Piloting the Climate Club in the Steel Sector

Focus on the Quick Wins, Create a Safe Space for Dialogue

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POLICY ACCELERATOR FOR CLIMATE INNOVATION 2023

This publication was developed using the results of the two-day Policy Accelerator for Climate Innovation 2023 workshop hosted by EPICO KlimaInnovation and the Konrad-Adenauer-Stiftung in Brussels on 27 and 28 September 2023 on the topic "Piloting the Climate Club: A Sectoral Alliance for Steel". The workshop was conceptualised by **Parul Kumar** (EPICO KlimaInnovation) and **Heiner von Lüpke** (German Institute for Economic Research).

Since 2021, EPICO and the Konrad-Adenauer-Stiftung have partnered to host the Policy Accelerator, where a diverse team of experts from academia, politics, industry, and civil society are brought together to tackle challenges topping the agenda to decarbonise the economy. During the workshops, domain experts known as "Challengers" join the process for interview sessions, where they provide insights on the chosen topic, and challenge the ideas that the team produces.

The following individuals participated in the Policy Accelerator workshop and contributed to this policy brief: **Parul Kumar** (Senior Policy Specialist Environment, EPICO KlimaInnovation), **Heiner von Lüpke** (Research Associate, German Institute for Economic Research, DIW Berlin), **Max Åhman** (Associate Professor, Environmental and Energy System Studies, Lund University), **Simon Otto** (Project Researcher, Brussels School of Governance), **Samuel Flückiger** (Head of EU Climate Policy, thyssenkrupp Steel), and **Åsa Ekdahl** (Head of Environment and Climate Change, World Steel Association).

We would like to express our gratitude to our esteemed Challengers for their valuable contributions during the workshop: **Kurt Vandenberghe**, (Director-General of the Directorate-General Climate Action, DG CLIMA, of the European Commission), **Francisco Javier Ulloa Muñoz** (Deputy Head of Mission at the Embassy of Chile in Germany), **Parth Kumar** (Programme manager for the Industrial Pollution Unit, Centre for Science and Environment, New Delhi), and **Karin Jancyková** (Programme Manager for Climate and Energy, Multinational Development Policy Dialogue at Konrad-Adenauer-Stiftung).

AT A GLANCE

The G7 has provided the initial ideas and the Terms of Reference for kick-starting a Climate Club, which will be launched shortly, and officially commence its activities. Conceptualised as a high-ambition intergovernmental forum with a particular focus on industrial decarbonisation, the Climate Club aims to be open and inclusive and currently already has 27 member countries.

Building on existing discussions on industrial decarbonisation and international cooperation, this paper presents the value and challenges of piloting the activities of the Climate Club in the steel sector, a high-emission sector with significant trade exposure. The authors make a case for greater institutionalisation of international cooperation efforts through the Climate Club, which can set membership criteria based on well-defined targets and accompanying roadmaps, and can further fill the gap in ongoing steel sector initiatives.

Through concrete examples of potential cooperation between countries from the Global North and the Global South across the steel value chain, this paper illustrates the importance of building trust and creating a safe space for discussion and policy coordination in the steel sector.

EXECUTIVE SUMMARY

The steel sector as a pilot candidate for the Climate Club

The G7 Climate Club aims to increase ambition for industrial decarbonisation through international cooperation. The steel sector emerges as an important sectoral candidate for piloting the activities of the Climate Club in view of its emission-intensive profile, trade exposure, and the need for coordinating partnerships and policies across the value chain.

Gap-filling and greater institutionalisation

As an intergovernmental body, the Climate Club can play an important role in complementing and filling gaps in existing steel sector alliances, policy coordination, and target a higher degree of institutionalisation than currently exists in the international landscape.

Kick-starting activities through partnership-building

In order to successfully kick-start its activities, the Climate Club should avoid a narrow focus on carbon pricing and carbon leakage. Its activities should focus constructively on building partnerships in the steel sector, where the results can be visibly beneficial for the members and can support the goal of near zero emission steel.

Membership criteria

The membership criteria for the Climate Club on steel (which could function as a sub-stream of the G7 Climate Club) should be based on national steel decarbonisation pledges for a near zero emission steel industry by a target year determined by each country consistent with its long-term targets for carbon neutrality, and linked to the development of a national roadmap. The national pledges and roadmaps should respect the principle of common but differentiated responsibilities.

Strategic cooperation across the steel value chain

Strategically locating mutually beneficial areas of cooperation for member countries from the Global North and the Global South across the steel value chain should be prioritised as a first step. Areas of upstream cooperation on the value chain could include partnerships for green iron ore, green hydrogen, and scrap, while downstream cooperation could focus on creating lead markets for intermediate and finished products using green steel.

Focussing on quick wins

The Climate Club should at first focus on mutually beneficial outcomes requiring lower investment of political capital (“quick wins”) to build trust and goodwill among members and also signal incentives for new countries to join as members. These quick wins should concentrate on topics involving the steel sector where policies are still being developed (for example, green public procurement) as well as technical assistance and capacity-building.

Creating a safe space for dialogue

Building on the trust and goodwill established through quick wins, as a next step, the Climate Club should aim to create a safe space for dialogue on more contentious issues posed by the acceleration of decarbonisation efforts in the steel sector: for example, carbon leakage measures, definitions of “green steel”, and financing the steel sector decarbonisation.

Convening ambitious members

As an immediate goal, the Climate Club for steel should aim to convene the most ambitious countries showing a willingness to support the decarbonisation of the steel sector across the value chain. Over time, the Climate Club should aim to secure the major players in the global steel industry, most notably China and India. To this end, the Climate Club should focus on signalling appropriate incentives through its activities, such as the access to markets, strategic partners, finance and technology cooperation.

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INTRODUCTION 1.

In June 2022, the foundation for the G7 Climate Club[1] was laid at the G7 Summit in Elmau, Germany under the G7 presidency of Germany. The initiative was described as "*an intergovernmental forum of high ambition*" with the objective to "*to support the effective implementation of the Paris Agreement by accelerating climate action and increasing ambition, with a particular focus on the industry sector*" (G7, G7 Statement on Climate Club, 2022). Shortly thereafter, in December 2022, the Terms of Reference for the Climate Club further emphasised the role of the Climate Club to "*serve as an enabling framework for increased cooperation, improved coordination and potential collective action*", highlighting in particular that its "*initial scope will be on unlocking potential for the decarbonisation of hard-to-abate industrial sectors*" (G7, Terms of Reference for the Climate Club, 2022). In this context, the steel and cement sectors find specific mention in the Terms of Reference (G7, Terms of Reference for the Climate Club, 2022).

The G7 has provided the initial ideas and the Terms of Reference for kick-starting the Climate Club, which will be taken forward at the international level, and officially launched at the United Nations Climate Change Conference (UNFCCC) at the end of 2023 (Conference of Parties or COP28). However, the goals and functioning of the Climate Club in respect of specific sectors are yet to be developed in greater detail, particularly with regard to the strategic interests and comparative advantages which participating countries bring into the Climate Club and which they can benefit from. With the Climate Club expected to embark on its activities shortly, it is an appropriate time to consider a pilot model for such a club. In view of its emission profile and trade exposure, the steel sector is a prime example of a sector that could benefit from such an international alliance to achieve progress in reducing emissions.

This paper builds on the results of a two-day workshop where the authors developed a model for international cooperation in the steel sector. Since the G7 Climate Club has already been established and is expected to commence its activities shortly, the discussions at the workshop were placed in the specific context of this Climate Club. This policy brief aims to provide a strategic pathway and a set of options for the operationalisation of the G7 Climate Club in the steel sector, including potential membership criteria, partnership formats, and quick wins to build trust between members and provide the momentum for an intergovernmental steel alliance.

1 In this publication, the use of the capitalised term "Climate Club" refers specifically to the G7 Climate Club, whereas the general concept of a climate club is denoted by "climate club".

2. PILOTING THE CLIMATE CLUB: WHY START WITH STEEL?

The G7 Statement on Climate Club identifies the joint transformation of industries to accelerate decarbonisation and the expansion of markets for green industrial products as important focus areas (G7, G7 Statement on Climate Club, 2022). The steel sector is also specifically identified as a priority area in the G7 Terms of Reference (G7, Terms of Reference for the Climate Club, 2022).

An earlier discussion on the G7 Climate Club identified the following criteria for selecting or prioritising a certain sector for cooperation through the G7 Climate Club: first, the international trade exposure; second, the international GHG emission profile; third, the value addition of the Climate Club to existing international initiatives to decarbonise the sector (Kumar, von Lüpke, Feist, Exner-Pirot, & Bardt, 2022). Applying these criteria, the steel sector emerged as a prime candidate for piloting the G7 Climate Club (Kumar, von Lüpke, Feist, Exner-Pirot, & Bardt, 2022). The importance of a climate club for the steel sector has also beenunderscored by authors who argue that such a sector-specific alliance could mitigate political uncertainties through the setting of long-term goals shared by the governments of all climate club members and also play an important role inaddressing technological and economic uncertainty in the sector (Hermwille, et al., 2022).

An accelerated pace of action is needed to reduce emissions in the steel sector, which accounts for 8 per cent of total energy system emissions (International Energy Agency, 2023) and is a sector of great economic significance for many countries and regions including China, the EU, and India. Alongside sectors such as aviation and agriculture, the steel sector is viewed as difficult to decarbonise (Buck, Carton, Lund, & Markusson, 2023). Further, due to its high energy input, the iron and steel industry is characterised as an energy-intensive industry, along with others such as basic chemicals, cement, aluminium, glass, ceramics, pulp, and paper (Oberthür, Khandekar, & Wyns, 2021). Faced with challenges in emission abatement, and frictions due to its high trade exposure, the global steel industry requires greater international cooperation for enhanced ambition.

International cooperation is especially needed in the steel sector to reduce the risk of trade conflicts that could arise from the emergence of policies aimed to support the decarbonisation of the sector and avoidance of carbon leakage, which could be deemed unfair or protectionist by some trade partners. Increased cooperation could also ensure technology transfer and a global diffusion of green technology. In view of the need for greater international cooperation and urgent need to reduce emissions from the sector worldwide, the steel sector therefore presents itself as a crucial candidate for piloting the Climate Club's activities and can provide a blueprint for other sectors in the future.

Existing initiatives in the steel sector have made a start in improving the focus on steel decarbonisation efforts: The Green Steel Tracker tracks public announcements of low-carbon investments in the steel industry and LeadIT provides an overview of various roadmaps worldwide. However, while these initiatives can help inform policy, they do not automatically ensure an accelerated decarbonisation in the steel sector. Further, many of the existing fora focussed on the decarbonisation of heavy industry, such as the Glasgow Breakthrough Agenda, Mission Innovation, and the Industrial Deep Decarbonization Initiative (IDDI) lack the underlying support of national policies to realise the required objectives (Sartor, Vangenechten, & Shawkat, 2022). If the Climate Club can steer national policymaking through international cooperation, it can fill an important gap in the steep sector.

A broad range of international cooperation to accelerate the decarbonisation of the steel sector already exists, but an inter-governmental body to effectively improve the coordination of policy measures and standards is still missing (von Lüpke, Neuhoff, & Marchewitz, Bridges over troubled waters: Climate clubs, alliances, and partnerships as safeguards for effective international cooperation, 2022; Otto & Oberthür, 2022; International Energy Agency, IRENA, and UN Climate Change High-Level Champions, 2023). The International Energy Agency (IEA) notes that the most recent examples of intergovernmental collaboration on decarbonising the steel industry have been among the G7 countries, though the countries representing the majority of global steel production fall outside the G7 (International Energy Agency, IRENA, and UN Climate Change High-Level Champions, 2023). International cooperation to decarbonise the steel sector therefore needs to be more broad-based, also involving relevant countries beyond the G7.

The G7 Climate Club, which already has 27 committed members (International Energy Agency, IRENA, and UN Climate Change High-Level Champions, 2023), is well-placed to meet this challenge. Some of the gaps in the ongoing efforts in steel sector cooperation include a missing focus on co-innovation and technology diffusion and limited financing of the industrial transition in developing and emerging economies (Vangenechten & Lehne, 2022). By facilitating targeted exchange between governments to align policies, achieving progress on aspects of trade upstream and downstream of finished steel, and support for green investment decisions, the Climate Club can enhance ambition in the steel sector globally, as we illustrate in the sections below.

Since the steel sector has traditionally been regarded as a matter of national strategic interest (Organisation for Economic Co-operation and Development, 2018), a trend that may continue be exacerbated due to current geopolitical circumstances, opening it up to international cooperation will require agreement by all participants. Some examples of aspects requiring further deliberation include the governance framework for the cooperation, the mode of decision-making on courses of action, and even conflict resolution mechanisms. The role of a Climate Club for steel would, *inter alia*, be to facilitate all the cooperation issues discussed above within a safe space among like-minded countries. In order to be effective, such cooperation will require rules among participants that are more far-reaching and durable than currently available under existing steel sector initiatives. The added value of the G7 Climate Club could potentially be to facilitate enhanced rules of the game, or higher degrees of institutionalisation. We discuss some elements of the cooperation in the sections below.

3. THE CHALLENGES OF PILOTING THE CLIMATE CLUB IN THE STEEL SECTOR

Cooperation on steel decarbonisation in general, and discussions on establishing a climate club for it in particular, face the challenges stemming from the profile of the steel sector. In view of steel being a highly traded, emission-intensive commodity, efforts to cooperate internationally in the sector usually run into difficulties due to strategic concerns around trade and competitiveness. The process of addressing these concerns can often overshadow the potential for cooperation.

Nomenclatural Baggage

Historically, the concept of a climate club has been associated with Nordhaus' idea of an exclusive club based on benefits and penalties arising from a common carbon price (Nordhaus, Climate Clubs: Overcoming Free-Riding in International Climate Policy, 2015; Nordhaus, Dynamic climate clubs: On the effectiveness of incentives in global climate agreements, 2021). The initial idea for a climate club advocated by Germany also supported the idea of a minimum carbon price as the basis for a club (German Federal Ministry of Finance et al., 2021). Although the G7 Statement on the Climate Club signalled a departure from the Nordhaus-style club focussed on carbon pricing (Kumar, von Lüpke, Feist, Exner-Pirot, & Bardt, 2022), it continued to be perceived as a trading club by many (Nienaber & Ainger, 2022) (Rao & Goswami, 2023).

Carbon Leakage and the Steel Sector

In 2023, the European Union (EU) legislated a Carbon Border Adjustment Mechanism (CBAM) aimed at mitigating carbon leakage, or preventing a situation where "*the greenhouse gas emissions reduction efforts of the EU are offset by increasing emissions outside its borders through the relocation of production to countries where policies applied to fight climate change are less ambitious than those of the EU or increased imports of carbon-intensive products*" (Council of the EU, 2023). The CBAM Regulation covers the following sectors: cement, electricity, fertilisers, iron and steel, aluminium, and hydrogen. Under the CBAM Regulation, importers of products in certain sectors (including steel) are obligated to pay a carbon price equivalent to that borne under the EU Emissions Trading System (EU-ETS). In situations where an imported product has been subject to a carbon pricing system in the country of origin the importer will only have to buy certificates covering the difference (The European Parliament and the Council of the European Union, 2023).

The CBAM has been criticised as being a unilateral measure (Anuradha, 2023), "policy coercive" (Rumble & Gilder, 2023), and a form of economic imperialism (Ravikumar, 2020). The requirement for the equivalence of partner countries' carbon pricing systems with the EU-ETS has been argued to be contrary to the differential emission reduction obligations in the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC) (Anuradha, 2023). Countries such as India and South Africa are interested in challenging the CBAM at the World Trade Organisation (WTO) (Mishra, 2023). India is also engaging in bilateral talks with the EU on the CBAM (Dhoot & Lakshman, 2023).

Trade as a thorny issue in discussions on sectoral cooperation

Some efforts have already been made to negotiate an exclusive bilateral treaty aimed (*inter alia*) at carving out exemptions from the obligations of partner countries under the CBAM. In October 2021, the United States of America (USA) and the EU issued a joint statement on a Global Arrangement on Sustainable Steel and Aluminium (GASSA), expressing an intention "*to negotiate for the first time, a global arrangement to address carbon intensity and global overcapacity*" (European Commission, 2021). At the time of writing this paper,

the GASSA is still being negotiated, with the treatment of emissions in the sectors in question for the purpose of tariffs causing a major impasse (Janzen, Sprinkle, & Sigurgeirsson, 2023). The EU is steadfast on a carbon price being central to the payments due on imports, after having legislated the CBAM (Janzen, Sprinkle, & Sigurgeirsson, 2023). On the other hand, the USA, which does not have a national carbon pricing system (Kumar, von Lüpke, Feist, Exner-Pirot, & Bardt, 2022), favours a system of emission standards, which could be linked to tariff exemptions (Janzen, Sprinkle, & Sigurgeirsson, 2023). The USA is in favour of the GASSA superseding the EU CBAM for the steel and aluminium sectors, at least as far as the EU-USA bilateral relationship is concerned (Rimini, Peters, Vangenechten, & Lehne, 2023).

The challenges witnessed in the negotiation of the GASSA due to the sensitivity of the topic of trade tariffs and carbon leakage measures have demonstrated that cooperation on other issues in the steel and aluminium sector could take a backseat or stand to be jeopardised. It has been recommended that the GASSA negotiations should be decoupled from seeking exemptions to liabilities or hardships arising under respective legislations (the CBAM in the EU and the Inflation Reduction Act in the USA) (Rimini, Peters, Vangenechten, & Lehne, 2023).

Lessons for the G7 Climate Club

A climate club focussing exclusively on carbon pricing and trade restrictions, particularly in the short-term, would fail to adequately harness the potential for global governance in the steel sector, and be unable to facilitate the uptake of green technologies at a global level (Hermwille, et al., 2022). In this context, the experience with the GASSA can offer valuable lessons to the process of kick-starting the G7 Climate Club in the steel sector. Particularly in the aftermath of significant time and political capital having been invested in the finalisation of the CBAM legislation in the EU, the EU is unlikely to allow the legislation to unravel. Seeking exemptions from the CBAM should not be made the focus area of the G7 Climate Club, even if such discussions may be underway at the bilateral level. The Climate Club should instead start its activities by focussing on areas where cooperation for decarbonisation is possible without sparking off political tensions, and where the results of such cooperation can be visibly achievable and promise to deliver tangible benefits for members.

4. MEMBERSHIP CRITERIA FOR A CLIMATE CLUB IN THE STEEL SECTOR

The top ten steel producing countries are China, India, Japan, the United States, Russia, South Korea, Germany, Turkey, Brazil, and Iran (Worldsteel Association, 2023). As of August 2023, the G7 climate club has secured 27 countries as members, which collectively represent 23 per cent of the global steel production (International Energy Agency, IRENA, and UN Climate Change High-Level Champions, 2023). While four of these countries (Japan, United States, South Korea, and Germany) are represented in the climate club, the two top producers, China and India are not yet members of the climate club. Further, while many of the other members of the Climate Club do not currently have domestic steel production, though their interest in cooperating across several topics on the steel value chain cannot be precluded, for example, on green iron ore and green hydrogen upstream, or finished steel goods downstream. Since the steel sector in particular may not be a relevant focus area for all the members of the G7 Climate Club, the Climate Club for the steel sector could potentially function as a sub-stream of the larger G7 Climate Club: a collection of members with a direct interest in collaborating on the decarbonisation of the steel industry or allied aspects such as green hydrogen or green iron.

It has been observed that the ambition and stringency of a plurilateral format could be at odds with a large number of members in the format, even though joint target declarations could signal greater effectiveness (Feist, 2023). The G7 Climate Club, which characterises itself as open and inclusive, and has an expanding membership, would need to be mindful of this challenge. A sub-set of the Climate Club focussed on the steel sector and with more binding targets for the relevant members could increase ambition in the sector.

This section provides a proposal to commence activities in the Climate Club for steel by way of a membership framework. At the outset, it is important to caveat this discussion by emphasising that geopolitical realities would undoubtedly play a role in the way the membership actually shapes up. Although plurilateral cooperation formats offer the potential to support the implementation of the Paris Agreement and could have the promise of securing political agreement within a smaller group, they do not provide a ready solution for overcoming political challenges faced in international climate cooperation (Feist, 2023). Agreement on political goals for sectoral decarbonisation and the identification of benchmarks, the adoption of targets, and the development of roadmaps have been identified as some of the elements to design future inter-governmental cooperation in a more effective manner (Forner & Díaz, 2023).

The starting point for joining the Climate Club for steel could be membership criteria through a national steel decarbonisation pledge for a near zero emission steel industry by 20XX (a year to be determined based on each country's capacity and respecting the principle of common but differentiated responsibilities, and at the minimum, aligned with their stated long-term overall targets for emission reduction). Here, the long-term targets refer to the stated target year for carbon neutrality, e. g., 2050 for the EU (European Parliament, 2023), 2060 for China (McGrath, 2020), and 2070 for India (Ministry of External Affairs, Government of India, 2021).

Each steel producing country's goal, subscribed to through the membership pledge, should signal higher ambition by the country in question than status quo, and be compatible with the Paris Agreement goals and the country's Nationally Determined Contribution (NDC). Further, the goal should be linked to the development of national plans and roadmaps for achieving the avowed target, which address the role and pathways for affected industries and communities.

The members of the G7 Climate Club for steel should commit to formulating these national plans within a definite timeframe set by the Climate Club (e. g., within one year of joining the Climate Club). Similarly, countries which do not have an active steel sector at present, but wish to develop one, or have an interest in cooperating on other aspects of the green steel value chain can choose to join the Climate Club for steel by submitting a roadmap for developing their future steel industry or other green steel partnerships. Such a roadmap should highlight concrete points of action for supporting the global decarbonisation of the steel industry (for instance, through the export of green hydrogen or green Hot Briquetted Iron, HBI).

The steel decarbonisation pledge will necessitate governmental commitments such as including the steel decarbonisation pledge in the next NDC and implementing policies specific to the steel sector. These could include, for example, sectoral emission reduction targets, enhanced data collection, and Research and Development (R&D) policies. Additionally, these policies can be linked to commitments on the CO_2 intensity of products (differentiated between OECD and non-OECD countries) (Sartor, Vangenechten, & Shawkat, 2022) as well as commitments for the procurement of near zero emission steel (International Energy Agency, IRENA, and UN Climate Change High-Level Champions, 2023).

As part of this process, the major industry players in the respective member countries should also be called upon to signal strategic objectives to decarbonise, in the form of targets, implementation plans, and roadmaps. For both the public and private sector, documenting these targets will signify a big step forward, considering that a majority of countries and companies do not yet have such focussed sectoral targets and policies (for example, as of 2022, only eight of the top 60 global steel-producing companies had an emission reduction plan (Casas, Nilsson, Smit, Beuerle, & Kuramochi, 2022)).

The nationally determined steel decarbonisation pledge should be connected to a commitment from each country to develop a pledge-aligned roadmap for steel decarbonisation. There is no shortage of available roadmaps in the industry and energy sectors (LeadIT lists 38 roadmaps the steel processing sector alone; LeadIT, n. d.), but these are not necessarily backed by political commitments and adequate underlying policies. These roadmaps should be required to be integrated with national targets, policies, and laws, which in turn should be well-aligned with the relevant budgets, responsibilities, and monitoring and reporting mechanisms. Roadmaps should be nationally owned, indicating sufficient political backing (for example, by nature of having been developed and issued by a national ministry or other governmental institution). A credible sectoral emission reduction target combined with a well-developed roadmap and explicit governmental backing will reduce the investment risk for green steel products and could therefore be an important contribution of the Climate Club on steel.

Alongside providing political guidance, the exercise of developing a national steel decarbonisation plan, as part of the membership criteria for the club, can add the additional value of creating national ownership and building sectoral expertise. Developing national steel decarbonisation roadmaps and visions will require comprehensive cross-departmental elaborations across different relevant ministries and political levels. These processes should be conducted in an inclusive manner, in close cooperation with relevant stakeholders, including the private sector, relevant public agencies, academia and researchers, labour unions, and civil society organisations. This process can foster broad political ownership and acceptance of the roadmap, which can positively influence its implementation. It can further build public and private capacity on understanding the challenges and solutions to industrial decarbonisation. The task of preparing such a roadmap and committing to it will be an important step in defining the countries' vision of sectoral decarbonisation for the steel and integrating elements that signal a higher ambition.

Membership Criteria for the Climate Club on Steel

- National Steel Decarbonisation Pledge with target year
- Alignment with the country's long-term climate neutrality goal
- Signalling higher ambition than status quo
- Pledge-aligned National Roadmaps

5. STRATEGICALLY LOCATING NEW AREAS OF COOPERATION ACROSS THE STEEL VALUE CHAIN

The Climate Club for steel should, as a first step, focus on the benefits that could emerge for all members. Technical cooperation and greening the financing of steel appear to be two areas where partnerships, particularly between the Global North and the Global South, should be explored. Finance and technology cooperation could be enablers for partnerships where members of the Climate Club have an aligned strategic interest, for instance, in the production of green hydrogen and green iron. In most situations, these two industries are at a nascent stage and require public funding to venture into areas which have high risks and limited financial return in the beginning.

The steel transition, as it is developing at present, indicates the potential to move the most energy-intensive parts (the reduction of iron ore into iron) to countries that have huge renewable potential at a low cost and where such partnerships could offer significant opportunities for economic development. The efforts to decarbonise production are increasingly being viewed as more than a mere technological change, but rather also as a shift in supply chains to maximise the potential of utilising a coincidence of renewable energy resources and raw material resources to reduce costs and risks (Bataille C. G., 2020). There is already an emerging trend to locate the electricity-intensive step of the steel value chain in regions with large and low-cost opportunities for wind and solar power (Samadi, Fischer, & Lechtenböhmer, 2023). Renewables-rich countries could provide renewables-poor countries with green iron (in the form of HBI) or green hydrogen and its derivatives.

By cooperating through such partnerships, the upside for many countries in the Global North would be an easing of the high demands for renewable energy and also enabling steel production at a potentially lower cost, while the benefit for emerging economies in the Global South would be in the form of investment to support their decarbonisation efforts. A precondition for enabling such partnerships is a focus on overcoming existing barriers to investment such as policy landscape and infrastructure.

Authors point to the use of green hydrogen for iron-making as a key mitigation option in the global iron and steel industry, arguing for a material flow optimisation approach to relocate the energy-intensive iron-making process in the vicinity of iron mining locations with the availability of low-cost renewable energy resources in abundance (Gielen, Saygin, Taibi, & Birat, 2020). A model for cooperation between South Africa and the EU based on locating the process of producing near zero embodied emissions primary iron in South Africa for export to EU lead markets demonstrates the value of such a partnership for South Africa and the EU in the form of a sustainable export base contributing to macroeconomic stability and reduced input costs for steel-making, respectively (Trollip, McCall, & Bataille, 2022).

In the short-term or medium-term, green hydrogen partnerships may be based on the trade of ammonia, particularly for distances where pipelines are not feasible. In this context, for example, estimates show that harnessing the advantages of local circumstances and deploying solar and wind energy in Chile and Argentina could have promising results in the form of lowered production costs for green hydrogen and green ammonia, which could be close to competing with fossil-fuel-based alternatives (Armijo & Philibert, 2020).

Utilising the Climate Club for seeking partnerships and supporting investment and technolo-

gy transfer to emerging iron or hydrogen producers within the Climate Club would be a benefit for all. However, this points to the fact that the green iron and hydrogen need to be traded freely within the club, which is not always the case when it comes to green technology (Jakob, et al., 2022). A negotiated and fair approach that encourages these "new" upcoming trade flows would benefit both traditional steel producers in the Global North by easing the demand for renewable power and also lowering the cost of green iron, as well as emerging economies in the Global South, which would stand to benefit from the trade of green iron ore and green hydrogen produced at a lower cost.

Steel and iron ore industries are already cooperating along the value chain to create these opportunities. Instances of cooperation of this nature are being witnessed at the level of industrial cooperation: for example, between H2 Green Steel (Sweden) and Vale (Brazil) partnering for green hydrogen and HBI (H2 Green Steel, 2023), between Engie and Posco (South Korea) for producing green steel in Australia (Parkinson, 2023), and between the Rio Tinto Group and the China Baowu Steel Group Corporation for setting up green steel facilities in China and Western Australia (Bloomberg News, 2023). The Climate Club could provide a venue for enhancing these efforts, including through policy coordination by member states to ensure fair trade for green commodities.

The use of scrap as an input for steel production represents another area of cooperation upstream on the value chain. Scrap is a strategic input to current and future steel production and is today traded globally but with some restriction on both imports and exports for strategic reasons. There are benefits attached to easing trade, and cooperation should also include technology and policy support for better collection, separation, and classification of scrap.

Downstream cooperation of traded steel would focus on finished products and enabling green commodity trade, *inter alia*, by making domestic green lead markets also accessible for imports, as well as providing financial and technical support. The Climate Club for steel can foster and encourage the uptake of green public procurement among its members, provide a hub for the development of new green commodity value chains among its members, and offer a space to discuss common policies. To this end, members of the Climate Club can coordinate policies to establish lead markets for green basic materials, for example through greening domestic procurement practices. The Climate Club thereby has the potential to not only provide a forum to exchange on good practices but also to ensure emerging domestic lead markets remain open to members of the club. The value of a multilateral forum (for example, the G20) to boost green public procurement has been noted in areas such as collaboration across governments for green procurement criteria, sector-specific time-bound targets and roadmaps, and the establishment of standardised environmental reporting, monitoring, and disclosure standards (Morales, Skinner, Hemingway, Axelsson, & Piirsalu, 2023). Through such collaboration, the Climate Club for steel can provide a boost to green public procurement policymaking in the context of steel across its member states.

Additionally, the Climate Club can support, or work through, existing initiatives on establishing lead markets such as the Geen Public Procurement Pledge by the Industrial Deep Decarbonization Initiative (IDDI) or the work of the First Movers Coalition, which fosters purchasing commitments by private companies. Members of the Climate Club can join these initiatives or enhance existing commitments to increase the impact of these initiatives. As a high-level political coalition of governments, the Climate Club could support these existing initiatives in achieving their objectives through its ambitious policy pledges (Sartor, Vangenechten, & Shawkat, 2022).

LOCATING AREAS FOR COOPERATION ACROSS THE STEEL VALUE CHAIN

Green iron ore	Scrap
Green hydrogen	Green public procurement for finished goods

6. FOCUSING ON QUICK WINS

In order to signal the appropriate incentives for countries to join the climate club for the steel sector, as well as to build trust, the climate club should focus on targeting "quick wins". We define "quick wins" as outcomes that are mutually beneficial to both countries in the Global North and the Global South, and which can be achieved without the investment of significant political capital.

We identify the following criteria for quick wins:

1. Focus on upcoming policy areas where regulations are not yet locked in

In contrast to topics such as the CBAM in the EU, for which the framework for implementation has now been finalised and legislated, quick wins should target areas where the formulation of policy is still being developed. Involving partners from the Global North and the Global South in comprehensive and inclusive discussions at this stage could play an important role in policy coordination, and in fostering an understanding and recognition for the varying policy frameworks for different countries. Further, this could support the establishment of new markets centred around near zero emission steel. As a starting point, and with a view to building trust, the policy discussions should focus on partnerships upstream and downstream of the trade of manufactured steel, as highlighted above, particularly through the harnessing of cooperation on green iron ore, green hydrogen, as well as green public procurement policies.

2. Focus on areas with mutual benefit for the Global North and the Global South

The Climate Club can provide a matchmaking platform for strategic bilateral or plurilateral project partnerships on new green materials value chains among its members. Indeed, the G7 Climate Club Terms of Reference states that one of its aims is to enhance multilateral and bilateral cooperation between members for industrial decarbonisation through "*matchmaking on a voluntary basis and creating synergies between cooperation and funding instruments, thereby improving the enabling environment for industry decarbonisation in emerging economies and developing countries*" (G7, Terms of Reference for the Climate Club, 2022).

International cooperation efforts for achieving quick wins in the steel sector would necessarily need to focus on areas with discernible mutual benefit for both Global North and Global South partners, including relevant stakeholders in the industry. Such cooperation potential exists, for instance, in partnerships between countries, which could produce green iron ore and green hydrogen, which are in demand, for example, in Europe (Trollip, McCall, & Bataille, 2022). Partnerships offering technical assistance, for instance, in the form of capacity-building, to countries, which need such technical capacities in initial stages of steel decarbonisation could also form the basis for securing quick wins. A pre-condition for creating and using such quick win situations is that Global South countries communicate technical assistance needs and potentials for engagement in green partnerships on hydrogen and iron ore, while Global North countries recognise the uniqueness of the circumstances and challenges of the steel sector in the countries in the Global South.

Further, the Climate Club for steel should promote open access to lead markets for intermediate and finished products based on commonly agreed metrics for what is defined as green. Public-created lead markets such as green public procurement, are essential for supporting early investments into green steel and to articulate future market demand but should be open not only to domestically produced green steel but also to imported green steel. This will enable the lowering of cost and enhancement of ambition in the size

of lead market and provide export opportunities to countries committed to the goal of producing green steel products.

Another area that can make a significant contribution to the reduction of emissions from the steel industry is a greater focus on material efficiency and circularity. Recycling is well-established in the steel industry and scrap has a well-functioning market that ensures a high level of both recovery and use. Increased focus should instead be placed on other aspects of improving circularity and material efficiency in the steel sector: reducing (doing more with less), reusing (using a component again in another application), and remanufacturing (refurbishing a component for another life) steel. Most of these aspects of resource efficiency and circularity would benefit from increased capacity building and exchange, for example related to policies to encourage their uptake and education, areas where the Climate Club can play a positive role.

3. Start with a strategic selection of topics that require an investment of lower political capital rather than thorny issues such as carbon leakage

The topic of carbon leakage and the implementation of the CBAM has led to a polarisation of opinions between the EU countries and its trade partners, particularly with many trading partners in the Global South having expressed their discontent with the CBAM, as described in Section III above.

If carbon leakage measures become the primary focus area of the initial activities of the Climate Club for steel, it could lead to adverse outcomes such as fewer interested members and an impasse in discussions. In order to demonstrate the potential of the Climate Club as an alliance for constructive action, as a starting point, it will be strategically important to select areas for cooperation on less contentious issues and which require the investment of relatively lower political capital, even as discussions or legal proceedings on the CBAM proceed in other fora.

Further, given that the G7 Climate Club already boasts a broad and inclusive membership much wider than the EU, focusing on carbon leakage is likely to result in contentious discussions, and this would be a missed opportunity for cooperation on other topics highly relevant to the global decarbonisation of steel (as discussed across this paper), as well as between non-EU member states.

At the same time, the need for accurate measurement and verification of the emissions in the steel sector – important for the CBAM but also more generally for the decarbonisation of the steel industry – could offer avenues for cooperation and a quick win. As a foundational element for international decarbonisation policy, agreement on measurement and certification systems for basic material supply chains could enable finance for low-GHG investment (Bataille, et al., 2023). To this end, it is essential to conduct inclusive technical dialogues and coordination activities focussed on measurement methodologies and data collection for emissions (International Energy Agency, 2023). This work is already ongoing, most notably in the context of the Breakthrough Agenda and the G7 and the IEA Working Party on Industrial Decarbonisation (WPID). Here, the G7 Climate Club can play an active role in facilitating progress and the implementation of the outcomes, making sure that common measurement standards will be used in all relevant contexts.

Financial and technical assistance as catalyst for quick wins

Offering financial and technical assistance to countries in the Global South can act as important catalysts for achieving quick wins. Technical assistance could include, for example, making resources and expertise available for the development of government-owned decarbonisation roadmaps. Other examples could include supporting mutually consultative processes on regulatory design options for steel decarbonisation policies. Important lessons from the controversies surrounding official development assistance should be considered: discussions should be eye-level, avoid a neo-colonial approach, include transparency about funders' interests, and respect national sovereignty in relation to national policy processes. Provision of finance and capacity building to enhance countries and steel companies' ability to monitor, report, and verify embedded emissions in steel production constitute other possible quick wins enabled by international assistance. This enhances transparency with regards to steel emissions and compliance with relevant reporting obligations for exports (i. e., the CBAM, and potentially other Border Carbon Adjustments, BCAs).

7. CREATING A SAFE SPACE FOR DIALOGUE

The Climate Club for steel is envisioned as a high-level political inter-governmental forum at the ministerial level with a sectoral decarbonisation vision. Although initiated by a small group of industrialised countries (the G7), it is important that the Climate Club lives up to its promise of being "open, cooperative and inclusive" (G7, G7 Statement on Climate Club, 2022) through its activities.

At a very fundamental level, and consistent with the principle of common but differentiated responsibilities also recognised in the Paris Agreement, the Climate Club for steel should explicitly recognise the specific circumstances for each member country's steel industry requirements and promote their self-determination of transition pathways, based on individual capacities, needs, and the development trajectories. The Climate Club can be a venue to bring greater visibility and recognition to the decarbonisation plans and policies of countries in the Global South. In order to build trust, it will be important for the Climate Club to clearly signal that there is room for differing decarbonisation pathways, while simultaneously seeking commitment for more ambitious action in the steel sector.

The idea of the Climate Club promoting quick wins, some examples of which have been discussed above, should be made central to the narrative of the Climate Club, particularly to win over member countries. The initial building of trust between the countries through the quick wins is crucial since it has the potential to create the space to discuss more difficult issues at a later stage. International policy dialogues and peer review processes can play an important role in fostering trust in the steel sector, and should be non-hierarchical, mutual, inclusive, and transparent (von Lüpke, Marchewitz, Aebischer, & Kröger, 2022).

Given that a lot of international cooperation on decarbonising the steel sector is already ongoing (International Energy Agency, IRENA, and UN Climate Change High-Level Champions, 2023; Otto & Oberthür, 2022), the Climate Club should strive to compliment rather than duplicate existing initiatives and ongoing cooperation. To support ongoing efforts, the Climate Club can endorse specific initiatives in areas where it seeks to advance cooperation (e. g., green iron ore, green hydrogen, green public procurement), provide resources or political guidance, and orchestrate or coordinate existing efforts to foster synergies. To maintain the legitimacy and acceptance of the Climate Club, it should be ensured that its goals and activities remain in close alignment with UNFCCC and Paris Agreement processes.

Based on the limited information available on the Climate Club (in the form of the G7 Statement and the Terms of Reference), it is not possible to assess in more concrete terms at present how the Climate Club will fulfil the aspirations stated in the G7 Statement on Climate Club and the Terms of Reference, and how the governance structure will ensure the requisite alignment with the larger multilateral climate framework. However, it is hoped that following its official launch at COP28, more information about the concrete activities of the Climate Club as well as its secretariat will be made available.

The building of mutual trust through the recognition of the differing circumstances and pathways for steel decarbonisation across the Climate Club member states, as well as the success with credible quick wins can pave the way for discussion on more contentious topics in the medium-term. The Terms of Reference for the G7 Climate Club states that its "*members will engage in a strategic dialogue on industrial carbon leakage mitigation and green growth to look for synergies in different national pathways while increasing their effectiveness*" and that they will "*share their assessment of risks for carbon leakage as well as their*

strategies to mitigate such risks and identify possible ways to cooperate in this regard" (G7, Terms of Reference for the Climate Club, 2022).

As highlighted above, discussions around the first example of a carbon leakage framework in the form of the CBAM have been fraught with tension. In view of criticisms around information-sharing on the CBAM in its preparatory stages, the G7 Climate Club could strive for improved communication and transparency as a key goal and promote knowledge-sharing through mutual peer review processes, drawing lessons, for example, from the OECD peer review processes in the energy sector (Kumar, von Lüpke, Feist, Exner-Pirot, & Bardt, 2022). With other countries such as Canada and the United Kingdom contemplating the establishment of BCAs in the aftermath of the introduction of the CBAM (Mehling, van Asselt, Das, & Droege, 2023), the establishment of a safe space for discussions around carbon pricing and carbon leakage between countries could be an offer of the G7 Climate Club.

It also merits mentioning that since carbon leakage measures have been viewed primarily as a priority of industrialised countries in the Global North, these countries with an immediate interest in implementing carbon leakage measures would need to first build the requisite goodwill and trust (for example, through the successful implementation of partnerships and quick wins discussed above) with countries in the Global South to be able to use the Climate Club as a forum for discussion on carbon leakage. The dialogue process can similarly also encompass other more contentious issues that the accelerated decarbonisation of the steel sector poses, including those pertaining to definitions of green steel, finance, and green relocation of elements of the steel value chain based on the renewables pull.

8. SUCCESS FACTORS FOR A CLIMATE CLUB IN THE STEEL SECTOR

Getting the most ambitious players in the steel industry to join and eventually cover a significant share of global steel sector emissions. At present, the member countries in the G7 Climate Club together cover 23 per cent of the global steel production (International Energy Agency, IRENA, and UN Climate Change High-Level Champions, 2023), which already has the potential to lead to positive effects in the steel sector beyond the club members. As an immediate goal, the Climate Club for steel should aim to convene the most ambitious countries showing a willingness to support the decarbonisation of the steel sector across the value chain. Over time, the Climate Club should aim to secure the major players in the global steel industry, most notably China and India. To this end, the Climate Club should focus on signalling appropriate incentives through its activities, such as the access to markets, strategic partners, finance and technology cooperation.

Visualising a near zero emission steel as the end-goal and moving toward it progressively through ambitious targets and the review and implementation of nationally determined roadmaps. As a high-level intergovernmental body, the Climate Club for steel can play an important role in shaping a global vision for the decarbonisation of the steel industry, while allowing the space for each country to define their own roadmaps for reaching the goal of near zero emission steel.

Providing each country with the freedom for determining their own policy measures, but also harnessing the benefits of the consultation process offered by a sector-focussed climate club. The Climate Club should be based on the recognition of differing development trajectories of member countries and allow each country the freedom to determine their own goals and roadmaps, while also creating a safe space for open discussion and consultation on policy measures with other countries.

Preventing impasses on contentious issues, particularly by avoiding the climate club as a proxy for discussions on CBAM. Even as trade partners take up the issue of the CBAM with the EU bilaterally or at the WTO, as the Climate Club commences its activities, the Climate Club should not be used as a forum for these contentious discussions. Using the Climate Club on steel as a proxy forum for discussions on CBAM would lead to missed opportunities for cooperation on other aspects in the steel value chain with the EU and also among the non-EU members *inter se*.

Building trust and goodwill through quick wins on areas of cooperation in steel trade. Cooperation on new avenues of trade of finished steel, such as green iron, green hydrogen, and lead markets for finished products using green steel, as well as technical and capacity building support on specific aspects of the steel sector (e. g., measurement of emissions and improved circularity) can help to build trust among the member countries.

SUCCESS FACTORS FOR A CLIMATE CLUB FOR STEEL

Ambitious members	Near zero emission steel as end-goal
Members determine their own policies	Avoiding contentious issues in the short-term
Building trust through cooperation	Creating a safe space for discussion on contentious issues in the medium- and long-term

CONCLUSION 9.

This policy brief builds upon the available information on the G7 Climate Club available in the public domain, as well as existing analyses of the G7 Climate Club and international climate alliances more generally so far, to make a case for piloting the Climate Club in the steel sector. Given its emission-intensive and trade-exposed profile, the steel sector represents a combination of priorities: the urgent need to decarbonise across the globe, in order to support the climate neutrality scenarios pledged for by national governments, as well as the requirement to navigate sensitive issues around trade in order to make progress on other areas of cooperation.

A distinct advantage of the Climate Club over other existing steel sector initiatives would be its intergovernmental character. The potential of the Climate Club for the decarbonisation of the steel sector should be harnessed through membership criteria based on setting binding and ambitious steel sector targets, accompanied by national government-owned steel sector roadmaps arrived at through an inclusive stakeholder consultation process. It is important to ensure that, in keeping with the principle of common but differentiated responsibilities, the right of member countries to determine their own goals and roadmaps based on their capacity and development trajectories is respected.

As a first strategic step, we suggest decoupling the discussions around the CBAM from the G7 Climate Club. Export partners of the EU have expressed grievances against the CBAM on a number of reasonable and foreseeable grounds, discussions on which are understood to be currently underway through bilateral talks and at the level of the WTO. The G7 Climate Club, in order to be truly open and inclusive, should offer the space for developing sectoral partnerships for a variety of partners from the Global North and the Global South, across the steel value chain. Some of the promising areas of cooperation identified by us include cooperation on green iron ore, green hydrogen, and the creation of lead markets for intermediate and finished steel products through green public procurement. In the short-term, the Climate Club has the potential to secure some quick wins to develop trust between its members if it focuses on emerging areas of bilateral and plurilateral cooperation where the policy framework is still being developed and where there is mutual benefit for partners from the Global North and the Global South.

In the medium-term and long-term, the trust developed between countries in the Climate Club can help to create a safe space for discussing more contentious aspects of the decarbonisation of the steel industry, such as carbon leakage measures, barriers to cooperation on projects for green steel and green hydrogen, and definitions of green steel.

In immediate terms, the Climate Club should aim to convene the steel producing countries with the highest ambitions. If successful in providing benefits to its members and accelerating the decarbonisation of steel, it can attract more members and cover a greater volume of steel sector emissions, potentially even winning over the big players in the steel industry, China and India.

The production of green steel, green iron ore, and green hydrogen will require public or international support to reduce the current capital cost that stems from the perceived risks with new technologies or with investing in developing countries. If the G7 Climate Club for steel can be based on binding targets and roadmaps (as illustrated in this paper), it will provide a strong basis for the support of these projects through the various available climate finance mechanisms. The appropriate finance mechanisms to decarbonise the steel sector should be an area for further discussion and research.

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