

ArcelorMittal

Smarter steels for people and planet



ArcelorMittal



Steel is critical to the transition to a carbon neutral, circular economy



Integral to the renewable energy revolution



A core material in the transition to electric vehicles

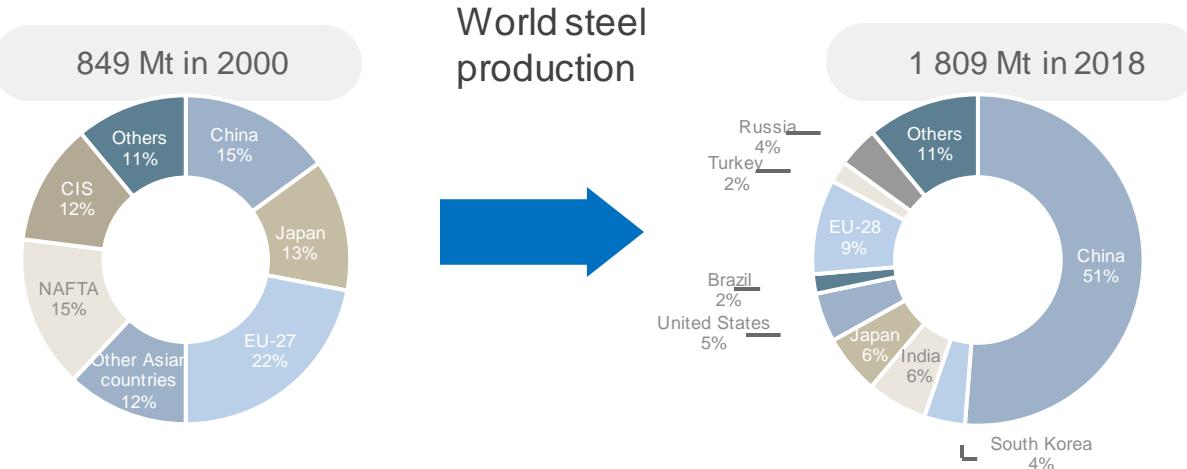


Supports the next generation of high-performance buildings

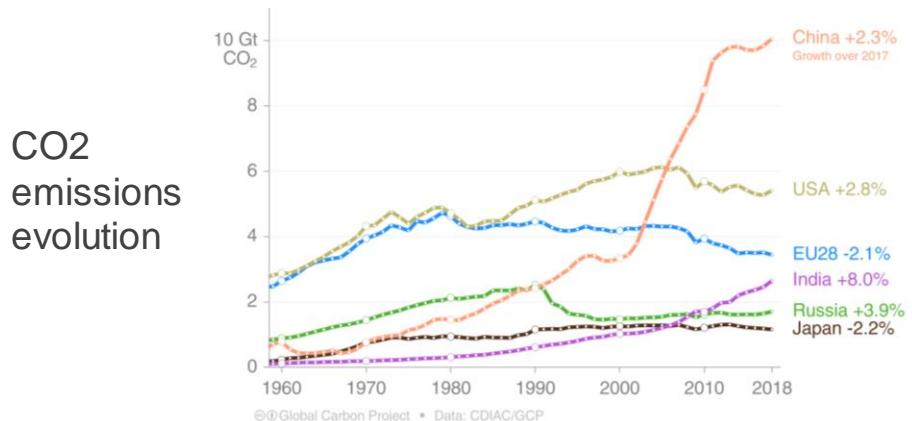


Facilitates emerging market infrastructure development

World steel production will likely continue to grow



- World steel production doubled between 2000 and 2018
- Driven by population and GDP growth, global steel demand will likely continue to increase.

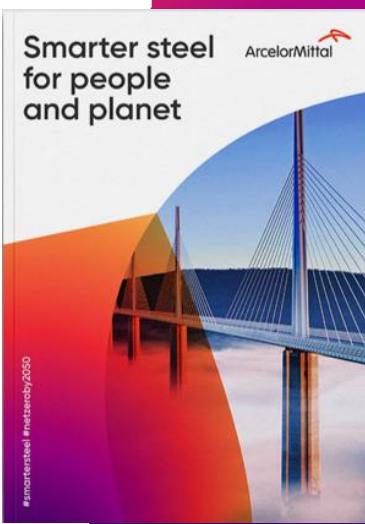


- Europe shows a reduction in its emissions, those of China increases sharply



Our purpose

**Smarter
steels for people
and planet**



-35%

Scope 1 & 2 CO₂
emissions by
2030 across
Europe

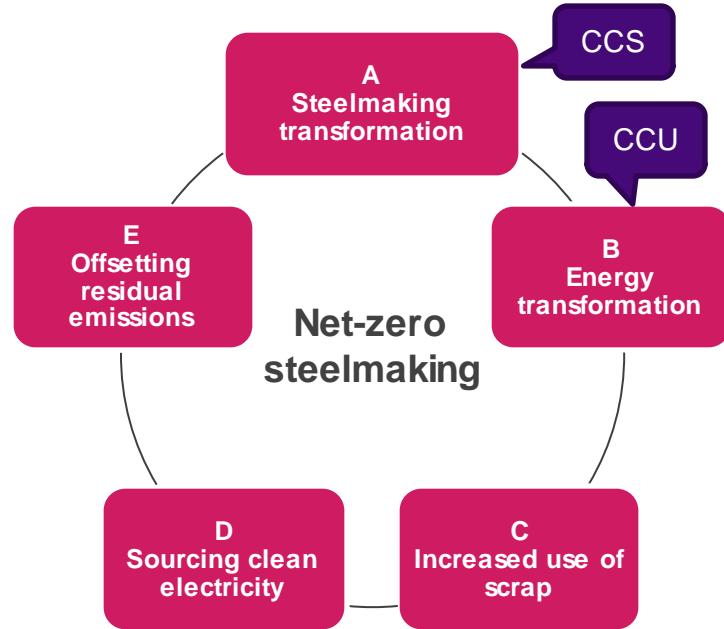
Net zero

CO₂ emissions by
2050

SBTi

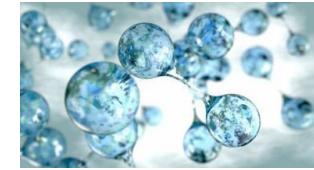
Committed to
setting science-
based targets
aligned with 1.5°

Our roadmap features five groupings of actions and initiatives ('levers') that act as stepping stones to achieving carbon-neutrality by 2050:



The technological pathway consisting mainly of:

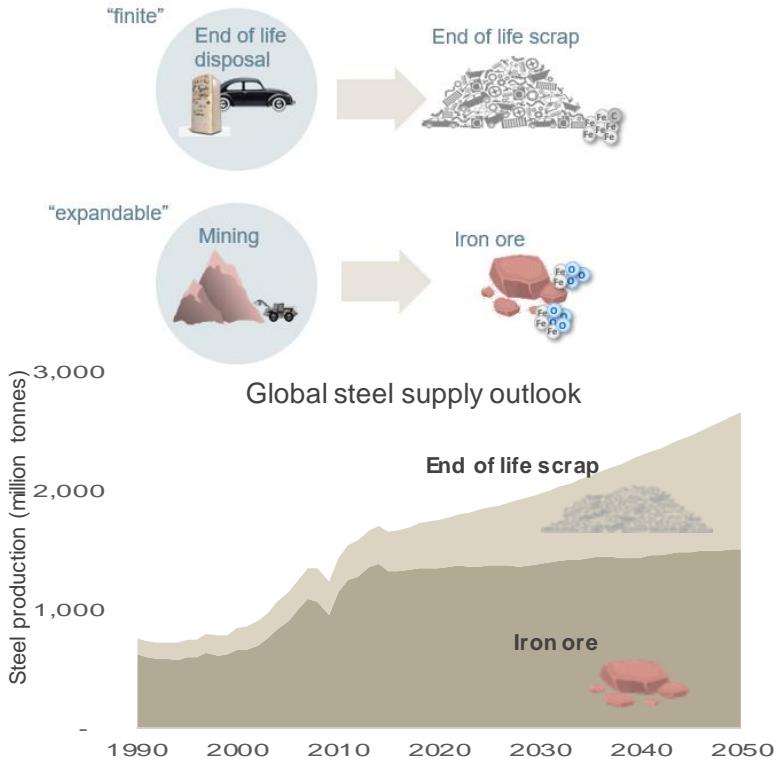
- **Innovative DRI:** Use of hydrogen to reduce iron ore without emitting CO₂
- integrating an increasing share of **recycled steel** into production: already up to 25% in 2022
- Continue **optimizing the blast furnace** production, including use of hydrogen to decrease emissions during the transition phase



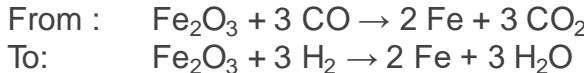
Objective to transform the production of the 32 Mt ArcelorMittal produces in EU

Scrap steel is limited – we are taking steps to increase the share of scrap, but decarbonisation of primary steelmaking is key

Increasing steel recycling



Innovative DRI



HDRI

Hot DRI is extracted from the DR plant reactor and is directly conveyed to the furnace at high temperature.



CDRI

Cold DRI is reduced iron in pellet form, however it has the tendency to re-oxidize in contact with water and, at temperature above 80° C, also with air.



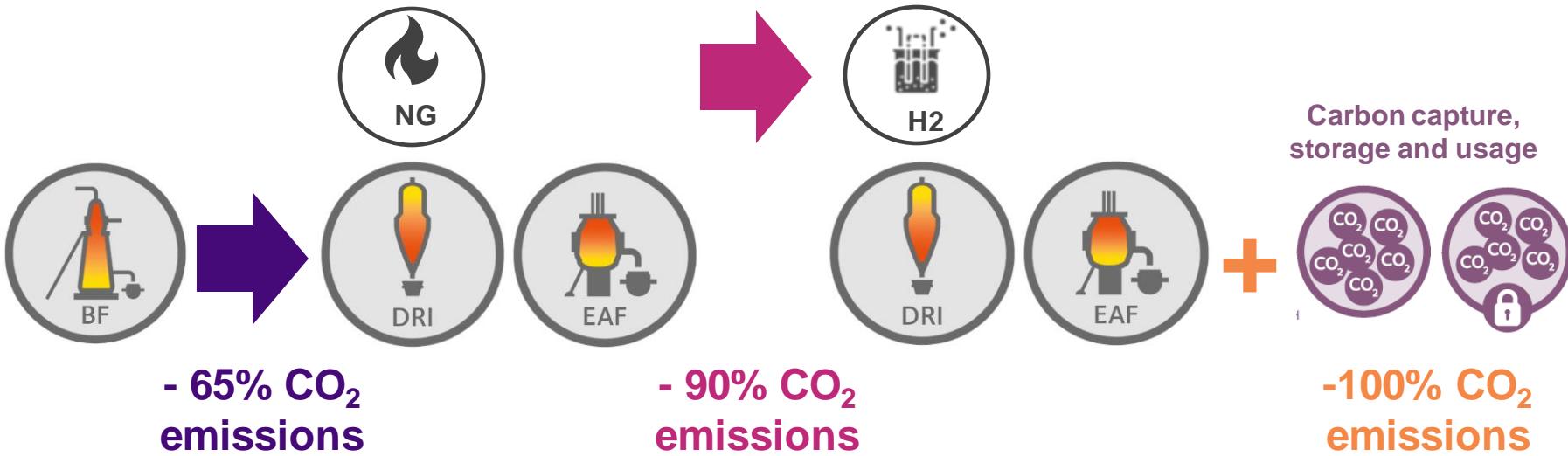
HBI

HBI is DRI mechanically compressed at high temperature into briquettes, with minimum density of 5g/cm³. This product is a safer form of DRI when transport is needed.



Decarbonising primary steelmaking requires a transformation

Combining DRI with EAFs helps increasing steel recycling and virgin material use

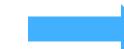
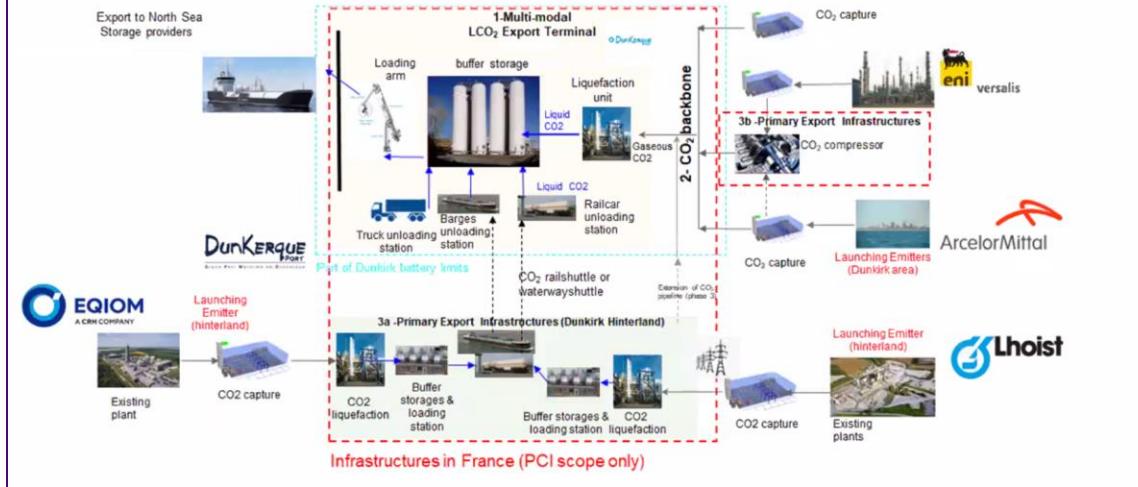


CCS perspectives for ArcelorMittal in France

- Integrated steel plants will become large CO₂ supply hubs =>
 - A typical 4Mt steel plant will deliver in the future 1 to 3Mt CO₂ for storage or usage (e-fuel, e-chemicals).
- Coastal plants are good candidates for off-shore storage : Dunkerque is part of the north France CO₂ hub DARTAGNAN
- Technologies of pre-combustion and post-combustion Carbon capture are under assessment/tests in the AM group => example 3D/DMX project in Dunkerque : Innovative Solvent CO₂ captured developed with IFPEN and Axens.

Dunkerque is part of the north France CO₂ hub DARTAGNAN but **Norway is a natural partner**
for final storage of CO₂

General concept of a CO₂ Hub in “Grand Port Maritime de Dunkerque”



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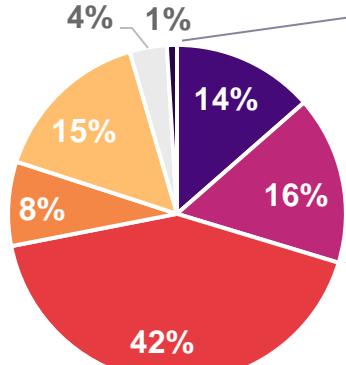
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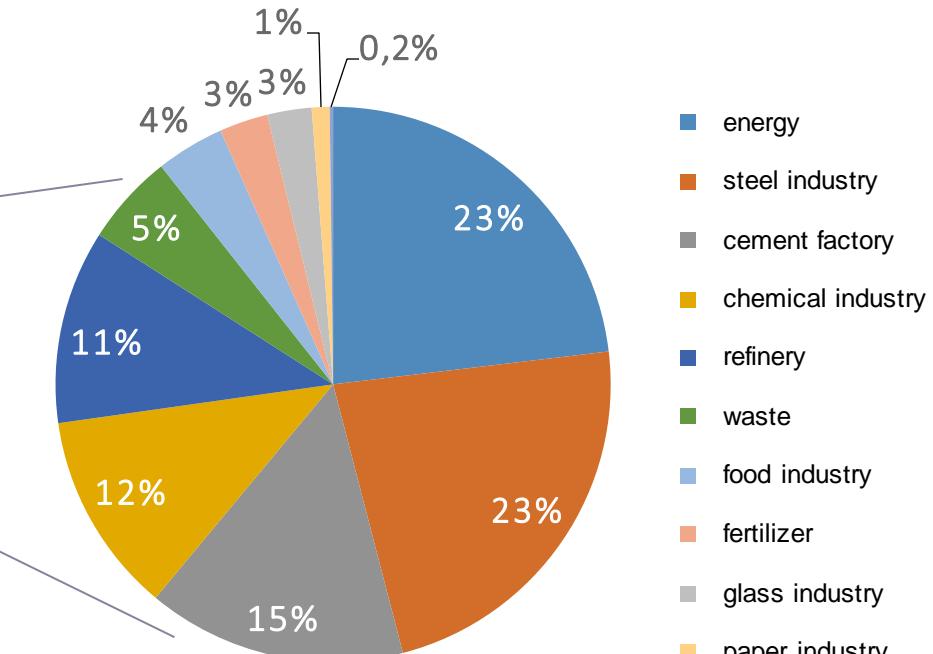
Back-up

France's example: the manufacturing industry accounts for 16% of emissions in France

- energy industry
- manufacturing industry
- transport
- commercial buildings
- residential heating
- farming/fishing
- various



CO2 emissions
in France



CO2 emissions from industry in France,
by activity sector (industrial emitters
> 0.05 Mt CO2/year, source: IFPEN, 2018)

Decarbonization leadership: ArcelorMittal is at the forefront of the industry, developing clear industrial transformation plans and capturing commercial opportunities

Industry first “Net zero” plant

- “World’s first full-scale zero carbon-emissions steel plant” at Sestao by 2025
- A combination of physical zero carbon emissions steel and net-zero certified tonnes by 2030

First to market

- Customer appetite for low carbon steel is real, as demonstrated by demand for our XCarb™ product offering launched in 1Q’ 21

Funding

- \$10bn total investment* required to achieve 2030 Group decarbonization target (gross amount pre-government support)
- Securing public support is central to our plans and provides an opportunity to accelerate

Leading the decarbonisation of the steel industry also requires securing resources



Voestalpine:

World-class Hot Briquetted Iron ('HBI') plant located in Corpus Christi, Texas.



Greenko, India:

Annual supply of 250 MW of uninterrupted renewable power to AM/NS India, reducing CO₂ emissions by 1.5mtpa



John Lawrie Metals:

Scotland's leading consolidator of ferrous scrap metal.

ALBA International Recycling
10 scrap yards located in the south of Germany

Key success factors: funding, policy support, energy and carbon price

1. Secure adequate funding support:

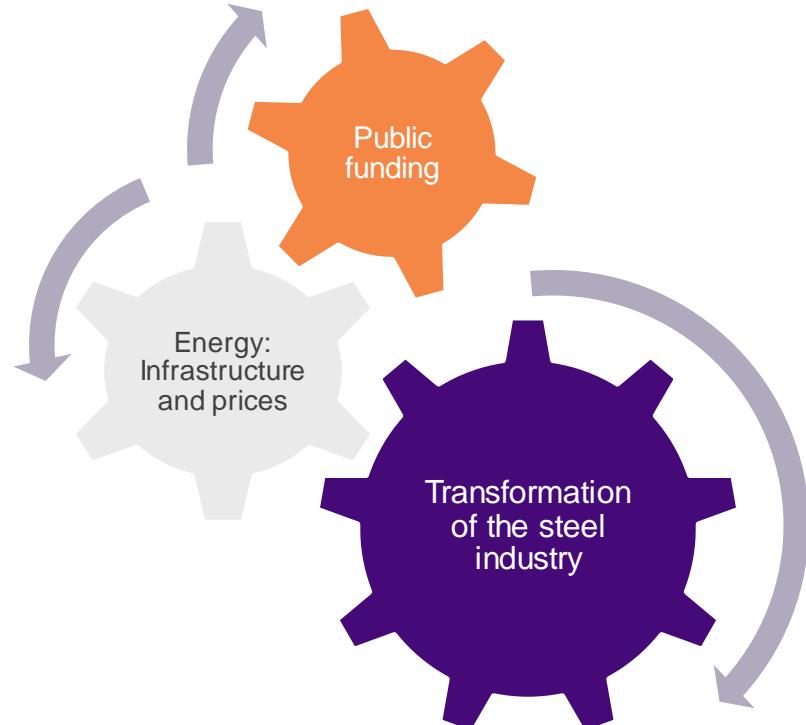
- granted in most countries but still awaiting greenlight from EC

2. Clear policy roadblocks to investment

- ETS review needs to take into account the decarbonization speed of the European manufacturing industry – and to be coupled with CBAM
- Hydrogen use / storage
- Waste Shipment Regulation

3. Ensure sufficient, affordable, decarbonized and stable Energy

- green or low carbon electricity and hydrogen
- will need to be available soon in large, stable amounts, and at competitive prices



XCarb®: Towards carbon neutral steel

Our offer towards the market

