

ArcelorMittal

Smarter steels for people and planet



World Materials Forum

June 2022, Nancy

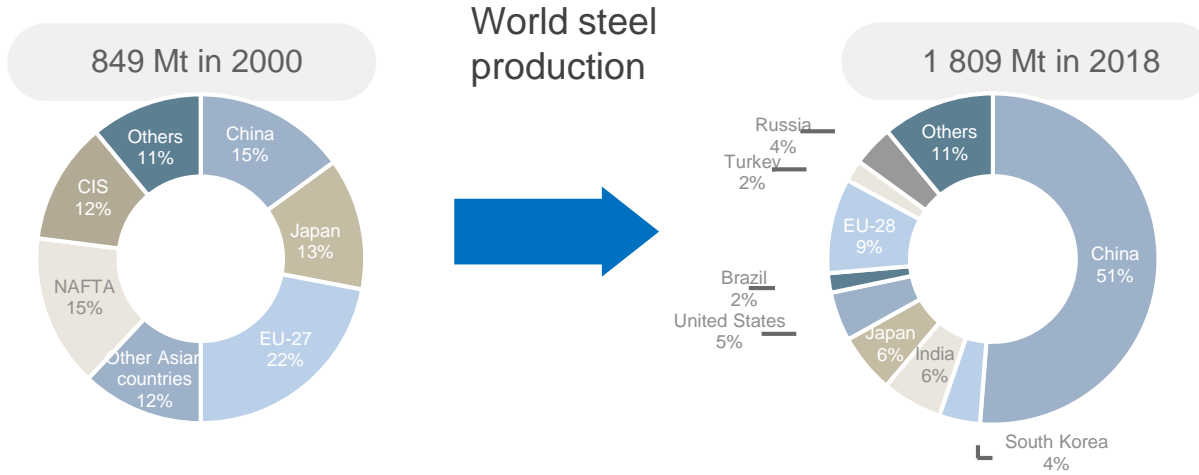
Eric Niedziela, Vice President Climate Action, ArcelorMittal Europe



Steel is everywhere



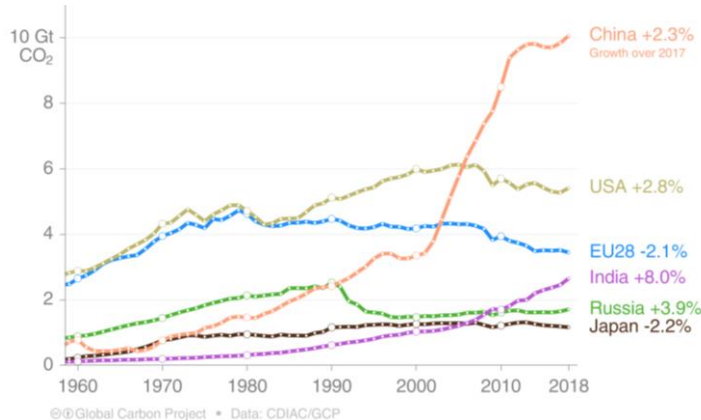
World steel production will likely continue to grow



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

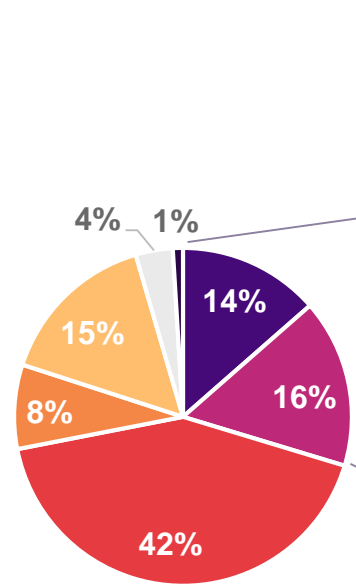
- Europe shows a reduction in its emissions, those of China increases sharply

CO2 emissions evolution

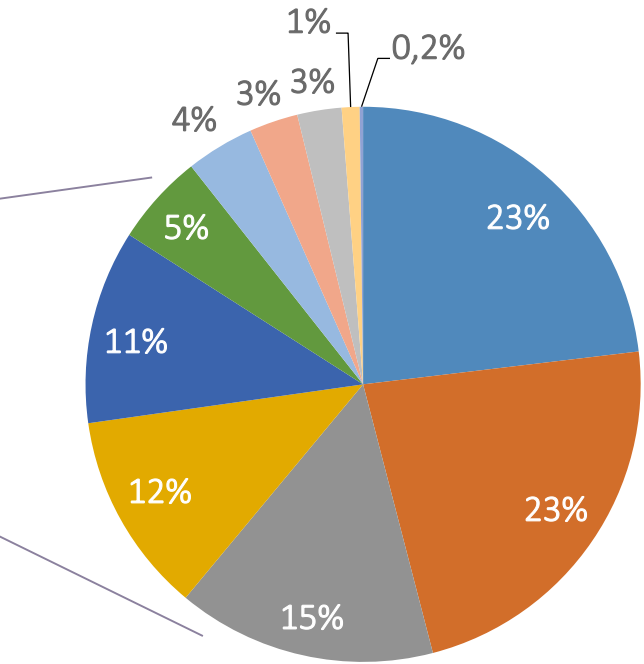


France's example: the manufacturing industry accounts for 16% of emissions in France

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



CO2 emissions in France

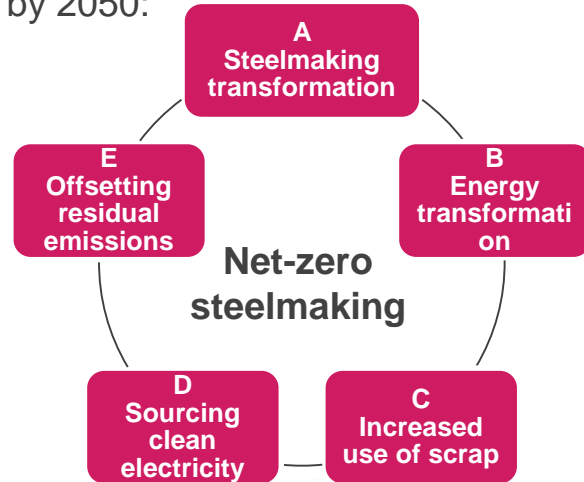


CO2 emissions from industry in France, by activity sector (industrial emitters > 0.05 Mt CO2/year, source: IFPEN, 2018)

- energy
- steel industry
- cement factory
- chemical industry
- refinery
- waste
- food industry
- fertilizer
- glass industry
- paper industry
- transportation

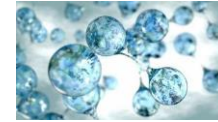
Our roadmap to net-zero

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



ArcelorMittal has identified and is developing viable decarbonization pathways:

- **Innovative DRI:** Use hydrogen to reduce iron ore without emitting CO₂
- **Smart Carbon:** Revolutionize the blast furnace industry to produce CO₂ neutral steel
- ArcelorMittal is also developing **steel recycling**, integrating an increasing share of recycled steel into its production: up to 250 kg per ton of steel by 2022.



Group target of a

25%

reduction in CO₂e emissions intensity by 2030 (Scope 1 and 2)

Europe target increased to

35%

reduction in CO₂e emissions intensity by 2030 (Scope 1 and 2)

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

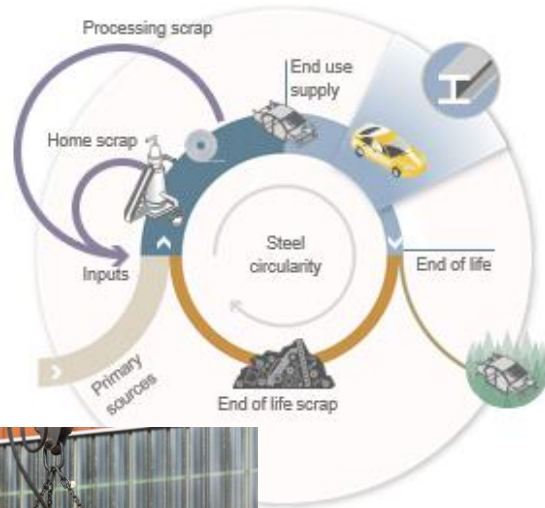
- Customer appetite for low carbon steel is real, as demonstrated by demand for our XCarb™ product offering launched in 1Q’ 21

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

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. This product is a safer form of DRI when transport is needed.



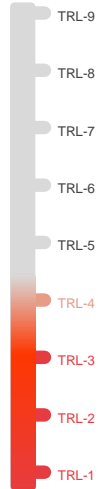
1-2 g

Lab cells



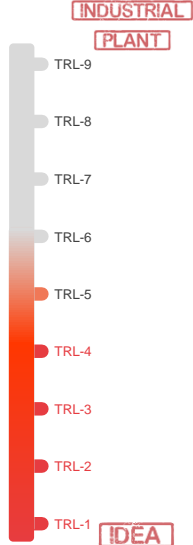
3-4 kg

Ulcowin

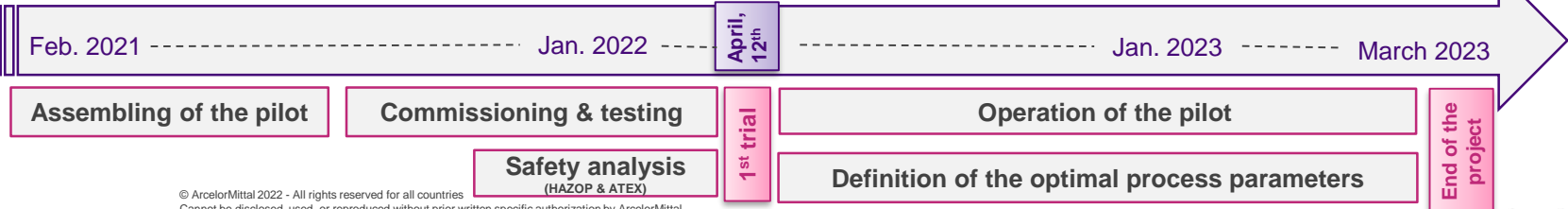


~ 90 kg

Siderwin



SIDERWIN



Leading the decarbonisation of the steel industry



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



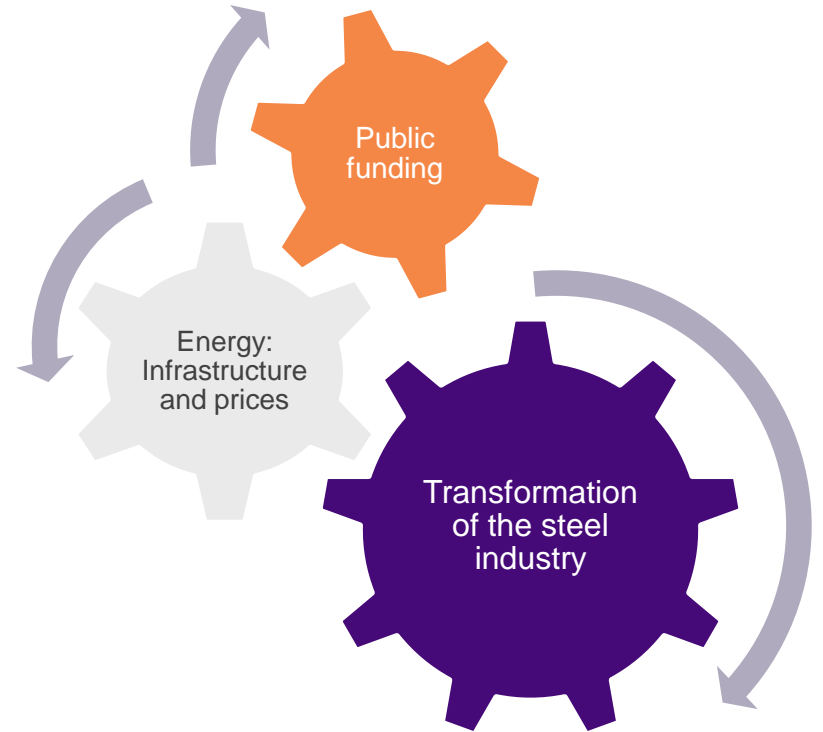
Greenko, India:
Annual supply of 250 MW of uninterrupted renewable power to AM/NS India, reducing CO2 emissions by 1.5mtpa



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

- **Funding:** granted in most countries but still awaiting greenlight from EC
- **Policy:**
 - ETS review needs to take into account the decarbonization speed of the European manufacturing industry – and to be coupled with CBAM
 - Waste Shipment Regulation
- **Energy** (green or low carbon electricity and hydrogen) will need to be available soon in large, stable amounts, and at competitive prices



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

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