Topics

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Key Messages for Executive Vice-President Frans Timmermans

The EU steel industry and other Energy Intensive Industries in transition to carbon neutrality require a business case for investment and operation in Europe, comparable to the Industrial Policy of the U.S. - “carrots” vs. “sticks”:

1. Access to sufficient and globally cost-competitive fossil free energy and to raw materials, including steel scrap.
2. Better tailored, more certain, clear & flexible funding & financial incentives across the EU, focused on roll-out rather than R&D&I.
3. Establishment of green lead markets for green steel and products, e.g. through public procurement, quotas, ambitious GHG thresholds or introduction of GHG pricing for final products based on lifecycle emissions.
4. Trade policy levelling the playing field with global competitors: Maintaining the EU steel safeguard to prevent serious injury: No substantive reason to stop prematurely.
5. Agreement on an EU-US Global Arrangement on Sustainable Steel effectively tackling global excess capacity and incentivising ambitious steel decarbonisation in other regions, with comparable measures in the US and the EU, and fair access of EU steel to the U.S. market. – A unique opportunity to deep CO2 cuts in global steel.
6. Implementation of CBAM guaranteeing its effectiveness & adoption of solutions which secure EU steel exports.
7. Avoid that unrepresentative years (e.g. covid, energy crisis) impact 2026-2030 free allocation calculation. Implementing benchmark rules that reward upcoming investments in low carbon technologies
8. A consistent industrial policy encompassing all relevant fields such as energy, climate, environment, trade, and competition.
EU steel impact on the EU economy
500 production & processing sites in 20 EU member states

Blast Furnace site
Electric Arc Furnace site

(Processing sites are not indicated)
The four major steel customer sectors are the manufacture of fabricated metal products, mechanical machinery, and motor vehicles, together with construction. Across these four industries combined, total direct GVA amounted to €1.35 trillion in 2017, supporting more than 24 million jobs and generating just over €500 billion of tax revenues.

Taking the indirect and induced impacts into account too, they contributed almost €3.4 trillion to EU GVA in total, supporting 62 million jobs and €1.35 billion of tax revenues.

Across all four sectors combined, almost one-third of their additional economic impacts could be thought of as being 'enabled' by EU steel. So in 2017, that value would have been €1.1 trillion in terms of GVA, associated with 19 million jobs and €430 billion of tax revenues.”

(Oxford Economics, The Impact of the European Steel Industry on the EU Economy, 2019)
Key figures

EU steel consumption: 146.1 Mt
EU steel production: 153 Mt
EU steel imports (finished steel): 30.3 Mt
EU steel exports (finished steel): 19.4 Mt
EU scrap exports: 19.5 Mt
EU scrap imports: 5.4 Mt
EU scrap exports: 19.5 Mt
EU scrap imports: 5.4 Mt

Blast Oxygen Furnace (BOF): 86.1 Mt (56.4%)
Electric Arc Furnace (EAF): 66.5 Mt (43.6%)

Data covering 2021
Source: EU Steel in Figures 2022

STEEL is essential to the green, resilient economy and the EU’s strategic autonomy

100% REUSABLE
At the heart of the circular economy

THE MOST RECYCLED MATERIAL IN THE WORLD
88% rate in the European Union

HIGHLY INNOVATIVE
3,500 types of which 75% developed in the last 20 years
Steel is the backbone most important material for the green energy transition.
The green energy transition is not possible without steel

<table>
<thead>
<tr>
<th></th>
<th>Increase GW per year</th>
<th>Tons of steel per GW</th>
<th>Steel consumption increase per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>22 GW</td>
<td>120-180 Tn</td>
<td>2.8 million</td>
</tr>
<tr>
<td>Solar</td>
<td>35 GW</td>
<td>35-45 Tn</td>
<td>1.4 million</td>
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Exhibit 3: The absolute increase in annual average additions in solar and wind energy will aid an increase in European steel demand

Average annual additions, GW

Exhibit 5: Using these estimates alongside historical and forecast solar/wind additions, we estimate incremental steel demand to increase by ~4.2 t/year vs the prior decade; c.5%/4% of 2020/21 annual steel output

Average implied annual steel consumption from solar/wind additions (mn tonnes)

Source: IRENA, Goldman Sachs Global Investment Research
EU steel already reduced direct GHG emissions by 55%

Absolute direct GHG emissions down by 55% between 1990 and 2020 and specific direct GHG emissions reduced by 34%

Source: EUROFER calculations, based on Eurostat data
A European GREEN DEAL ON STEEL
We are already on the road to CO2-neutral production

OUR TARGET
2030
-30% CO2 emissions compared to 2018

OUR AMBITION
2050
Climate neutrality

OUR CHALLENGE
NOW
Enabling policies
Key low-CO₂ projects of the EU steel industry for 2030

- 60 projects
- Start: before 2030*
- CO₂ abatement potential in 2030: 81.5 Mt/y (1/3 of 2018 direct & indirect CO₂ emissions)
- Capex needs: 31 bn EUR
- Opex needs: 54 bn EUR (pre-crisis calc.)
- Energy needs: 165 TWh electricity, of which 90 TWh for H₂ production (2.12 Mt) via water electrolysis

* A few projects could start slightly later
SCALING UP low carbon steel
Technical challenges

ENERGY NEEDS

Up to 400 TWh/year of CO₂-free electricity, including 230 TWh for the production of 5.5 Mt hydrogen—7 TIMES MORE than what the sector purchases from the grid today (Germany consumed 512 TWh in 2021).

For steel production
Excludes electricity generated on-site with waste products

For hydrogen production

Hydrogen use 2050

CO₂ to be stored

SOURCE: EUROFER low-Carbon Roadmap, Nov 2019
Recycling of steel saves CO₂ in the EU

88 Mt FERROUS SCRAP
recycled by the EU steel industry annually

132 Mt CO₂ SAVED
in the EU – every year

82 MILLION EU HOUSEHOLDS
emit a similar amount of direct CO₂ emissions

30 Mt CO₂ SAVINGS LEAKED
by EU exports of 20 Mt ferrous scrap annually
Ferrous Scrap is key for the green transition

Scrap availability and consumption projections
Forecast based on steel production growth (0.5%/year until 2050)

Future ferrous scrap availability plays a fundamental role in sustainable steel production in the EU. As we transition to low-carbon technologies, we expect shortages of scrap before 2030, as current scrap levels will not fulfil demand.
Steel capacity CLOSURES & job losses

DATA 2009-2020

- Blast Furnace capacity closures
- Electric Arc Furnace capacity closures

26 million tonnes
permanent steel capacity closures

80,000 direct jobs lost
25% of total EU steel workforce

26 million tonnes permanent steel capacity closures
80,000 direct jobs lost
25% of total EU steel workforce

SOURCE: Company and Press Announcements
EU Steel Trade Balance

EU shifted from net steel exporter into a major net steel importer

Over the last 10 years, EU steel industry lost more than 30 million tonnes of sales on the EU and export markets.
Global Excess Steel Capacity

Global excess steel capacity (already at 630 MT) is expected to continue to increase mostly by further capacity build-up in Asia driven by China.
Global Excess Steel Capacity

Most of the global capacity expansion is in high-carbon steelmaking facilities (coal-based blast furnaces)

ASEAN - 6 Crude steel capacity
Cost Challenge EU Steelmaking – Energy

Even after relaxation of the extreme energy cost explosion following the Russian invasion in Ukraine, energy costs will remain significantly higher for steelmaking in Europe compared to its major trade partners.
**Cost Challenge EU Steelmaking – Exports under CBAM**

**Exports** make up a significant percentage of EU production - up to 22% for ‘CBAM sectors’, up to 50% for some other energy-intensive sectors. The value of EU steel exports (including tubes, rails) is € 45 billion.

Not adjusting CBAM at exports will likely price European steel out of foreign markets, lead to respective EU steel capacity reduction and job losses.

<table>
<thead>
<tr>
<th>Sector</th>
<th>EU27 products covered by CBAM exported to non EU27 countries (million euros)</th>
<th>Sector production value (million euros)</th>
<th>Share of EU27 exports of CBAM products, relative to production value (2018) in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizers</td>
<td>2.968</td>
<td>20.670</td>
<td>14%</td>
</tr>
<tr>
<td>Cement</td>
<td>996.0</td>
<td>17.709</td>
<td>6%</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>45.306</td>
<td>210.321</td>
<td>22%</td>
</tr>
<tr>
<td>Aluminium</td>
<td>8.969</td>
<td>50.625</td>
<td>18%</td>
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Source: ERCST, Eurostat

**Implementation** of CBAM: Carbon measurement methodology, default values and anti-circumvention measures have to be **effective** to ensure that CBAM is watertight and an instrument with teeth.
U.S. Industrial Policy

The U.S. for a long time has identified steel as strategic and critical for the country and even for its national security, in several steps adding to the general, more investment friendly environment in the US, e.g.:

• “Buy American” steel

• Full application of Trade Defence Instruments eligible under WTO on steel imports.

• “Section 232” National Security measure on steel (25% import tariff) and aluminium (10%). This is a 25% subsidy to the U.S. steel industry, leading, inter alia, to massive capacity increase.

• Inflation Reduction Act, targeting in particular the steel value chain and upstream energy, including domestic steel content requirement

• Announcement of president Jo Biden on 8 Feb. 2023 for “new standards to require all construction materials used in federal infrastructure projects to be made in America”, such as roads, bridges, highways

• Concept for an US-EU Global Arrangement on Sustainable Steel and Aluminium with a set of strict measures to address global non-market excess capacity and decarbonisation
U.S. Inflation Reduction Act

• IRA provides direct support to the US steel industry’s decarbonisation and renewable energy investments using significant tax credits, grants and loans subsidising the production and sale of critical steel-intensive renewable energy systems and infrastructure.

• It also provides additional steel demand for the US steel industry, as it discriminates against non-US steel producers – including those from the EU - through its requirement to use domestic steel content.

• We estimate that combined IRA and DOE funding can provide at least USD 85 billion funding available for steel production and upstream energy.

• The IRA, with additional funding from the Department of Energy, risks widening the gap in energy cost – currently at 8% - between the EU and US to between 16% up to 60%.

• In the absence of any new mechanisms in Europe, IRA and DOE funding will undoubtedly create a more competitive investment and production environment for green steel in the US.
U.S. Inflation Reduction Act

Impact on renewables and hydrogen

- IRA funding has the potential to decrease the cost of green hydrogen by ca. USD 3/kg H2, and up to USD 4/kg H2 with additional funding from the Department of Energy.

- Analysts expect that the tax credits for renewable energy production will reimburse up to one third of the investment costs to US industries. Equally, the production costs for green electricity could be massively reduced in the future (e.g. around 50% in the solar sector, 40-60% in the wind energy sector).

- This will considerably accelerate the expansion of renewable energies in the USA. Estimates assume that this share of electricity generation will increase to a share of up to 80% in 2030 (share approx. 40 % in 2020).

Carbon Capture Utilisation and Storage

- Potential to decrease CCUS costs by ca. USD 80/t CO2 CCUS, and up to USD 100/t CO2 CCUS with additional DOE funding secured.