




DECARBONIZING STEEL, CEMENT AND CONCRETE

Developing data to grow the global market


September 2022

Steel, cement and concrete are the backbone of our economies. But they account for just over 50 per cent¹ of all industrial emissions – and demand for these materials is rising. Decarbonizing these industries is essential for addressing the climate crisis. To drive momentum forward, in 2021 UNIDO and the Clean Energy Ministerial established the Industrial Deep Decarbonization Initiative (IDDI), a global coalition of governments and private sector organizations. Governments are among the top buyers of steel, cement and concrete. IDDI aims to harness this immense purchasing power to ignite a thriving market for these construction materials that generate low or near-zero emissions.


To achieve its aims, the IDDI is:



1. Establishing an approach for collecting **data and reporting** on low and near-zero emission steel, cement and concrete, including embodied carbon.



2. Harmonizing **global standards** to allow for comparability and define low and near-zero emission steel, cement and concrete.



3. Agreeing globally recognized **targets and best practices for the public procurement** of low and near-zero emission steel, cement and concrete.

An IDDI technical working group is responsible for each of these linked areas. Working Group 1 (data and reporting) is chaired by the UK Government's Department for Business, Energy and Industry Strategy, and consists of over 45 members from the private sector, government, civil society, intergovernmental organizations, trade associations, academia and think tanks.

To learn about the other two areas visit: [WG2 factsheet](#) | [WG3 factsheet](#) downloads.

1. <https://www.industrialenergyaccelerator.org/general/steel-and-cement-can-drive-the-decade-of-action-on-climate-change-this-is-how/>



The importance of data for decarbonization

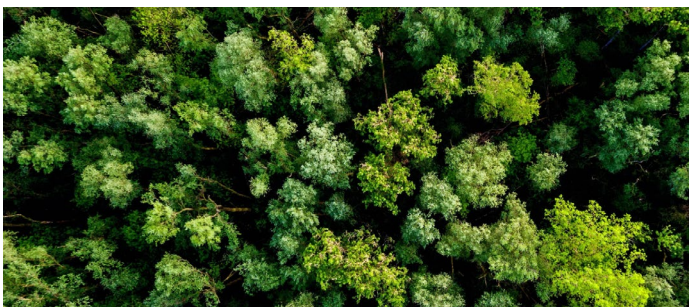
Currently, there are no widely used systems that capture, verify, and share data relating to the carbon emissions of steel, cement and concrete. One of the biggest issues is the lack of publicly available data on the emissions generated at each stage in producing and using steel, cement and concrete. This makes it hard to calculate embodied carbon.

Questions over standardization, privacy and governance often make companies reluctant to share and reuse data. But data in isolation rarely creates a competitive advantage. Increasing access to data relating to the carbon emissions of steel, cement and concrete will allow it to be used in ways that increase productivity, drive innovation, tackle climate change and enable economic prosperity.

IDDI is establishing a global system for collecting and reporting data on low and near-zero emission steel, cement and concrete, recognizing the efforts already made by other initiatives.

Working Group 1: key tasks

- **Develop a roadmap and guidelines** – including specific guidelines on embodied carbon – so that governments and businesses around the world recognize a common data and reporting system. This will help support public procurement of low and near-zero emissions steel, cement and concrete.
- **Share best practices, learning and knowledge** with countries that are developing data collection and reporting systems for industrial emissions. This includes examining how to best support businesses (such as construction companies) to work with data at scale.
- **Establish principles, regulations and incentives** for sharing carbon data through the value chain and internationally (addressing issues such as digital governance, data ethics, data sovereignty and digital security).



Embodied carbon is all the CO₂ emitted by producing a material. This includes extraction, manufacture/processing, transportation, assembly, maintenance, replacement, deconstruction and disposal. Together, these stages are called a material's lifecycle.

Data sharing and governance

There are three main approaches to data sharing and governance. Part of Working Group 1's remit is to examine which of these models (or which combination) will be most effective for reporting and sharing data on low and near-zero emissions steel, cement and concrete.

1. **Data-sharing agreements:** Legal contracts that define a close, direct relationship between two organizations for the purposes of sharing and using data. These are used in a wide variety of circumstances, including between suppliers and partners and between researchers and start-ups.
2. **Decentralized publishing initiatives:** Industry-wide collaborations that involve multiple organizations publishing or sharing data from their own data systems. These initiatives use open standards that define how data is being accessed, used and shared, as part of a standard legal framework or an open license.
3. **Data pooling:** Sometimes it is necessary to aggregate data to unlock its value. Pooling data from multiple sources can create a critical mass of data that can be analyzed to create insights that would be impossible for individual organizations to generate themselves.

The last two approaches involve the creation of data institutions (organizations responsible for stewarding data on behalf of others).

IDDI is the largest and most diverse coalition of governments and private sector working to decarbonize heavy industries. It is coordinated by UNIDO, led by the United Kingdom and India and has Canada, Germany, Japan, the United Arab Emirates, Saudi Arabia, Sweden and the United States as members. IDDI is supported by a strong coalition of initiatives and organizations, including the [Mission Possible Partnership](#), the [Leadership Group for the Industry Transition](#), and the [Climate Group](#).

To find out more about IDDI visit: <https://www.industrialenergyaccelerator.org/areas-of-work/heavy-industry-decarbonization/>

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