EUROFER Engage Webinar

Making sense of EU climate policy

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THE EUROPEAN STEEL ASSOCIATION

Technological pathways to climate neutrality

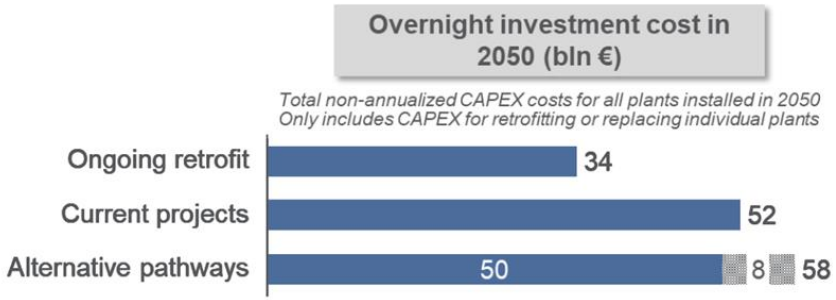
Pathways/ Groups	Circular Economy: Enhancing the recycling of steel (e.g. scrap in BOF/EAF*) and its by-products, Resource efficiency (*BOF= Basic Oxygen Furnace EAF= Electric Arc Furnace)		
	Smart Carbon Usage (SCU): Process Integration with reduced use of carbon (+CCS)	Smart Carbon Usage (SCU): Carbon Valorisation/ Carbon Capture and Usage (CCU) (+CCS)	Carbon Direct Avoidance (CDA): Hydrogen / Electricity
Description	Integration of process steps and internal use of process gases	Using CO/CO_2 from steel mill as raw material (Chemical and biological conversion of CO/CO_2)	Use of renewable electricity in basic steelmaking, e.g. production of H_2 to replace carbon
Projects/ Initiatives	HISARNA , TGR-BF-Plasma (IGAR), PEM, STEPWISE, Torero	Steelanol, Carbon2Chem, FReSMe, Everest, Carbon2Value	HYBRIT, H2Steel (H2Future, SuSteel, Hybrid Steel Making), tkH_2Steel, GrInHy, SALCOS, Hydrogen Hamburg, SIDERWIN

- 16 project applications in the first call of the Innovation Fund
- 33 projects in the Important Projects of Common European Interest
- 32 projects under the Clean Steel Partnership

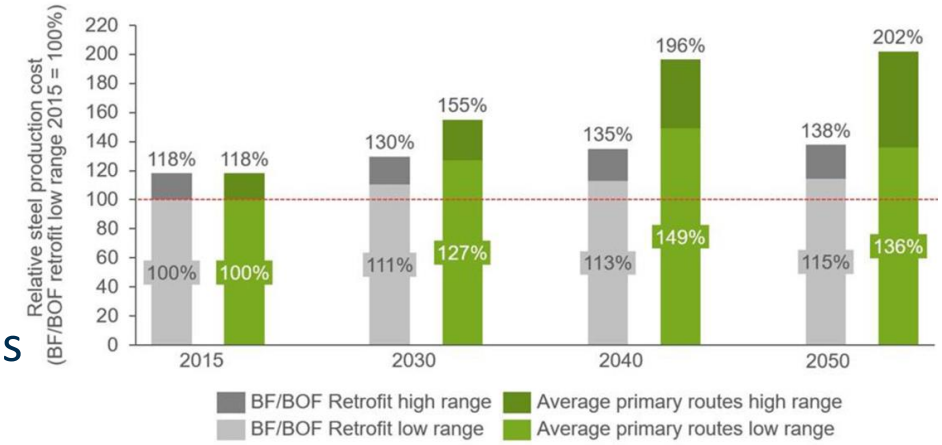
Carbon2Chem · Carbon2Value · Everest · FReSMe · GrInHy2.0 · HISARNA · H2FUTURE · HYBRIT · SALCOS · Siderwin · Steelanol · STEPWISE · tkH2Steel · Torero

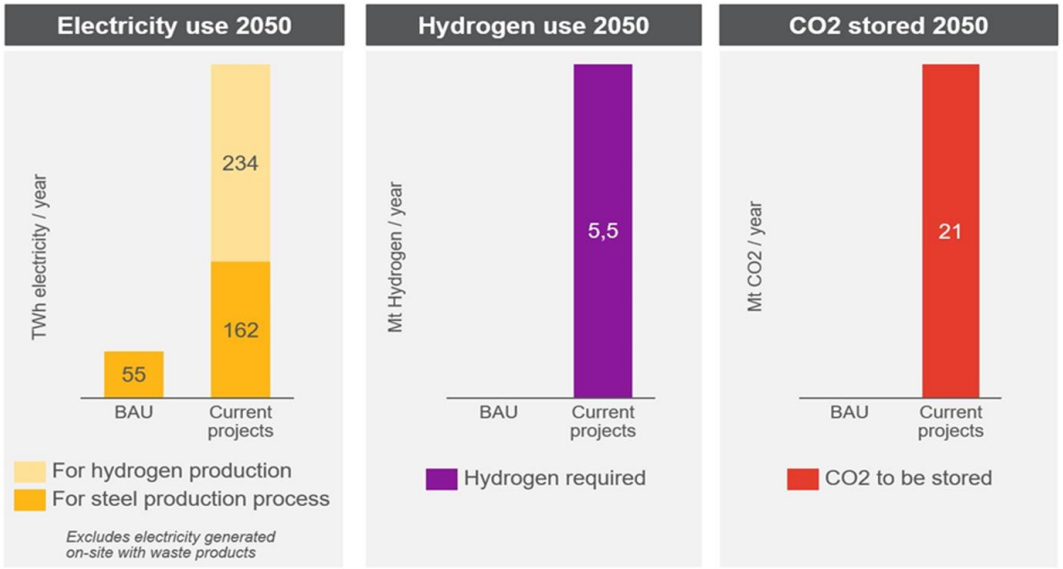
* Non exhaustive list of projects

Financial & energy needs of such pathways



Up to 70% increase of investment needs (CAPEX)



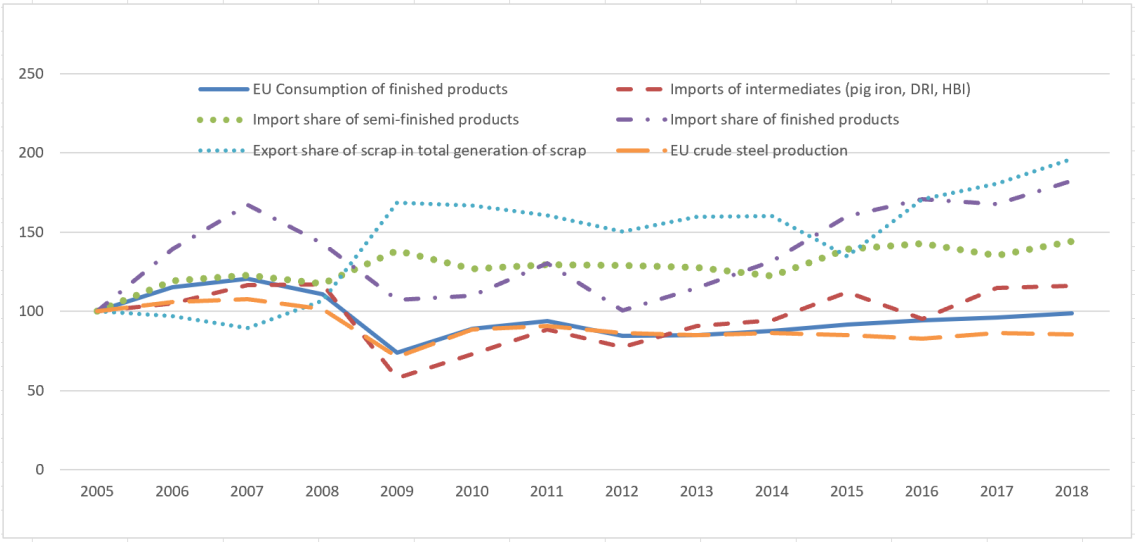


35%-100% increase of production costs in primary steel making (OPEX)

- **Up to 400TWh** of climate neutral electricity (including for the production of yearly 5.5 Mt hydrogen), which is **7 times more** than what the sector purchases from the grid today

Source: Low carbon Roadmap, November 2019

Key facts on the EU steel industry



- Highly capital intensive
- Long investment cycles
- Close to technical limits of current technologies
- Highly energy intensive
- Most CO2 emissions are unavoidable
- Highly exposed to international trade
- Highly exposed to unfair trade practices (overcapacities, subsidies, dumping)
- Declining trade balance
- Increasing leakage of jobs, production and emissions in the last decade

In 2018 the EU consumed as many finished products as in 2005, but in the meantime:

- The EU crude steel production declined by **14%**
- The market share of imported finished products increased by more than **80%**
- The market share of imported semi-finished products (in EU consumption of semi-finished) increased by more than **40%**
- The amount of intermediates (e.g. pig iron, directly reduced iron, hot-briquetted iron) imported from third countries increased by more than **15%**
- The share of scrap generated in the EU and exported to third countries increased by more than **95%**

Breakthrough technologies need a comprehensive regulatory framework

Environmental and Energy Aid Guidelines

Emissions Trading System

Carbon border adjustment

Creating lead markets

Breakthrough technologies would increase the steel price by 35%-100%

- Risk sharing instruments (e.g. contracts for difference)
- Requirements and incentives for customers' use
- Public procurement

Level playing field

The EU imports ±30 M tons and exports ±20 M tons of steel per year

- Benchmark based free allocation
- Compensation of indirect costs
- Complementary carbon border adjustment
- Measures to foster steel recycling in the EU

Competitive low carbon energy

Breakthrough technologies need ± 400 TWh of electricity (equivalent to Germany)

- State aid to reduce structurally costs of energy for industry in transition
- Building the necessary infrastructure
- A European hydrogen strategy

Funding support

Breakthrough technologies need 50 to 60 €bn investment

- Important Projects of common EU Interest
- Innovation Fund and ETS revenues
- Clean steel partnership
- National support (based on EU state aid rules)

Hydrogen & gas package

Renewable Energy Directive

Energy Taxation Directive

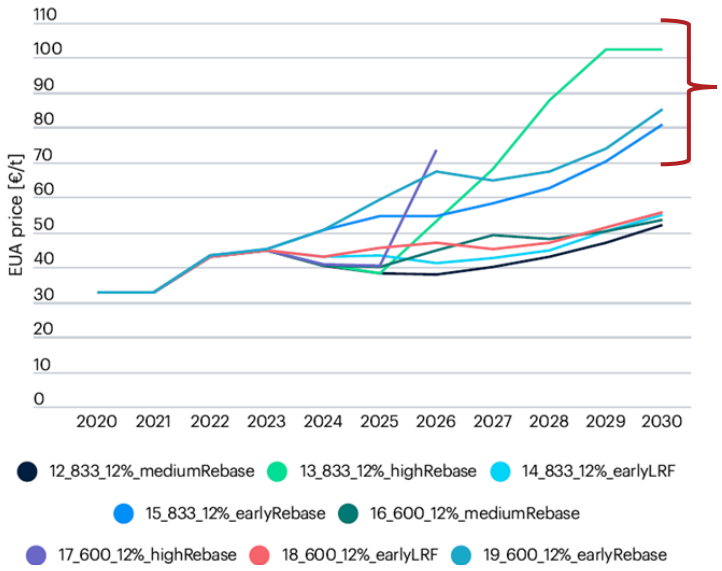
Key objectives of the fit for 55% package

- Delivering the higher climate target in the most cost-efficient way without undue additional costs
- Ensuring effective carbon leakage protection to safeguard the competitiveness of sectors exposed to global competition while they invest in low carbon technologies
- Supporting low carbon investment in industry to accelerate the implementation of breakthrough technologies at industrial scale

1. Delivering the climate target in the most cost-efficient way without undue additional costs

- Fair burden sharing between ETS and non ETS sectors
- No integration of transport and buildings into the existing ETS (up to 250€/t CO2 abatement costs)
- Avoiding one-off cancellation (rebasing) and strengthening of the Market Stability Reserve (MSR)

Chart 3: EUA price trajectory Rebasing/MSR interplay



With rebasing, carbon price in the range of **80-100€/t**

Source: https://www.icis.com/explore/resources/european-carbon-market-to-shift-gears/

Revision of the EU ETS

2. Ensuring effective carbon leakage protection to safeguard the competitiveness of sectors exposed to global competition

- Higher climate ambition requires strengthened carbon leakage protection
- Free allocation and indirect costs compensation at full benchmark level
- Carbon border adjustment implemented as a complementary measure

Revision of the EU ETS

- Risks of a carbon border adjustment not complementing existing carbon leakage measures
  - Costs absorption by importers through reduction of their prices
  - Uneven impact, since importers would pay the carbon costs only on their share of production exported to the EU
  - Source shifting (e.g. deviating cleaner products to the EU while selling carbon intensive ones in other markets)
  - Impact on EU exports competitiveness
  - Impact on the financial ability to invest in low carbon technologies
  - Bigger impact on downstream sectors
- A carbon border adjustment complementary to existing carbon leakage measures does not imply double protection
  - Existing carbon leakage measures are partial, since they are based on strict benchmarks set at the level of the average best 10% installations
  - Free allocation is digressive and subject to the cross sectoral correction factor when the ETS cap is too strict
  - A complementary carbon border adjustment reduces the impact on trade flows and international trade relations
  - A complementary carbon border adjustment reduces the impact on downstream sectors

Revision of the EU ETS

3. Supporting low carbon investment in industry to accelerate the implementation of breakthrough technologies at industrial scale

- Focusing ETS revenues on industrial decarbonisation technologies
- Strengthening the Innovation Fund with more allowances from the auctioning share to support industry's decarbonisation
- Introducing new de-risking instruments such as contracts for difference
  - Breakthrough technologies entail not only higher CAPEX but also higher OPEX

Thank you for your attention

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