

Establishing a global standard for low-carbon emissions steelmaking

A dual score standard for rating the
decarbonisation progress of steel producers
and the embodied carbon emissions
in steel products

Concept proposal for consultation
June 2022



ArcelorMittal



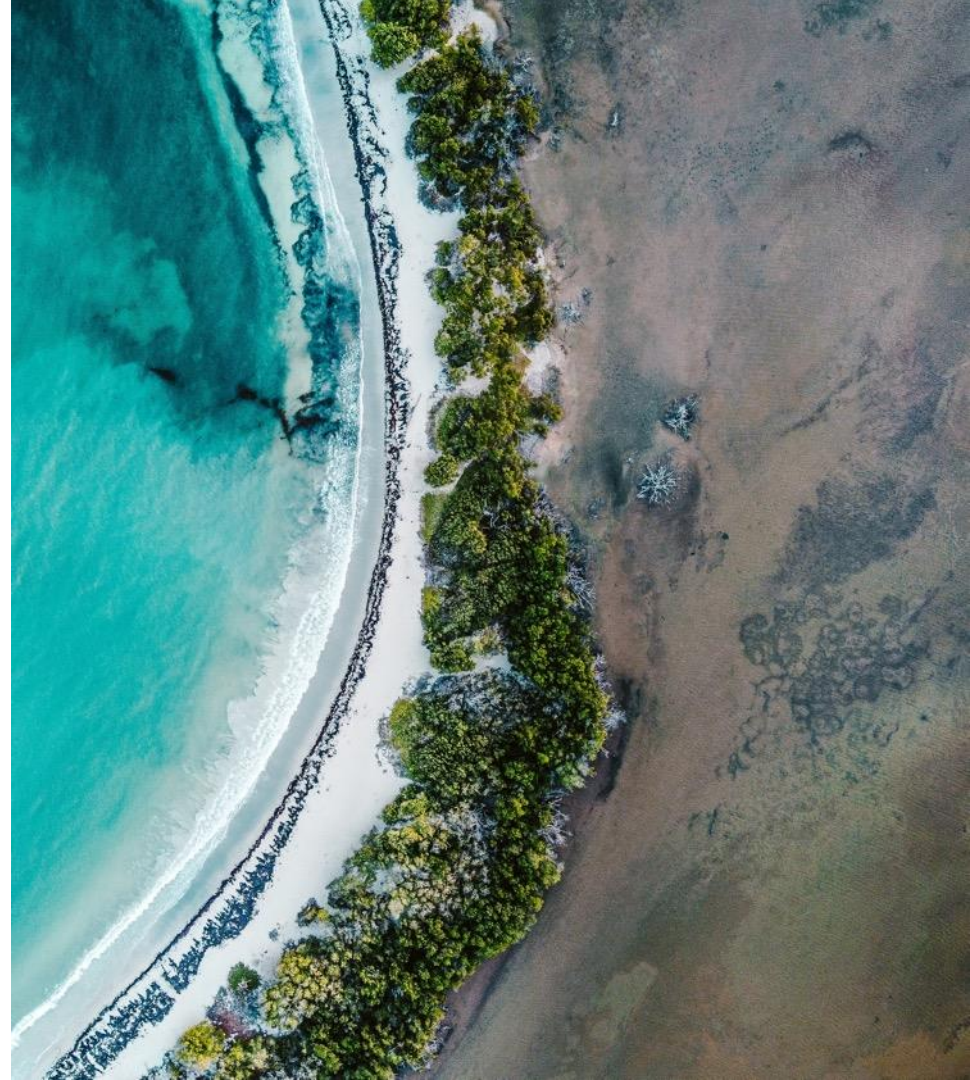
There is a clear need for a standard which allows policymakers to incentivise the steel industry to decarbonise and provides customers with a comparable measurement of embodied carbon emissions in steel products

Today, there is no industry definition or standard for low-carbon emissions steelmaking, yet:

- Customer supply chain CO₂e targets are growing
- Initiatives to define embodied carbon emissions in steel are multiplying
- The risk of inconsistent standards is escalating

Therefore, establishing such a standard has an important role to play in the decarbonisation of the steel industry. The demand signals for a standard are clear. We need a low-carbon emissions standard for steel which:

- Provides transparency and consistency across products for customers through Life Cycle Assessment (LCA) values, or Environmental Product Declaration (EPD) values in construction products
- Incentivises decarbonisation by allowing policy makers to create differentiated lead markets for low-carbon emissions steel production that will provide steelmakers with a premium to fund capital investments



ArcelorMittal's low-carbon emissions steel concept is based on three core principles

1

It must have a dual-score approach (LCA + decarbonisation rating system) that supports policymakers in the development of differentiated lead markets for low-carbon emissions steel production, and provides customers with comparable, transparent data of embodied carbon emissions in steel products



2

It must be designed in such a way that incentivises the decarbonisation of all methods of steel production through technology shifts, rather than simply through increasing scrap rates using existing technology. This can be done by using a sliding scale based on the percentage of scrap used in production.



3


The decarbonisation rating system must be measured against a clearly defined embodied carbon emissions boundary which ensures a like-for-like comparison of the critical elements needed for core steel production



1. A dual-score approach that incentivises decarbonisation progress and provides a comparable and transparent values for embodied carbon emissions of steel products



For policymakers
and steel producers

For customers

<div>Supplier Identifier</div> <div>Product Identifier</div> <div></div>			
<div>Carbon Steel Decarbonisation Progress</div> <div><div>A+ net zero</div><div>A near zero</div><div>B major</div><div>C moderate</div><div>D minor</div><div>E entry level</div><div>F above minimum threshold</div></div>			<div><div>✓</div><div>A visible and transparent system that measures decarbonisation progress independent of steel making route</div></div> <div><div>✓</div><div>Easy to use by authorities to define and incentivise dynamically low CO2e steel lead markets over time as decarbonisation of steel production processes progresses</div></div> <div><div>✓</div><div>Based on 1 tonne of Hot Rolled Product</div></div> <div><div>✓</div><div>Associated with physical steel production</div></div> <div><div>✓</div><div>Technology independent</div></div>
<div>Embodied carbon emissions:</div> <div>Method:</div>	<div>Total CO2e</div> <div>ISO 14040/44 etc</div>	<div>Scrap Content (%)</div>	<div><div>✓</div><div>Provides clear LCA or EPD values for the total embodied carbon of the product against a defined methodology</div></div>

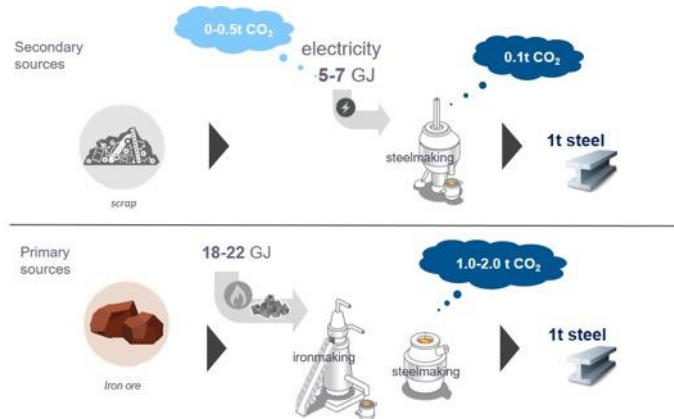
...and continues to recognise the early actions taken by first movers to create a premium until the dual score approach becomes meaningful for primary producers

For policymakers,
primary producers
and customers

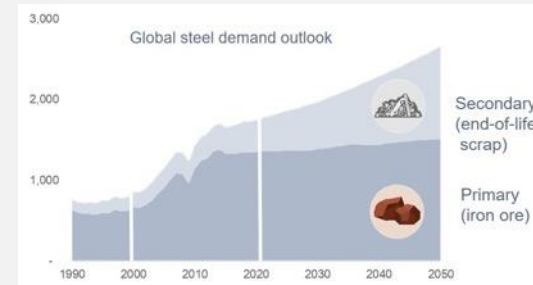
Supplier Identifier Product Identifier	
<p>Carbon Steel</p> <div data-bbox="473 387 840 758"></div>	<ul style="list-style-type: none">✓ Virtual 'S' certificates designed to be able to pass CO₂e savings on to customers to help them reduce their Scope 3 emissions✓ Achieved by making CO₂e reduction investments in primary operations✓ Must not result in double-counting of material CO₂e reductions by the operation✓ Quantity of steel and CO₂e savings to be verified by external auditors in accordance with GHG Protocol
<p>Certificate Number: XXXXXXXX Certificate quantity: XXX tonnes CO₂e savings : XXX tonnes Date issued : DD/MM/YYYY Auditor : XXXXXX</p>	

2. It must incentivise the decarbonisation of all methods of steel production

- If the steel industry is to successfully contribute to the objectives of the Paris agreement then **all steel producers must progress towards net zero**, irrespective of their starting points
- The embodied carbon emissions in a tonne of steel is heavily influenced by the metallic input used in steelmaking, with secondary steelmaking (scrap-based) carrying a much lower carbon footprint than primary steelmaking (iron ore-based)

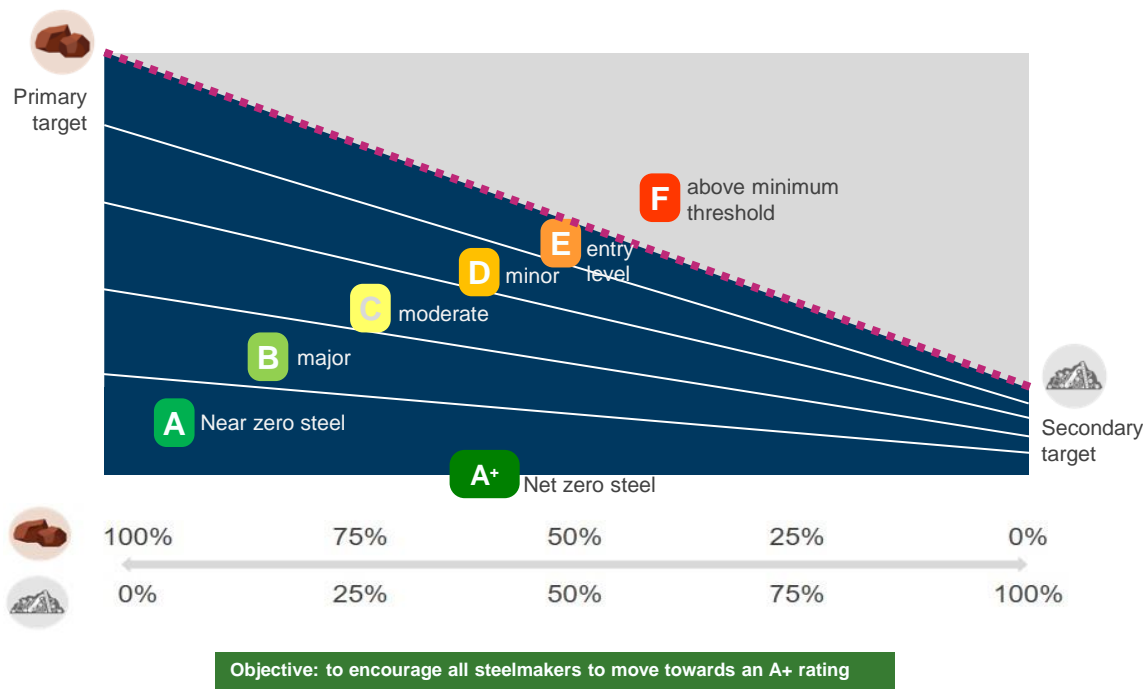


- However, there is not enough secondary steel to meet the global steel demand outlook; scrap is a finite resource. Primary based steel will continue to be needed for the global economy beyond 2050, particularly for the low carbon infrastructure that is needed to decarbonise



- Therefore, any low-carbon emissions steel standard needs to:
 - Account for the metallic input used in steelmaking by **using a sliding scale based on the percentage of scrap steel used in production**
 - **Encourage the decarbonisation of all steelmaking methods through the introduction of low-carbon emissions technology**, rather than incentivising decarbonisation by simply increasing the level of scrap used in steelmaking

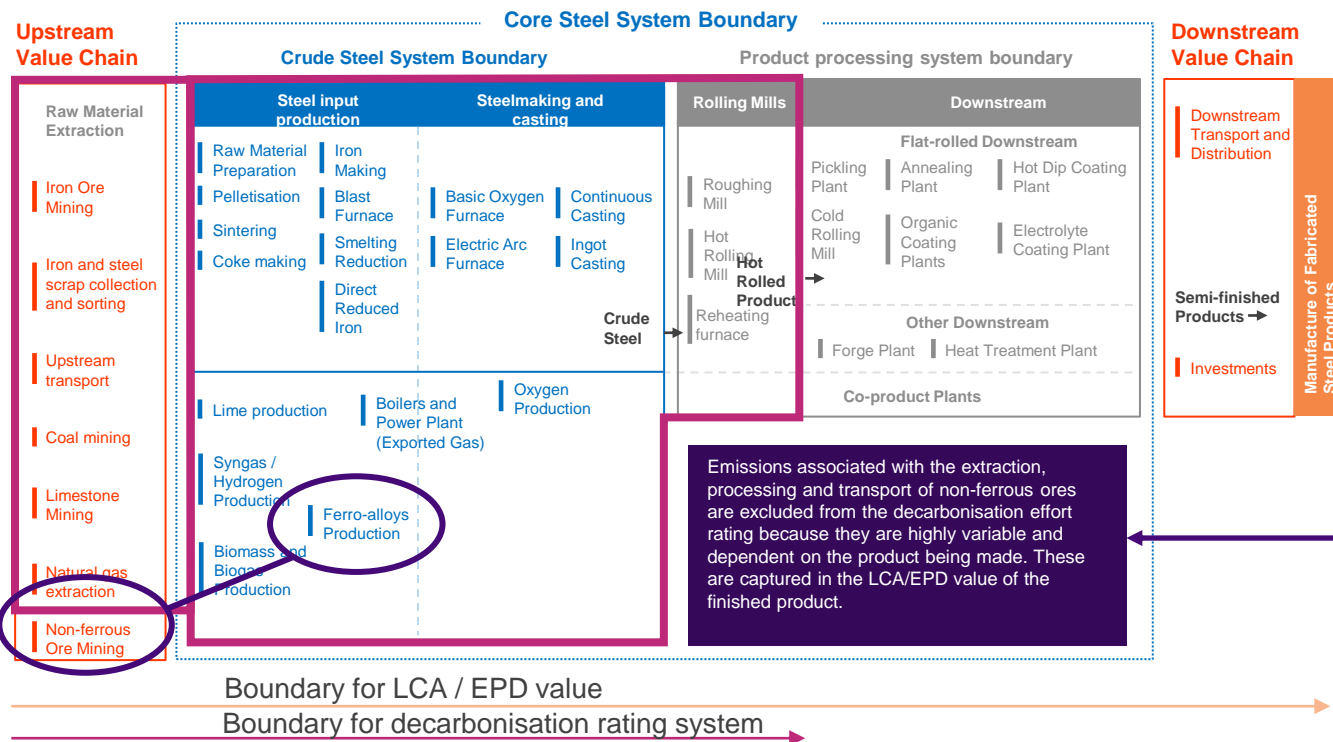
A banded scoring system that largely neutralises the effect of scrap as the main decarbonisation method will incentivise technology shifts



- A steel producer's position on the graph would be based on their embodied carbon emissions per tonne of hot rolled steel (y-axis) and the metallic input they use (x-axis)
- Steel producers on or below the threshold would fall into six bands – A+ to E - with the producer progressing through the bands as they decarbonise (% embodied CO₂e emissions below the threshold)
- Like the ResponsibleSteel™ and IEA proposals, the threshold for near-zero steel should be set at a level which supports all potential decarbonisation routes
- We believe a scoring system that rewards steel producers for achieving higher ratings by structurally lowering emissions through technology investments, will be a key supporting instrument to drive down steel emissions and meet the 1.5C target

3. A clearly defined steelmaking boundary from which emissions are counted

For the decarbonisation progress score, we propose focussing on all steel industry activities that fall within the core steel system boundary initially to enable a like-for-like comparison between steelmakers for the embodied carbon emissions in a tonne of hot rolled steel, using internationally recognised methodologies. This will be extended upstream in subsequent phases.



Hot Rolled Product System Boundary Phasing

- The underlying principle is to ensure no integrated steelmaker is advantaged or otherwise due to their structure
- All steel products are directly comparable up to this boundary
- All direct emissions and electricity-related emissions sources of the industry are included in the hot rolled steel system boundary, regardless of ownership
- These are usually Scope 1 and 2 but may include some Scope 3 where process is owned by third parties
- NZSPMP crude steel system boundary and rolling mills is proposed during 1st phase
- Value chain emissions, excluding non-ferrous ores (mining, processing & transportation), will be added to the decarbonisation effort rating in the second stage
- Primary upstream data will be used in the 3rd stage

Supported by a detailed set of requirements for rating embodied carbon in steel, and validated by independent experts

Principles-based

- Dual score approach that provides differentiated decarbonisation progress bands to incentivise CO₂e reductions in physical steel provides comparable and transparent embodied carbon emissions through LCA or EPD values
- Includes label for equivalent CO₂e reductions achieved by significant efforts in primary operations ('S' or 'balanced')
- Incentivises primary and secondary steelmakers to decarbonise by making capital investments in technology shifts rather than relying on a finite amount of scrap metal
- Thresholds and qualifying company data use a clearly defined steel production boundary
- Supported by clear, unambiguous GHG accounting rules for steelmaking and independent assurance
- Thresholds incentivise decarbonisation pathways with potential for achieving near zero
- No offsetting allowed until band A (near zero) is reached
- Use regionally or internationally recognised LCA/EPD standards for full product footprint

Stakeholder alignment

- Provides customers with comparability and transparency
- Aligns with industry best practice
- Drives towards meeting civil society's expectations
- Avoids disclosure of commercially sensitive data
- Phased approach allows for use of more mature, consistent and comparable scope 3 methodology

Provides customers with product transparency and comparability | Incentivises use of low embodied CO₂ steels

Summary

- A dual score approach that supports policy makers in the development of differentiated lead markets for low-carbon emissions steel production, and provides customers with comparable, transparent data of embodied carbon emissions in steel products
- Continues to recognise early actions taken by first mover primary producers
- Incentivises the decarbonisation of all methods of steel production
- Based on a clearly defined steelmaking boundary from which embodied carbon emissions are counted
- Critical tool to enable the steel industry to contribute to the objectives of the Paris agreement

Thank you

