Eurometaux

METALS: AT THE HEART OF EUROPE

Resilience & Sustainability: Furthering Europe’s raw materials agenda

Chris Heron, Communication & Public Affairs Director, Eurometaux

Svemin Environmnetal Conference 7.10.2020

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 | 48 As Arsenic | 76 Os Osmium | 77 Ir Iridium | 74 W Tungsten | 73 Ta Tantalum | 32 Ge Germanium | 34 Se Selenium | 31 Ga Gallium | 48 Cd Cadmium | 12 Mg Magnesium

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Today's presentation: How to drive Europe's metals supply forwards

1

Metals to supply Europe's green & digital transition

Why does Europe need a competitive & sustainable value chain?

2

Investment potential into European metals

Where are European companies looking to invest?

3

Regulatory conditions for investment

4 pillars for EU action to facilitate new sustainable investments

Introducing Europe's metals ecosystem

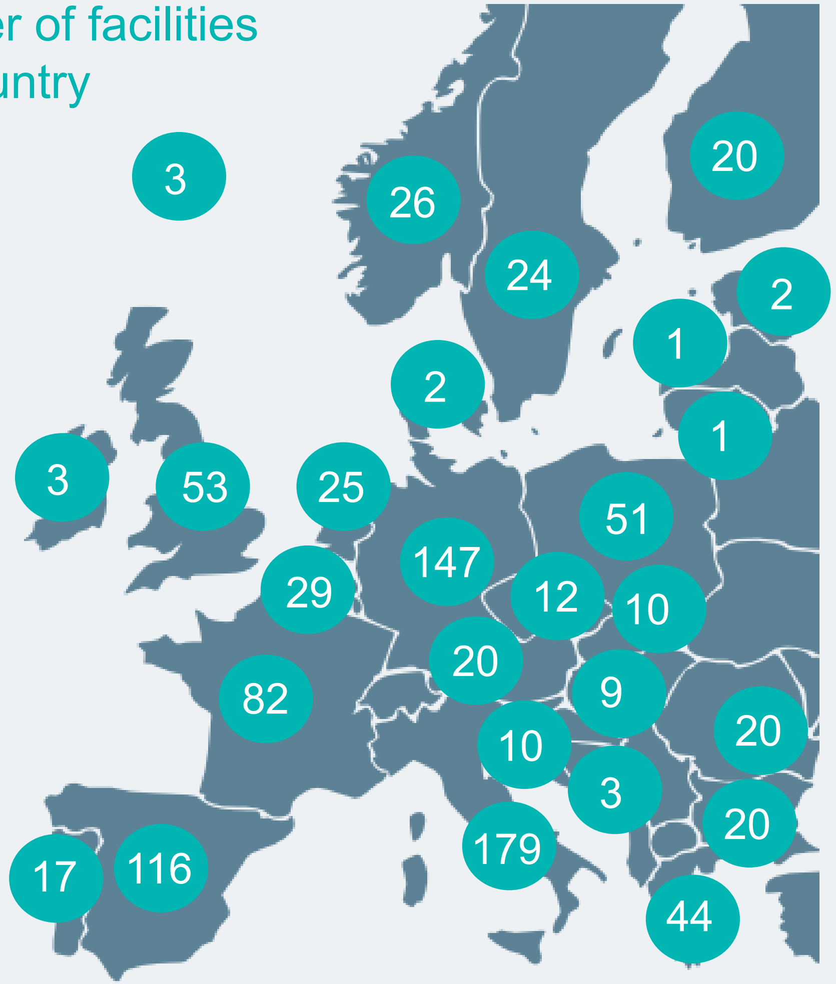
900+
facilities

500,000
direct jobs

€120 bn
annual turnover

1/5
global production

Number of facilities
per country



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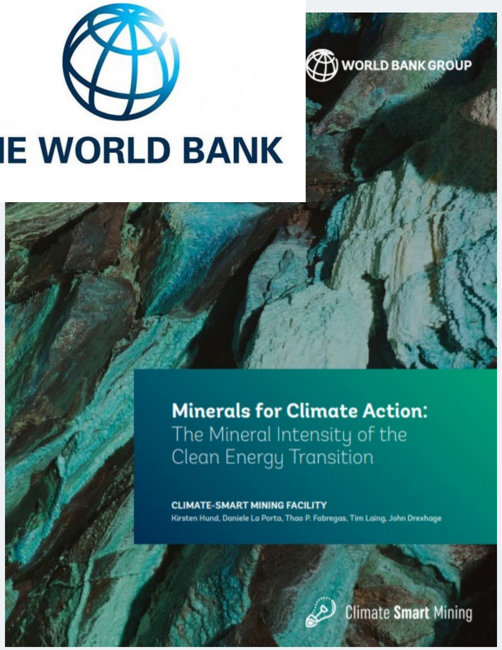
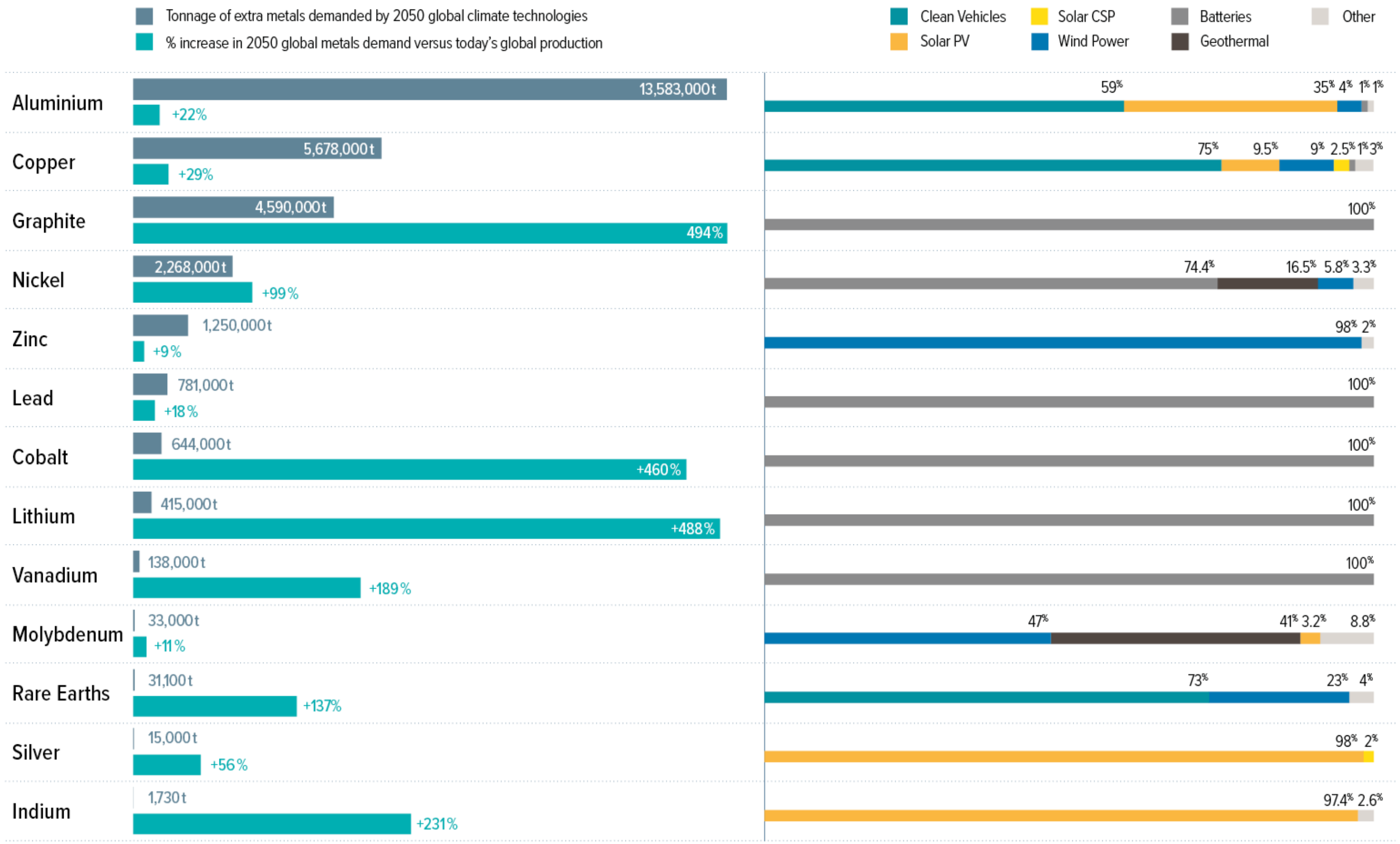
Metals and minerals: Much higher volumes required by Europe’s green and digital transition

THE WORLD BANK



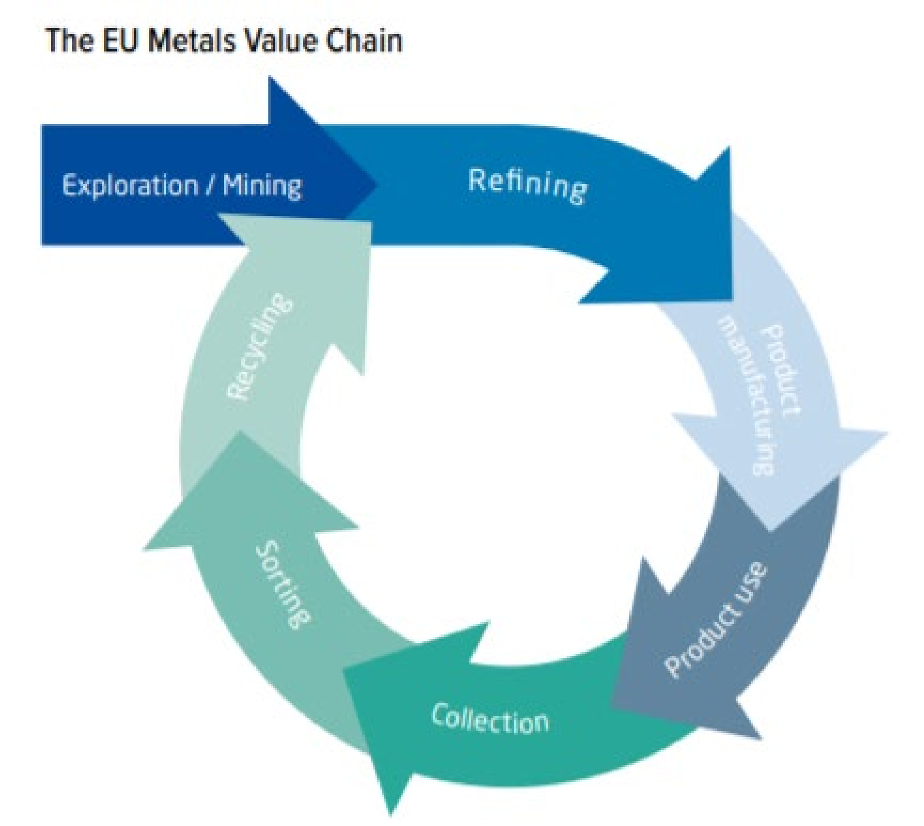


Data based on The World Bank “Minerals for Climate Action: The mineral intensity of the clean energy transition” (2020), UBS electric vehicle projections (2017), and author’s own calculations.
Other metals - e.g. silicon, gallium, germanium, platinum group metals, magnesium, antimony - will also be required for climate technologies, but were not included in the World Bank’s analysis.

Up to 500% more metals for global energy transition

Base, precious, specialty metals + selected minerals, e.g. graphite

What does Europe need? A full & sustainable metals value chain, from the mine to end-of-life



Value chain must also be aligned with EU climate-neutrality & zero-pollution goals

1. **Circular Economy:** Europe must make use of all the metals it disposes of, given their permanent properties
2. **Mining:** Europe must consider expanding its sustainable mining capacity in Nordics, Iberia, Balkans, Ireland & more
3. **Refining & fabrication:** Europe must invest into value-added steps for transferring raw materials to market

All steps needed together + diversified global supply

Raw Materials Alliance: A welcome model to tackle this challenge

Scope: "the full range of elements and minerals required by Europe's green and digital transitions, from critical raw materials to base metals and industrial minerals"

Stakeholder consultation

Regulatory bottlenecks

Investment platform

Public awareness

Key success factor = Dialogue involving all parties

Environmental & Social challenges must be tackled

Reminder: Presentation structure

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Without new investment: EU import reliance will increase further

Value chain stage	*Current industrial base*	*2040 situation without new investment*
Mining	**1% of world total** Al - 0.6% Cu - 4.1% Ni - 3.0% Pb - 9.7% Zn - 5.4% *CRMs = minimal*	→ *Up to 50% less base mining capacity due to depletion of existing projects* → *Full import reliance for critical raw materials*
Smelting/ Refining	**9% of world total** Al - 7% Cu - 13.1% Ni - 9.6% Pb - 9.4% Zn - 13.4% *CRMs = minimal*	→ *Challenges to existing operations from high EU climate & environment goals* → *No new refining capacity for battery metals and other high-growth segments*
Recycling	**27% of world total** Al - 30% Cu - 23% Ni - 29% Pb - 18% Zn - 24% *CRMs = Recovery of PGMs, Ge, Ga, In, Bi, W, Co, Li from complex waste*	→ *Maintained recycling industry, but losing out to Asia for recycling of high value waste streams (e.g. batteries, solar, wind)*

Investment Pipeline: Companies across the metals value chains have 50+ investment projects in planning

Mining

Capacity: Base metals

Capacity: Critical metals

Climate/environment

Electrification

Primary

Climate/environment

Breakthroughs

Capacity: Battery metals

Recycling

Capacity: Batteries, e-waste

Processes: Sorting & recycling

Partnerships: Electric vehicles

Value chain models

High environmental & social standards must be at the centre of all investments

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New investments: require a supportive regulatory framework

25 CEOs: Ambition to invest into supplying green & digital transitions


Agenda for a resilient European metals supply for the green and digital transitions

Dear Commissioner Thierry Breton, Dear Vice President Maroš Šefčovič

In its COVID-19 recovery, the EU is prioritising a more resilient supply of the metals and minerals demanded in higher volumes for the green and digital transitions. Europe's metals industry has a shared ambition to invest into improving European resilience and advancing our global ... ID-19's disruption of g...

Together, our busines... secure and sustainab... and digital European ... agenda that unlocks f... playing field, and mak...

antee of world-class sustainability for the EU's climate technologies. We are one of Europe's most electrified industries, and a leading example of the Circular Economy in action. An expanded European metals value chain will also provide new high-quality manufacturing jobs for industrial regions, a necessity for an enduring recovery.

Europe has a high and ... to a climate neutral ec... required in higher volu... clean mobility. As well a... rare earths, Europe has... base metals where it h...

The EU must take step... of Europe's metals pro... capacity for mining, sm...

We support measures ... and stimulate green te... pandemic, and faces a... is a real risk that Europ... begin their recovery fa...

We believe the EU mus... environmental perform...

1

WHITE PAPER | MID-2020

We, the undersigned European metals and mining industry leaders, endorse this declaration for a resilient European metals supply for the green and digital transitions

Mikael Staffas, CEO Boliden & President Eurometaux	Guillaume de Goys, COO Alvance Aluminium	Jan Klawitter, Head of International Policy Anglo American	Jaime Arias Zapico, GM Asturiana da Zinc/Glencore	Javier Targhetta, CEO Atlantic Copper
Roland Harings, CEO Aurubis	Michael Koenig, CEO Elkem	Christel Bories, CEO Eramet	Hilde Merete Aasheim, CEO Hydro	Rumen Tsonev, CEO Chairman KCM 2000 Group
Denis Cheve, DG Befesa Valera & President Euroalliages	Marcin Chludziński, CEO KGHM	Ulrich Becker, CEO KME	Ludovic Lambert, CTO Manoir Industries	Uwe Schmidt, CCO Montanwerke
Evangelos Mytilineos, CEO Mytilineos	Rainer Wahlers, CEO, Nordenhamer Zinkhütte	Joni Hautojarvi, MD Norilsk Nickel Finland Oy	Emilio Braghi, President Novelis Europe & Chairman European Aluminium	Guido Janssen, VP Europe Nyrstar
Davide Garofalo, CEO Portovesme	Philipp Schlueter, CEO Trimet	Marc Grynberg, CEO Umicore	Dobra Gheorghe, CEO Vimetco Alro	Erwin Mayr, CEO Wieland Werke

2 Eurometaux

Full declaration: https://bit.ly/36DntRJ

Four pillars of regulatory support

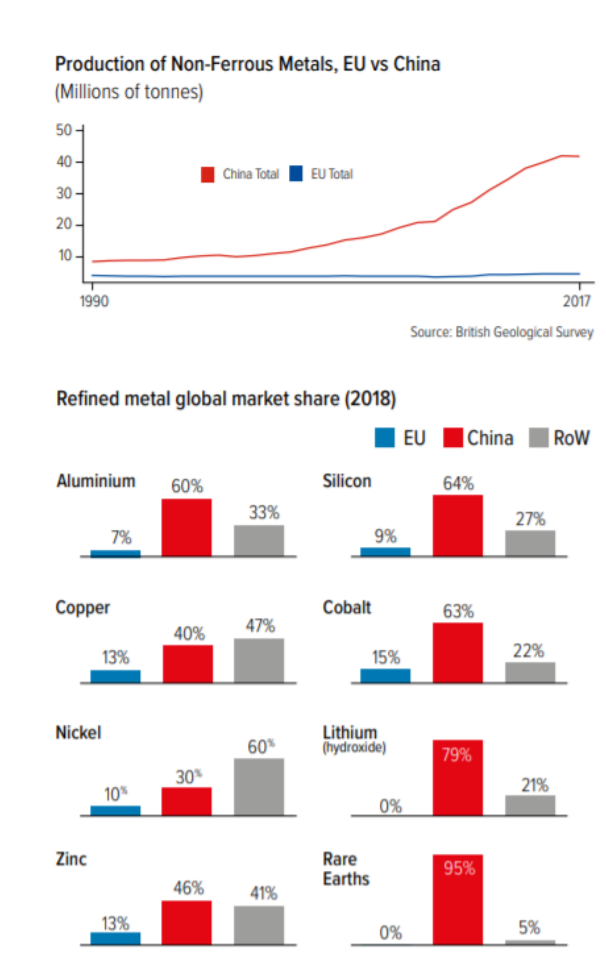
- Finance
- Global action
- Sustainability
- Level playing field

1/4 Unlock financing and investment €

- **Highly capital intensive =** Growing EU metals value chains while advancing towards climate-neutrality, e.g.
  - New large-scale project = up to EUR 1bn for biggest
  - Climate innovation = real breakthroughs now required
- **COVID-19 downturn:** Metals industry already suffering from oversupply and reduced demand
- **EU & Member State funds:** Need directing for raw materials projects – together with environmental & social requirements

Actions: Support through EU & national recovery funds (+ Just Transition, ETS Innovation, IPCEI etc.)

2/4 Be bolder on the global stage



- **China's "strategic" metals industry:** at the centre of industrial policies & receiving huge subsidies
  - **50%** global market share for base metals
  - **80%** share for critical raw materials

- **Belt and road:** China is also aggressively buying up global primary resources, with companies benefitting from easy access to finance

! Environmental considerations are low on agenda !

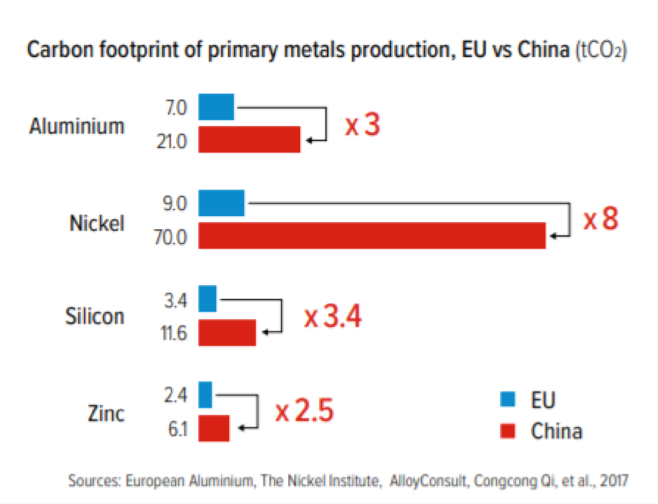
Actions: Trade defence, WTO reform, global sourcing strategy

3/4

Make sustainability Europe’s metals differentiator

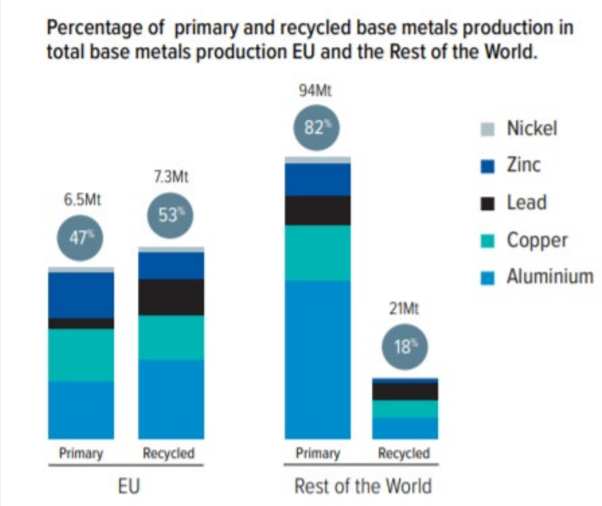
Climate

EU base metals =
up to 8x less CO2 than China
(+81% CO2 reduction w/ decarbonised power)



Recycling

53% EU base metals from recycling vs 18% in RoW



Environment & Health

Meeting high EU environment/social standards

How Rare-Earth Mining Has Devastated China’s Environment

BY EARTH.ORG | ASIA | JUL 14TH 2020 | 5 MINS

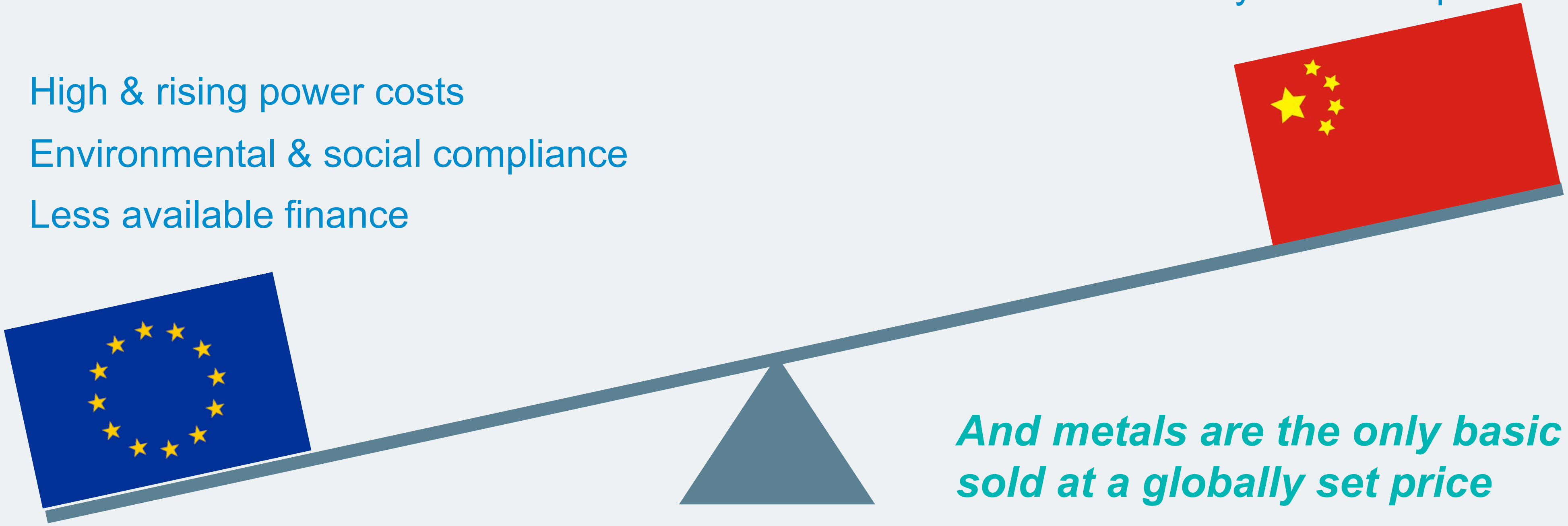
Tesla’s nickel quest highlights metal’s environmental burden

Actions: Develop EU markets for low-carbon, sustainable, and ethically-sourced metals, while advancing the Circular Economy

4/4 Establish a level playing field for EU companies

Subsidies & other advantages
Lack of environmental pressure
Easy finance & permitting

High & rising power costs
Environmental & social compliance
Less available finance



And metals are the only basic material sold at a globally set price

Actions: Prioritise competitive low-carbon electricity, provide predictability in environmental & chemicals legislation

Conclusion: message for Europe’s Raw Materials agenda

€ Finance | **Global action** | **Sustainability** | **Level playing field**

Investment into sustainable EU metals value chains
(+ diversified global supply)

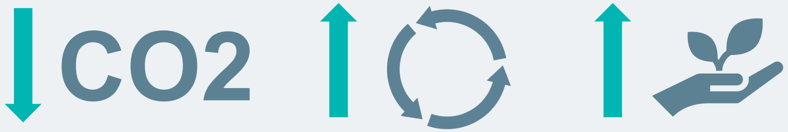
=

A secure supply for new energy technologies

+

+ clean mobility, zero-energy buildings, packaging etc.

Towards a guarantee of lifecycle sustainability



All parties must now work together, so further sustainability improvements can be made from a position of competitiveness