



EUROFER

THE EUROPEAN STEEL ASSOCIATION

Meeting with Executive Vice-President Frans Timmermans

28 March 2023

Topics

- I. Key messages
- II. About the EU steel industry
- III. Steel in and for the Green Transition
- IV. EU Steel Decarbonisation
- V. EU Steel Energy and Scrap needs
- VI. Global Challenges and Steel Trade Situation
- VII. US Industrial Policy for Steel

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

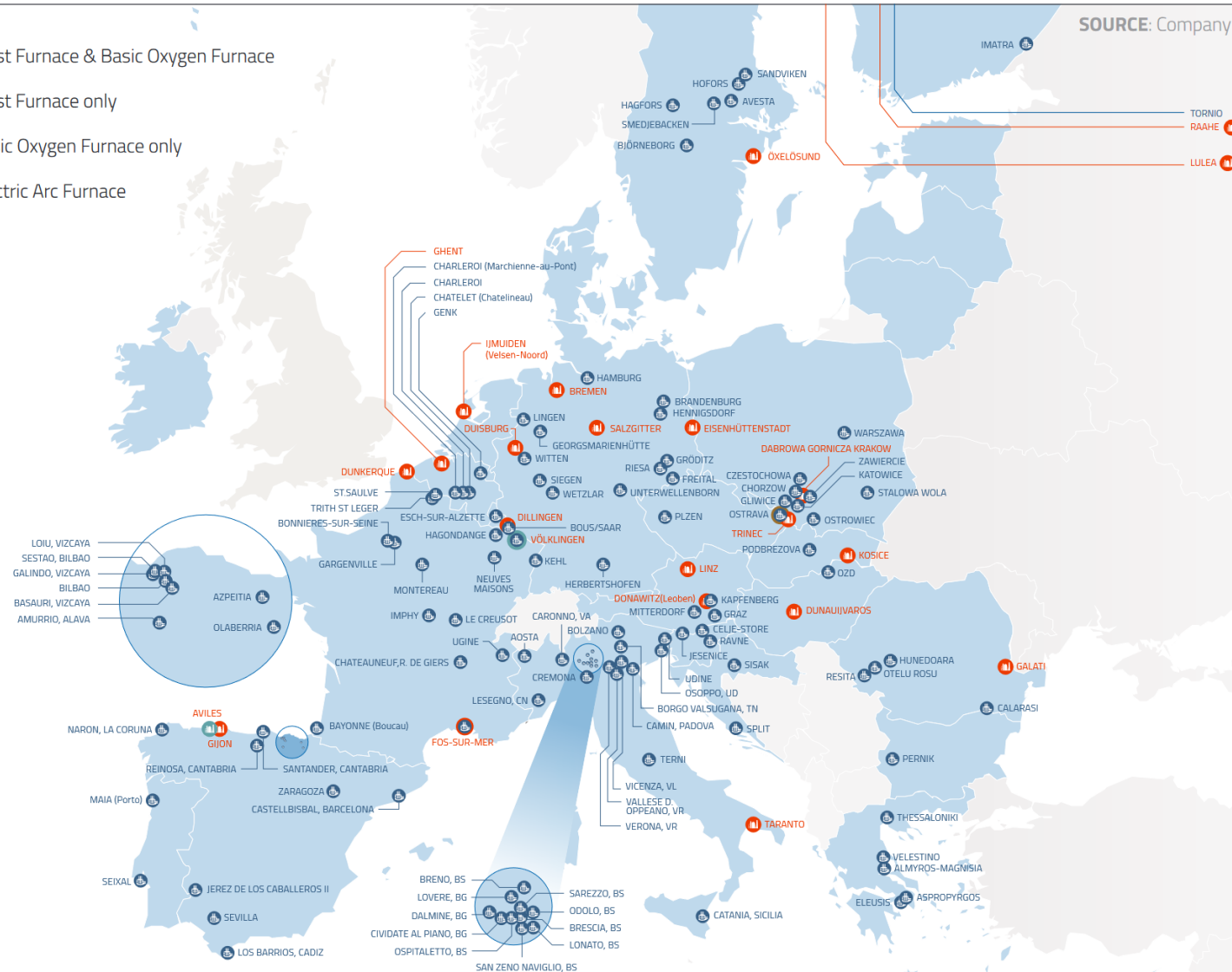
500 production & processing sites in 20 EU member states

PRIMARY AND SECONDARY STEEL PRODUCTION ACROSS THE EU

MAP ■ 2020

SOURCE: Company and Press Announcements

-  Blast Furnace & Basic Oxygen Furnace
-  Blast Furnace only
-  Basic Oxygen Furnace only
-  Electric Arc Furnace



Blast Furnace site
Electric Arc Furnace site

(Processing sites are not indicated)

EU steel impact on the EU economy

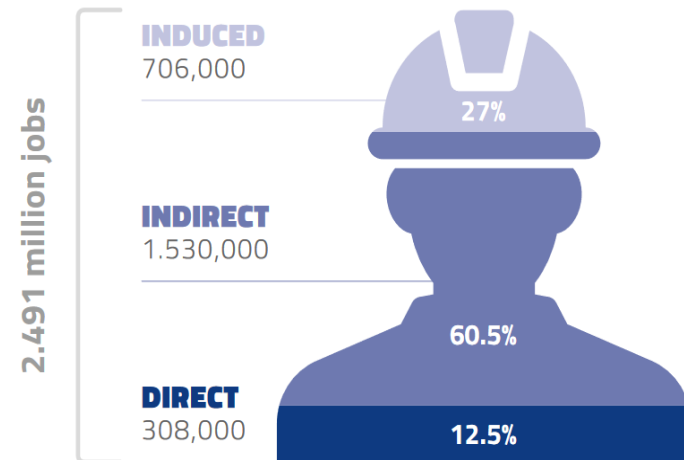
2.5 million direct & indirect jobs, €135 billion in GVA

EMPLOYMENT

GRAPHIC • 2021

SOURCE: OXFORD ECONOMICS

The EU steel industry supports nearly 2.5 million jobs



	'Type I' multiplier	'Type II' multiplier
Multiplier for GVA	4.3	6.0
Multiplier for jobs	5.7	8.1

The 'type I' multiplier is the ratio of direct plus indirect activity to direct activity.

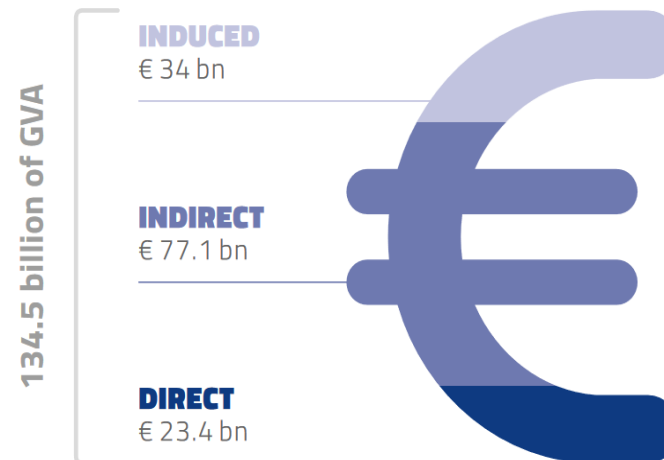
The 'type II' multiplier is the ratio of total activity to direct activity.

GROSS VALUE ADDED

GRAPHIC • 2021

SOURCE: OXFORD ECONOMICS

The EU steel industry creates around €134,5 billion of Gross Value Added



OXFORD ECONOMICS:

“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)



EU steel
consumption

146,1 Mt



EU steel
production

153 Mt



Blast Oxygen
Furnace (BOF)

86,1 Mt (56.4%)



Electric Arc
Furnace (EAF)

66,5 Mt (43.6%)

Key figures

Data covering 2021

Source : EU Steel in Figures 2022



EU exports
(finished steel)

19,4 Mt



EU steel imports
(finished steel)

30,3 Mt



EU scrap
exports

19,5 Mt



EU scrap
imports

5,4 Mt

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



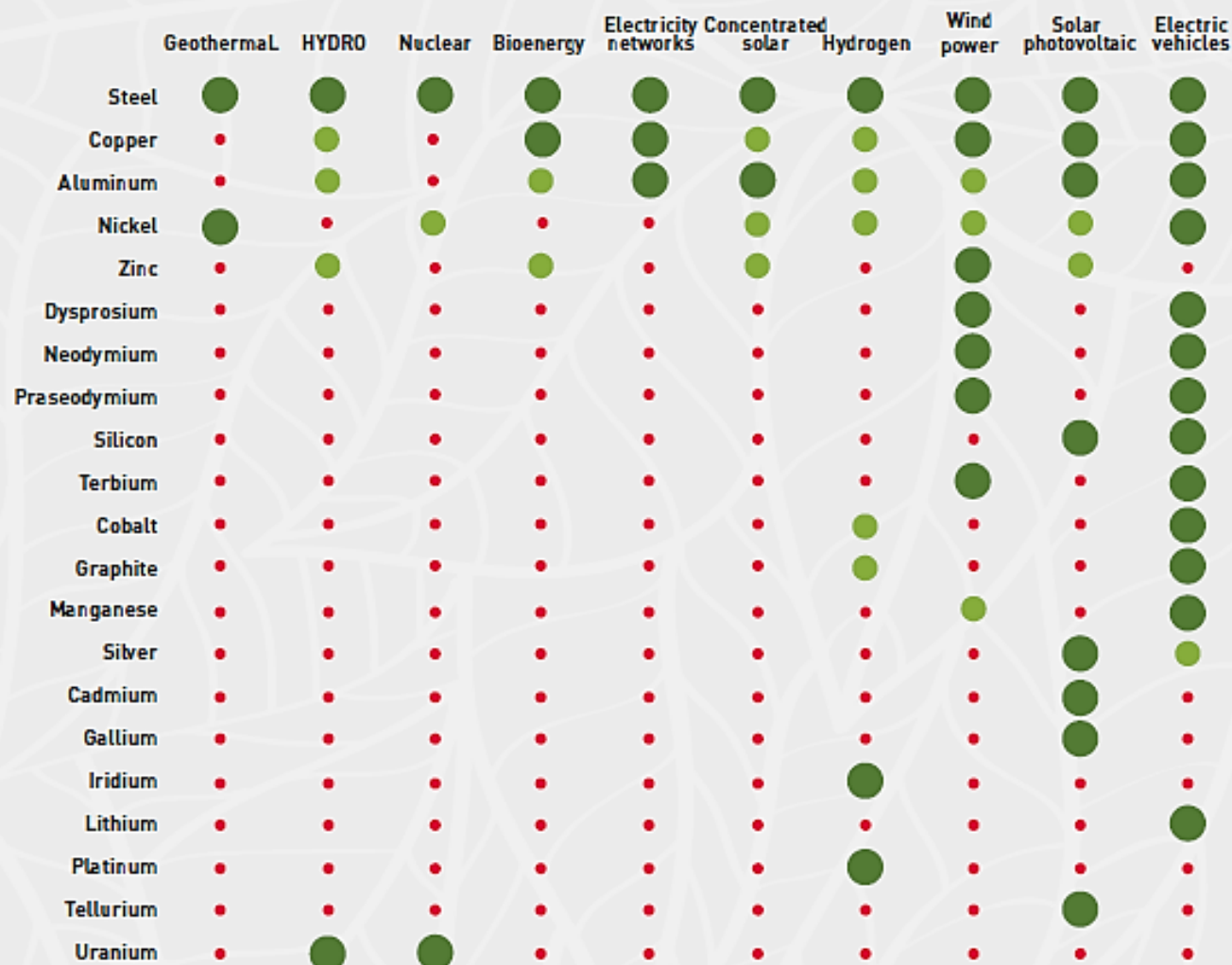
HIGHLY INNOVATIVE

3,500 types of which 75% developed in the last 20 years

Steel is the backbone most important material for the green energy transition

Critical materials for the transition to a low-emission economy by type of technology.

Importance
Low to none ● High



Source: Critical raw materials for strategic technologies and sectors in the EU, a prospective study, European Commission, 9 March 2020; The Role of Critical Minerals in Clean Energy Transitions, IEA, May 2021; McKinsey Analysis.

The green energy transition is not possible without steel

Goldman Sachs

	Increase GW per year	Tons of steel per GW	Steel consumption increase per year
Wind	22 GW	120-180 Tn	2,8 million
Solar	35 GW	35-45 Tn	1,4 million

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

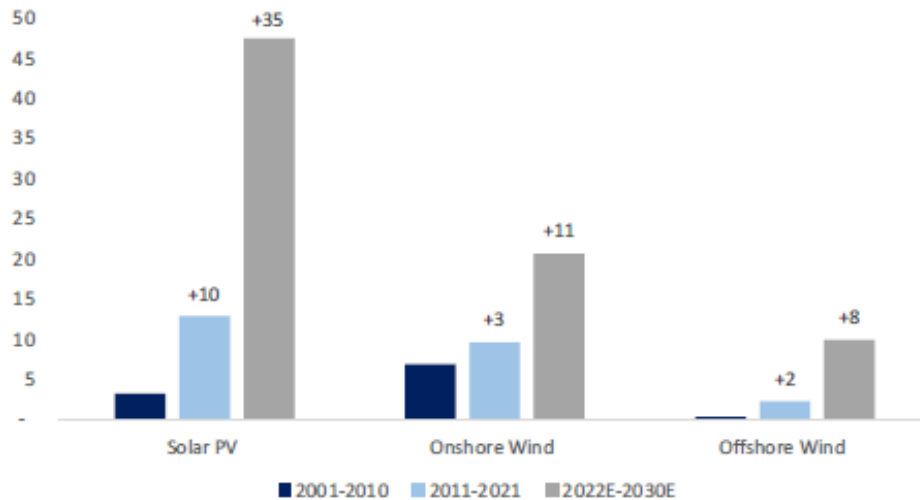
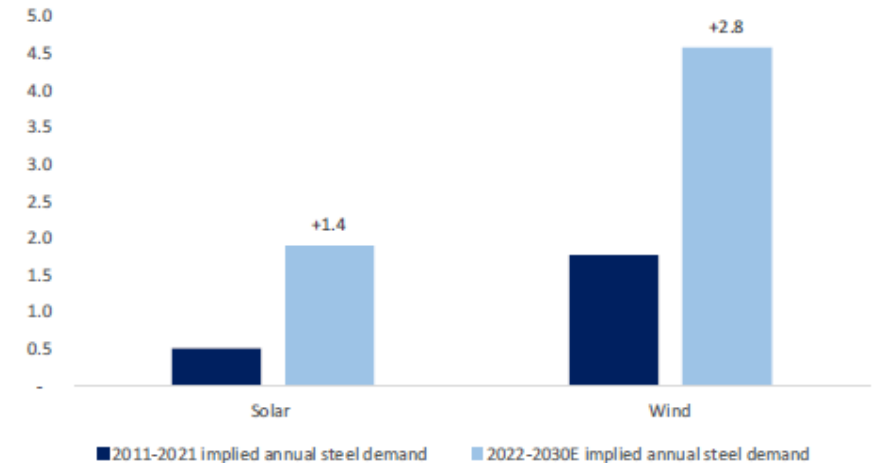


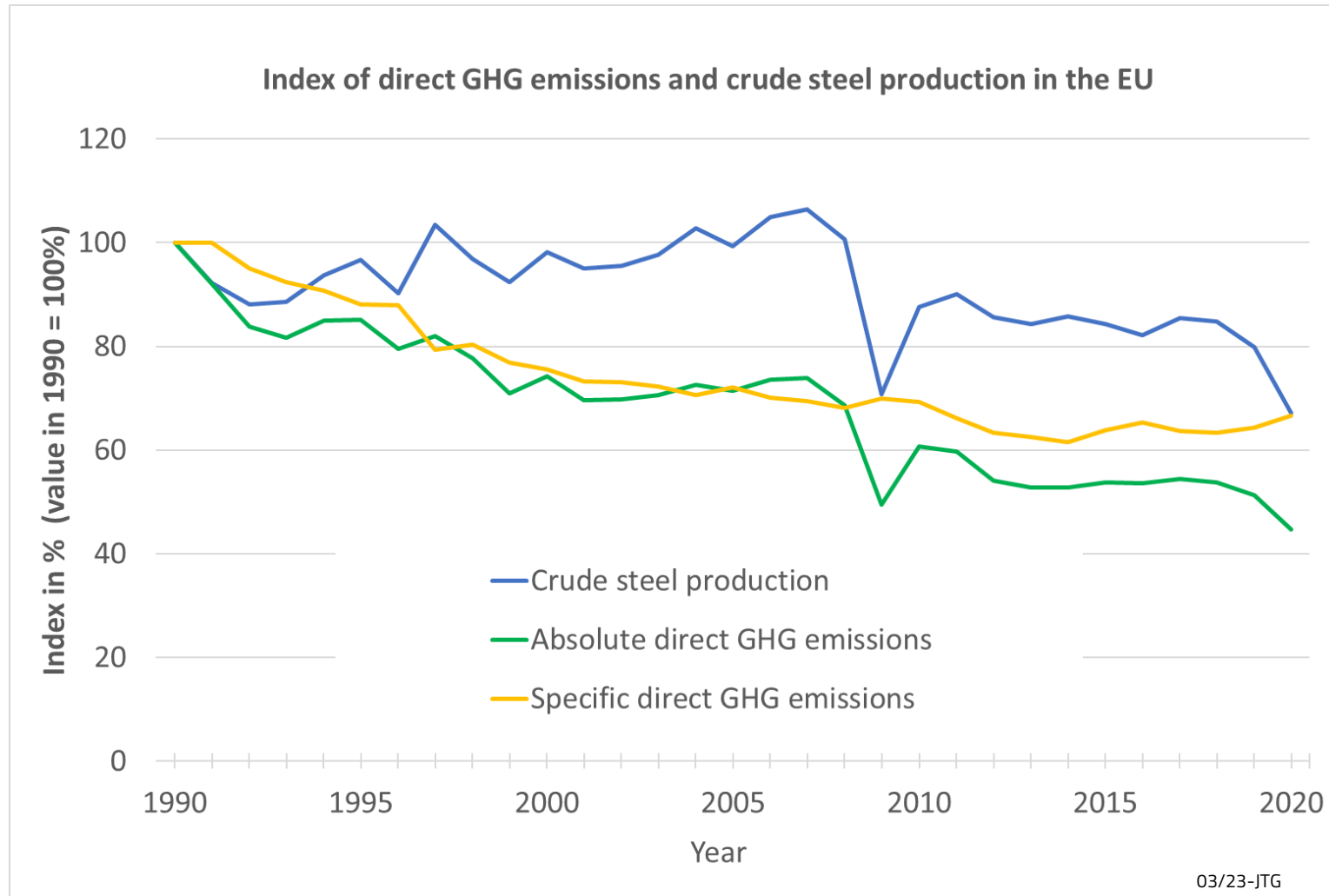
Exhibit 5: Using these estimates alongside historical and forecast solar/wind additions, we estimate incremental steel demand to increase by ~4.2t/year vs the prior decade; c.5%/4% of 2020/21 annual steel output

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



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

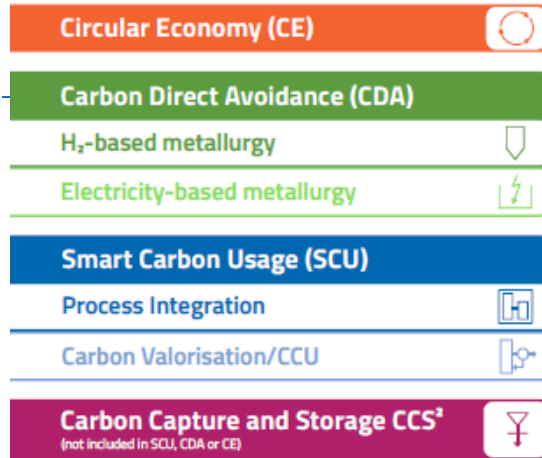
NOW



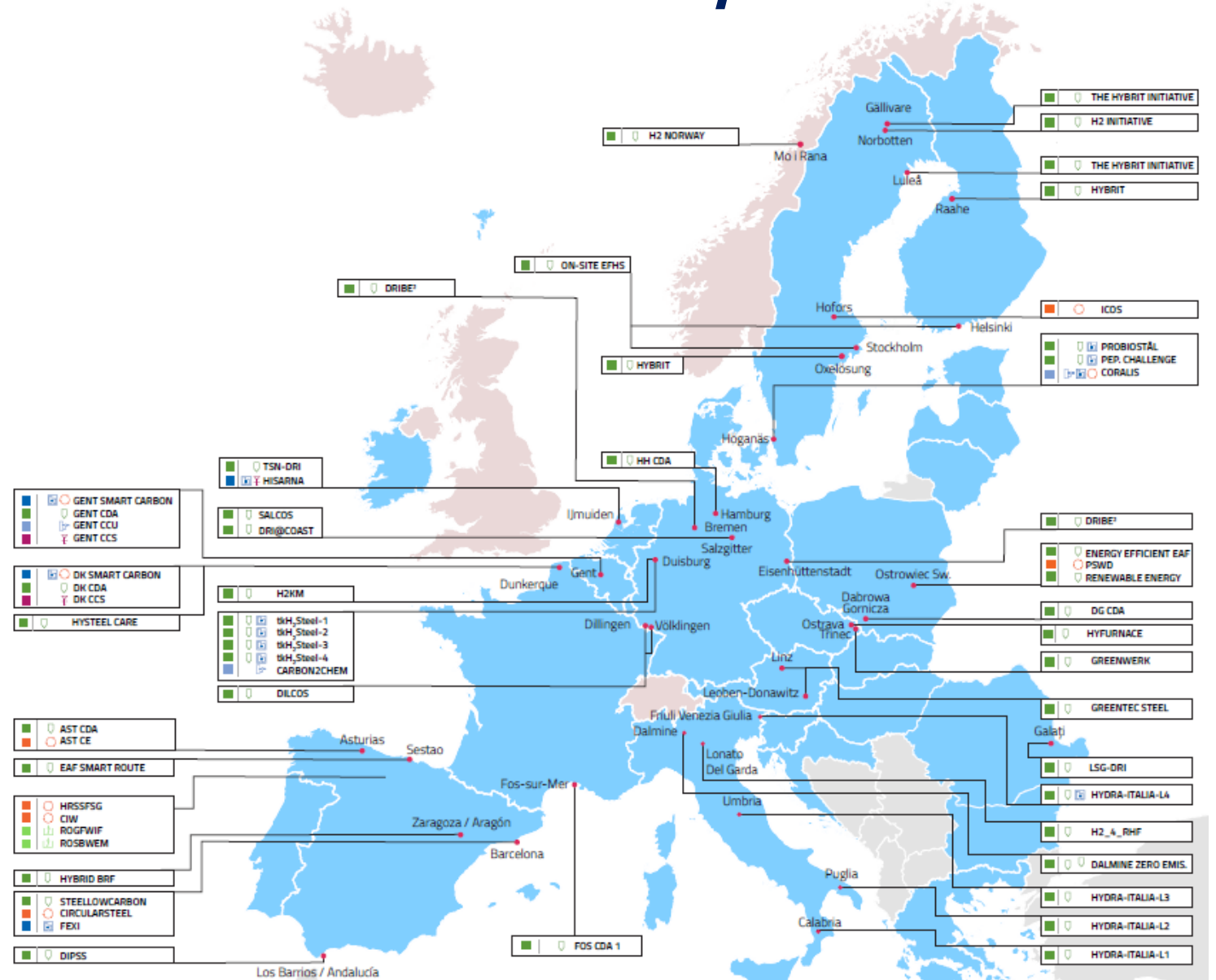
Enabling policies



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





SCALING UP low carbon steel

Technical challenges



ENERGY NEEDS

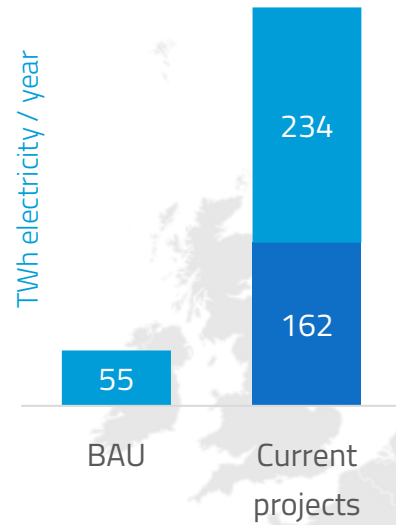


Up to **400TWh/year** of CO₂-free electricity, including **230 TWh** for the production of **5.5 Mt hydrogen**

7 TIMES **MORE**

than what the sector purchases from the grid **today**
(Germany consumed 512 TWh in 2021)

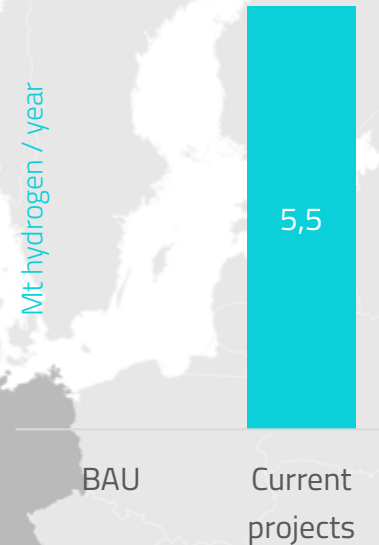
Electricity use 2050



- For hydrogen production
- For steel production

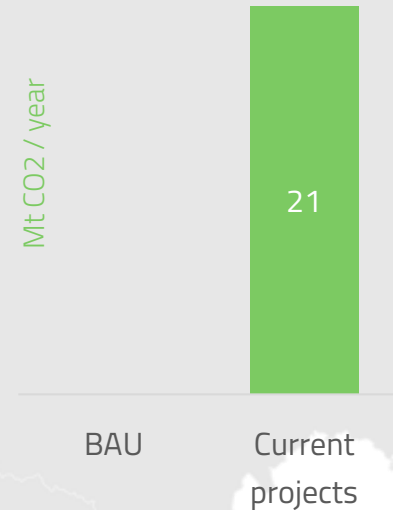
Excludes electricity generated on-site with waste products

Hydrogen use 2050



- Hydrogen required

CO₂ to be stored



- CO₂ to be stored

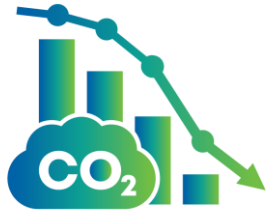
SOURCE : EUROFER low-Carbon Roadmap, Nov 2019

Recycling of steel saves CO₂ in the EU



88 Mt FERROUS SCRAP

recycled by the EU steel industry annually



132 MtCO₂ SAVED

in the EU – every year



82 MILLION EU HOUSEHOLDS

emit a similar amount of direct CO₂ emissions



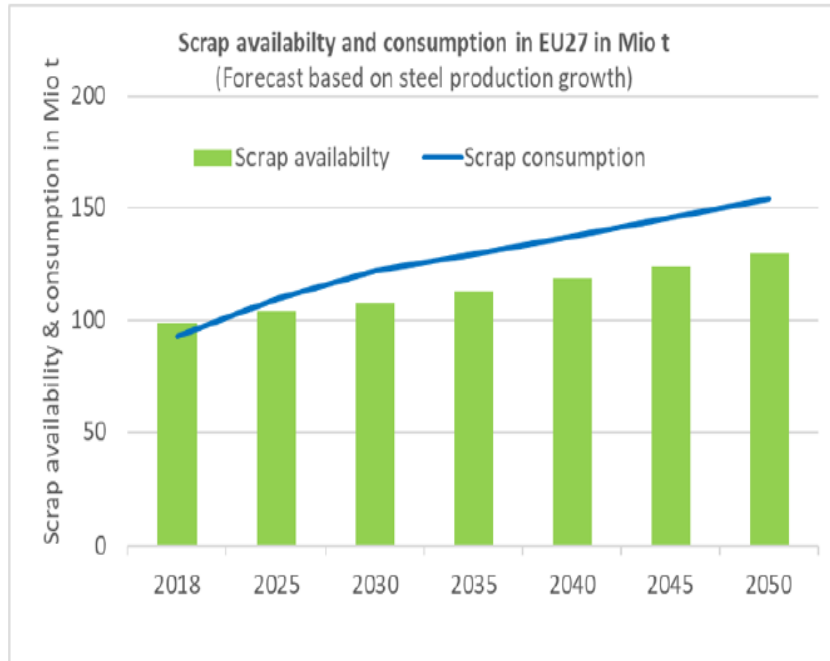
30 Mt CO₂ SAVINGS LEAKED

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)



Source: EUROFER

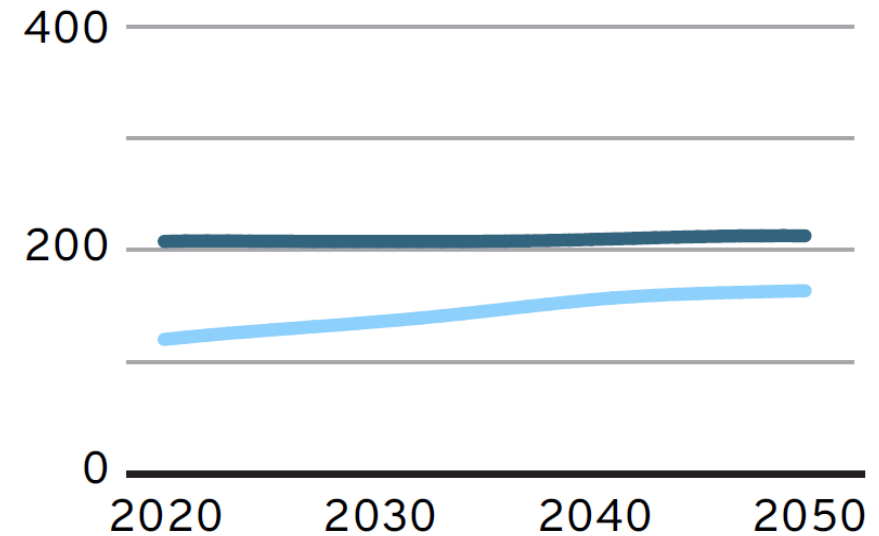
BAU demand for crude steel and scrap availability by region

EXHIBIT 1.3

Million metric tons

Crude steel demand Scrap availability

Europe



Source: MISSION POSSIBLE PARTNERSHIP

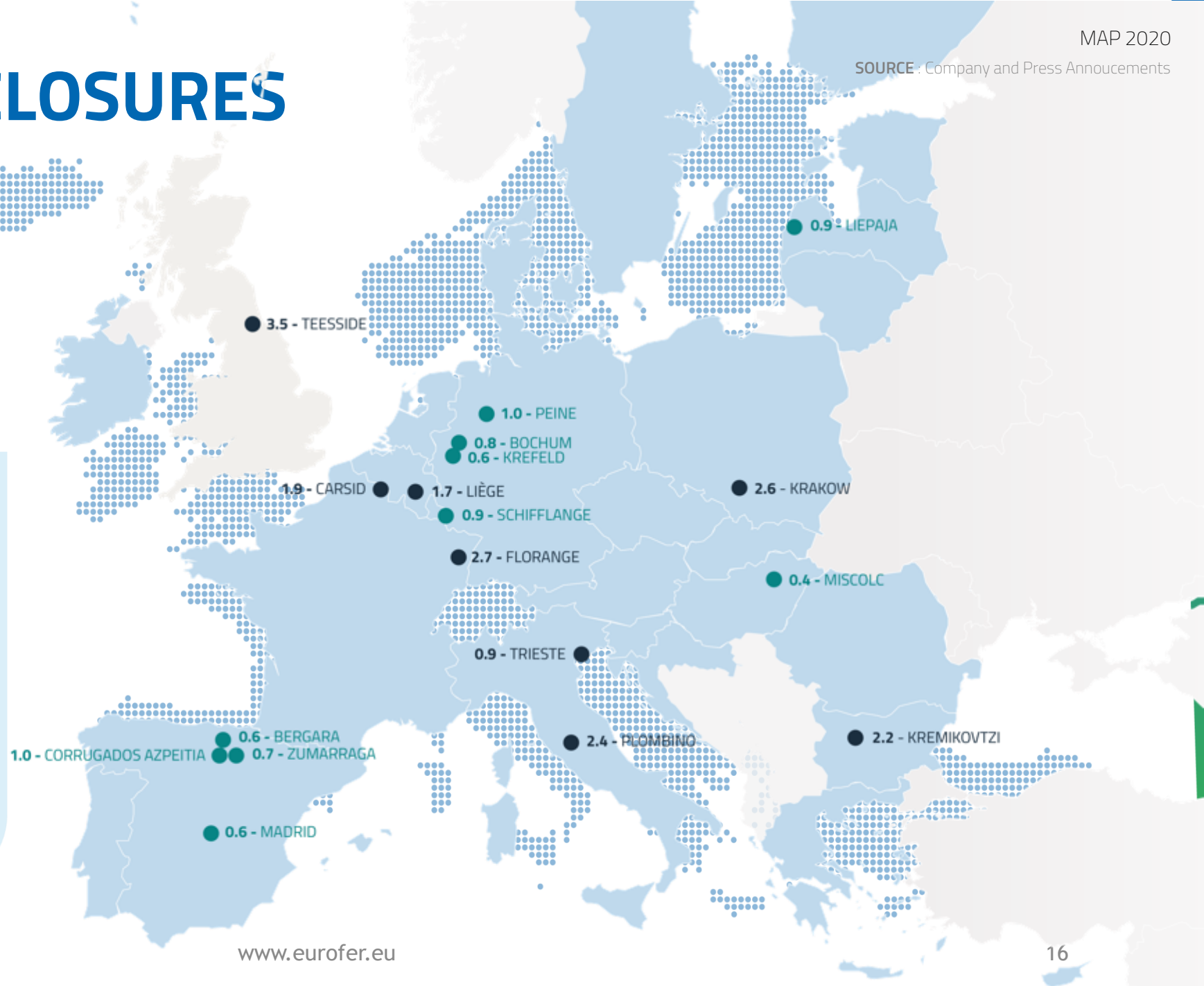
Future ferrous scrap availability plays a fundamental role in sustainable steel production in the EU.

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



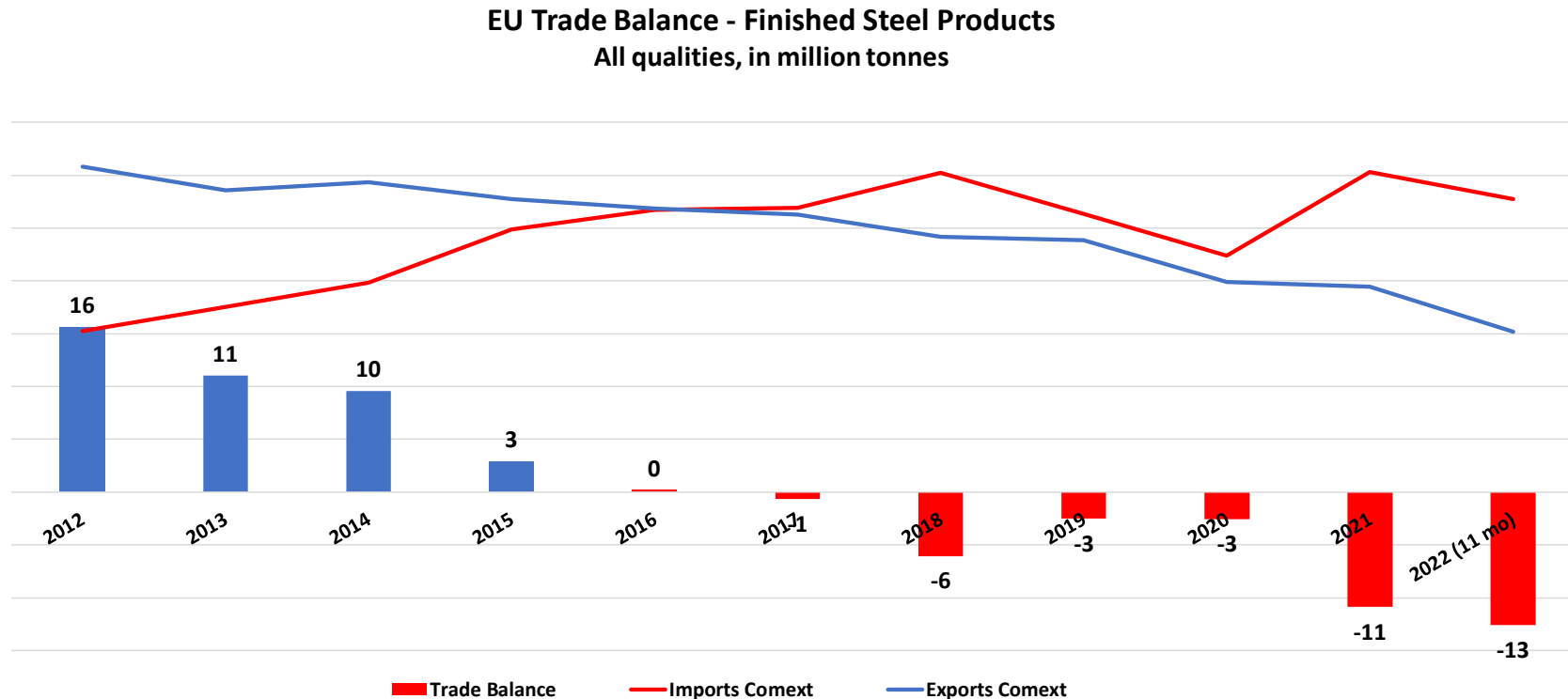
➔ **26 million tonnes**
= permanent steel **capacity** closures

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

EU Steel Trade Balance

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

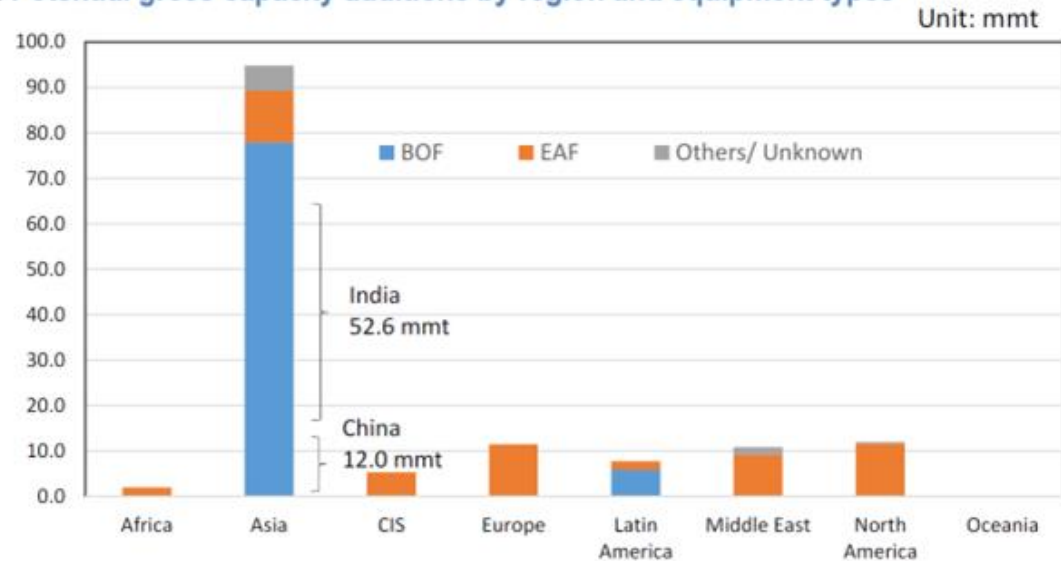
Over the last 10 years, EU steel industry lost more than 30 million tonnes of sales on the EU and export markets.



Global Excess Steel Capacity

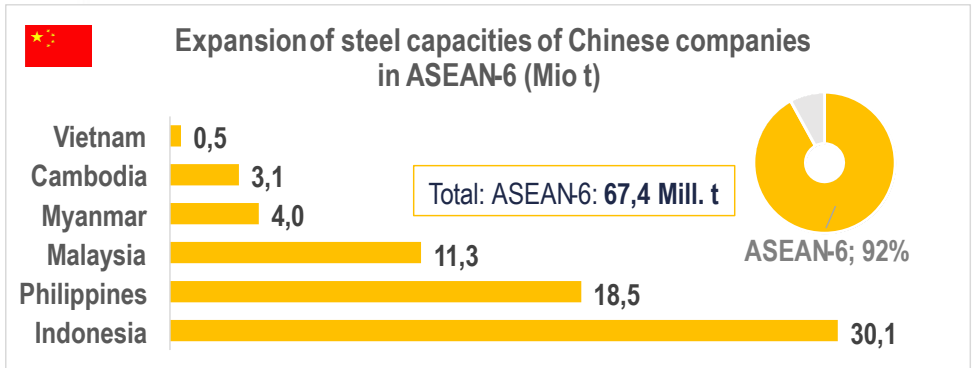
Global excess steel capacity (already at 630 MT) is expected to continue to increase mostly by further capacity build-up in Asia driven by China

Figure 3. Potential gross capacity additions by region and equipment types



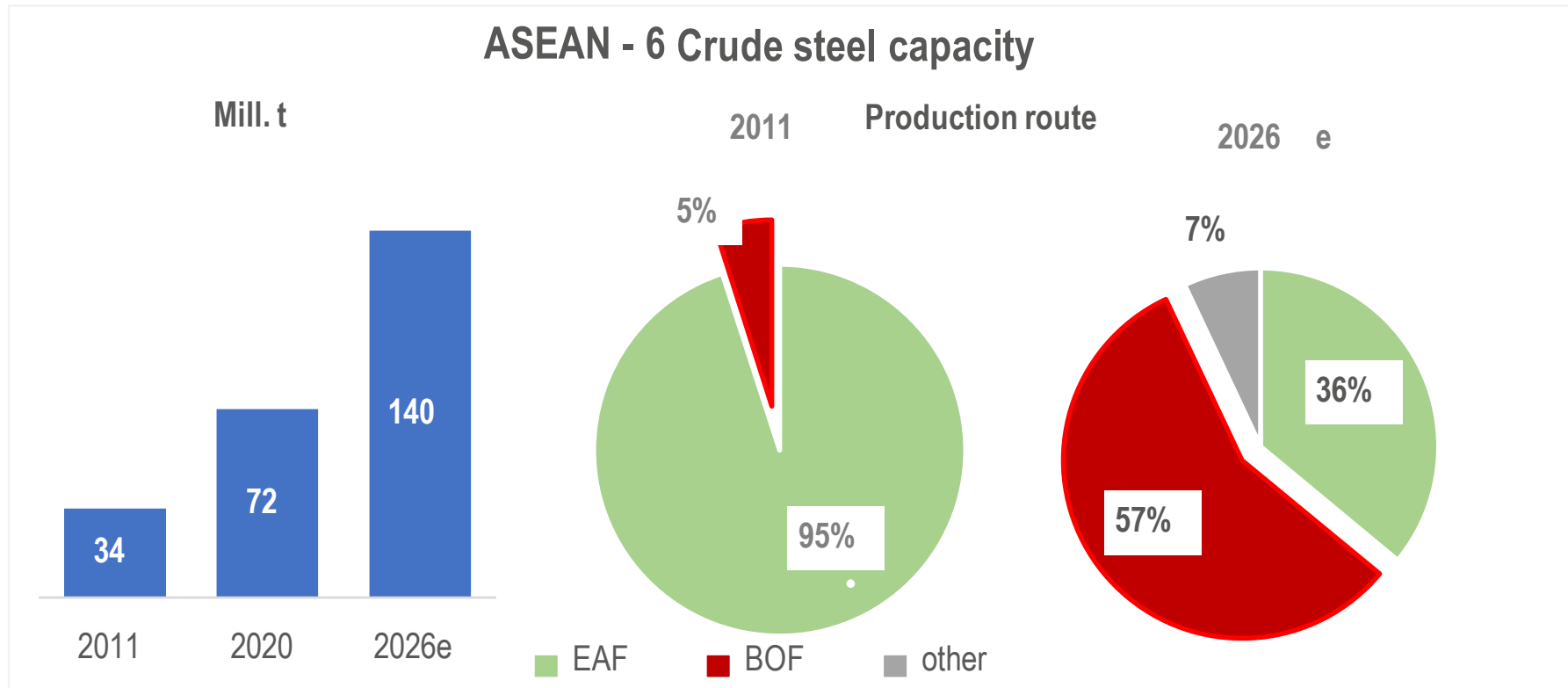
Note: The capacity data contain both underway and planned projects, and do not take into account possible closures that may occur during the period.

Source: Metal Expert, Platts, Kallanish, and steel company websites



Global Excess Steel Capacity

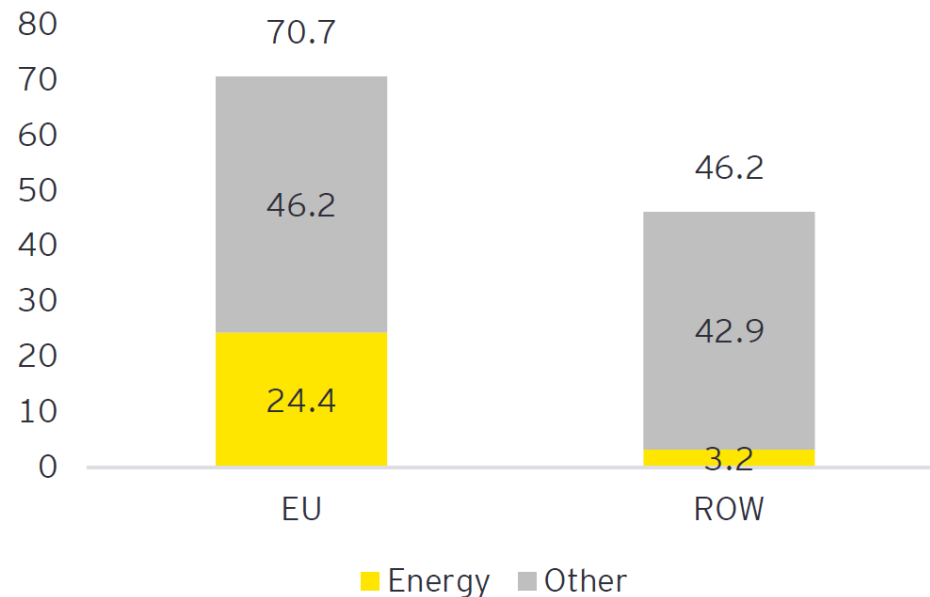
Most of the global capacity expansion is in high-carbon steelmaking facilities (coal-based blast furnaces)



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

Change in the total cost of production between 2019 and 2022, breakdown into energy and other costs (percentage change)



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.

Sector	EU27 products covered by CBAM exported to non EU27 countries (million euros)	Sector production value (million euros)	Share of EU27 exports of CBAM products, relative to production value (2018) in %
Fertilizers	2.968	20.670	14%
Cement	996.0	17.709	6%
Iron and steel	45.306	210.321	22%
Aluminium	8.969	50.625	18%

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



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Thank you