



ArcelorMittal



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HIGHLY CONFIDENTIAL

ArcelorMittal's decarbonization vision and goals

- Steel is and will remain an essential component and the most circular of all materials. The challenge is to be able to **make steel using clean energy** technologies on a commercial scale, **while remaining globally competitive**.
- ArcelorMittal is fully committed to reduce the emissions of its European business **by 35% by 2030** and to being **carbon-neutral by 2050**. Scenarios to accelerate even further the decarbonisation are under review.

Absolute Emissions (1+2)	2018	2019	2020
Mt CO ₂ e	67,4	63,8	51,2

Intensity & Target (1+2)	2018	↓	2030t
t CO ₂ e / t steel	1,70	35%	1,11

Source ArcelorMittal 2020 Carbon Action Report; Ref 2018:
Flats Europe: 61,6 – Longs Europe: 5,3 – AMDS: 0,5)

- ArcelorMittal and the EU steel sector would be able **to develop, upscale and roll-out new technologies** that could achieve these goals **within this timeframe**.
- However, these projects entail **very material investment and operational costs and risks** that, due to international competition, cannot be passed on to consumers or borne by the industry alone.



ArcelorMittal's roadmap and decarbonization projects -

Why various routes are needed?

- The **EAF route** using scrap is **well known for Long Products** and some **basic Flat Industry** grades, but using DRI in an EAF (scrap availability limited) in combination with scrap (with cleanliness issues) shall be further developed
- For some high-end grades, **feasibility on the EAF route has been not proven so far**
 - EAF process requires a **minimal DRI C content** of [REDACTED] to keep his N removal efficiency in EAF
 - DRI production based on high %H₂ ([REDACTED]) should keep [REDACTED] contained in the DRI. Still to be tested and experience gained
 - will require **top quality pellets** (with low S and P), which are not abundant available
 - This is mandatory for ULC (IF and BH used in automotive industry), electrical steels (electrical engines), deep drawing grades (automotive), tin plate (packaging), some High C (industry), or Boron grades (industry, automotive)
 - Enlarge feasibility of EAF route will take time as several hurdles need to be overcome. While we cannot stop serving our markets
 - Low P grades (continuous deslagging or very clean scrap), Low S grades (desulf options limited + Ca treatment forbidden for cleanliness)
 - Need of low S C injection for foaming and some trial to validate the max % of desulf affordable for cleanliness
 - Low N grades (electrical steels, some BH) that are done now with N at tapping 10ppm lower than the best expected after EAF
- Therefore, to mitigate risks and prevent reducing product feasibilities, following approach will be followed

- [REDACTED]
- [REDACTED]
- [REDACTED]



ArcelorMittal's roadmap and decarbonization projects –

A stepwise approach to cope with increasing complexity & mitigate technological risks



(1): projects linked
(2): projects linked

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CEEAG: The crucial role of State aid to reach 'Fit for 55' objectives

Aid to realize decarbonization projects

- **Investment and operating decarbonisation aid** is needed to finance these efforts and should foresee various instruments and allow different technologies.\

For instance:

- **Project-specific carbon contracts for difference (CCfDs)**, lasting up to 20 years with harmonized funding gap calculation, to cover the full abatement costs of the new low-carbon processes;
- Capacity replacement with clean technology;
- high-potential industrial-scale **development and implementation** of non-widespread **technologies not yet used in scale**;
- **dismantling** CO₂-heavy production **sites after 'green transformation'**;
- **reuse of waste** across industries steering away from current incentives for incineration;
- purchase of **RES electricity via long-term PPA**, to compensate higher costs esp. through EAF route.



CEEAG: The crucial role of State aid to reach 'Fit for 55' objectives Aid to realize decarbonization projects -

- It is key for the timing of the decarbonisation projects that CEEAG is not delayed
- The draft CEEAG **improve the EEAG** on several important aspects, most notably:
 - cover new areas, technologies, and aid instruments e.g. CCfDs;
 - abolishing unjustified distinction between operating and investment aid for decarbonisation;
 - allow aid levels that are necessary to ensure an effective industrial decarbonisation.
- **However**, the following points also need to be addressed in the CEEAG:
 - Explicitly cover under Section 4.1 **aid for dismantling CO2 heavy production installations after 'green transformation'** (cf. remediation aid under Section 4.12);
 - Complete **harmonisation of funding gap calculation** methods to allow combination of all types of European and national funding programmes (e.g. European Innovation Fund, Just Transition Fund);
 - Need to capture (e.g. through CCfDs) the **full abatement costs** of low carbon technologies compared to conventional ones, **without discounting the EU ETS price**, to reflect the full cost of production in Europe and the lack of a global level playing field.

CEEAG: The crucial role of State aid to reach 'Fit for 55' objectives

Aid after successful decarbonization projects

- The steel sector will require annually about **400 TWh of CO₂-free electricity in 2050** about seven times more than now. Intermittent renewables (wind and solar) will represent 85% of European electricity by 2045.
- Aid for energy cost relief to ensure access of industry to abundant, competitively priced low carbon energy and electricity is the most important condition for the industrial transition to climate neutrality.**

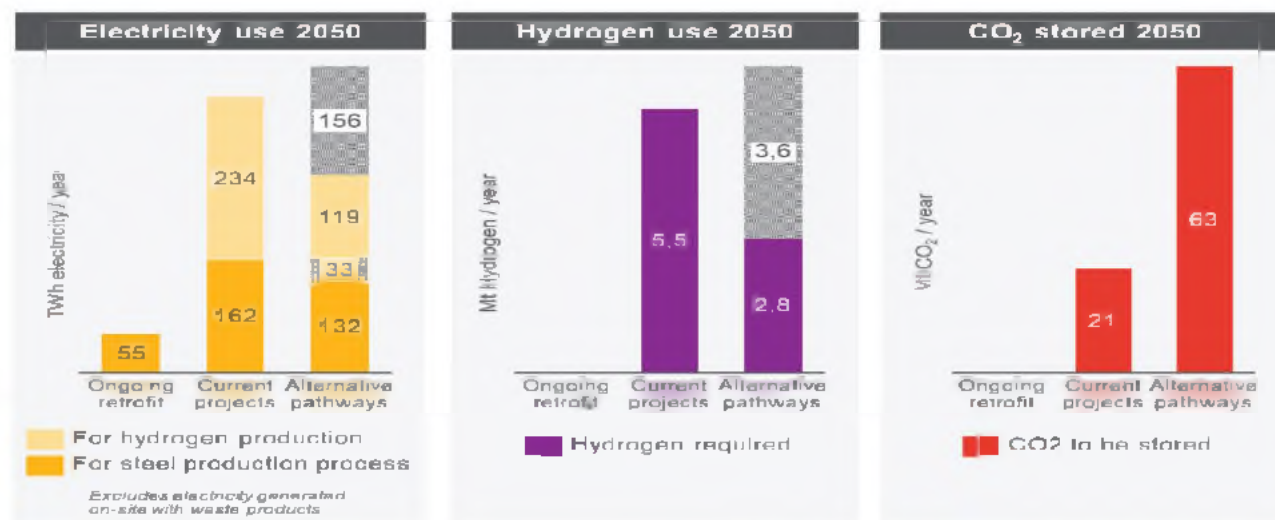


Figure 8: Projected demand of the various pathways for power purchased from the grid, for hydrogen and for CO₂ storage capacity in 2050.

Source: Eurofer

- The draft **CEEAG reduces the flexibility, the eligible sectors and the amounts of aid for energy cost relief** that have so far allowed to at least in part mitigate the heavy costs of the green transition borne by part of the industry.
- This **discourages the uptake of electro-intensive low carbon technologies**, harms the competitiveness of the EU industry and endangers the social acceptance of the financing of environmental support for decarbonization. **No reduction should be introduced.**

Waste shipment regulation Revision

– effective design key for decarbonisation

This Review is a unique opportunity to reduce the European exports of scrap to third countries. This is key as net exports of ferrous scrap passed from almost █████ in 2015 to almost █████ in 2019. Main country of destination of European scrap is Turkey. In addition to that, an important increase of the scrap demand is expected in order to achieve the European decarbonization targets.

Concerning the export of waste, the revision of the regulation should substantially improve the methodology and criteria for checking the regulatory and standards' situation at the country of destination. In the past, this concept has not been effectively applied. **It is essential to strengthen Article 49 of the WSR in order to impose a burden of proof on the exporters so that they have to demonstrate that the environmental and human health conditions at destination are equivalent to the EU conditions.** This cannot be achieved just by checking whether the legislation at destination are in theory similar to that of the EU but needs to focus on whether in reality the destination facility comply with standards equivalent to those applicable in the EU. It is important to **keep the same rules for all the countries OECD and Non OECD Countries.**

The revision of the Waste Shipment Regulation (“WSR”) is a key opportunity to

- (i) promote a strong and vibrant EU-wide circular economy and decarbonisation
- (ii) ensure the environmental level-playing field principles are really applied

Carbon, Capture & Use decarbonization investments

- **CCU is essential to get to zero GHG industrial emissions: in both the Hydrogen- and Smart Carbon decarbonization routes for industry**
- It is essential to develop industrial sector symbioses for a future circular climate change economy
- Highly innovative with big added value for society
- Require a high amount of costs for the investments
- Need to be economically viable and enabled by EU policy
- To be economically viable, our CCU fuel product (ethanol) should **counts under a country target**, as advanced biofuel, Renewable Fuel of Non-Biological Origin (RFNBO) or Recycled Carbon Fuel (RCF).
- Implementation legislation will decide this now.

CCU key priorities - status

- **Biomass** use in BF with fossil fuels (eg Steelanol with Torero) is positively recognized. Sustainable biomass is considered with a carbon emission factor of zero with no need to surrender ETS CO2 allowances. With biomass use there is recognition as advanced biofuel (under condition GHG savings >70%).

- **When CCU leads to Recycled Carbon Fuels** (eg Steelanol without Torero), as CO2 will be released, the ETS producer has to pay for the CO2-emission of the fuel. A separate ETS mechanism for Transport covering Fuel use is proposed.

CCU key investments

Two Delegated Acts by the EU Commission for implementation will be decisive at short term:

1. Methodology for GHG savings criteria of alternative fuels (RFNBO/RCF)

Timing: mid October EC draft, after that a consultation, adoption expected Q4 2021

Position: For CCU technologies to succeed, it is key that their abatement potential is assessed at their own merits, like in the ETS innovation fund, and that their investment is not hindered by the fact that the overall current electricity grid is not carbon free yet (also similar to eg electric cars);

2. Co-processing of primary fossil resources with secondary bio/waste resources

Timing: tbc Q4 2021, surely in 2024,

Position: Implementation should be done by applying a voluntary scheme of free attribution of renewable carbon (biomass) to output stream of choice (eg Steelanol), according to the mass balance principle. This will unlock the opportunity for investments by creating the appropriate regulatory conditions.

The Belgian government has agreed to this in its implementation method.



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Thanks

