# State Aid Policy: A critical enabler in the transition to a low carbon and competitive energy intensive industry

## Clean Energy and Industrial Competitiveness for Sustainable Development Conference

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Sofia, 11th April 2018

# My three key messages for today

**1**

**Indirect carbon costs ETS**

**+**

**Renewables costs**

**=**

**ELECTRO-INTENSIVE INDUSTRIES DRIVEN OUT OF EUROPE**

***Unless** we put in place an adequate State Aid Regime*

**2**

**Long term, we won't have any indirect carbon costs by 2050 once EU electricity generation is zero-carbon**

*Technology for the transition to carbon free electricity exists*

***But,** industry needs to survive the costs impacts in the short to medium term*

**3**

**The Low-carbon transition is a major opportunity for the non-ferrous metals industry and we are ready to contribute**

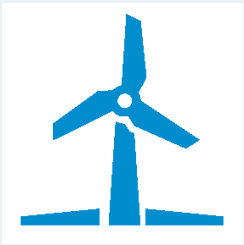
*Our products are the enablers of the transition.*

***And,** we want to make these products here in* Europe

# The metals industry… Why should you care?

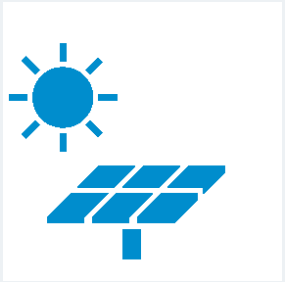
## Metals are a **key enabler** of the low-carbon transition

According to the World Bank, tomorrow's low-carbon technologies will be MORE metals intensive - demand rises sharply in a 2°C scenario



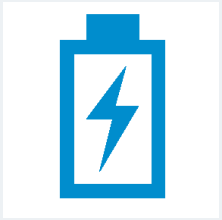
**+300%**

2050 metals demand increase



**+200%**

2050 metals demand increase



**+1000%**

2050 metals demand increase



World Bank (2017)

# So, I have a crucial question for everyone

## Do we want metals production to remain in Europe?

## or…

## Promote carbon leakage

…by moving to less regulated,

more carbon intensive regions

# The best solution is… putting in place an adequate State Aid Regimes

By ‘adequate’ State Aid regime, I mean the following:

1

**Indirect Costs**

Full compensation for the indirect carbon costs of EU ETS

2

**Energy & Environment guidelines**

Guidelines which limit the cost impacts of renewables

3

**Long-term Contracts**

A regulatory framework which encourages long-term power contracts

# Presentation Outline

The role of metals in a low carbon future

# Presentation Outline

In the next 10 - 15 minutes, I will cover the following:

1. Our Energy Profile

How are metals produced and why electricity costs are so important?

2. Our Opportunities from the transition

How metals can enable the low-carbon transition?

3. Our challenges

Impact of indirect CO2 costs and renewables on electricity prices

# 1. Our Energy Profile

Who we are

How NFMs are produced

Why electricity costs are so important

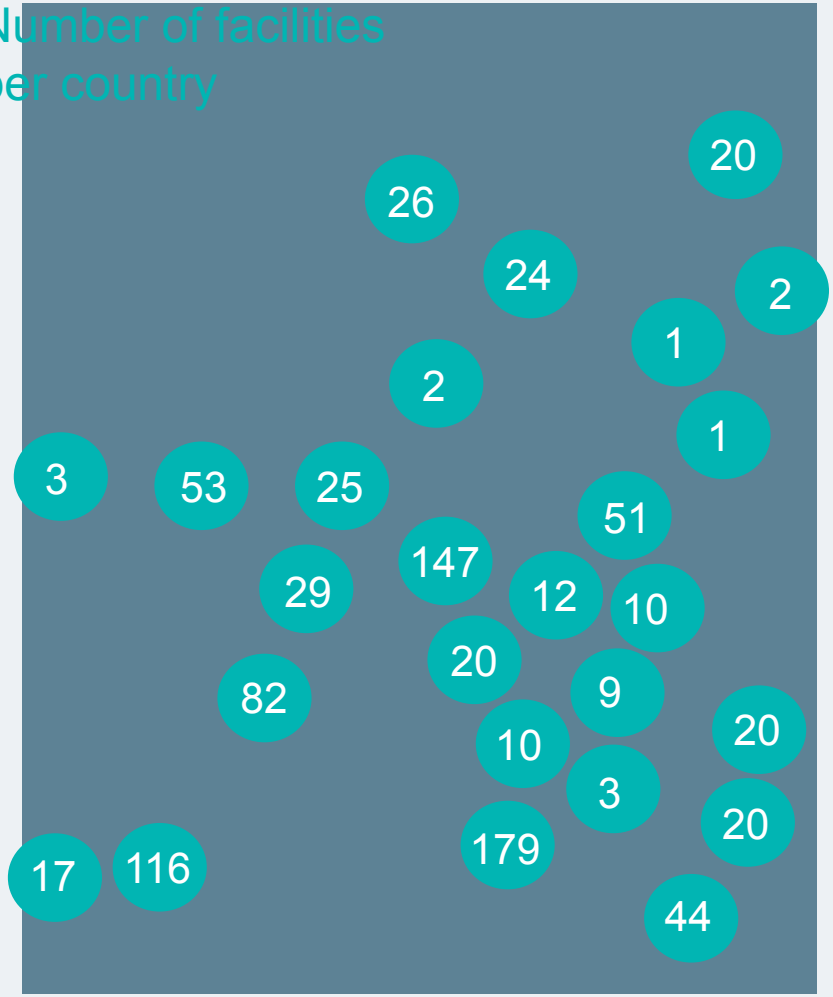
# Europe's metals industry: Driving EU economic growth

**900+**
facilities

**500,000**
direct jobs

**€120 bn**
annual turnover

**1/5**
global production



# Spotlight on Bulgaria

## Bulgaria

FACILITIES:

**20**

EMPLOYEES:

**13,000**

OUTPUT:

**€3 billion**

FULL VALUE CHAIN:

- Mining
- Production
- Transformation
- Recycling

# European Metals: Cleaner than our competitors

## Metals are made more cleanly here in Europe


Tonnes of $CO_2$*
**China 15.5**
**Europe 4.8**

+ 340% more CO2


Tonnes of $CO_2$*
**China 70**
**Europe 9**

+760% more CO2


Tonnes of $CO_2$*
**China 11.6**
**Europe 3.4**

+340% more CO2

# …but EU production is declining on global stage

13 Al Aluminium

primary prod. since 2007

- 33% prod. volumes


Smelters closed — Import dependency

European production of other metals is **losing share of global market:**

28 Ni Nickel **- 5%**

14 Si Silicon **- 3%**

28 Ni Nickel **+ 20%**

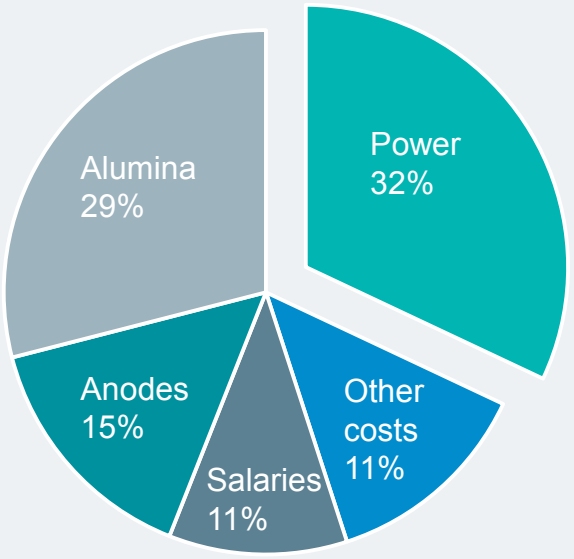
14 Si Silicon **+ 10%**

# Non-ferrous metals production is (unavoidably) electricity intensive

13
Al
Aluminium

Electricity costs

**30-40%**
of production costs,
decisive for investments




30
Zn
Zinc

Electricity = **40%** of production costs

14
Si
Silicon

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


Source: CRU & own projections

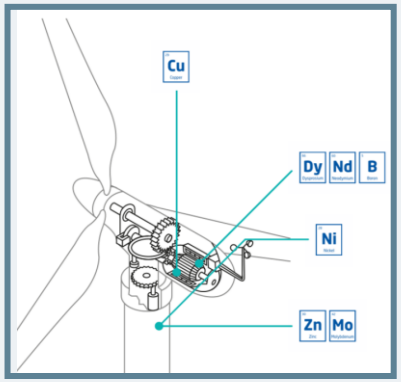
# 2. The Energy Transition: Opportunities and Solutions

**A. Products:** How our products enable the transition

**B. Service providers:** Purchasing renewable energy through long term PPAs and demand response

# Our Products: Metals enable Europe's low-carbon transition

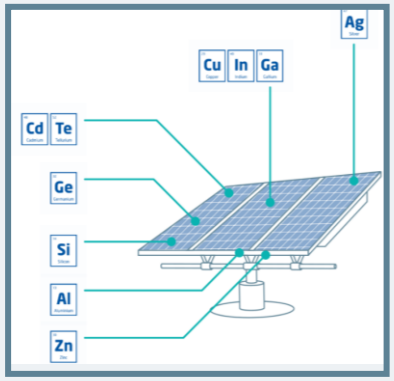
## Wind




**+300%**

metals demand increase by 2050

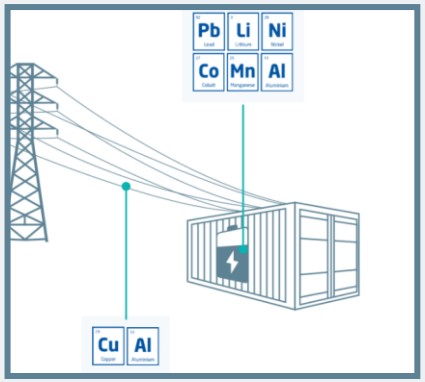
## Solar




**+200%**

metals demand increase by 2050

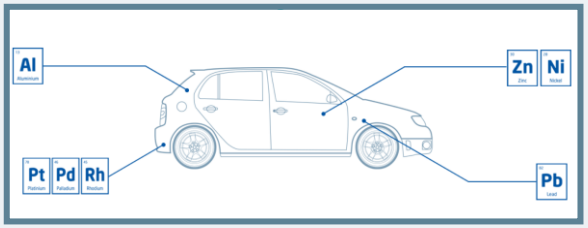
## Energy Storage




**+1000%**

metals demand increase by 2050

## Transport

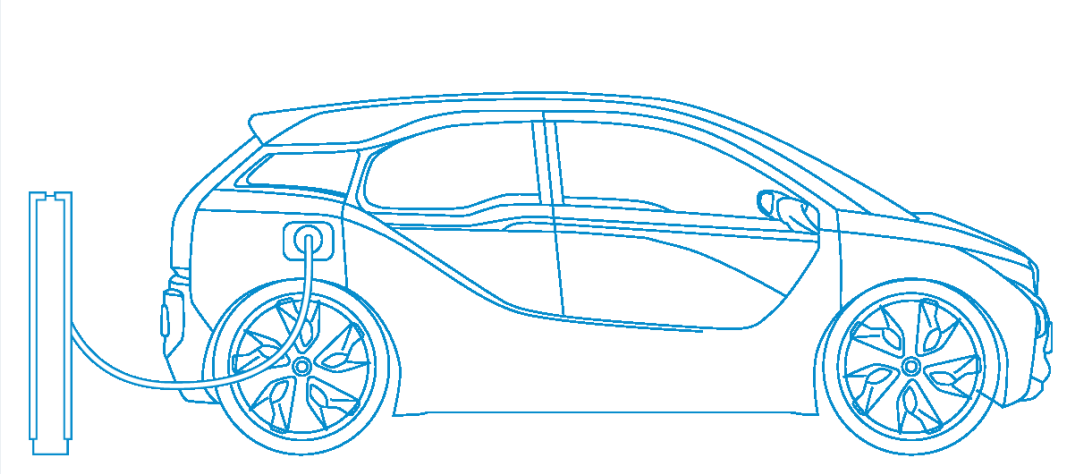



**+%?**

All the potential low carbon transport solutions will need more metals

# Metals: Key enabler for Europe's low-carbon transport

## Example: Clean mobility is driven by metals & alloys



### Signalling cables (charging)

29 Cu Copper

12 Mg Magnesium

### Electric Vehicle Battery

3 Li Lithium +

28 Ni Nickel

27 Co Cobalt

13 Al Aluminium

28 Ni Nickel

25 Mn Manganese

27 Co Cobalt

### Lightweighting

13 Al Aluminium

12 Mg Magnesium

14 Si Silicon

26 Fe Iron

30 Zn Zinc

25 Mn Manganese

# Metals' role in EU's future electricty system

## Metals helping to balancing the system & enabling low carbon electricity

The future system will be more volatile

2050 — Metals engaging in demand response

Will be decarbonized

2050 — Metals purchasing renewable electricity through long term PPAs

# Renewable Energy & Long term PPAs: Non-ferrous metals leadership


Renewable Energy + Add to myFT

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

FT FINANCIAL TIMES

New renewables PPAs in our industry:

HYDRO

**1.65 TWh**
Annual baseload supply

**19 years**
Fixed volume of electricity

Alcoa

**0.8 TWh**
**+ 1.2 TWh**

nyrstar

**0.1 TWh**

## Long term renewable PPAs – a 'win-win' for both parties

- **For Industry:** Long term investment perspective – wants to reduce risk
- **For developers:** Enabling new large scale wind farms through a stable revenue stream

# 3. The Challenges and the need for an adequate State Aid regime

Compensating indirect costs of the EU ETS

Limiting RES costs to industry

Possibility to sign long term contracts

# Case study – Rio Tinto sold smelter in Dunkirk, France


Rio Tinto set to sell Dunkerque aluminium smelter to UK's 'Man of Steel'

**Neil Hume**, Michael Pooler JANUARY 9, 2018

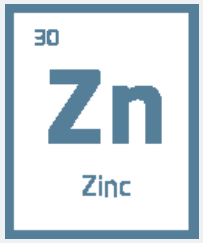
FT FINANCIAL TIMES

Rio Tinto's 25 year long term contract with EDF expired in 2016. The company have made the decision to sell the EU's largest aluminium plant

## Why? Regulatory costs + lack of predictability post-2020

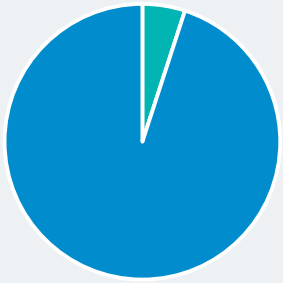
1. **Indirect Costs:** No clarity on indirect compensation post 2020
2. **State Aid Guidelines**: No clarity on treatment of renewables post 2020
3. **Long term Contracts:** Unable to strike a long term contract with electricity provider

# Indirect carbon costs – much bigger impact on Europe's metals sector

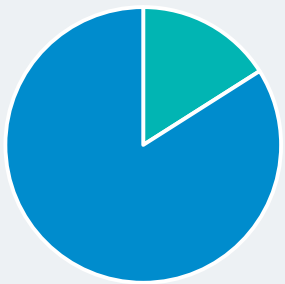





## Indirect Costs vs Direct Costs



95% /5%



84% /16%

52% /48%

*ETS costs*

## Other eligible sectors

*Pulp and paper, chemicals, ceramics, iron and steel*

**<30% indirect costs**

**>70% direct costs**

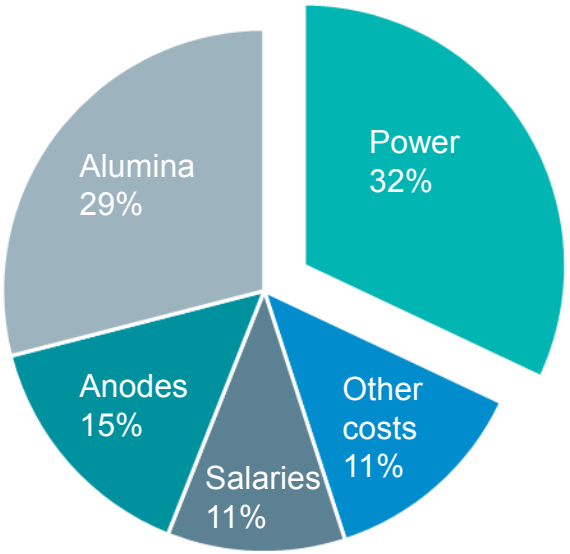


Source: Ecofys, Impact of a 'hybrid compensation approach' October 2016

# Massive exposure of metals with increasing ETS price

13
Al
Aluminium

Electricity costs
= **30-40%**
of production costs,
decisive for investment




**2015** 4% of sales price
*at a CO2 price of €5*

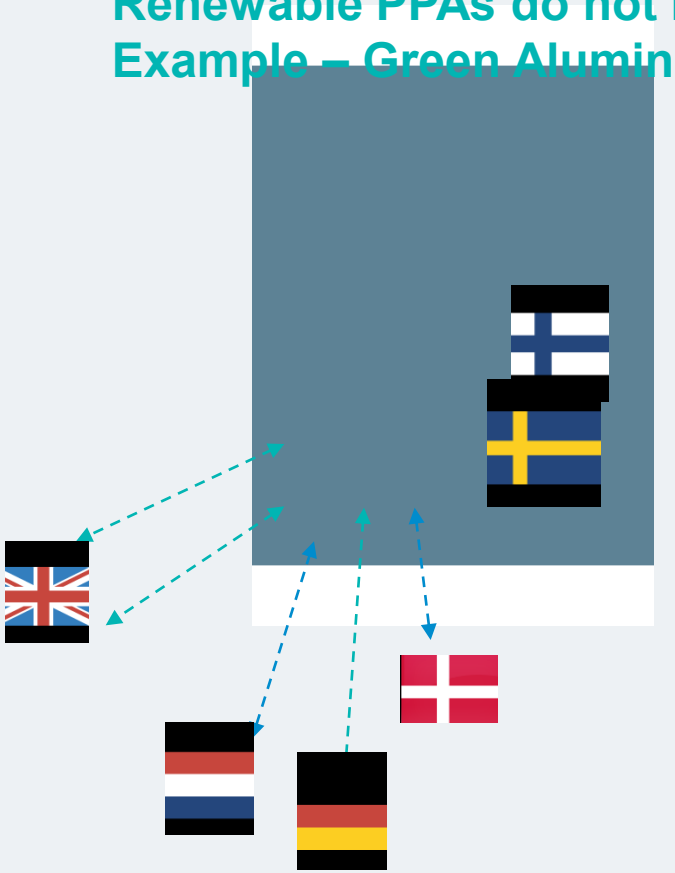
**2030** 20-25%
*at a CO2 price of €30*

20-25% of **sales price** is far above profitability ratios.

The result is **loss of jobs, investment, innovation**

# Indirect Compensation: Myths vs. Reality

## Renewable PPAs do not reduce exposure to indirect carbon costs
## Example – Green Aluminium Production in Norway



Existing interconnector

Interconnector under construction

Europe's largest aluminum producer has **100% of power production from hydropower**

BUT

Fossil fuel production in Nordics sets **the marginal cost** for Nordic electricity generation

The industry reality is that **100% of electricity costs** are impacted by indirect CO2 costs

Recent long term PPAs **do not reduce indirect carbon cost exposure**

**Hydro-electric based aluminium smelters in Canada & Iceland not impacted by indirect carbon costs**

# Energy & Environment Guidelines (EEAG) Post 2020

Support schemes to achieve RES targets should be technology-neutral and focused on cost efficiency

The overall cost increase in the electricity system, stemming from the grid and balancing also need to be considered

The current State Aid Guidelines limit the cost impact.
But will this system continue post 2020 and to what extent??

# Long Term Contracts – providing predictability to industry

Long term contracts provide long-term horizon for investment and an incentive to diversify the risk of volatility by achieving predictable power costs

Many long term contracts are now coming to an end.

→ The uncertain regulatory framework erodes the capabilities to enter long term contracts

→ EU competition law rules have proved to be an impediment

Europe has become a high risk area for new investments for electro-intensive industries

→ Some companies shutting down production leading to EU de-industrialization

# Wrap up

## Your Takeaways

# A Reminder - My three key messages for today

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**+**

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**=**

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**Long term, we won't have any indirect carbon costs by 2050 once EU electricity generation is zero-carbon**

*Technology for the transition to carbon free electricity exists*

***But,** industry needs to survive the costs impacts in the short to medium term*

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*Our products are the enablers of the transition.*

***And,** we want to make these products here in* Europe

# If we get our State Aid Policy correct?

## Climate impacts

*European electricity generation can become zero-carbon by 2050. With an adequate State Aid regime, Europe's electro-intensive industries can survive this transition*

## Competitiveness impacts

*With an adequate State Aid regime, EU production can compete on a level playing field globally = ↓ Import dependency from regions with higher carbon footprint*

## Essential innovation

*With an adequate State Aid regime, the necessary improvements and innovations will take place here in Europe*

# THANK YOU

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