Scaling Green Iron Trade
Why and how governments must act

EXECUTIVE SUMMARY

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This is a summary of the report *Scaling Green Iron Trade – Why and how governments must act*, published November 2026. Download the full report from **https://www.e3g.org/publications/scaling-green-iron-trade-government-role/**

Green iron can transform the global steel sector

The modern economy runs on steel. That ubiquity comes at a considerable environmental cost: **steel production is responsible for 7–9% of the world's greenhouse gas emissions**.[1]

There is growing interest in replacing coking coal in iron ore reduction with green hydrogen to produce **low-emissions "green iron"**.*

Green iron is critical to achieving global climate goals

The most emissions-intensive stage of steel production is iron ore reduction. This is the chemical process by which oxygen is removed from iron ore to produce the base metal used in steelmaking.

Using green iron in an electric arc furnace (EAF) powered by clean electricity would **reduce emissions from over 2 tonnes of CO_2 per tonne of crude steel to near-zero levels**.[2]

Green iron production is hydrogen-intensive. Access to abundant, **low-cost renewable electricity is a major determinant of competitiveness**.

Countries with far higher electricity prices, grid constraints, and a lack of quality ore deposits – such as the UK, Germany, Japan, and South Korea – could **benefit from importing green iron**.

Trading green iron can lower costs for steelmakers

Green iron trade could therefore work via two routes. **1** Existing ore exporters, such as Brazil and Argentina, could move further up the value chain. **2** Energy- and logistics-rich hubs, such as Oman, could import iron ore for processing and reduction, before exporting green iron onwards to steelmakers.

Agora Industry estimate that, depending on the source region, **integrating imported green iron into domestic steelmaking could reduce steel production costs in countries like Germany by 12–15% by 2040**.[3]

Note: ** Green iron is best understood as an emissions and product outcome, rather than a single technology. Hydrogen-based direct reduction is the most advanced route to that outcome today, and hot briquetted iron (HBI) the most readily traded form. However, the appropriate pathway will depend on ore characteristics, energy systems, scale, logistics, and the downstream steelmaking configuration.*

References: ***1*** *Davis, C., Li, Z., Styring, P. et al.. 2025, Routes to reducing emissions from steel production, Nature Reviews Clean Technology, vol. 1, 890–902;* ***2*** *BHP, 2025, Driving Steel Decarbonisation Together: BHP's Progress and Partnerships;* ***3*** *Agora Industry, 2025, The role of green iron trade in accelerating competitive steel transformation*

Investment is happening ...

In 2026, the world's first green iron projects are already moving to industrial deployment. Namibia's Oshivela/HyIron project began operations in 2025 with an annual capacity of around 15,000 t of green iron. The project was supported by a €13 million investment from the German government. In Sweden, Stegra's much larger integrated hydrogen-based iron and steel facility in Boden will produce 2.5 Mt of green steel per year once fully operational.

... but government intervention is needed

The right institutional support has been a catalyst to the most advanced green iron projects. **Widespread understanding of how governments should intervene is the difference between the marginal uptake of a niche product and mutually beneficial supply chain transformation.**

E3G conducted extensive interviews with actors across the iron and steel value chain – from well-established industrial players to new market entrants, spanning mining, ironmaking, steelmaking and beyond. This report synthesises insights into the role policy and institutions need to play, alongside the existing body of literature, evidence, and political analysis, into a **practical guide for governments**.

Recommendations for governments

Green iron trade will only develop at scale if projects can be built, financed, and connected with consumers leading to our first four recommendations:

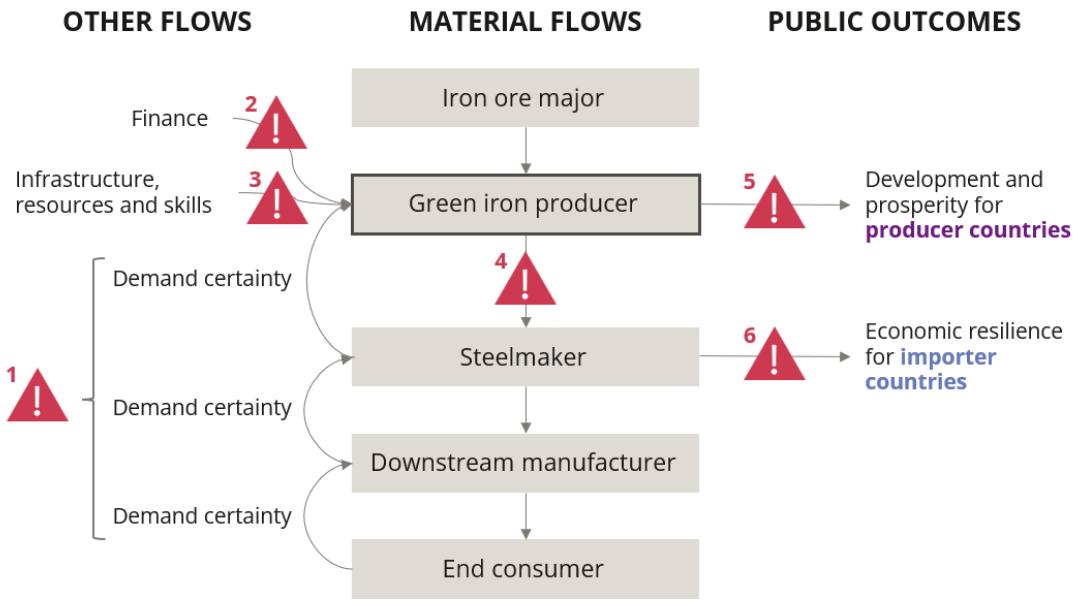
1. Aggregate and convert demand into a bankable supply chain signal.
2. Reduce specific risks and mobilise, coordinate and supplement finance.
3. Coordinate infrastructure resources and skills around a common project pathway.
4. Build predictable and diversified routes to market.

The resulting supply chains must also deliver benefits to the countries and communities involved. Governments must intervene to make sure green iron trade works for exporters and importers, bringing two further recommendations:

5. Represent, protect and create value for local systems (producer governments).
6. Manage supply chain transformation risks (importer governments).

The figure on the following page shows where markets fail to achieve these outcomes without government support, leading to the six recommendations.

Governments have multiple roles to play in facilitating green iron trade



Six *requirements*		Six *recommendations* for governments		
1	Projects need enough **demand certainty** throughout the supply chain.	1	**Aggregate and convert demand** into a bankable supply chain signal.	Building and financing projects and connecting them with consumers
2	Projects need access to **finance** at the required scale and risk profile.	2	**Reduce specific risks** and mobilise, coordinate and supplement finance.	
3	Projects need predictable access to enabling **infrastructure**, **resources**, and **skills**.	3	**Coordinate infrastructure resources and skills** around a common project pathway.	
4	Projects need fair, efficient and predictable **trading relationships**.	4	Build **predictable and diversified routes** to market.	
5	Green iron production must create acceptable outcomes for **local systems**.	5	Represent, protect and create **value for local systems** (producers).	Making green iron trade work for importers and exporters
6	**Supply-chain transformation risks** must be actively managed.	6	Manage **supply chain transformation risks** (importers).	

Organising institutions for delivery

In practice, each recommendation cuts across established institutional boundaries. The following steps make institutional coordination possible, within and across borders.

Establish an overarching strategic objective

- Governments must decide what role they want to play in the value chain; what scale of industry is being pursued; and where this industry should be located. Will they be a green iron producer, consumer or both?
- This provides the political justification for any supply chain interventions, a single vision to coordinate disparate branches of government and a framework for managing trade-offs between outcomes. It also means government can engage prospective developers and financiers around identifiable opportunities, rather than waiting for firms to discover, independently, how far the state is prepared to support them.

Translate the objective into institutional mandates and decisions

- Institutions must contribute to more than one outcome. To balance these multiple responsibilities, institutions will often need to change their existing ways of working by making provision of public support conditional and adapting their processes or priorities.

Break down institutional siloes around real projects

- Institutions are jointly responsible for the same outcomes. In producer countries, institutions must combine into one project-delivery function to act as an interface between project and infrastructure plans and government. Institutions in consumer countries must send consistent signals to the supply chain.

Connect systems across borders

Trade changes how the sector is governed: dependencies, incentives and public objectives are split across borders. Therefore, the domestic systems described above need to connect with relevant institutions overseas.

Producer and consumer countries' motivations are not identical. But, if they both establish overarching strategic objectives, they can easily identify areas of overlapping interest. Cooperation must then move beyond broad political alignment to mechanisms capable of:

- Aggregating demand and making standards work across borders.
- Coordinating project finance across national and international institutions.
- Connecting finance to infrastructure and national development plans.
- Building trade partnerships around market access, resilience and fair value.

ABOUT E3G

E3G is an independent think tank working to deliver a safe climate for all.

We drive systemic action on climate by identifying barriers and constructing coalitions to advance the solutions needed. We create spaces for honest dialogue, and help guide governments, businesses and the public on how to deliver change at the pace the planet demands.

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