CLIMATE GROUP
STEELZERO

Getting to SteelZero:

Pathways to decarbonisation for government and industry

Policy Report

Heavy Industry

November 2024

Authors: Andrew Forth and Alice Pidgeon

Background

About SteelZero

SteelZero, led by Climate Group in partnership with ResponsibleSteel, is a global initiative that brings together forward-looking steel users to speed up the transition to a net zero steel industry.

SteelZero members publicly commit to using, procuring, and specifying 100% net zero steel by 2050. By harnessing their collective purchasing power and influence, SteelZero sends a strong demand signal, shifting global markets and policies towards the production and sourcing of lower emission steel.

What is lower emission steel?

There is no single definition of 'green' steel. SteelZero defines lower emission steel as:

- Steel produced by a steelmaking site where the steelmaker has a science-based emissions target
- 'Lower emission steel' (aligning with ResponsibleSteel Decarbonisation Progress Level 2 threshold)

Acknowledgements:

Funding for this policy briefing was provided by the European Climate Foundation (ECF) and Climate Imperative. We thank them for their invaluable support.

Contents

Introduction:

Why does decarbonising steel matter?

At Climate Group, our goal is a world of net zero carbon emissions by 2050, with greater prosperity for all. We focus on systems with the highest emissions and where our networks of governments and businesses have the greatest opportunity to drive change.

That is why Climate Group launched SteelZero, an ambitious and comprehensive global campaign to help drive climate action in the steel industry. Fast.

Steel is one of the world's most widely used materials, from buildings to bridges, scissors to saucepans, and cars to wind turbines. It is found in almost every aspect of our lives today. But steel has a dirty secret – it accounts for 8% of annual global greenhouse gas emissions.

Decarbonising steel production is critical for halving global carbon emissions by 2030 and to remain on track for a net zero world by mid-century. The good news is that change is possible. Thanks to the work of innovators and pioneers around the world, it is no longer right to say that steel is 'hard to abate'. The technology exists to make steel decarbonisation happen. The critical question that needs addressing is: How do we deploy the technology fast enough?

At Climate Group, we believe that governments have a key role to play in supporting the transition. Our aim is to help policymakers deliver a rapid, fair and cost-effective transition to lower emission steel, ensuring that communities and the skilled workforces that depend on steelmaking are not left behind.

Some of the steps are obvious. Public investment can help provide the funding and infrastructure that steelmakers need to transition to new technologies. This however won't be enough. We view the public sector as a key enabler of change. From public procurement and industrial policy to workforce skills and product standards, *Getting to SteelZero: Pathways to decarbonisation for government and industry* showcases some of the most promising new ideas to speed up the transition to fossil fuel-free steelmaking and highlights the opportunities for government support.

We urge you to view this report as a menu of options rather than a strict instruction manual. Steel is a global commodity; solutions that work well in one area may not do the job in another.

That's why we want to work with government leaders to speed up the roll out of new technologies and create a market for lower emission steel. We recognise that flexibility will be essential; this is too big a challenge for any one company or institution to deliver. We need to see collaboration and innovation to create the conditions for a private sector led, government enabled transition.

We want to facilitate the important conversations on how to reshape the industrial transition. There is so much to do but also so much that is possible. We look forward to working with policymakers, businesses and civil society organisations around the world to help speed up the journey to lower emission steel.

Helen Clarkson OBE
Chief Executive, Climate Group

Executive summary

Getting to SteelZero: Pathways to decarbonisation for government and industry

The journey to SteelZero – a world where steelmaking emissions are as close to zero as possible – is going to require a step change in the technologies we use to make steel.

Few industries are as politically charged as steelmaking. Yet policymakers have yet to fully recognise the role they need to play in global steel markets. Climate Group believes that governments at all levels have a significant role to play, even in regions where steelmaking doesn't take place.

Climate Group brings together ambitious governments from around the world to accelerate climate action. The **Industrial Decarbonisation Enablement Alliance (IDEA)** is our proposal for the heavy industry space. Through IDEA, we aim to bring governments together to help overcome the barriers to decarbonising heavy industries like steel, helping them play their part in transforming steel from a climate challenge into a green opportunity.

Government leadership is essential in tackling both practical and financial challenges. It is imperative that we find new ways to unlock investment, not only in steelmaking facilities, but also in renewable energy, green hydrogen and green ironmaking plants. These investments will create green jobs and keep the coal that currently powers most global steelmaking where it belongs – in the ground.

By effectively collaborating, governments can amplify the demand signals that push steelmakers to invest in new technologies. From green public procurement and industrial policy to standards and regulations, opportunities abound for the public sector to use its influence and shape the steel decarbonisation process.

1. **Procurement: Specify the use of lower emission steel and incentivise its wider use through changes to regulations and standards.**

   The public sector serves as a market 'maker', 'taker' and 'enabler' when it comes to steel. With their substantial purchasing power and role as major indirect consumers of steel, governments have an opportunity to influence the market directly.

   The role they can play extends far beyond the steel they purchase. Investment, policy and regulatory frameworks are fundamental tools that can significantly drive down emissions from steelmaking.

2. **Green jobs: Align net zero strategies, industrial policy and investment incentives to support steel decarbonisation and create green jobs.**

   Competitive and resilient green steel markets can only be achieved if policymakers are able to understand steel's critical role in the economy-wide green transition. It is essential that steel is at the heart of the net zero policy landscape. The stakes are high, with substantial rewards for success and significant costs for delayed action.

3. **Data: Adopt transparent and comparable environmental data standards that give steel buyers the confidence and leverage needed to push their supply chains to decarbonise.**

   There is no universally agreed definition for green steel. The terminology varies but generally refers to steel produced with close-to-zero greenhouse gas emissions in alignment with climate neutrality. Businesses however are calling for a standardised definition and consistent use of common language and terms of reference across the entire value chain and in different jurisdictions when referring to green steel, substantiated by data. Achieving this requires clearer rules on emissions reporting for industrial products throughout the supply chain, supported by robust measurement frameworks and reliable data.

4. **A global transition: Ensure a sustainable future for steel around the world.**

   Each steelmaker faces a unique path to decarbonisation. The options will vary depending on production location and method, clean energy availability, and the priorities and incentives set by government policy. For those producing steel from iron ore rather than through recycling existing steel, the urgency and scale of the transition is significantly greater.

   The critical role of steel in modern life and its place at the heart of the transition to net zero means we have no choice but to be ambitious. We need to work together to find ways to close coal blast furnaces and invest in innovative new steelmaking techniques that can deliver net zero steel to everyone, everywhere. This means taking action to cut emissions across the entire sector.

Recommendations for policymakers

- Understand your role in the steel market: are you a 'maker', 'taker' or 'enabler'?
- Commit to buying lower emission steel for use in public projects
- Adopt a clear approach for procuring and specifying lower emission steel
- Ensure that policies and regulations are aligned with the objectives of green public procurement strategies
- Align industrial and climate policies to support steel decarbonisation
- Support the development of lead markets for lower emission steel
- Use regulatory and financial incentives to strengthen the business case for using lower emission steel
- Define lower emission steel to provide clarity to public and private sector steel buyers
- Legislate to make accurate emissions data available to steel buyers
- Adopt an approach that drives decarbonisation across the whole steel industry by incentivising investment in lower emission primary steelmaking capacity

Recommendations

1. Procurement: Specify the use of lower emission steel and incentivise its wider use through changes to regulations and standards.

Government and public sector expenditure on works, goods and services is estimated to represent around 14% of GDP within the EU and up to 30% in developing countries.[1]

A significant proportion of this expenditure is directed towards steel[2], given its application across infrastructure development, transportation, energy infrastructure, manufacturing, housing and construction, security and defence, and other public utilities.

Governments have significant opportunities to drive action for lower emission steel through public procurement incentives, particularly given the key on-the-ground delivery partner role the public sector often plays.

Governments can leverage their purchasing power to speed up steel decarbonisation in various ways. For example:

- Understand your role in the steel market: are you a 'maker', 'taker' or 'enabler'?
- Commit to buying lower emission steel for use in public projects
- Adopt a clear approach for procuring and specifying lower emission steel
- Ensure that policies and regulations are aligned with the objectives of green public procurement strategies

1 Hasanbeigi, A., Nilsson, A., Mete, G., Fontenit, G., & Shi, D. 2021. Fostering industry transition through green public procurement: A "how to" guide for the cement & steel sectors. Clean Energy Ministerial. www.cleanenergyministerial.org/content/uploads/2022/03/fosteringindustry-transition-through-green-public-procurement.pdf

2 Climate Group, 2023. Finance Fit for Change. Finance Fit for Change project report | Climate Group (theclimategroup.org)

1.1 Drive steel decarbonisation through commercial and public policy incentives

Government plays three influential and crucial roles as market 'maker', 'taker' and 'enabler' in creating demand for lower emission steel:

Government as 'maker': Are you actively working with steelmakers and businesses that use steel to develop a roadmap for producing lower emission steel?

Government as 'taker': Are you using green public procurement to drive behaviour change?

Government as 'enabler': Are you adopting policies that facilitate and support the adoption of low-carbon technologies and practices in your region?

It is essential for governments to engage with businesses within their regions that are active in the steel industry. The effective use of policy levers can help public sector bodies meet their climate targets while also enhancing the competitiveness of local businesses in the complex global markets for steel and steel products.

1.2 Set a steel-specific decarbonisation target to raise awareness in your supply chains

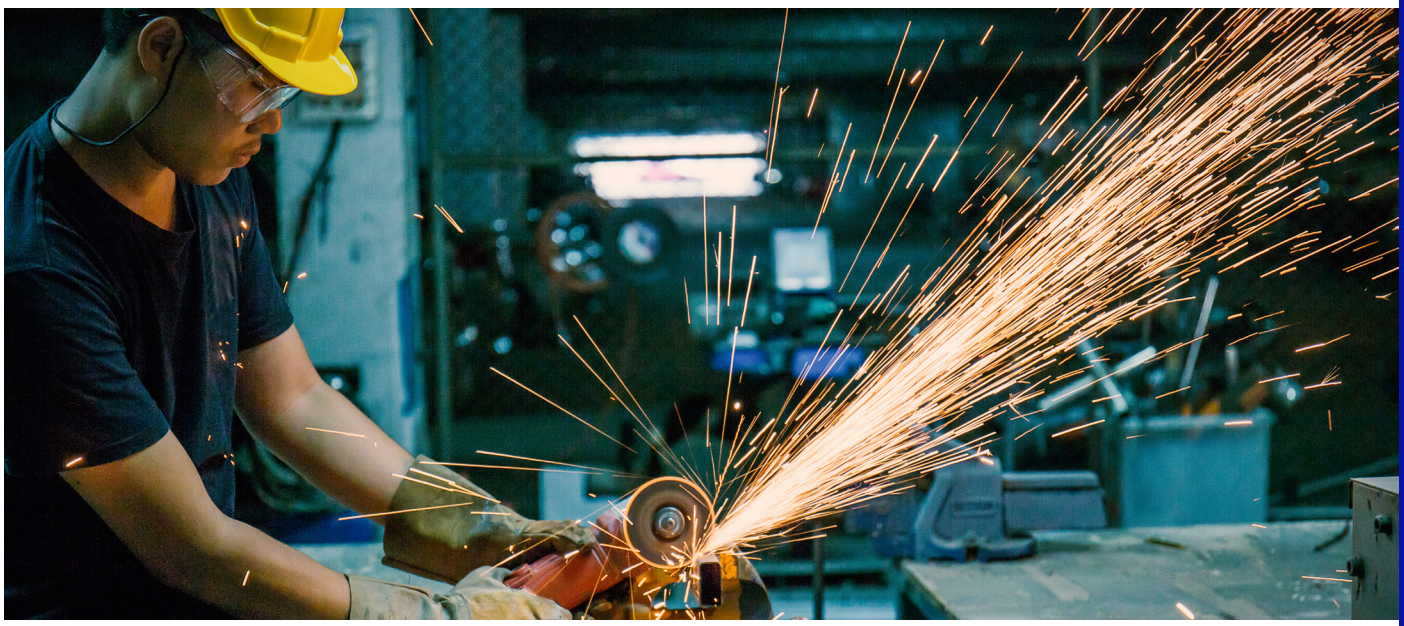
While many governments and public sector organisations incorporate sustainability considerations into their procurement process, few have mandates for minimising greenhouse gases in their compliance requirements. Even fewer have explicit criteria for incorporating green steel. This oversight means that governments are missing out on the chance to signal to steel manufacturers and businesses that there is a definite demand for the implementation and advancement of green technologies. Prioritising and creating markets for the adoption of green steel increases industry appetite to fully transform and commercialise the steel sector.

1.3 Set a steel decarbonisation target that aligns with initiatives such as SteelZero to build a strong demand signal

Public procurement can be used as a considered tool across market segments and sectors to kickstart and transform the business case. By setting sustainable standards and signalling market demand, governments and the public sector can help early green steel adopters gain significant competitive advantages and market share.

The SteelZero commitment framework provides public sector bodies with a clear approach to procuring and specifying responsibly produced steel through endorsement of the SteelZero targets. Policymakers can align targets such as ensuring that at least 50% of steel procurement meets lower emission standards by 2030 with green public procurement strategies across initiatives, policies and programs.

The extent of green public procurement at the state and regional level varies by country, but in some countries, it is much more important than at the national level. A study for the European Commission looking at procurement practices in 10 EU member states found that 43% of the identified green public procurement procedures were undertaken by regional or local authorities (41% by value). This is notably higher than the equivalent values for national authorities (8% by number[3] and 26% by value).[4] The SteelZero commitment framework could serve as a unifying commitment tool to align regions and states in their efforts to green their procurement practices.



3 European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, 2015. Study on "Strategic use of public procurement in promoting green, social and innovation policies, available at: op.europa.eu/en/publication-detail/-/publication/6a5a4873-b542-11e7-837e-01aa75ed71a1/language-en/format-PDF/source-search

4 Climate Group, 2023. Finance Fit for Change. Finance Fit for Change project report | Climate Group (theclimategroup.org)

1.4 Align policies across government to drive the actions and investments needed to enable the transition away from coal

A whole-of-government approach must be adopted to clearly define responsibilities for the design, implementation, and monitoring of green steel public procurement policies across agencies and sectors. This is essential given procuring agencies are typically spread across government functions and regional levels. Ultimately, purchasing lower emission steel should become the default choice for every government buyer.

Case Study: US Buy Clean Initiative

The Biden administration instituted a powerful policy toolbox targeting heavy-emitting products with its $630 billion annual purchasing power through its US Buy Clean initiative.[5] It pushes federal agencies through procurement preferences, emissions reporting and transparency, as well as financial incentives to drive demand for lower emission materials like steel in infrastructure investments and government projects.

The initiative has achieved significant success in accelerating steel decarbonisation in the U.S. and promoting the domestic production of green steel. However, it continues to face challenges such as levelling the playing field for primary and secondary steelmaking methods, particularly as Electric Arc Furnace (EAF) production methods seek to dominate procurement processes. Additionally, the lack of standardised carbon emissions data complicates efforts to make informed and accurate purchasing decisions. Despite these obstacles, the initiative has been very successful in advancing steel decarbonisation and fostering green steel production in the U.S.

5 Council on Environmental Quality, n.d. Federal Buy Clean Initiative. www.sustainability.gov/buyclean/

Case Study: The Industrial Deep Decarbonisation Initiative's (IDDI) Green Public Procurement (GPP) Pledge

The GPP Pledge promotes the public procurement of low-carbon materials and products, particularly in public construction projects.[6] It includes various pledge levels with differing commitments. Given half of all steel is used in construction[7], it is essential to adopt embodied emissions standards in the built environment and to foster innovative and sustainable practices in public construction across local industries and governments. These actions will form an important part of the decarbonisation journey.

Recommendations

- Understand your role in the steel market: are you a 'maker', 'taker' or 'enabler'?
- Commit to buying lower emission steel for use in public projects
- Adopt a clear approach for procuring and specifying lower emission steel
- Ensure that policies and regulations are aligned with the objectives of green public procurement strategies

6 United Nations Industrial Development Organization, n.d. The GPP pledge: Industrial energy accelerator. Industrial Energy Accelerator. www.industrialenergyaccelerator.org/the-gpp-pledge/

7 Statista, n.d. Global steel usage distribution in 2022, by industry. www.statista.com/statistics/1107721/steel-usage-global-segment/

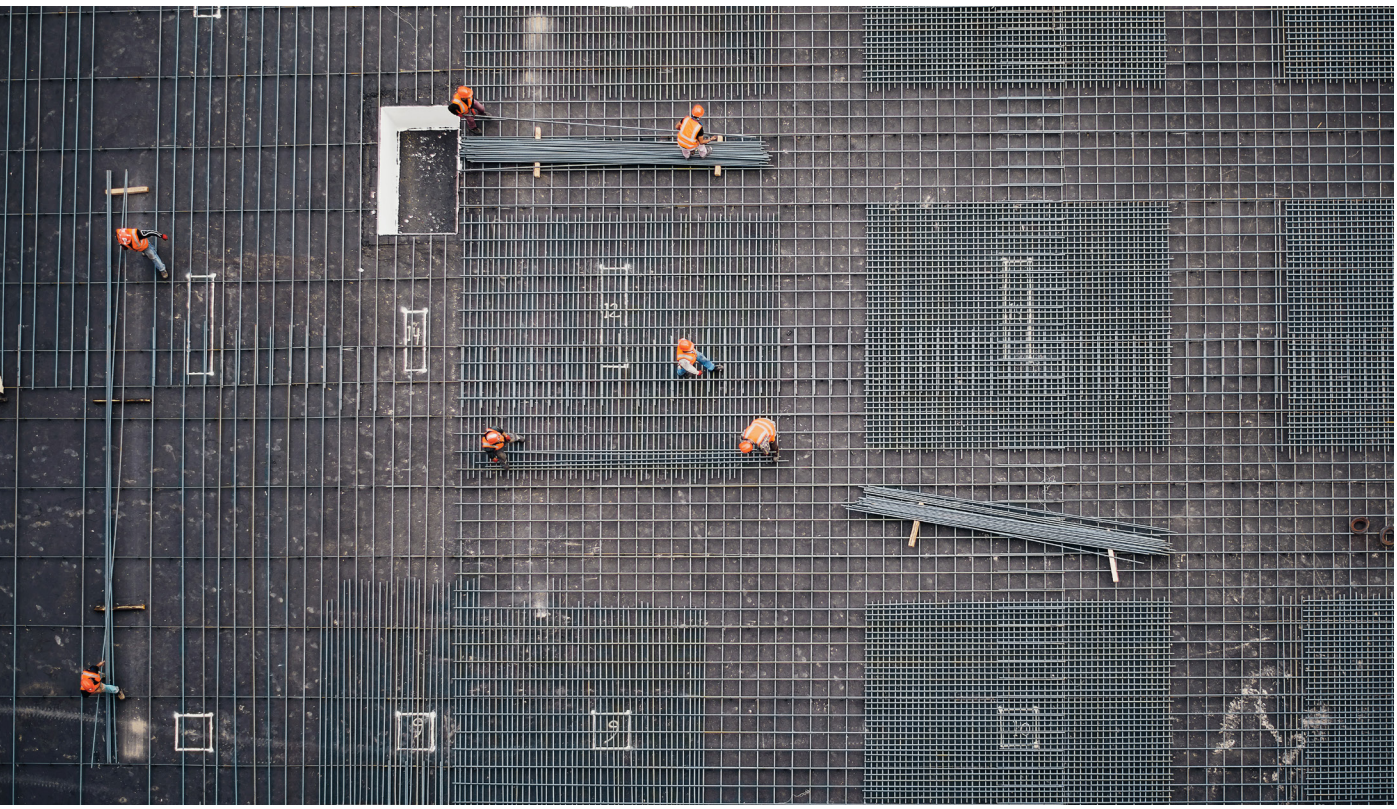
2. Green jobs: Align net zero strategies, industrial policy and investment incentives to support steel decarbonisation and create green jobs.

Public sector bodies can shape the steel market in ways that go beyond procurement. Understanding the role that steel plays in an economy is crucial to ensure that decisions promote demand for green steel. This is not about protectionism. We all lose if environmental rules become trade barriers. It is about putting the policies in place that support investment, create new jobs and support the transition of industrial communities.

We are already seeing a range of initiatives emerge to speed up steel decarbonisation. The examples within this chapter cover a range of options, some of which may be relevant to markets in your region.

Governments have a wide range of policymaking powers that can create demand for lower emission steel, provided they consider the needs of both steelmakers and steel buyers:

- Align industrial and climate policies to support steel decarbonisation
- Support the development of lead markets for lower emission steel
- Use regulatory and financial incentives to strengthen the business case for using lower emission steel



2.1 Attract jobs and investment by aligning industrial and climate policies to support steel decarbonisation

Steel decarbonisation involves far more than simply building new lower emission steelmaking capacity. It requires vast and supportive infrastructure.

For steelmakers, this means ensuring that electricity supply and transmission are in place and that green hydrogen is available.

For steel-buying companies, it means creating a level playing field to encourage the use of lower emission steel without fear of being undercut by more polluting products. Some necessary steps may not seem carbon-related, such as changes to regulations covering building codes or product safety standards that still reflect traditional production methods or do not reference environmental impacts.

An industrial strategy ensures that the appropriate infrastructure is in place, aligning strategic economic and climate objectives while guaranteeing that the lower emission steel produced can find buyers throughout the economy.

2.2 Develop lead markets to mainstream the use of lower emission steel across the economy

The shift towards green steel production to date has largely been driven by private sector demand. SteelZero members are at the forefront of this transformation, signalling their commitment to procuring low emission and in turn, net zero steel, in line with the SteelZero commitment framework and targets.

Announcements of multi-year green steel offtake agreements between steelmakers and buyers are increasing. Supporting these partnerships and agreements and establishing the necessary conditions is critical for their success. In these agreements, consumers commit to purchasing green steel materials that have not yet been produced, which are key to creating a more stable supply chain. By securing demand in advance, these agreements strengthen the business case for suppliers and steelmakers to make the needed upfront investments.

It is up to policymakers to create the right conditions that encourage more of these agreements. One approach is to identify lead markets where governments can influence decision-making and actively support innovation among companies serving the market. Renewable energy serves as a prime example of this. With the energy transformation set to drive significant demand for steel, there is potential for a mutually reinforcing transition – particularly when considering the enormous quantities of electricity required for lower emission steel production.

2.3 Strengthen the business case for using lower emission steel through providing regulatory and financial incentives and creating a level playing field supporting the transition

Governments worldwide are signalling and enacting regulatory reforms, alongside fiscal and industrial policies, to accelerate decarbonisation efforts across various sectors. These efforts include addressing embodied carbon in building materials and components, as well as introducing market-based policy instruments. Early adopters are being closely watched, with others expected to follow suit, harnessing the lessons learned. While some governments have explored innovative financing mechanisms, others have favoured performance-based criteria in their legislation.

The two case studies below are among the first examples to have been rolled out, but many other schemes are currently in development. The specific policies can vary greatly depending on the targeted types of industry, and the type of steel products being purchased. For instance, sectors such as the automotive industry, which purchases large volumes of high-specification steel, face a much more complex decarbonisation challenge compared to the construction sector. It is essential that the incentives adopted are transparent and contain effective safeguards against abuse.

Case Study – Ørsted & Dillinger: A case study of collaboration for the renewables and steel sectors

In March 2024, Ørsted (flagship SteelZero member) made a long-term agreement to purchase green heavy plate steel for offshore wind foundations from their German supplier Dillinger.[8] This demonstrates how strong supplier partnership approaches can be leveraged to push for sustainable solutions and support the green build-out. The offtake agreement between the two companies provides Ørsted with access at scale to a critical raw material for offshore wind that also meets their climate targets while enabling Dillinger to accelerate their investments in new lower emission steel production. Such agreements, coupled with regulatory support and financial instruments, are essential for reducing the cost of lower emission steel. They provide early demand signals and indicate stable supply chains for climate-compatible steel production.

8 Ørsted, 2024. Ørsted secures first access to lower-emission heavy plate steel through MoU with Dillinger. Ørsted secures first access to lower-emission heavy plate steel through MoU with Dillinger (orsted.com)

Case Study – Carbon Contracts for Difference (CCfD)

In a first-of-its-kind programme among EU member states, the European Commission approved a €4 billion German Carbon Contracts for Difference (CCfD) scheme to aid companies regulated by the EU Emission Trading System (ETS) in transitioning and decarbonising their industrial processes.[9] German authorities expect the scheme to enable large-scale decarbonisation by covering the additional operating and investment costs of European steelmaking decarbonisation technologies and mitigating business risks related to price volatility.

Using policy instruments such as the CCfD to shape the market for green materials is inspired by the success of interventionist policy approaches in the renewable energy sector. Such approaches have led to significant cost reductions and have supported the widespread adoption of wind and photovoltaic.[10]

The CCfD program employs a competitive bidding process and strict criteria to determine the level of aid awarded. Eligible projects are required to cut emissions by 60% within 3 years and 90% within 15 years.[11] This includes a government top up payment to match the difference in cost of lower- and higher-carbon alternatives, ensuring that low-carbon options are priced the same as high-carbon ones for end users. If the greener option becomes cheaper, the subsidy adjusts accordingly to maintain price parity.

While the CCfD program is expected to be highly effective, with the funding programme aiming to save around 350 megatonnes of CO2 equivalents by 2045 directly[12], it is important to consider potential challenges. Regions with limited access to large amounts of renewable electricity may face disadvantages as future electricity prices become a key determinant of production costs. Therefore, while production subsidies through CCfDs can effectively commercialise lower emission primary steel production, they must be designed with barriers in mind and supported by future-focused industrial policy.

9 European Commission, 2024. €4 billion German State aid scheme (europa.eu)
10 Vogl, V., Åhman, M., & Nilsson, L. J., 2020. The making of green steel in the EU: a policy evaluation for the early commercialization phase. Climate Policy, 21(1), 78–92. www.tandfonline.com/doi/full/10.1080/14693062.2020.1803040#abstract
11 CMS Law-Now, 2024. After EU Commission's first decision on carbon contracts for difference, Germany initiates bidding of EUR 4bn. cms-lawnow.com/en/ealerts/2024/03/after-eu-commission-s-first-decision-on-carbon-contracts-for-difference-germany-initiates-bidding-of-eur-4bn
12 Federal Ministry for Economic Affairs and Climate Action (BMWK), 2024. First round of carbon contracts for difference launched. www.bmwk.de/Redaktion/EN/Pressemitteilungen/2024/03/20240312-first-round-of-carbon-contracts-for-difference-launched.html

Case Study - A first of its kind: France's RE2020 carbon neutrality building regulations

Much like the steel industry, the maturation of the construction sector has meant the same emissions-intensive materials and methods have been used for decades. To shift the playing field of the French built environment and transition towards a more sustainable future, France introduced a leading suite of national environmental regulatory pressures, RE2020, that came into effect on 1 January 2022, intending to align construction regulations with broader carbon neutrality by 2050 objectives.[13]

Policymakers designed the regulations to be progressively tightened over time, with additional phases planned for 2025, 2028 and 2031, covering an increased scope of building types.[14] These regulations are supported by a comprehensive suite of financial incentives and upskilling measures aimed at the construction sector.

RE2020 mandates an analysis of a building's emissions throughout its entire life cycle, starting from design and construction. It sets maximum limits for embodied carbon, requiring all stakeholders, from material manufacturers to architects and construction companies, to actively reduce carbon intensity levels through methods and materials. This is triggering a gradual transformation towards the production and use of low-carbon materials, such as wood and other bio-sourced materials, given their carbon storage effects.

Overall, the regulations are expected to lead to a 52% fall in carbon emissions thresholds by 2031.[15] While the full impact of the regulations is still unfolding, companies that supply or use more sustainable building materials such as green steel are starting to gain a competitive advantage, with these materials capturing an increasing share of the market.

Recommendations:

- Align industrial and climate policies to support steel decarbonisation
- Support the development of lead markets for lower emission steel
- Use regulatory and financial incentives to strengthen the business case for using lower emission steel

13 Ministry of Ecological Transition, France, 2024. RE2020 environmental regulations. www.ecologie.gouv.fr/reglementation-environnementale-re2020

14 Agora Energy Transition, 2022. France's RE2020 regulation: A building policy success story. static.agora-energiewende.de/fileadmin/Success_Stories/BP/BP_FR_RE2020/A-E_272_Succ_Stor_BP_France_RE2020_WEB.pdf

15 Construction Briefing, 2023. The countries that are amending building codes to limit construction carbon emissions. www.constructionbriefing.com/news/the-countries-that-are-amending-building-codes-to-limit-construc-tion-carbon-emissions/8027521.article

3. Data: Adopt transparent and comparable environmental data standards that give steel buyers the confidence and leverage needed to push their supply chains to decarbonise.

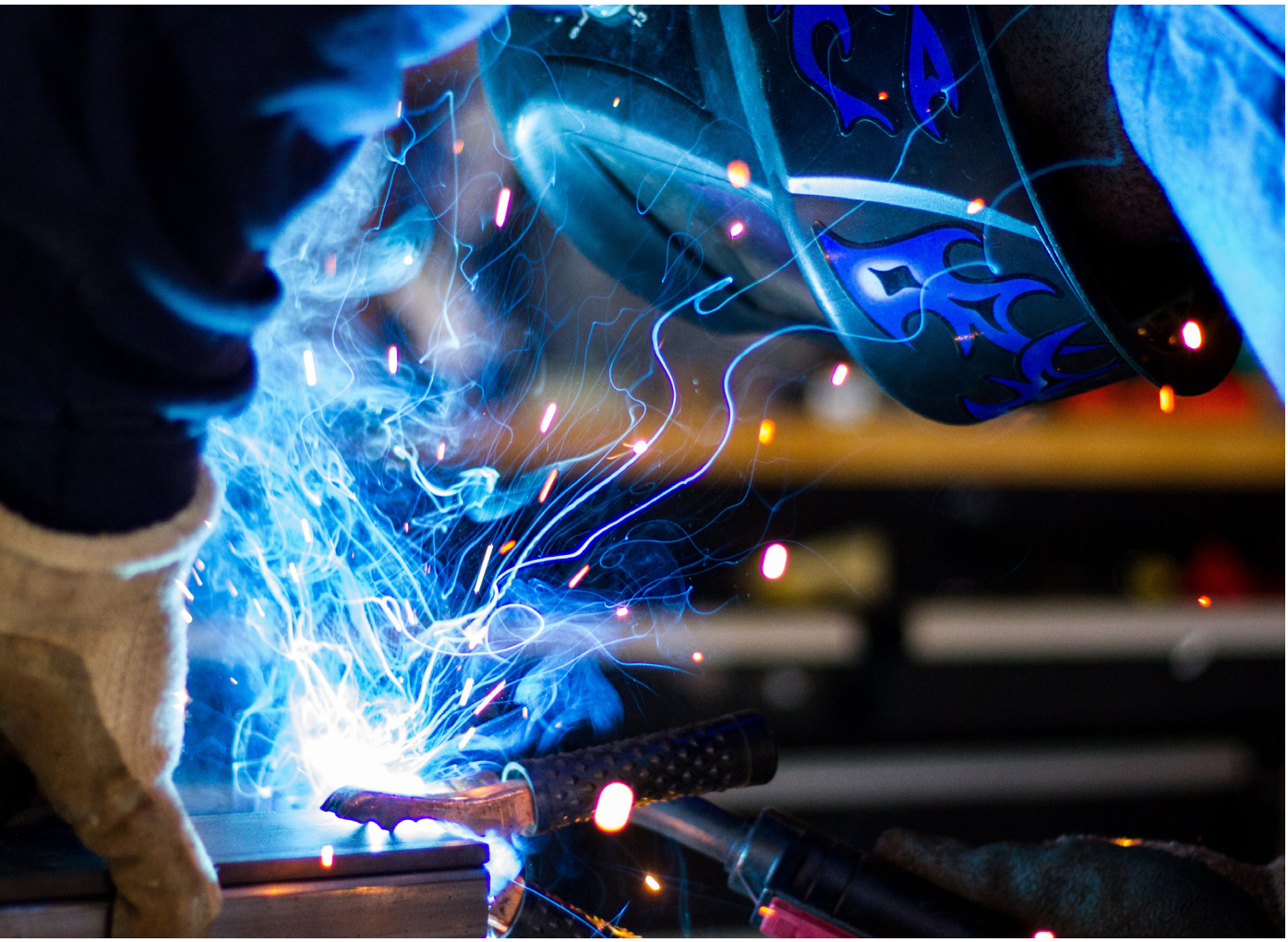
You cannot manage what you do not - or cannot - measure. While transparency is second nature in some sectors, this is not the case in the steel industry. Some data does exist, but this often only covers a narrow range of recycled steel products or relies on default and/or multi-site emissions values. For businesses seeking to buy lower emission steel products, particularly smaller purchasers, accessing accurate data remains a major barrier to change.

Businesses are strongly advocating for clear and consistent use of common definitions and terminology across the value chain and between jurisdictions for 'green steel', substantiated by data. This requires clearer rules on emissions reporting for industrial products throughout the supply chain, underpinned by robust measurement frameworks and accurate data.

Some challenges are basic. Steelmakers often refuse to provide data or offer it only under non-disclosure agreements. Governments could radically shift industry practices by leveraging their influence as both buyers and regulators to set clear standards and definitions, and by helping to facilitate discussions between steelmakers and customers.

Governments can use their influence to empower steel buyers to push steelmakers for emissions reductions by:

- Define lower emission steel to provide clarity to public and private sector steel buyers
- Legislate to make accurate emissions data available to steel buyers



3.1 Adopt a definition of lower emission steel to provide clarity to public and private sector steel buyers and incentivise steelmakers to decarbonise by providing a clear goal

There is a pressing need to establish a clear definition for green steel. From providing a clear definition of lower emission steel as the basis for the steel used in public contracts to creating the ability for companies to promote and market lower emission steel products with confidence, adopting a definition of lower emission steel is a potential game changer.

Fortunately, several established emissions measurement methodologies and data frameworks already exist, eliminating the need to start from scratch. We recognise that political and legal considerations may lead to different geographies choosing to adopt their own standards and definitions. While this adds complexity, it is not in and of itself a huge barrier to progress, provided that the standards allow for comparison and provide the necessary levels of information. SteelZero welcomes the ongoing work on the Steel Standards Principles, which could provide an effective basis for interoperability.

3.2 Help businesses access accurate emissions data about the steel they buy

One of the major challenges for steelmakers transitioning to lower emission steelmaking is the need to secure a green premium for their products. This is particularly challenging in a market still dominated by lower-priced steel made using conventional, emissions-intensive methods which remain widely accepted by buyers across the supply chain.

Transparent, accurate and accessible data is needed for building confidence in purchasing decisions and validating environmental claims surrounding green steel, while also driving progress towards emissions reduction goals.

Governments should work with industry to develop and mandate standardised and comprehensive calculation methods for reporting steel emission intensities. This would enable more accurate comparisons, ensure consistency and enhance understanding of the environmental impacts of products.

An emissions measurement method should allow for direct comparisons across all production facilities and enable the use of specific, auditable data for each site and product, rather than relying on generic emissions estimates or factors.

We need to enable steel buyers to access mill- and product-specific data on the steel they buy.

SteelZero reporting: Insights from 2023 and next steps

SteelZero's business members commit to annual reporting on their progress towards their SteelZero commitments, increasing accountability and enabling better tracking of progress through data and intelligence gathering.

The information reported includes:

- Details about the quantity of steel procured and its embodied carbon
- The percentage of scrap content
- Alignment with existing standards

SteelZero members are not only looking to understand steel emissions data through their asks; they are also cascading this through their supply chains and communicating to steelmakers what is needed for them to meet their SteelZero commitment. Our reporting frameworks ensure that both steel users and steelmakers operate from the same set of reference points and criteria for the collecting and reporting of product-level data.

Reporting was introduced in 2023, in direct response to emphatic member calls for greater transparency and data-driven accountability. This was a collaborative effort, with extensive consultations with our business members, partners at ResponsibleSteel, other NGOs, civil society, and external stakeholders and experts. The BETA phase of the reporting focused on understanding members' steel procurement practices, identifying barriers to data collection, and building a framework to showcase the impact of SteelZero commitments on the market.

For some downstream steel users, gathering this data was a new experience that proved beneficial to bridging information gaps. Many members expressed how valuable the reporting process had been, noting that it provided an opportunity to reconnect to their supply chain and spark new collaborations and partnerships. However, the data received varied in quality, reflecting the complex nature of some member's supply chains. An automaker sourcing thousands of steel parts in various grades and sizes for a car is a good example of this type of complexity.

Members buying steel directly from steel mills were in some cases able to directly ask steelmakers for GHG emissions data and scrap percentages. Elsewhere in the supply chain, end users purchasing steel products having undergone several processing stages relied on environmental product declarations (EPDs) for GHG emissions data. However, these declarations often vary in their methodologies, frequently covering multiple products from various mills and sites. This variability renders it challenging to accurately determine the emissions associated with a specific piece of steel. For effective reporting – but also for compliance with environmental disclosure and green claims regulations – this level of detail simply is insufficient. We need to enable steel buyers to access mill-and product-specific data for the steel they buy.

SteelZero continues to actively collaborate with members on developing guidance and tools to ensure they are making the right asks of their suppliers. This includes facilitating those conversations and supporting the chain of custody work that ResponsibleSteel is undertaking with steelmakers.

Recommendations

- Define lower emission steel to provide clarity to public and private sector steel buyers
- Legislate to make accurate emissions data available to steel buyers

4. A global transition: Ensure a sustainable future for steel around the world.

Research by the World Economic Forum indicates that even with significant increases in recycling rates and more efficient steel use, 60% of steel needs in 2050 will still need to be met through iron ore-based primary steelmaking.[16]

At the same time, the dominant production route for primary steelmaking involves the use of coal-powered blast furnaces. This means that today 70% of steel directly relies on coal.[17] By 2050, this needs to be close to zero.

Using scrap steel and powering furnaces with renewable energy, it is possible to produce steel with close to zero emissions. Recycled 'secondary' steel made in EAF is already well established. In the USA, EAF steel accounts for 70% of output[18] – but we know there is limited scope to significantly expand this due to limited scrap steel availability in certain markets and regions.

Global steel markets need global standards to speed up the transition to net zero steel. These standards need to reflect international differences in access to resources, particularly scrap steel, as well as disparities in historic steel consumption.

To ensure local decisions contribute to the transformation of global steel markets, governments can support the transition by adopting strategies that drive decarbonisation across the industry, incentivising investment in lower emission primary steelmaking capacity.

16 World Economic Forum, 2022. The Net-Zero Industry Tracker. Preface - The Net-Zero Industry Tracker | World Economic Forum (weforum.org)
17 SteelWatch, 2023. Sunsetting Coal in Steel Production. steelwatch.org/wp-content/uploads/2023/06/FINAL-SteelWatch_SunsettingCoalInSteel_June2023-sunday-25th-june.pdf
18 Green Steel World, 2022. Steelmaking in EAFs produces 75% lower CO2 emissions, validates independent study. greensteelworld.com/steelmaking-in-eafs-produces-75-lower-co2-emissions-validates-independent-study

4.1 Adopt the right standards and definitions to help tackle global steelmaking emissions

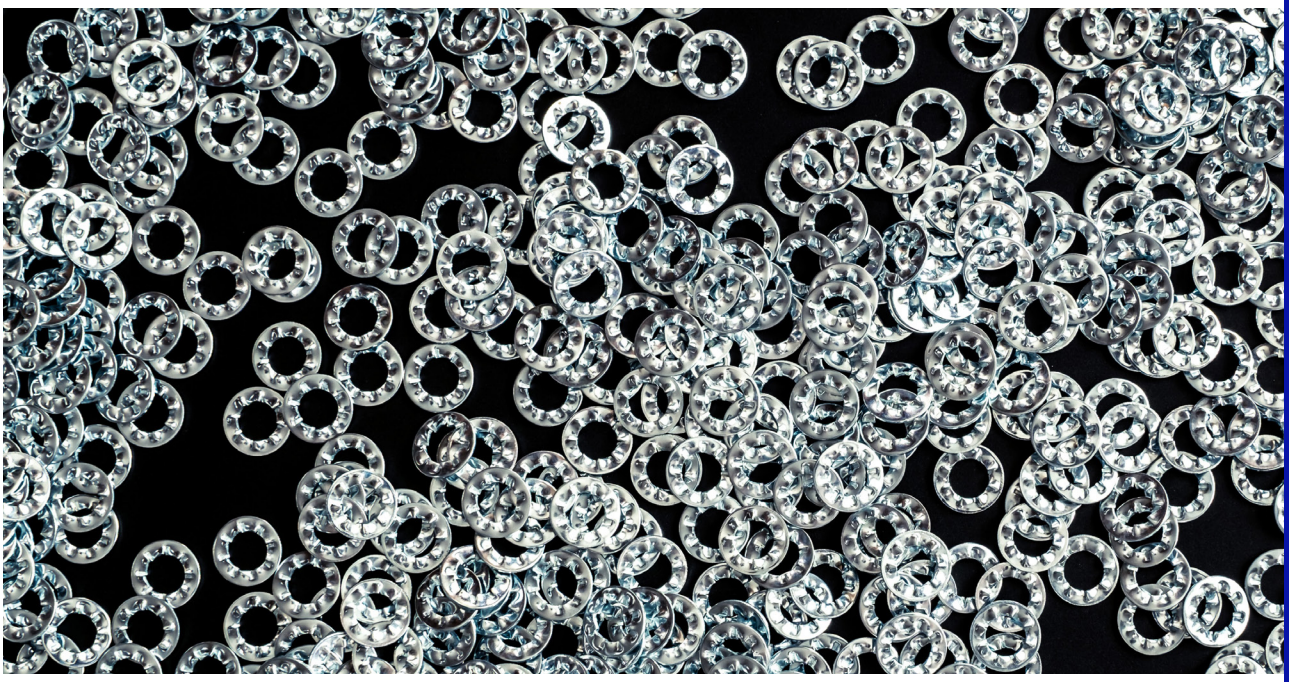
The critical role of steel in modern life and its place at the heart of the net zero transition means we have no choice but to be ambitious regarding decarbonising the material.

Steelmakers are setting roadmaps to decarbonise their production processes and meet customer demands. But each steelmaker's path will differ. Decarbonisation strategies will vary based off factors such as production location, clean energy availability, government policy priorities and incentives, and steel production methods.

To address the diverse range of challenges and varying pathways for meeting steel demand through recycling, ResponsibleSteel created the 'sliding scale', which has been adopted by the International Energy Agency, UNIDO IDDI, Sustainable Steel Principles and SteelZero.

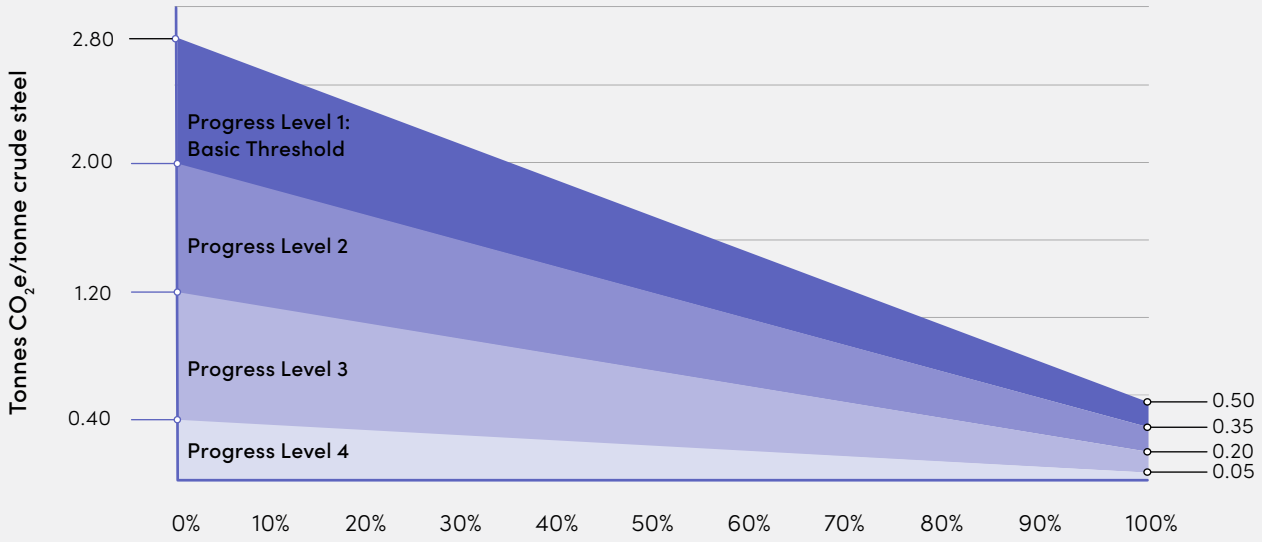
The sliding scale encourages action to lower steelmaking emissions across the sector. It does this by setting emission thresholds, which decline as the % of scrap used to create the final product increases.

Climate Group's SteelZero's interim targets require steel that reaches ResponsibleSteel Performance Level 2. For 100% recycled steel, the ResponsibleSteel Standard sets a maximum emissions level of 0.35 tonnes of CO2 per tonne of crude steel. By contrast, some of the other proposed standards today allow for up to 1.6 tonnes of CO2 per tonne of steel for 100% recycled steel – effectively delaying the need for climate action until the 2040s.[19]



19 Global Steel Climate Council, n.d. Global Steel Climate Council. Global Steel Climate Council. Global Steel Climate Council

Scrap variable thresholds for an equitable decarbonisation framework



The ResponsibleSteel Decarbonisation Progress Levels[20]

4.2 Adopt standards that allow for geographical and sectoral variability to tackle steel's climate impacts and ensure local business in global markets are not left behind

With steel coming in so many grades, products made from steel are extensively traded and used across many different sectors of the economy. Even in regions with major steel production, steel from around the world will be present in locally manufactured and used goods.

While it may be appealing for governments to adopt standards aimed at supporting local steelmakers, such an approach would have significant drawbacks for both the wider steel industry transition and the overall competitiveness of the economy. Climate Group strongly advocates for the use of the sliding scale because we see it as the best way to balance these competing priorities.

Recommendation

- Adopt an approach that drives decarbonisation across the whole steel industry by incentivising investment in lower emission primary steelmaking capacity

20 ResponsibleSteel, 2024. Understanding ResponsibleSteel's Decarbonisation Progress Levels. cdn.prod.website-files.com/653ed7060b01292cd4518d0e/66f2c0d1f0ae063619ff2fe2_ResponsibleSteel%27s%20Approach%20to%20Decarbonisation.pdf

Conclusion and way forward

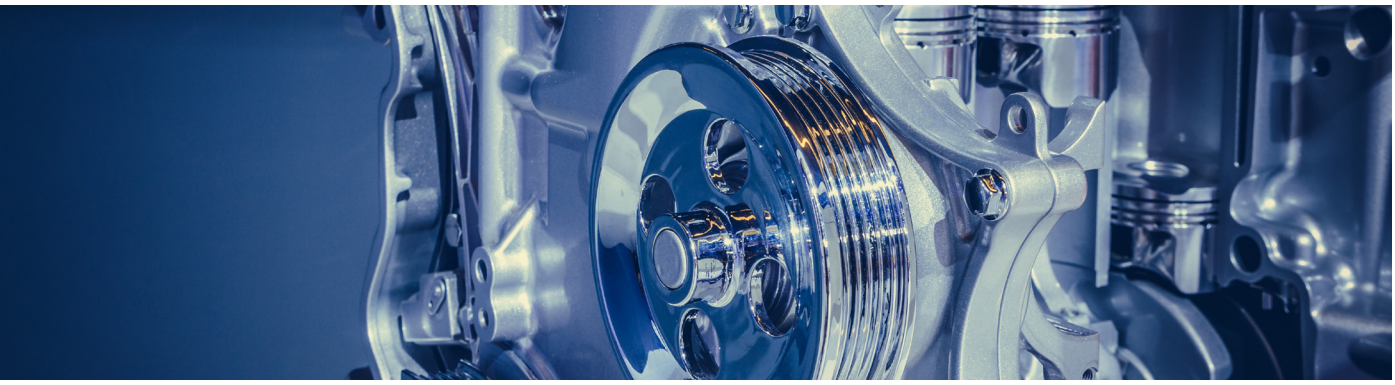
Be part of the global IDEA.

Between now and 2030, governments and policymakers must make critical decisions to set the direction for change and accelerate the decarbonisation of the steel industry as part of the worldwide effort to reach net zero by 2050.

We believe that progress can be better achieved through partnerships, and Climate Group has a proven track record for facilitating climate-driven alliances. That is why we are creating a global network of trailblazing government leaders with geographic and sectoral influence to drive the transition to a climate-compatible business-as-usual and foster a competitive global market for steel.

The **IDEA (Industrial Decarbonisation Enablement Alliance)** is our proposal for the heavy industry sector, where subnational governments publicly signal their endorsement for the interim 2030 and final 2050 SteelZero targets ambition statements. Climate Group will actively collaborate with alliance members, building a strategic network to influence and facilitate the public sector's scaling of progressive, just and internally well-coordinated policy, standards and regulations for low, near and net zero steel.

The steel decarbonisation policy landscape is rapidly evolving. Delaying action on something we know needs to change will only make it more challenging to mitigate local economic losses associated with delayed action. It will enhance business competitiveness in both domestic and international markets, positioning your region as a leader in climate and innovation within the advancing of the clean economy.



Governments can signal their support for the SteelZero aims and principles when:

- Designing industrial policy
- Making infrastructure investments
- Making public procurement decisions
- Changing regulations covering steel products and
- Implementing climate change policies

Our *Getting to SteelZero: Pathways to decarbonisation for government and industry* policy report lays out a path for progress and prosperity. Governments that understand and seize the opportunities to be leaders in setting the direction for change will be at the forefront of sustainable industrial transformation and global economic leadership.

SteelZero receives official endorsement from Chungcheongnam-do, Republic of Korea

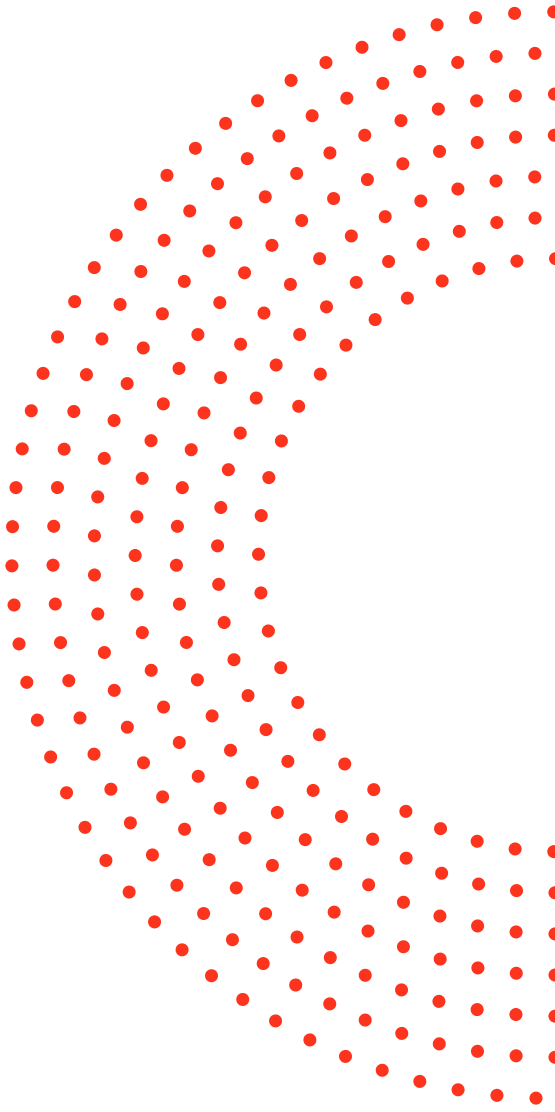
Governments are already showing their commitment. Chungcheongnam-do (hereafter referred to as Chungnam) is home to one of the three integrated steel plants in the country. The province has been leading by example, with Governor Kim Tae-heum of Chungnam officially endorsing the SteelZero initiative at the Asia Renewables Growth Forum in May 2024, making Chungnam the first ever government to do so.

As a co-chair of the Under2 Coalition, Chungnam has played a significant role in driving subnational climate action to achieve Korea's 2050 carbon neutrality goal. With steelmaking responsible for nearly 40% of South Korea's industrial emissions, and the country ranking as the 6th largest steel producer globally, the province's focus on decarbonising the steel industry marks a pivotal moment in accelerating SteelZero's global campaign and driving public sector action. SteelZero continues closely collaborating with the Governor and Chungnam to bring together stakeholders and drive the steel industry's net zero transition as decarbonisation becomes both a climate and competitive imperative.

Chungnam's leadership is a welcome sign that subnational governments recognise the important role they can play. We hope this can inspire other governments to adopt approaches that help speed up the transition towards net zero in the steel industry and the industries that rely on it.

CLIMATE GROUP

STEELZERO



The Climate Change Organisation (The Climate Group) with Company Registration Number: 4964424 and Charity Registration Number: 1102909
The Climate Group, Inc. is a U.S. registered 501(c)3 with EIN 43-2073566
M/s TCCO India Projects Private Limited with Corporate Identity Number U74999DL2018PT