



The European Non-Ferrous Metals: An electrification frontrunner enabling the Green Deal

EEF Briefing for MEPs Advisors and Assistants

Friday, 22nd January 2021



In the next 10-12 minutes I will introduce you to...

1

Who we are & why we are needed



Non-Ferrous Metals = the key enabler of the transition

2

How can the Non-Ferrous Metals decarbonise



The technology pathways for my sector to become climate neutral

3

What are the framework conditions needed for energy intensive sectors to decarbonise

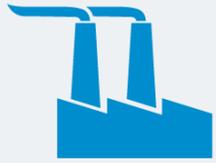


Our key recommendations

1. Who we are



Europe's non-ferrous metals industry – United



900+
facilities



500,000
direct jobs



€120 bn
annual turnover



1/5
global production

Number of facilities
per country

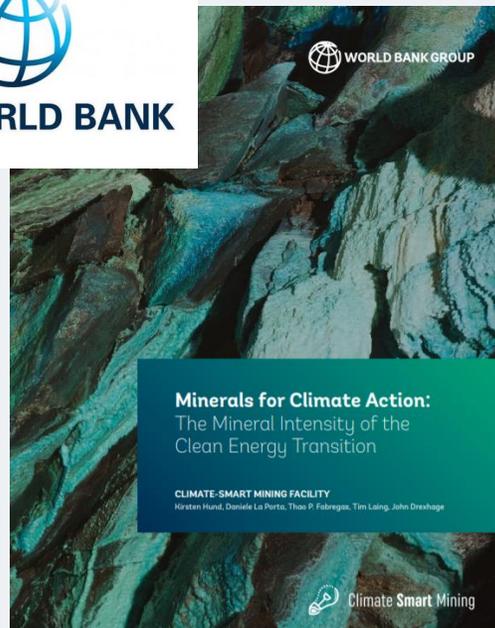


Why we are needed in the transition

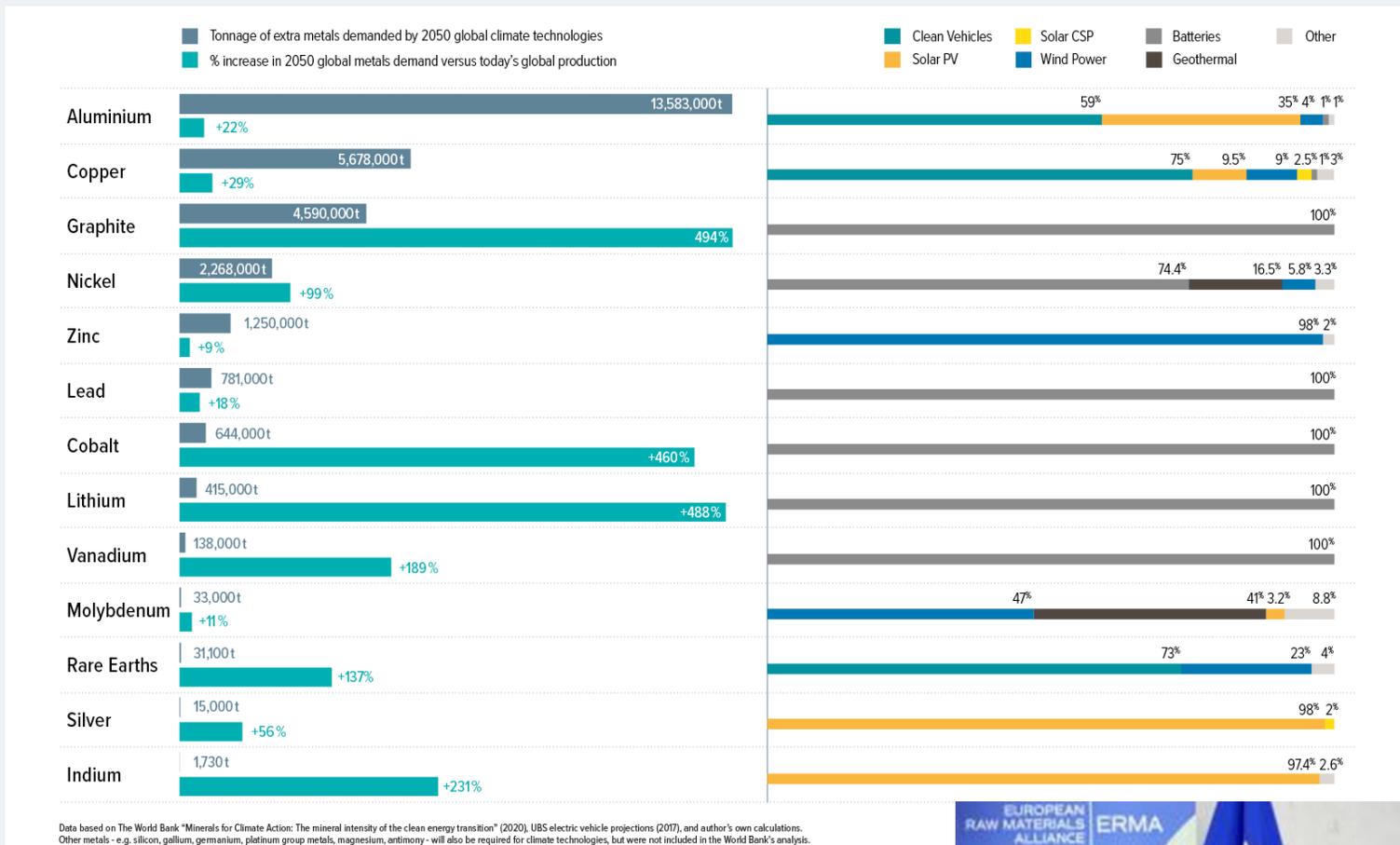
Non-ferrous metals: the key enabler of the transition



Metals: The key raw materials of Europe's energy transition



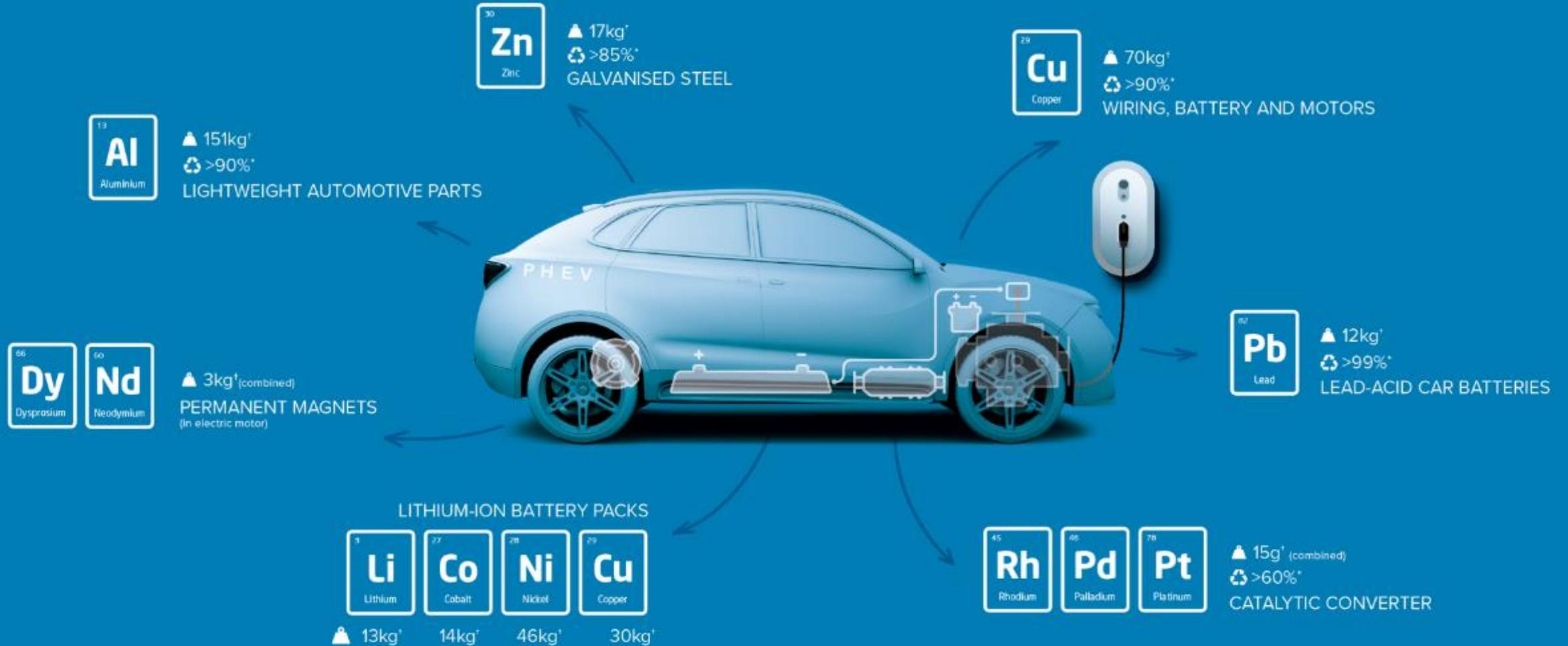
Up to 500% more metals needed in the low-CO2 future



Sustainable investment prioritised in European Raw Materials Alliance

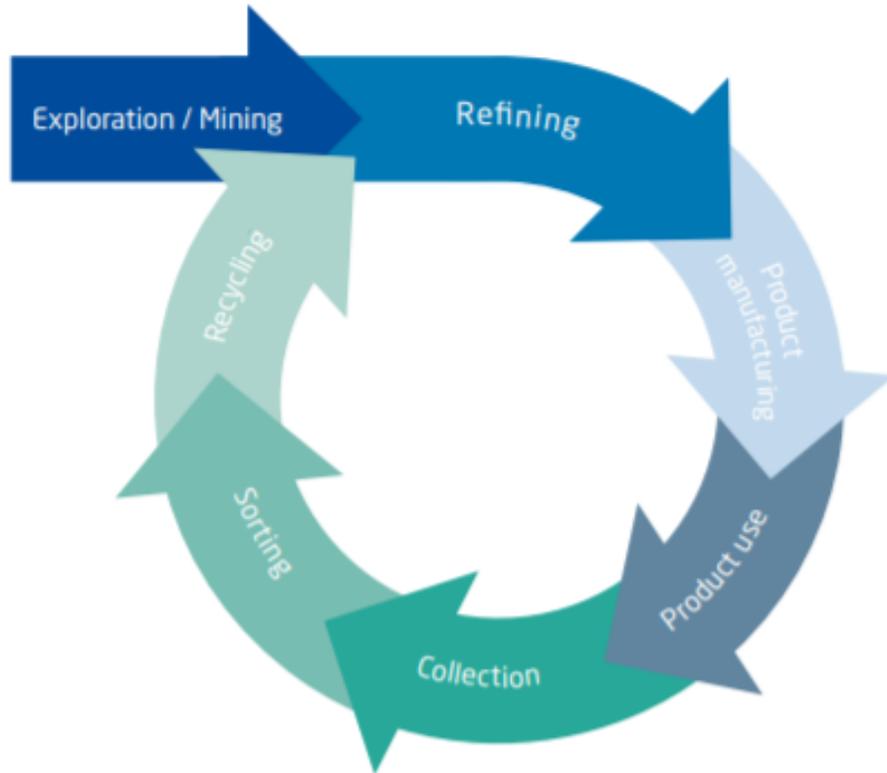


What raw materials drive EU clean mobility?

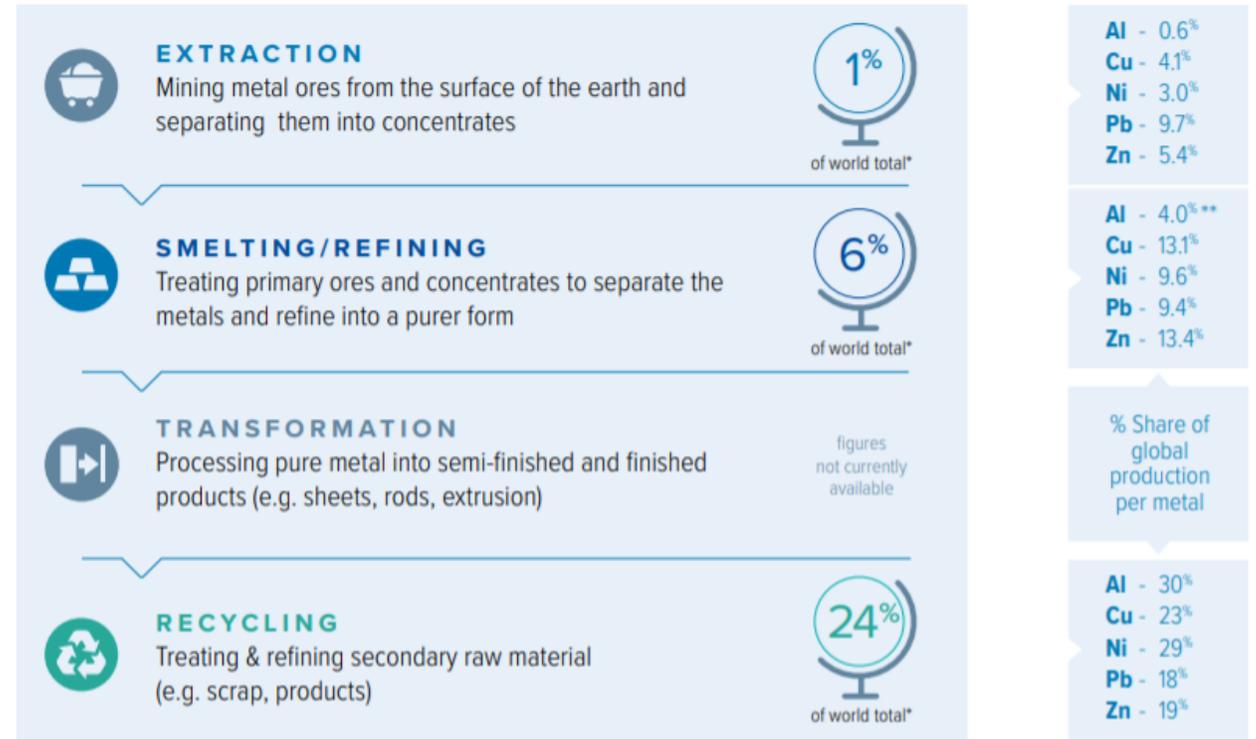


From mining to recycling: The EU metals value chain

The EU Metals Value Chain



Non-ferrous base metals produced and/or recycled in the EU

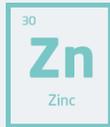


Circularity leader: Over 50% of the base metals produced in Europe are already from recycled sources

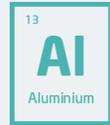
3 key climate facts about Europe's base metals production

Electro-intensive

One of Europe's most electro-intensive industries



Electricity = **40%** of production costs

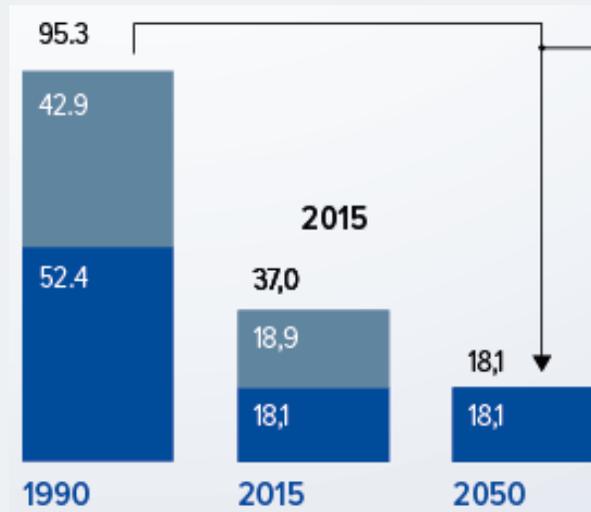


Electricity = **40%** of production costs

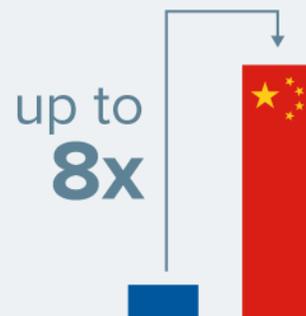


Electricity = **35-40%** of production costs

81% GHG emission reduction potential from a decarbonised power system

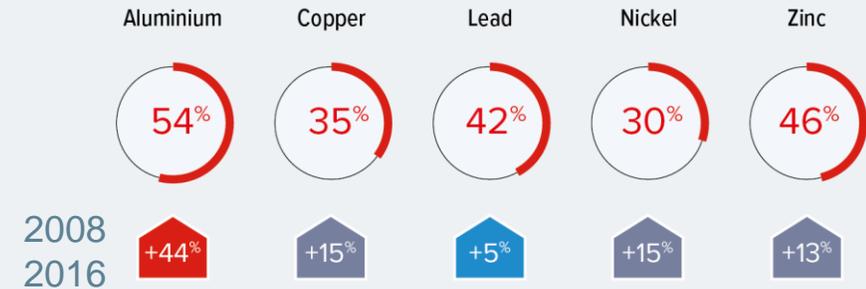


European Metals: Cleaner than our competitors**



European production is being replaced by imports with higher carbon footprint **

China dominates the global market



€5.2bn

Direct subsidies to non-ferrous metals (2011-2016)

= 44% of after-tax profits

2. How can the non-ferrous metals sector decarbonise?



Our Input in the Transition

As Eurometaux, over the past couple of years, we have contributed with the following reports on:

1.

How metals can achieve Climate Neutrality



bit.ly/metals2050

2.

How the entire energy intensive sectors can achieve climate neutrality



ec.europa.eu/docsroom/documents/38403

How can the Non-Ferrous Metals achieve decarbonisation

Our industry will continue to decarbonise building upon 3 pillars:

1.



Carbon free electricity

2.



**Shift to low-CO₂
production processes
through electrification
and other technologies**

3.



Circular Economy

Let's have a look in detail...

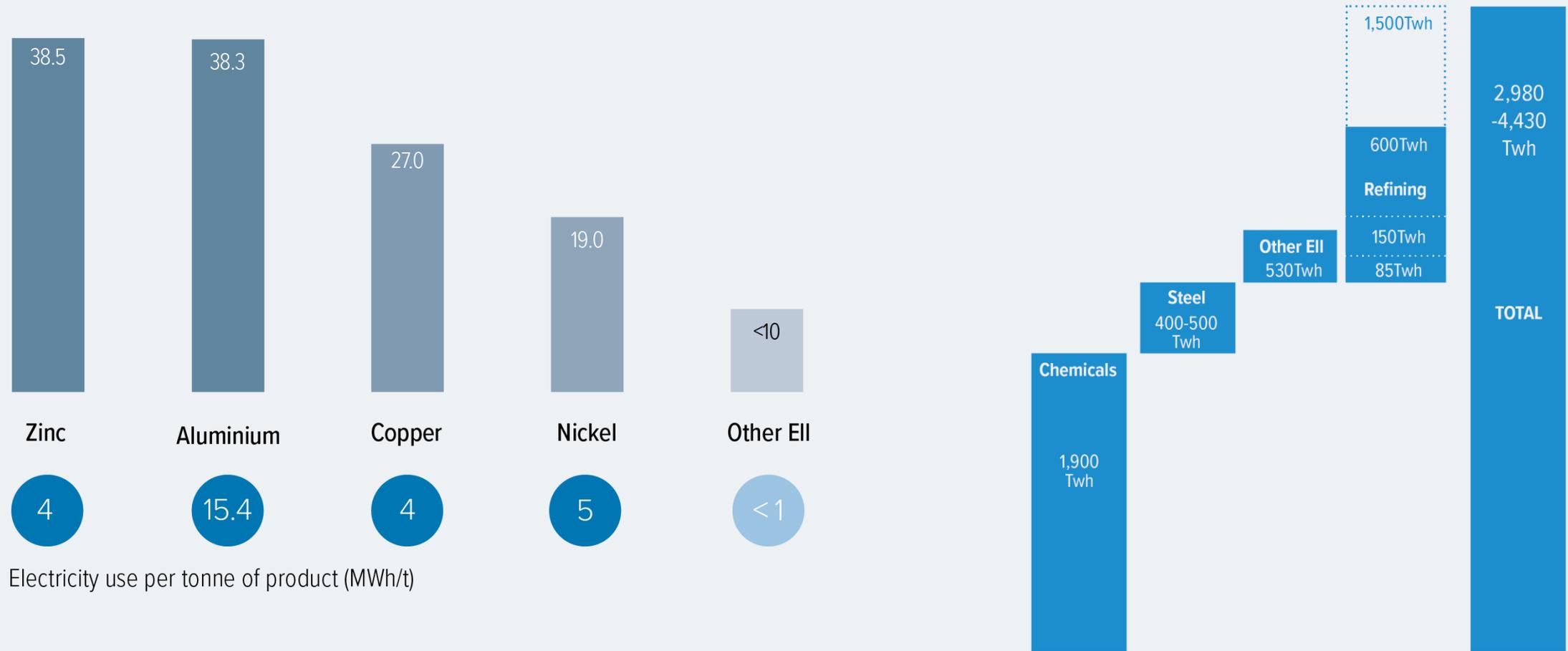
Electricity Consumption

Addressing 81% of our emissions



Electrification: Where the metals industry is a real bellwether

High levels of electrification vs. other energy-intensives



& Other Energy-Intensive Industries are expected to follow

A decarbonised power system: the biggest factor in our climate transition



Scope 1
Direct Emissions from our industrial activities



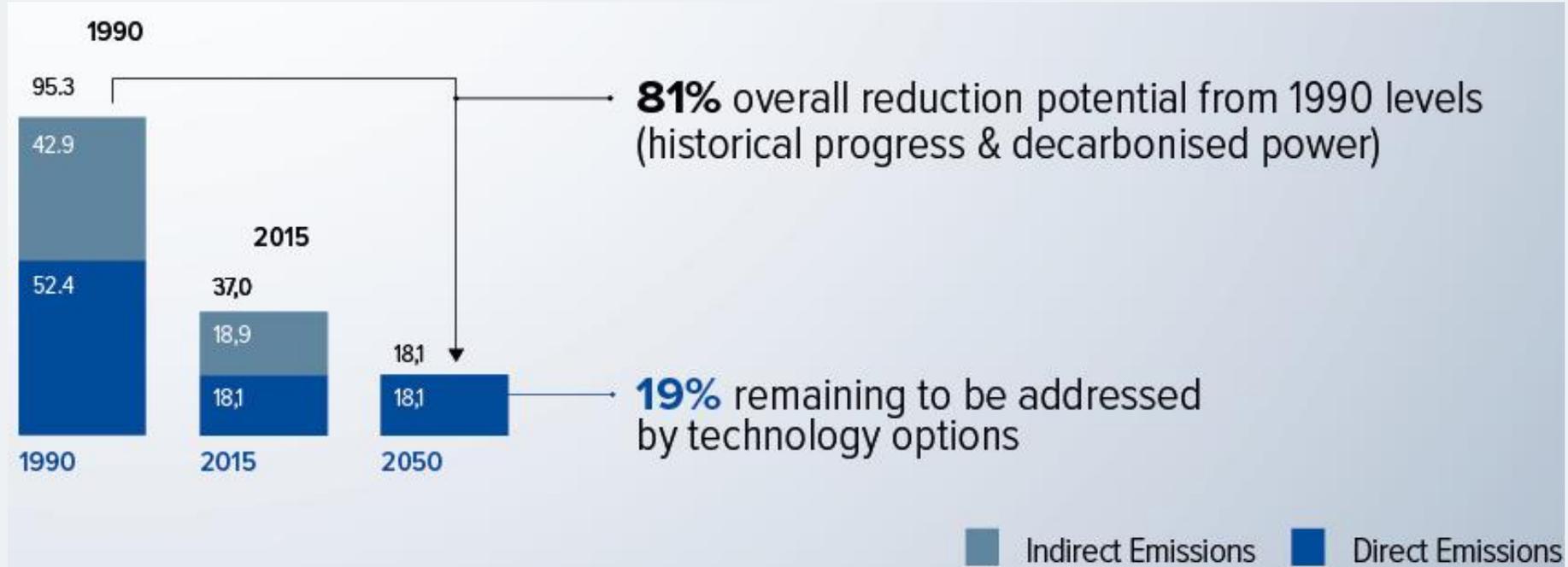
Scope 2
Indirect Emissions from the power purchased and consumed by industry



Scope 3
All other Indirect Emissions from sources industry doesn't control.

Due to our extremely high electointensity, for non-ferrous metals the most important fraction of our GHG footprint to address are the indirect emissions embedded in the electricity we consume

Decarbonisation of power sector is essential
↓
= **81%**
reduction of overall GHG emissions vs. 1990



Renewable electricity contracts: Non-Ferrous Metals Leadership

FT

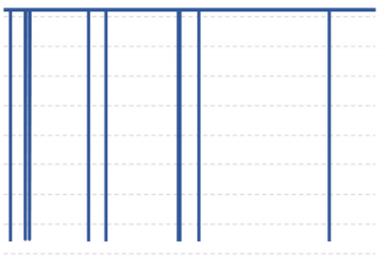
FINANCIAL
TIMES

We are baseload consumers

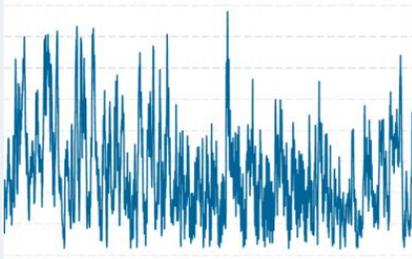
Wind/solar intermittent generation and aluminium baseload consumption production may not be natural allies at first sight...

Vs.

Aluminium smelter hourly consumption profile in a year



Wind hourly production profile in a year



However, these obstacles can be overcome

Renewable Energy

+ Add to myFT

Norsk Hydro in 'biggest' deal to secure wind farm energy

New renewables PPAs in our industry:



Hydro

~ 9 TWh/yr

Wind Power contracts in Norway beyond 2021

~4.5 TWh/yr

Wind Power contracts



Alcoa

~ 3 TWh/yr



~ 1.8 TWh/yr

Long term renewable PPAs – a 'win-win' for both:

- **Developers:** Enabling new large scale wind farms through a stable revenue
- **Industry:** Long term horizon for investment– reduce risk of volatility by achieving predictable power costs



Shift to low-carbon production processes

Tackling the remaining 19% direct emissions



Remaining **19%** direct emissions requires a mix of mitigation technologies

Technology options	Relevance
Energy efficiency	+++
Anode technology aluminium	+++
Electrification (incl. shift to hydrometallurgical processes)	+++
Fuel shift – bio-based	+++
Higher metals recovery (slag and scrap)	+++
Sector coupling: demand response and waste heat	+++ (Decarbonisation enabler for other sectors)
Non-carbon reducing agents/hydrogen	++
CC(U)S	+

New innovation: within reasonable business models

  			
Elysis: Carbon-free aluminium in Canada	Karmoy: world's most efficient aluminium	Using copper heat to power Hamburg	Towards carbon-neutral silicon
<ul style="list-style-type: none">• Eliminates 100% GHG emissions from the smelting• First technology ever that emits pure oxygen as by-product	<ul style="list-style-type: none">• 12.3 MWh energy consumption• 15% more efficient than world average	<ul style="list-style-type: none">• 20,000t CO₂ savings• 7x potential increase potential in future	<ul style="list-style-type: none">• CO2 neutral biomass charcoal• 1.6mt potential CO₂ savings

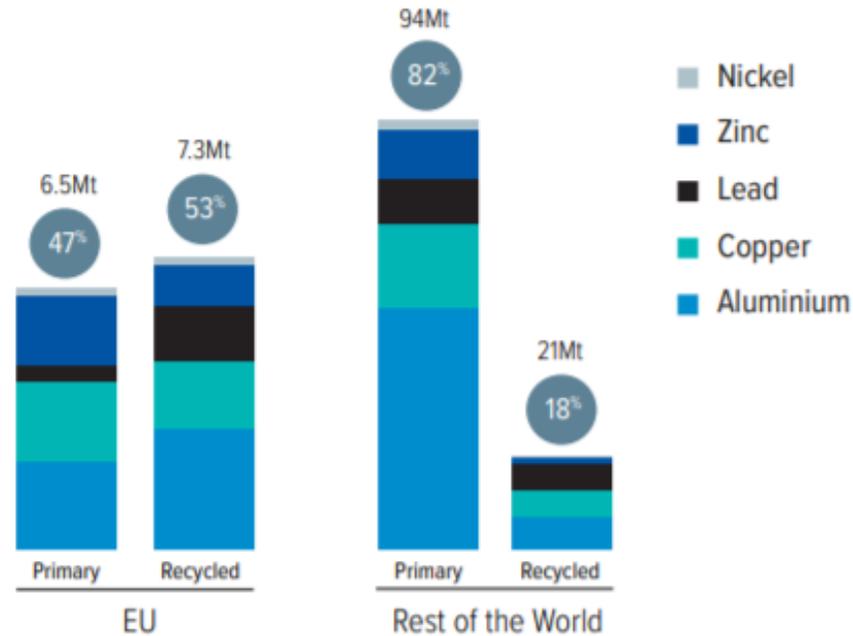
We are committed to invest & innovate when business conditions are right

Circular Economy

13 Al Aluminium	29 Cu Copper	28 Ni Nickel	82 Pb Lead	30 Zn Zinc	79 Au Gold	47 Ag Silver	78 Pt Platinum	51 Sb Antimony	4 Be Beryllium	14 Si Silicon	27 Co Cobalt	42 Mo Molybdenum	23 V Vanadium	50 Sn Tin	46 Pd Palladium	44 Ru Ruthenium	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	74 W Tungsten	73 Ta Tantalum	32 Ge Germanium	34 Se Selenium	31 Ga Gallium	24 Cr Chromium	12 Mg Magnesium
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Circular Economy: Europe's metals scrap volumes to double between now and 2050

Percentage of primary and recycled base metals production in total base metals production EU and the Rest of the World.



Source: Fraunhofer ISI, OECD

Projected increase in EU aluminium and copper scrap volumes, 2015-2050 (Mt)



Sources: European Aluminium & OECD

Europe's shift to more secondary production should aim to replace dependence on high-polluting imports, complementing consistent European primary production levels to match demand requirements

3. The Framework Conditions to Decarbonise

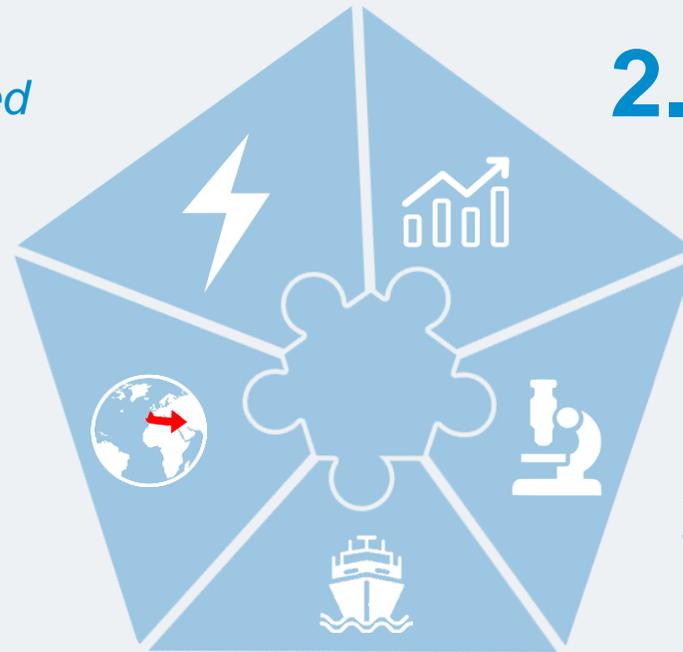


A five-part Industrial Strategy is needed to grow Europe's metals ecosystem alongside EU 2050 climate-neutral strategy

The framework conditions have been identified. We now call on EU policymakers to come forward with a combined climate and industry plan on how to deliver these conditions:

1. *Unlock competitively priced carbon-free electricity*

2. *Create Demand for low-carbon products*



3. *Financing & funding of breakthrough climate-neutral solutions*

5. *Adequate Carbon Leakage Protection*

4. *Assertive competition & trade policies*

Our Policy Requests

1

Our main policy request is to ensure a level playing field vis-à-vis non EU regions for our industry to compete.

2

In order to achieve this, we need three things:

- i. **Competitive industry electricity prices;**
- ii. **Adequate carbon leakage protection;** and
- iii. **Funding for research and innovation**

3

Key pieces of legislation will soon be going through co-decision, most notably:

- **EU ETS review** → adequate carbon leakage protection
- **Carbon border adjustments mechanism (CBAM)** → a level playing field on indirect carbon costs

THANK YOU

- Any Questions?
- If you want to learn more, please
 - ✓ Have a look at the IES/VUB 2019 Report →
 - ✓ Reach out to us at:



bit.ly/metals2050



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