon technologies under development, companies lack incentives to invest in these commercial scale plants at the necessary scale and pace ^{3,4}.

Several barriers are preventing these investments at present. The absence of a significant demand for low carbon steel, cement and concrete, especially in the construction sector, is a fundamental problem. The construction sector, including both buildings and infrastructure, has a major role to play in this matter as it accounts for the vast majority of global cement demand and over 50% of that for steel ^{5,6}. Measures to develop a new value chain and market for materials, such as green public procurement policies and green product standards, will be crucial in addressing the absence of material demand.

Public procurement is responsible for 20-25% of global construction sector revenues, with related government-funded construction activities accounting for ~12% of total public procurement-related emissions ⁷. When public entities leverage their large-scale purchasing power to procure goods with

¹ WEF (2022) [To decarbonize heavy industry, we must focus on industrial clusters](#).

² International Energy Agency (IEA) (2021) [Fuels & technologies: cement, iron & steel](#).

³ OECD (2018) [Accelerating the development and diffusion of low-emissions innovations](#). Background Paper for the 37th Round Table on Sustainable Development.

⁴ Climate Finance Leadership Initiative (2019) [Financing the Low-Carbon Future A Private-Sector View on Mobilizing Climate Finance](#).

⁵ Global ABC (2020) [2020 Global status report for buildings and construction](#).

⁶ World Steel Association (2023) [Steel in buildings and infrastructure](#).

⁷ WEF (2022) [Green Public Procurement: Catalysing the Net-Zero economy – white paper](#).

lower carbon footprints, they stimulate markets in the direction of decarbonization by rewarding businesses that have developed low-carbon products. Such an approach is a form of green public procurement (GPP), the process by which public entities seek to procure goods and services with a reduced environmental impact. Given the considerable size of public expenditure on government construction projects, well-designed GPP policies can have a substantial impact on the reduction of emissions from manufacturing.

Building on success

This position paper builds on the progress made by the Industrial Deep Decarbonisation Initiative (IDDI) since its launch at the 12th meeting of the Clean Energy Ministerial in June 2021 until the end of 2022 with the introduction of the GPP Pledge. The IDDI is a country-led initiative coordinated by UNIDO that aims to drive the deep decarbonization of steel, cement and concrete by stimulating a market for low carbon materials. By the conclusion of 2022, members included Canada, Germany, India, Japan, Saudi Arabia, Sweden, the United Arab Emirates, the United Kingdom and the United States, together with a coalition of organizations across the private sector, civil society, intergovernmental organizations, trade associations, and leading experts from academia and think tanks. The IDDI acknowledges that well-designed policy recommendations from a coalition of governments, informed by evidence and careful consultation, will be crucial in driving this demand. The initiative's mission is to facilitate this process and provide guidance for the missing demand signal.

To prioritise action on the aspects of industry with the highest level of greenhouse gas (GHG) mitigation impact, focus was placed upon recommendations for GPP relating to steel and cement/concrete in manufacturing and construction. Since its inception, the IDDI has sought to work with governments and key stakeholders on three interrelated issues that are holding back the creation of a thriving market for low-carbon steel and cement products:

- **Green public procurement** of low carbon steel, cement and concrete materials – GPP policy requiring whole life carbon assessment to drive demand for low carbon steel, cement and concrete materials is still new in many countries, and in most does not sufficiently account for the embodied carbon in construction materials or processes.
- **Definitions for low and near zero carbon materials** – The need for succinct definitions of what low carbon steel, cement and concrete are, and how to account for carbon emissions.
- **Data and reporting** – Current systems are not conducive to the accurate evaluation and harmonized reporting of carbon emissions, and the use of this data to drive decisions along the value chain.

To address these gaps IDDI has coordinated several activities:

- **Convening and events** – Three working groups (WGs) were established as the main mode of convening to support this endeavour. WG1 addressed data and reporting, WG2 addressed low carbon definitions and measuring standards for construction materials, and WG3 addressed

green public procurement. The WGs served as fora to guide the development of appropriate guidelines for the three issues, share best practices and advise/ consult or co-develop with all relevant partners. Away from internal convenings, several events were organised to promote the visibility of the IDDI, attract new member states and contribute to the international discussion on industrial decarbonization.

- **Advocacy work and** knowledge/ best practice sharing – To advocate for governments to set procurement targets for the purchasing of decarbonised steel and cement and to encourage partners to join the coalition, a suite of external facing documents have been published by the IDDI. Together, they outline the context of the IDDI’s agenda alongside planned activities and outputs.

Complementary to the work of the IDDI, other international efforts and initiatives have been established to promote GPP, definitions and measuring standards, and data disclosure and reporting. The OECD has prepared a collection of best practices for GPP at national and sub-national levels covering a range of areas including standards in procurement, understanding market capacity, GPP legal and policy framework, raising awareness and monitoring ⁸. Recognising the need for reform in GPP, the World Bank has published a report to equip practitioners with a broad understanding of the challenges in the design and implementation of GPP reforms ⁹. Regional organizations such as the European Commission (EC) and the Asia-Pacific Economic Cooperation have developed policy advisory groups in addition to more localised guidance such as the EC GPP Helpdesk service and Toolkit ^{10,11}. The IDDI will seek continued alignment between its GPP developments and private procurement initiatives such as the First Movers Coalition (FMC). The FMC consists of over 60 companies, with a collective market value of ~\$12 trillion, which are making voluntary commitments on green procurement to send a signal to commercialise zero-carbon technologies in hard to abate sectors ¹². Twelve country governments have joined as partners thus far, thereby committing to enable sector-specific efforts. Synergy between public and private procurement will ultimately create a more significant demand signal globally.

In relation to definitions and measuring, ResponsibleSteel have developed a GHG Emissions Requirement for its ‘ResponsibleSteel Standard V2.0’ that requires site-level strategies, plans and targets to be in place for the reduction of GHG emissions, aligned with the goals of the Paris Agreement ¹³. SteelZero have endorsed this ResponsibleSteel standard, supporting its ambition to encourage action by the steel industry in reaching net zero ¹⁴. Since its founding in July 2022, ConcreteZero has also

⁸ OECD (2015) [Going green best practices for sustainable procurement](#).

⁹ World Bank (2021) [Green Public Procurement: An Overview of Green Reforms in Country Procurement Systems](#).

¹⁰ European Commission (2010) [Helpdesk for GPP](#).

¹¹ European Commission (2022) [GPP Training Toolkit](#).

¹² World Economic Forum (2023) [First Movers Coalition: Introduction and overview of commitments](#).

¹³ ResponsibleSteel (2022) [ResponsibleSteel International Standard. Version 2.0](#).

¹⁴ The Climate Group (2022) [SteelZero endorses the ResponsibleSteel Standard V2.0](#).

outlined its ambition to develop a similar low carbon specification for concrete ¹⁵. The International Energy Agency (IEA) have proposed a series of common stable and absolute definitions for what they believe constitutes near zero emission steel and cement production, compatible with a trajectory that reaches net zero emissions by 2050 ¹⁶. Complementary definitions of low emission steel and cement production are also proposed to recognise the importance of interim steps taken to lower emissions intensity. The ambition of the IEA is for these definitions to inform the establishment of future policy mechanisms.

On data and reporting, the United Nations Environment Programme have developed their 'Global Life Cycle Access Data Access' network which aims to achieve better data accessibility and interoperability by providing users with an interface to find and access life cycle inventory datasets from different providers ¹⁷. Moreover, the European Commission has developed the Product Environment Footprint (PEF), a new common framework for the steps and rules that they deem as necessary to make a comprehensive Life Cycle Assessment, beyond those required for an Environmental Product Declaration (EPD). The PEF database has been complemented by the creation of a new standard environmental database to use in LCAs for the European industries ¹⁸. The continued work of the IDDI will align itself with these developments amongst many others.

Purpose of this paper

This briefing paper aims to:

- **Inform and contribute to the narrative on green public procurement, low and near zero emissions material definitions and measuring standards, and data reporting protocols.**

There is a sustained lack of information on the nature of these issues and how nations could address them. This paper will bolster this resource base by exploring the steps IDDI have taken to meet these challenges and develop concrete solutions.

- **Raise awareness and transparency of the current and planned activities of the IDDI.**

Several issues have been discussed and debated when the partners of the IDDI have convened over the past year. Consequently, this paper in part acts as a stocktaking exercise, summarising the decisions that have been made by the IDDI across its three key action areas. In doing so, this paper clearly explains the argumentation behind the collective vision of the IDDI moving forward.

- **Develop a roadmap for government, business, finance and civil society.** This ambitious vision of the IDDI is elaborated upon by a roadmap – highlighting to the signatories of the

¹⁵ The Climate Group (2022) [Net zero concrete programme launched by Climate Group and global built environment industry.](#)

¹⁶ IEA (2022) [Achieving Net Zero Heavy Industry Sectors in G7 Members.](#)

¹⁷ UNEP (2020) [The Global LCA Data Access network.](#)

¹⁸ Ecochain (2022) [Product Environmental Footprint \(PEF\) – A Complete Overview.](#)

IDDI's GPP Pledge and other stakeholders a sequence of possible actions, targets and interventions they could adopt to deliver upon the vision of the IDDI. The actions outlined in the roadmap are intentionally high-level, with its aim being to act as a theory of change to accelerate the transition to net zero materials manufacturing through GPP, as opposed to being a detailed workplan or commitment to specific actions for the IDDI and its members.

- **Build momentum and mobilise actors on the road to COP28**, building on engagement efforts undertaken for COP27.

GREEN PUBLIC PROCUREMENT

The IDDI hopes to challenge governments to set political commitments to disclose and reduce embodied carbon emissions in public construction projects through the utilisation of low carbon steel, cement and concrete. The GPP Pledge developed by the IDDI presents a framework for the political commitment of national or subnational government entities ¹⁹. Signatories will choose the level of ambition for their pledge in accordance with the levels presented below:

- **Level 1** – Starting no later than 2025, require disclosure of the embodied carbon in cement/concrete and steel procured for public construction projects.
- **Level 2** – In addition to Level 1. Starting no later than 2030, conduct whole project life cycle assessments for all public construction projects, and, by 2050, achieve net zero emissions in all public construction projects.
- **Level 3** – In addition to Levels 1 and 2. Starting no later than 2030, require procurement of low emission cement/concrete and steel in public construction projects, applying the highest ambition possible under national circumstances.
- **Level 4** – In addition to Levels 1, 2. Starting in 2030, require procurement of a share of cement and/or crude steel from near zero emission material production for signature projects.

An explanatory note for the terms of the Pledge can be accessed in the official Pledge brochure. Alongside the development of the Pledge, efforts are underway to provide guidelines for governments on how to develop supporting policy measures and to implement these commitments.

Pledge commitments

Through iterative dialogue with its partners, several updates were made to the original GPP Pledge introduced for the first time in November 2021. The complexity and particularities of public procurement resulted in much deliberation on the structure and language of the Pledge.

¹⁹ Industrial Deep Decarbonisation Initiative (2022) [Your commitment to green construction with public funds](#).

A) Specification of materials for disclosure. The final wording of the Pledge requires the disclosure of the embodied carbon in crude steel and cement, as well as related end-products included in construction projects, i.e., steel and concrete subcategories. These represent the final usable materials that are procured through constructors, as opposed to the crude materials. Concrete was integrated into the pledge as a product category. The phrasing “cement/concrete” was included throughout the Pledge to indicate that emissions at both, the crude and the end-product level are important. The majority of emissions are related to the production of cement, whilst concrete is the final product purchased by developers of publicly tendered projects. In this manner, the Pledge recognises the majority share of embodied concrete emission derived from cement, whilst also appreciating that concrete is the product that is purchased for construction projects and that there are opportunities to reduce emissions in the manufacture of cement as well. It is worth noting that the definition of low emission and near-zero emission concrete is yet to be finalised. Further information can be found under the ‘[Boundaries of definitions](#)’ theme of WG2’s work on harmonized standards for steel, concrete and cement.

B) On-ramping of disclosure requirements. Ambition level 1 adopted a multiple on-ramp approach for signatory disclosure towards 2030. This encourages signatories to report on the embodied carbon of procured steel and cement/concrete with existing EPDs or other independently verified reports covering the same aspects as the EPD. It is expected that EPDs will be updated to follow Product Category Rules (PCRs) developed by IDDI members as soon as they are published. Latest by 2030, members who commit to the Level 3 pledge will require EPDs that follow the IDDI PCR guidance. This encourages signatories to put in place reporting mechanisms and gives suppliers time to begin using the new PCRs.

C) Focus on product rather than project emissions for ambition levels 3 and 4 in the near term.

Ambition levels 3 and 4 focus on disclosure and therefore reduction of product emissions rather than project emissions, with the goal being to provide a signal to the steel and cement/concrete industry. It was understood that setting project level targets alone would not necessarily result in the rapid growth of a market for the target low carbon and near zero materials as it is possible to reduce the emissions of projects through a variety of other means. The product-centred approach to ambition levels 3 and 4 was therefore taken since the primary focus of the IDDI is on the decarbonization of key industrial materials. It is also necessary to improve product data in order to support whole project LCAs. Members are still encouraged to undertake whole project LCAs or set member state level GHG targets for specific construction project typologies, including their allowable embodied carbon, e.g., as it is the case in several European countries for new buildings. Conducting whole project LCAs and setting targets at the project level avoids possible perverse incentives if material level carbon limits are addressed in isolation, e.g., through increasing the volume of low carbon materials purchased, without necessarily reducing overall embodied emissions. For this reason, Pledge level 2 purposefully acknowledges the importance of whole project LCAs..

D) Ambition level 4. Pledge ambition level 4 was included to encourage the procurement of materials from near zero emission material production, recognising the need to trigger rapid decarbonization in steel and cement production, and, to eventually transit from low emission steel, cement and concrete products to near zero emission steel, cement and concrete products.

E) Definition of low emission and near zero cement/concrete and steel. Much deliberation was had over the definition of low emission and near zero cement/concrete and steel for ambition level 3 and 4, respectively. The Pledge was designed to support the adoption of ambitious thresholds in defining these materials. The IEA definitions and methodology are recognised as a robust starting point, defining crude steel and cement as uniform endpoints, facilitating comparability and capturing the majority of embodied GHG emissions of steel and cementitious materials ¹⁶. Near zero material thresholds indicate the transformation efforts required to eventually arrive at reduction levels aligned to the Paris Agreement and the Net Zero Emissions by 2050 Scenario of the IEA ²⁰. Work continues to be undertaken to refine the boundaries of the crude material definitions and to apply them to public procurement. This is part of the effort of introducing harmonized PCRs for steel, cement and concrete. More detail on this issue can be found under the 'Boundaries of definitions' theme, and will be subject of the IDDI's work plan for 2023.

F) National circumstances. Regarding pledge ambition level 3 and 4, the threshold approach to low emission and near zero emission material definitions is purposefully technology neutral and ambiguous on the production pathway, in order to give flexibility in how emission intensities are reduced. Signatories are encouraged to set the highest threshold in national circumstances, based on consultations. Governments are able to choose whether they apply a sliding scale or a static clinker-to-cement ratio (e.g., based on average values) to account for national circumstances regarding clinker access and technology options.

Green public procurement

A continued goal of the IDDI is to support signatories in setting targets and implementing GPP for embodied carbon in construction projects. To optimise the value of IDDI guidance, an ideation session mapped the landscape of barriers that exist for GPP policy adoption. Outstanding barriers included:

- Unfamiliarity with some novel low embodied carbon options across procurement teams, project teams and supplier bases.
- The need for deep expertise in embodied carbon across procurement and project teams and suppliers, and difficulties in accessing relevant training.

²⁰ Member countries can choose from a menu of band ranges from E-A of low emission materials based on their specific ambition levels. Countries can raise their ambition levels over time, e.g., by starting from E-A, progressing to D-A. For reaching Paris Alignment countries eventually have to converge on the near zero emission level for steel, cement and concrete. The time for convergence corresponds with the individual country time targets for reaching climate neutrality, or, more ambitious sectoral climate neutrality targets.

- Decentralized procurement processes that constrain coordinated awareness building, knowledge dissemination and guidance on how to operationalise GPP.
- Lack of a uniform definition of low-carbon and near zero steel and cement/concrete and the need for a national interpretation of international standards.
- Lack of available data on embodied carbon and unified methodologies for reporting on embodied carbon through the value chain.
- Heightened burden of stacked requirements as more environmental and social impacts are considered in public procurement, increasing the administrative effort for procurement teams. The lack of uniform definitions for many of these new requirements compounds this burden.

Considering these barriers, step-by-step guidance is being curated on policy development for signatory countries to deliver upon their minimum pledge requirements, including a scan of exemplar policies. This guidance will be complemented by advice on the creation of bid mechanisms and incentives for the selection of the lowest carbon solution in tender or bidding processes. These mechanisms would encourage signatories to go beyond minimum requirement thresholds in GPP. Such measures are not necessary to meet the Pledge, but they help drive best practice, thereby stimulating continuous improvement and innovation.

Green private procurement

Whilst acknowledging that a key focus of the IDDI is to harness the power of public demand, it is important to recognise the necessary role that private procurement will play in the decarbonization of steel and cement procurement. GPP can lay down the basis for progress in harmonizing standards in private procurement. The intention is for continued alignment with private procurement initiatives such as the First Movers Coalition, SteelZero, and ConcreteZero. There is scope to collaborate with such initiatives with respect to the harmonization of definitions for near and low emission materials. In part, concrete was chosen to be included throughout the Pledge to ensure an alignment of definitions across these initiatives.

Implementation support for signatories

The development of GPP policy alone will be insufficient to mobilise the data, disclosure and reporting protocols necessary to deliver upon chosen ambition levels. There is a need to provide guidance and support for the procurement teams, project teams and suppliers that will be implementing this policy. For procurement officials and contracting entities in signatory countries, it will become necessary to incorporate the language of the Pledge into award criteria and contract performance clauses, and suppliers will need to follow these clauses. Guidance and investment may be required to overcome the subsequent resource burden. Project teams will need support and training on the compliance of EPDs or otherwise verified LCAs to meet the requirements of procurement documents. Not all project teams are adept at accepting and interpreting EPDs, and capacity building may require financial support. Similarly, EPD development by suppliers, particularly small businesses, may be accelerated by funding and technical support.

IDDI's partners noted that the US Inflation Reduction Act is supporting EPD development with a funding of US\$250 million. The EU is progressing on regulatory approaches for requiring carbon footprint disclosure through the use of its own Product Environment Footprint and Digital Product Passport in several regulations such as the Ecodesign for Sustainable Products Regulation (ESPR). If adopted, this regulation, which is currently going through the legislative process of the European Commission, will set out a general framework imposing certain ecodesign requirements on products intended for sale in EU markets. There is a clear need for IDDI to develop step-by-step guidelines and recommendations for the implementation of GPP.

Tracking and accountability on the Pledge

The Pledge states that the requirement for material and project level disclosure should be included in procurements for design services starting no later than 2025. Subject to their Pledge level, at the end of this year, signatories will need to have the reporting mechanisms and infrastructure developed internally to enable sufficient reporting back to the IDDI. In the near-term, reporting requirements will be based on tracking the number of nations that have committed to the Pledge and the status of these nations in terms of ambition level. There will also be a need to track the progress and delivery of the ongoing national consultations in the UK, Canada, and Germany, which will ultimately inform guidance for other signatories based on lessons learned.

Alignment with material standards

With WG2 concomitantly developing a guideline for harmonized PCRs for crude steel, cement, and the list of concrete and steel subproducts, WG3 acknowledged the need to provide WG2 with minimum requirements for EPDs to meet the Pledge timeline. These requirements are in addition to those noted in the Pledge Explanatory note, and are as follows:

- EPDs primary data requirements will focus on the most carbon-intensive segments of the supply chain to minimise the reporting burden whilst maintaining claim credibility.
- EPDs are required to report life cycle stages A1-A3 as a minimum requirement for all ambition levels of the GPP Pledge. It is recognised that jurisdictions may choose to require the reporting of additional life cycle stages.
- For IDDI Pledge timelines to be met, WG2 should aim to have the draft PCR Guidelines completed by the end of 2023, the possible development of PCRs for the addressed materials is an option which WG2 is exploring.

WG3 recognises the need for continued dialogue with WG2 in the creation of standardized PCRs and definition of boundaries for cement and steel subproducts.

HARMONIZED STANDARDS FOR STEEL, CONCRETE AND CEMENT

Technical specifications within procurement tenders and contracts signal the ask to the market to inform companies on whether they are able and interested in bidding, whilst also providing the measurement criteria to evaluate competing bids. These specifications are often created with reference to international, regional and national standards that provide minimum compliance criteria. Standards have the capacity to greatly influence the environmental characteristics of products. To measure embodied carbon within certain products, standards have been created to guide the measurement of embodied carbon and to produce a declaration of that metric – an EPD. As such, EPDs are a fundamental tool in the disclosure and comparison of steel, cement and concrete’s greenhouse gas intensity, thereby informing the evaluation of bids for GPP. PCRs provide the rules, requirements and guidelines for the development of EPDs for a specific product category, such as the specification of certain data quality requirements and system boundaries. PCRs aim to provide transparency and comparability between EPDs. Current EPDs for the measurement and disclosure of the embodied carbon in steel, cement and concrete have several unresolved issues. Progress has been made in the exploration of these issues, as outlined below. The IDDI hope to apply this understanding to establish a guide for improved PCRs for specific concrete and steel products, which will in turn improve the comparability of EPDs for use in procurement.

Alignment and harmonization of PCRs

To support signatories to disclose and reduce embodied carbon emissions in public construction projects in line with their Pledge ambitions, the IDDI seeks to establish PCR guidance for steel, cement and concrete that improve the comparability of subsequent EPDs. EPDs have been agreed as the basis for defining product performance levels, whilst reemphasising the sole focus on greenhouse gas emissions as opposed to other environmental parameters. There is a fundamental need to be more prescriptive about the PCRs that signatories should adopt and proliferate for the procurement of low embodied carbon steel, cement, and concrete. The creation of harmonized PCRs is a key deliverable of this guidance. At present, the disaggregated and inconsistent state of contemporary PCRs for these target materials results in performance calculations that are incomparable. EPDs for the same material produced by the same manufacturer can differ based on the use of different PCRs due to the lack of uniformity in calculation rules. Consequently, EPDs at present are limited in their ability to inform the fair comparison of the embodied carbon associated with the target products. This limitation is particularly concerning in the context of GPP, given the principles of fairness, openness and transparency. The harmonization of reliable and specific material level PCRs would allow performance calculations to be comparable and succinct between different manufacturers and across public construction projects.

Several improvement areas for have been identified within PCR calculation methodologies to allow for comparable EPD outcomes. Three core aspects of this discussion related to product stage definitions along the value chain (e.g., crude steel, hot-rolled, cold-rolled steel, prefabricated steel, etc.); the boundary definition for each product stage, including cut-off definitions for GHG Protocol Scope 3

inclusion; and the data quality requirements on the use of facility specific GHG reporting data and the requirements on the use of background data. Ongoing discussions in these areas will help to shape the development of an IDDI methodology for PCRs that will provide guidance on calculation rules, data requirements and definitions. A forthcoming IDDI guidance document will map the contemporary landscape of PCRs for steel, cement and concrete in construction before presenting the new IDDI methodology, its place in the current landscape, and guidelines for its application by public procurement agencies.

Boundaries of definitions

As first described in the [green public procurement](#) chapter, the IDDI has an ongoing objective to support the implementation of the Pledge with PCR guidance by helping to bring definition to low and near zero emissions steel and concrete products. The Pledge has set material level targets for the public procurement of low and near zero products in Pledge ambition levels 3 and 4 respectively (as defined by the IEA), the aim being to incentivise a market pull. If the PCR recommendations of the IDDI are to provide an enabling tool for signatories to meet these targets, the PCRs must align with introduced boundaries for the definitions of these materials and even broaden them. As previously stated, the boundaries of definitions for PCRs are to be guided by the transformation oriented approach of the IEA. The IEA report sets out label categories defining low and near zero emission crude steel and cement production that are stable and absolute.

The threshold for the definition of low and near zero crude steel varies as a function of the scrap use share of total metallic input from zero to 100%. The higher the proportion of scrap, the lower the threshold. This approach is designed to encourage decarbonization through the procurement of steel from both primary and secondary manufacturing. The near zero cement threshold is formulated as a function of the share of clinker use, where the higher the share the higher the threshold. This provides an incentive for decarbonising the process emission in the cement production, i.e., lower or near zero emission bandwidths can only be achieved through the combination of the clinker reduction, in combination with reducing the process emissions in cement production. Only reducing the clinker ratio would be insufficient since 80% of the historical and current emissions of cement are related to the process emissions. GPP will play a critical role for creating a market for near-zero emission cement which requires eliminating process emission in addition to low clinker ratios. This market so far does not exist since one of the relevant technologies – carbon capture, utilization, and storage (CCUS) – will be developed at the required scale in 2030.

Providing targets for low emission products recognises interim steps in emissions intensity on the reduction pathways that are leading towards the transition to near zero emission product and production levels aligned with the Paris Agreement. The IEA defines low emission production with a complementary approach to the definition for near zero materials, utilising thresholds with identical boundaries but with an upper band threshold value six times higher. The emission intensity range between low emission and near zero production is divided into five bands, labelled A through E, which are intended to give flexibility in the definition of low emission materials given local contexts.

Acknowledging the IEA definitions as a starting point in setting the framework of definitions, the IDDI is undertaking the ongoing task of refining these and implement them in the context of public procurement for construction projects. Crucially, the IDDI is also working to extend the emission intensity thresholds for crude materials to thresholds for the product subcategories mandated for disclosure by the Pledge in 2030. The definition of subcategory thresholds for steel and concrete was an extensively discussed issue and is explored in more detail under the following theme.

Product-specific thresholds

Once the subcategorization of steel and concrete products for disclosure and procurement under the Pledge was finalised, it was agreed that the methodologies need to be consistent from crude to final usable products (i.e., from cement to concrete and from steel to steel subproducts). Consultation with multiple organizations, including trade associations, non-for-profits and intergovernmental organizations, informed the ongoing development of the IDDI's approach to this issue whilst also outlining current best practice policies in the area of public procurement. The exact approach is yet to be defined and these dialogues are largely in progress.

The relative merits and limitations of the Buy Clean Policy were discussed to help inform the eventual approach of IDDI in creating boundaries for product subcategory definitions. Buy Clean is a policy spearheaded by the Blue Green Alliance in the United States that overall seeks to promote the procurement of low carbon and efficient manufacturing materials in public projects. The development of low carbon standards has been viewed as central to this. The policy first emerged in California in 2017, with low carbon standards based on EPDs being released in January 2022 and contractors being mandated to develop EPDs for selected materials from July. The Buy Clean California Act defines thresholds for low emission products by comparing the available collection of product-specific EPDs, industry wide EPDs and strong LCA models. Limits are subject to change over time if more data becomes available for refinement and reduction against the limits are required. An Executive Order was issued by President Biden in 2021 in response to a proposal for a Federal Buy Clean Policy and a Task Force and initiative have been created.

Product-specific data for EPDs

The practice of applying industry average data with generic emission factors is common across many contemporary standards for materials performance calculations. Alternatively, a facility-specific approach to EPDs can bring several benefits to material performance evaluations and comparisons in GPP. Facility-specific data refers to data gathered from the actual manufacturing plant where the product-specific processes are carried out, in addition to data from other stages of the lifecycle traced to the specific product that is being assessed. The GHG intensity of input materials have a significant impact on the GHG intensity of the final steel or concrete product. Hence, the application of manufacturing facility specific input data for EPDs can allow organizations to differentiate products between manufacturers based on GHG intensity of input materials, thereby ensuring the lowest carbon products are identified and selected. Using more specific data in EPDs including upstream data is thus

desirable as it will drive investments into breakthrough technologies. Facility-specific data can account for unfabricated steel as input material for fabricated steel, cement with carbon capture utilisation and storage for concrete, clinker share in cement, or the use of green hydrogen for a Direct Reduced Iron process for steel.

Alternatively, the use of generic data from sources such as commercial and free databases can help to supplement facility-specific data where its availability on a certain aspect of a production process is limited. Facility-specific data should be prioritised where the data is particularly significant in the final result of material performance calculations, an aspect which will differ between steel, cement and concrete. Generic data should be utilised where it is deemed that it is representative for the purpose of the EPD. WG2 are continuing to work to provide written advice on the extent of facility-specific versus generic data that should be disclosed across steel, concrete and cement and how this data should be collected. The need for ongoing coordination with WG1 is acknowledged to ensure that guidance on the decentralisation of EPD data disclosure into open networks considers the necessary extent of facility-specific data.

DATA REPORTING AND DISCLOSURE PROTOCOLS

With the growing awareness of the carbon intensity of buildings and infrastructure, manufacturers of steel, concrete and cement are increasingly publishing LCA-based data on their products in the form of EPDs. Indeed, EPDs are an essential tool in the disclosure of the embodied carbon in construction products, and can be passed down the value chain through design, engineering, procurement, construction, and other services. At present, there are multiple issues with the rules governing the data systems in use for measuring and reporting on the embodied carbon in steel, cement and concrete products. These issues are preventing the passing of digital EPDs in a harmonized fashion along the value chain, and their effective use in decision making towards net zero construction. Over the past year, the IDDI has worked on the definition of a common set of principles and rules towards the rigorous reporting of life cycle and EPD data for enabling embodied carbon reporting in the value chain. In 2023, the IDDI will initiate the development of a standardized methodology for reporting on embodied carbon through the value chain, from primary manufacturers to buyers. Applied at pace and scale across IDDI countries, this standardized methodology has the potential to significantly enhance data systems to support accurate and harmonized embodied carbon data through EPDs, which could inform better decision making at all stages of the project life, from policy development and optioneering, to project specification and procurement, through to project delivery.

Open access to data for driving value

Meeting the ambition for accurate and harmonized embodied carbon data requires industry and government to evaluate not only how data is reported by manufacturers, but also how the data is shared with the value chain for stakeholders to specify, procure and buy low and near emissions steel, concrete and cement. Indeed, a major challenge in the reporting of EPDs is that the data does not effectively flow between organizations. Instead of being connected and networked, data tends to be siloed. The standard response from supranationals, countries, multinationals and companies is to build a database. However, much of this data is not openly licensed or available for anyone to use. For EPD data to be usable, it will need to be made discoverable and accessible to users along the value chain. To unlock public and private sector benefits, the ability to share EPD data using open or shared licenses is deemed essential.

Significant deliberation was had over the definition of open standards. Open data can be used by anyone for any purpose, while shared data has a preemptive license for a specific use. Open standards mandate that open access to open and shared data are implemented across a sector using the same principles and practices. Furthermore, the value of open access needs to be articulated for stakeholders to agree to adopt its principles. Open standards can address needs at sector-scale with the aim of delivering net zero more quickly. The use of open standards is a proven method to save money on digitalisation. There is also value in supplying both open and commercial data to the whole market. Open access can support companies in generating actionable insights and therefore enabling data-centric planning, design and construction decision-making directed towards net zero materials. These data-enabled decisions could

drive the mitigation of the embodied carbon in steel, concrete and cement products used in construction, and ultimately the decarbonization of materials manufacturing.

Open standards for providing open access

It was agreed that the disclosure of EPD data should be decentralized as part of open interoperable networks rather pooled into a centralized database. To that effect, an outcome to the discussions was that EPD data must be machine-readable, and have open metadata to ensure its discovery. This aspiration is part of the GPP Pledge²¹. Various standards for passing digital third-party verified EPDs are already in use in the construction sector, but require harmonization. The standards which were discussed include:

- openEPD is an open data format developed by Building Transparency, with the benefit that it enforces a key set of guarantees for interoperable data processing²²;
- ILCD+EPD is a standard developed by InData, a network seeking to establish an open data network for EPD and LCA data using a common data format and open source software²³;
- EN ISO 22057 is a standard developed by the International Organization for Standardization (ISO) and the European Committee for Standardization (CEN), providing a format for digitisation of all construction EPD and generic data for Building Information Modelling (BIM) and LCA tools²⁴.

These standards also interact with other digital standards, and it will be important to consider these interactions in forthcoming work. An example is the open standard for digital product passports – ISO/IEC 15459:2015 – which was adopted across the directives and regulations of the European Green Deal and the Ecodesign for Sustainable Products Regulation.²⁵ Over the next year, the IDDI intends to set the standard for product-level embodied carbon data for steel, concrete and cement products, and be at the forefront of its development by working on the harmonization of existing open standards for EPD data used in the construction sector.

Trusted data for delivering net zero

Accurate, trustworthy data that informs net zero actions in the construction sector is essential to decision-makers across the value chain, from financiers, developers, owners, manufacturers, engineers and contractors. Trusted data is essential to maintain public trust in the public infrastructure that is developed. In the constructor sector, trusted data can drive transparency and promote access to capital and drive innovation and value. It can help de-risk financial instruments, accelerate new technologies to

²¹ Industrial Deep Decarbonisation Initiative (2022) [Your commitment to green construction with public funds](#).

²² Building Transparency, [openEPD](#).

²³ InData (2019) [FAQ](#) (Table of Definitions ILCD+EPD Data Format) for InData Compliance CPEN2018 (Construction Products EN 15804).

²⁴ ISO (2022) [ISO 22057:2022](#).

²⁵ Euractiv (2022) [Digital product passports become the norm in EU's green economy plan](#).

market and enable monitoring against science-based targets. Robust policies and standards can support the assurance and audit of embodied carbon data.

Additionally, sovereignty, confidentiality and security concerns also play an important role in maintaining trust among manufacturers and other value chain actors disclosing their embodied carbon data.

Sovereignty relates data to the laws and governance structures of nations where they are collected. In practice, this guides both data storage and data sharing, affecting decisions on compliance.

Confidentiality covers both the understanding and classification of data held and shared to identify any data that should be confidential. Security is the practice of protecting data from unauthorised access, corruption or theft across the lifecycle. This often relates to very technical elements, but also extends to looking at behaviour, licencing, legislation etc. In its forthcoming work, the IDDI intends to incorporate these concepts towards the development of rules for reporting on embodied carbon data along the value chain.

Rules addressing public and private needs

To enable access to data, the definition of the rules used to share it requires participation from diverse actors. Data owners need to be able to control who can access it in a manner that addresses commercial, legal and regulatory requirements. The IDDI will need to inform the types of data which should be shared and made open to generate actionable insights and support meaningful decision-making along the project life cycle. With EPD data, the existence of the data and a description of what it contains can be described and this metadata can be licensed as open data. The underlying data may not be able to be distributed without an explicit contract with the manufacturer, and such access is likely to be restricted and charged for. This means, in most cases, the underlying data will be shared or closed. In practice, the publishing of usage rules should be mandated as metadata under an open license.

Policies should mandate the publishing of non-sensitive data under an open license and mandate the publishing of sensitive data using a trust framework. A trust framework is a set of rules to make data flow efficiently and securely between organizations. The trust framework assures that organizations are who they say they are; consent is given to share data with the pre-agreed rules; and enables that consent to be linked to rules for licensing, liability transfer, legal and operational processes (e.g. open standards for data, APIs, etc).²⁶ Aspects to consider in forthcoming activities of the IDDI include:

- **Authorisation.** Who can access what data, and how is this controlled. This requires defining participants: who provides, receives or facilitates data flows as well as identifying, authenticating and authorising data shares between participants.
- **Data rights.** What data is shared and what obligations are there on data providers? Defining data: what is open, shared or premium, what is static or dynamic; raw or derived insights? Defining purpose, value, sensitivity and limitations of data.

²⁶ Icebreaker One (2022) [The Icebreaker One Trust Framework](#).

- Trust framework. What other tools are there to ensure safe and legal data sharing? Mechanisms for trust: governance directory, levels of authorisation and authentication, consent (where applicable) and consent management.
- Liability. What structures are in place to resolve issues if things go wrong? Identifying roles and responsibilities; risks and liabilities; ensuring traceability in data chains and data protection requirements.
- Standards stewardship. How is the ecosystem governed and the standard enforced? Governance roles and responsibilities; regulatory or scheme-based approach; implementation requirements, enforcement and sanctions.

Open and independent governance of data infrastructure

To maintain an open market, data infrastructure must include public and private sector actors in its design, implementation and enforcement. At present, the responsibility for governing EPD data sits with public authorities managing national databases, and private and non-profit entities managing industry databases, such as Building Transparency and InData. A market-neutral body is a preferred approach to developing such data infrastructure and will include remits of data governance, policy, licensing, technical and operational principles. Governance roles and responsibilities would need to be defined, as well as implementation requirements, enforcement and sanctions. The infrastructure needs to be developed and iterated upon, at a pace that is relevant to the urgency of the issues being tackled. Independent governance of data infrastructure is important to prevent bias. Both its processes, and outputs related to its implementation, should be openly licenced.

Furthermore, it should be noted that data governance is not only important at the supranational and national level, but also at the organizational level. It is important that EPD data is included as part of a business data strategy across the various actors in the value chain, from manufacturers to designers, engineers and constructors. There are various frameworks that companies can make use of for defining their data strategies, such as those from the Said Business School and DataLeaders.net. However, it should be noted that a significant proportion of the construction value chain lacks the required carbon data expertise. It will therefore be crucial for the IDDI to support governments and businesses to build capacity and knowledge on embodied carbon and open data standards amongst staff and employees.

Mandates for engagement in open access

Closing data gaps and addressing the public interest requires rules for access to specific data, mandated participation and driving adoption. Similarly, industry initiatives can define rules for specific industry benefit, and act as catalysts for adoption. This is important to avoid unfair competition across the construction value chain. It will be necessary for governments and businesses to adopt mandates towards the adoption of open standards for EPD data. Common policies towards open standards must create mandates for machine-readable data, data access processes, access control and mechanisms for enforcement. When it comes to open data, the construction sector has much to learn from other sectors. For example, the banking and energy sectors have adopted standards and regulation on open

data (e.g. Open Banking) which provide significant lessons for open EPD data in the construction sector.²⁷ The IDDI intends to investigate these approaches and their application to the construction sector in its forthcoming work.

Businesses and governments can both develop mandates for encouraging the engagement of the value chain in open data access. Businesses can embed LCA and EPD requirements as part of their procurement practices and building certification schemes, such as CEEQUAL and BREEAM. Furthermore, the value chain will need to support the development and implementation of low cost pre-verified EPD tools as well as digital and LCA tools and processes making use of EPDs in design optioning. Leading players such as Amazon and Microsoft are making use of such tools, e.g. EC3 from Building Transparency. Governments can set a requirement for EPD disclosure in public procurement and product and building regulation, codes and standards. Some countries, such as France, the Netherlands, Denmark, Sweden and Finland, are moving towards regulatory adoption of EPD requirements. In the buildings and infrastructure sectors, programmes such as the UK Shared Digital Carbon Architecture (SDCA) programme, which seeks to improve the way in which carbon data is captured, managed and exploited, could provide a landing point for open EPD data standards. Furthermore, developments in product regulation, carbon border adjustments and trade policy will also be important aspects to consider for mandates towards embodied carbon data disclosure.

²⁷ Icebreaker One (2022) [Open Banking](#).

ROADMAP

Vision

The goal of the Roadmap is to build a common vision and actions for achieving the aims of the IDDI. The purpose of stating actions is not to detail the IDDI's workplan, which will be held in another document, but rather, it is to outline the possible actions, targets and interventions that governments, finance, business and civil society could adopt to help realise the aim of the IDDI, as a theory of change.

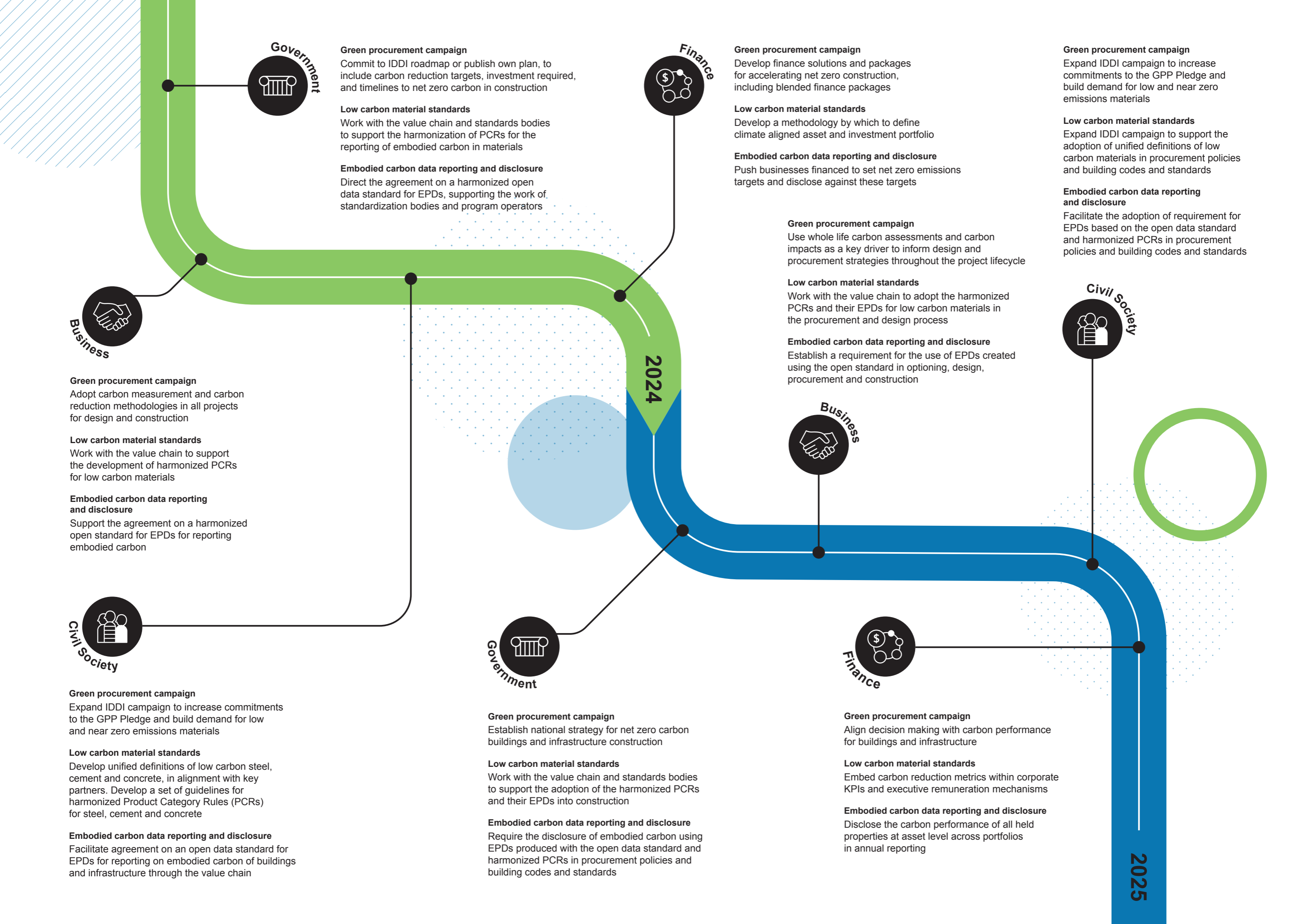
The initiative hopes that the creation of fora for expertise and knowledge sharing between global technical experts, industry stakeholders and governments will shorten the learning curve on heavy industry decarbonization, from both an industry and policymaking perspective, making the transition to low carbon materials cheaper and faster. It is also envisioned that collective access to frameworks and tools from the IDDI will help to facilitate this shift. Collaboration is thus a guiding principle of the IDDI vision.

With the ultimate aspiration of the IDDI being the creation of thriving markets for low and near zero emission industrial materials (in the Roadmap this is referred to by steel, cement and concrete), over the last year, the initiative has focused on GPP as a singular important lever for demand stimulation. The Roadmap envisages the unprecedented adoption of well-designed succinct GPP policy packages for signatory government entities, with the capacity to deliver upon the procurement commitments of the Pledge. By fulfilling procurement targets, governments will maximise the share of low and near zero steel and cement products procured for public construction projects. The subsequent growth in demand for these materials will increase the deployment of contemporary approaches to decarbonization such as material substitution and energy efficiency, whilst stimulating the accelerated development of transformative technologies.

The vision of the IDDI extends beyond just GPP. Through the creation of guidance on universal measuring standards and shared product definitions for near and low emission materials; the development of recommendations on data infrastructure, data institutions, cooperations models, digital tools, and principles for shared and open data; and by incentivising low-carbon product development, the IDDI seeks to stimulate the demand for low-carbon industrial materials in both public and private procurement. The ultimate ambition here is to guide the wider global strategy towards net zero construction and materials manufacturing. Actions in this roadmap apply to embodied carbon in materials but advocate that operational carbon are always considered alongside embodied carbon in buildings and infrastructure.

An industrial sector transition would deliver profound benefits for human and natural health. Industrialisation along a low-carbon development pathways would help to trigger broader socio-economic growth through the creation of green jobs across value chains. The consequent decline in emissions along a 1.5°C-aligned trajectory would avoid the most extreme effects of climate change, including but not limited to large-scale drought, famine, heat stress, species extinction, marine and

terrestrial ecosystem degradation, and loss of habitable and arable land, thereby putting tens of millions of people in poverty. This would be complemented by the reduction of particulate matter and other forms of pollution as fossil fuel use diminishes.



Green procurement campaign
Commit to IDDI roadmap or publish own plan, to include carbon reduction targets, investment required, and timelines to net zero carbon in construction

Low carbon material standards
Work with the value chain and standards bodies to support the harmonization of PCRs for the reporting of embodied carbon in materials

Embodied carbon data reporting and disclosure
Direct the agreement on a harmonized open data standard for EPDs, supporting the work of standardization bodies and program operators



Green procurement campaign
Develop finance solutions and packages for accelerating net zero construction, including blended finance packages

Low carbon material standards
Develop a methodology by which to define climate aligned asset and investment portfolio

Embodied carbon data reporting and disclosure
Push businesses financed to set net zero emissions targets and disclose against these targets

Green procurement campaign
Expand IDDI campaign to increase commitments to the GPP Pledge and build demand for low and near zero emissions materials

Low carbon material standards
Expand IDDI campaign to support the adoption of unified definitions of low carbon materials in procurement policies and building codes and standards

Embodied carbon data reporting and disclosure
Facilitate the adoption of requirement for EPDs based on the open data standard and harmonized PCRs in procurement policies and building codes and standards



Green procurement campaign
Adopt carbon measurement and carbon reduction methodologies in all projects for design and construction

Low carbon material standards
Work with the value chain to support the development of harmonized PCRs for low carbon materials

Embodied carbon data reporting and disclosure
Support the agreement on a harmonized open standard for EPDs for reporting embodied carbon

2024



Green procurement campaign
Expand IDDI campaign to increase commitments to the GPP Pledge and build demand for low and near zero emissions materials

Low carbon material standards
Develop unified definitions of low carbon steel, cement and concrete, in alignment with key partners. Develop a set of guidelines for harmonized Product Category Rules (PCRs) for steel, cement and concrete

Embodied carbon data reporting and disclosure
Facilitate agreement on an open data standard for EPDs for reporting on embodied carbon of buildings and infrastructure through the value chain



Green procurement campaign
Establish national strategy for net zero carbon buildings and infrastructure construction

Low carbon material standards
Work with the value chain and standards bodies to support the adoption of the harmonized PCRs and their EPDs into construction

Embodied carbon data reporting and disclosure
Require the disclosure of embodied carbon using EPDs produced with the open data standard and harmonized PCRs in procurement policies and building codes and standards



Green procurement campaign
Use whole life carbon assessments and carbon impacts as a key driver to inform design and procurement strategies throughout the project lifecycle

Low carbon material standards
Work with the value chain to adopt the harmonized PCRs and their EPDs for low carbon materials in the procurement and design process

Embodied carbon data reporting and disclosure
Establish a requirement for the use of EPDs created using the open standard in optioning, design, procurement and construction



Green procurement campaign
Align decision making with carbon performance for buildings and infrastructure

Low carbon material standards
Embed carbon reduction metrics within corporate KPIs and executive remuneration mechanisms

Embodied carbon data reporting and disclosure
Disclose the carbon performance of all held properties at asset level across portfolios in annual reporting

2025

Green procurement campaign

Facilitate the achievement of net zero emissions across all construction projects

Low carbon material standards

Facilitate the achievement of the use of harmonized PCRs and their EPDs across all construction projects

Embodied carbon data reporting and disclosure

Facilitate the achievement of embodied carbon disclosure using EPDs produced with the open data standard across all construction projects

Green procurement campaign

Scale up preferential investment in low carbon-committed asset developers, and divest from carbon-intensive developers

Low carbon material standards

Review carbon reduction metrics in accordance with net zero construction targets

Embodied carbon data reporting and disclosure

Ensure that all businesses financed set net zero emissions targets and disclose against these targets

Green procurement campaign

Require reductions in product and project level carbon in public construction. Embed embodied carbon in procurement policies and building codes and standards

Low carbon material standards

Embed harmonized PCRs for low carbon material standards across all public construction projects

Embodied carbon data reporting and disclosure

Require the disclosure of embodied carbon using EPDs produced with the open data standard and harmonized PCRs in procurement policies and building codes and standards

Green procurement campaign

Achieve net zero emissions across all private construction projects

Low carbon material standards

Achieve the use of harmonized PCRs and their EPDs across all private construction projects

Embodied carbon data reporting and disclosure

Achieve the disclosure of embodied carbon using EPDs produced with the open data standard across all private construction projects

Green procurement campaign

Require reductions in product and project level embodied carbon

Low carbon material standards

Embed harmonized PCRs and their EPDs for low carbon material standards across all private construction projects

Embodied carbon data reporting and disclosure

Mainstream embodied carbon reporting across all construction projects

Green procurement campaign

Scale IDD1 campaign to increase commitments for net zero carbon in buildings and infrastructure construction (and operation)

Low carbon material standards

Work with governments and industry to embed harmonized PCRs and their EPDs across all construction projects

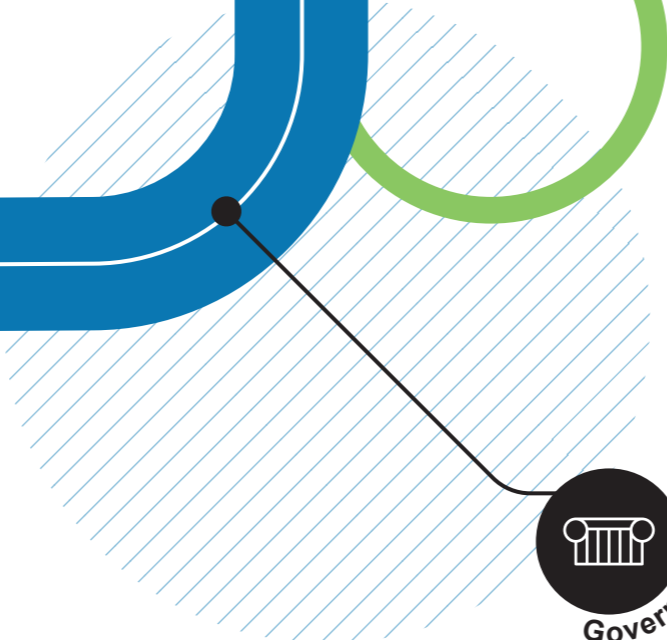
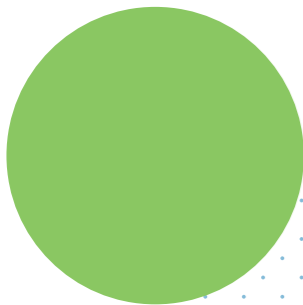
Embodied carbon data reporting and disclosure

Facilitate the adoption of embodied carbon disclosure using EPDs produced with the open data standard across all construction projects



2030

2050



GLOSSARY

Building Information Modelling (BIM) – The holistic process, supported by various tools, technologies and contracts, for creating and managing information for a built asset throughout its whole life cycle.

Carbon Capture, Utilisation and Storage (CCUS) – The process of capturing carbon dioxide emissions from fossil power generation and industrial processes for storage deep underground or re-use.²⁸

Carbon Pricing – An instrument that captures the external costs of greenhouse gas emissions (the costs of emissions that the public pays for, such as damage to crops, health care costs from heat waves and droughts, and loss of property from flooding and sea level rise) and ties them to their sources through a price, usually in the form of a price on the carbon dioxide emitted.²⁹

Cement – A binding material created by calcining lime and clay, that sets hardens and adheres to other materials to bind them together.

Clinker – Clinker is produced by heating crushed limestone and a mix of other materials (e.g., clay and sand) to 1450 °C in a rotary kiln. Clinker is later ground down to a fine powder and mixed with gypsum and other ingredients to make cement. The amount of clinker used in cement production is directly proportional to the CO₂ emissions generated in cement manufacturing.

Concrete – A composite structural materials consisting of fine and coarse aggregates (chemically inert, hard particular substances such as gravel, sand or rock), that is bonded together by cement and water.

Direct reduced iron process (DRI) – An ironmaking process that can substitute for emissions intensive blast-furnace ironmaking, that can utilise natural gas as a reductant or alternatively green hydrogen to further decarbonise.

Electric arc furnace (EAF) – EAF production uses electricity to repurpose steel scrap or DRI as their raw material into steel, resulting in a much lower emission intensity than a convention integrated blast furnace approach.

²⁸ UNECE (2023) [Carbon Capture, Utilisation and Storage](#).

²⁹ The World Bank (2023) [Carbon Pricing Dashboard: what is carbon pricing?](#)

Embodied carbon - Emissions that are indirectly the result of the construction, repair, maintenance, renovation and eventual, deconstruction of a building or piece of infrastructure.

Environmental product declarations (EPD) - A document that transparently reports objective, comparable, and third-party verified data about products and services' environmental performances from a lifecycle perspective.

EPD data infrastructure - The framework of policies, institutional arrangements, technologies, data and people that enables the sharing and effective usage of EPD data by standardising formats, access protocols and interoperability.

European Committee for Standardization (CEN) – A public standards organization officially recognised by the European Union and European Free Trade Association as being responsible for developing and defining voluntary standards at European Level ³⁰.

Green public procurement (GPP) - A process where public authorities seek to purchase or contract goods or services with a reduced environmental impact.

Interoperability - The ability of different computerized products or systems to readily connect and exchange information with one another.

International Standardization Organization (ISO) – An independent, non-governmental international standard development organization composed of representations from of 167 national standards bodies of member countries³¹.

Life cycle assessment (LCA) - a cradle-to-grave or cradle-to cradle systematic set of procedures for compiling and examining the inputs and outputs of materials and energy, and the associated environmental impacts directly attributable to the functioning of a product, service or process throughout its life cycle.

Product category rules (PCR) - a set of rules, requirements and guidelines for developing EPDs for one or more product categories.

³⁰ CENELEC (2023) [About CEN](#).

³¹ ISO (2023) [About us](#).

