



ETS State Aid Guidelines for indirect CO2 cost compensation : Hydro's views

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Hydro

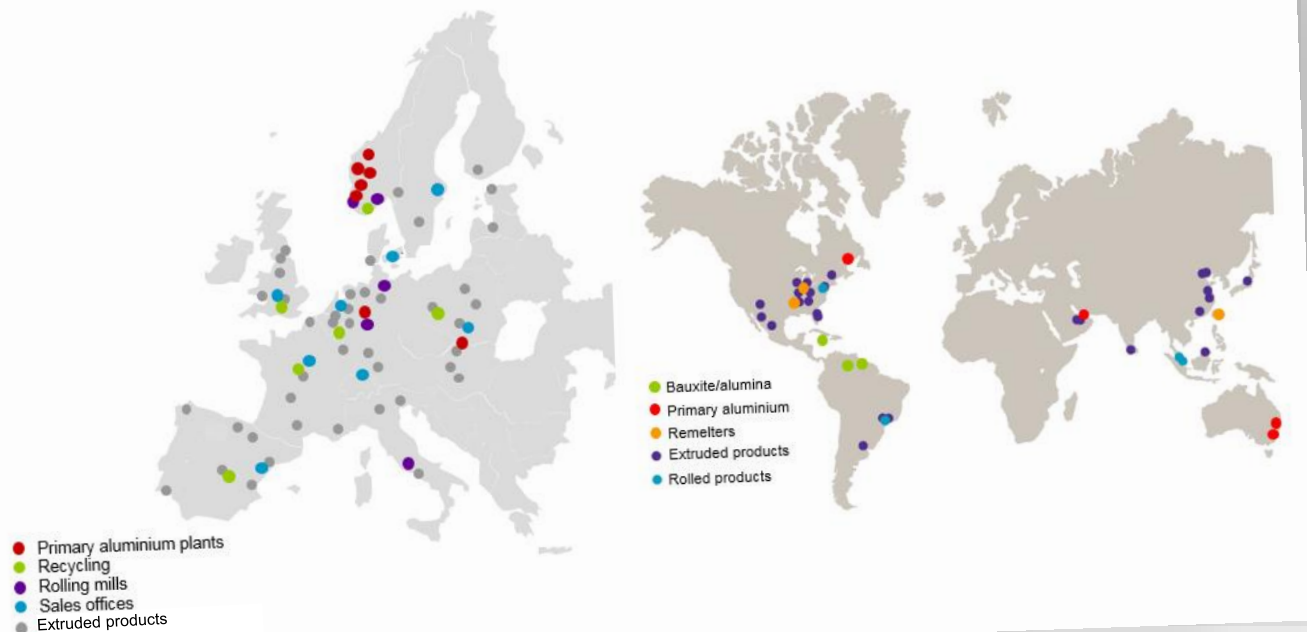
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Hydro, the global and complete aluminium company



In Europe, 90% of our electricity consumption is from non CO₂ emitting generation, while 100% is impacted by CO₂ costs

European foothold, global presence



Europe's largest aluminium producer

- Primary production in Norway, Germany and Slovakia
- Rolling mills in Germany and Norway
- World leader in extruded solutions
- European recycling facilities

Electricity sourcing in Europe

- 10 TWh hydropower production
- 20 TWh consumption in Europe
- Hydro entered up to 30 years PPA of total 4.5 TWh onshore wind

Key message: State Aid for Indirect Guidelines not fit for purpose to protect the most electro-intensive sectors

1. Carbon leakage protection should be adequate for both carbon intensive and electro-intensive industries
2. Current State Aid system needs improvement:
Partial and decreasing compensation is the main problem
3. Our proposal: A more accurate, proportional approach would be more effective in achieving the objectives of the indirect compensation guidelines

Our industry's challenges

1. Aluminium production has high electricity costs

2. CO2 price impact on aluminium's competitiveness

As price-taker, we cannot pass on the carbon cost to the customer

3. Demand is growing but more and more is import dependency

High electricity costs and highly affected by indirect CO2 costs

- Electricity costs = about 40% of production cost (CEPS report)
- ETS impact on aluminium competitiveness mainly on the power price
- A CO2 price of **30 €/t CO2** results in
 - Indirect cost - without compensation - in the range of 325 €/t aluminium^{**})
 - This corresponds to **15-20% of current sales prices**
 - Increasing ETS price → massive exposure to indirect costs

Table 2 Energy prices and costs in EU energy intensive sectors – Simple averages, 2016

Sector	Price of electricity (€/MWh)	Cost of electricity* (€/MWh)	Cost of electricity as a share of production costs (%)	Price of natural gas (€/MWh)	Cost of natural gas as a share of production costs (%)
Bricks and roof tiles	86.3	79.3	5.4%	25.1	13.6%
Wall and floor tiles	99.2	88.1	5.2%	24.1	10.4%
Glass tableware	92.4	85.8	6.2%	23.8	7.5%
Packaging glass	75.4	68.9	7.5%	22.3	12.2%
Primary aluminium	39.4	37	41.6%	20.9	1.3%
Secondary aluminium	97.6	93.9	6.1%	24.4	7.9%
Downstream aluminium	80.0	80.0	1.3%	24.7	0.6%
Steel EAF	53.7	50.6	9.8%	19.2	2.5%
Steel BOF*	57.6	52.1	3.3%	17.2	1.1%
Nitrogen fertiliser	66.5	60.3	6.6%	18.8	52.1%
Refineries*	69.0	62.9	0.8%	20.3	1.1%

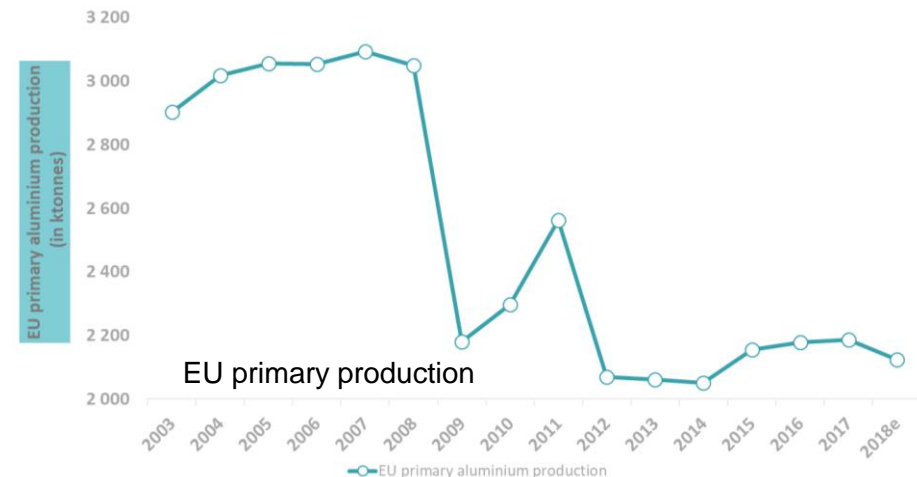
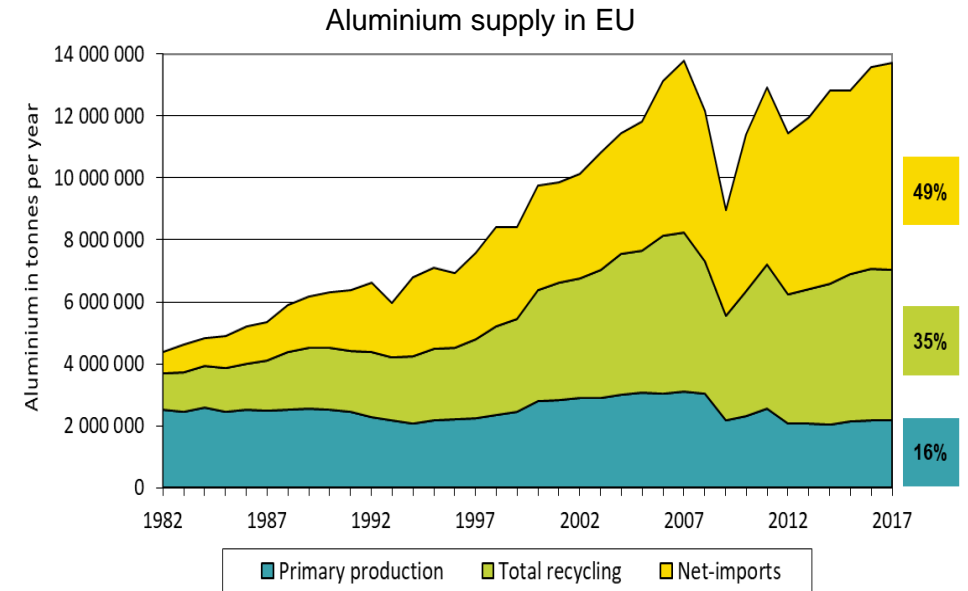
Adequate CO2 compensation highly important for the aluminium value chain

^{*)} CEPS et al. (2019), *Composition and Drivers of Energy Prices and Costs: Case Studies in Selected Energy Intensive Industries*, European Commission
^{**)} Calculation: Benchmark consumption 14,256*0,76 €/MWh (impact on German power market)*30€/tCO2 =325€/t al

The global climate paradox

Aluminium demand is growing, but Europe's production is declining

- About 50% of EU need of aluminium is imported
- 1/3 of EU primary production lost since 2007
- Recycling cannot meet increasing demand
- Increasing EU import dependency means:
 - Increasing share of global aluminium production is **coal-based**
 - Main source of GHG emissions from the electricity production
 - Only European plants pay CO₂ cost in the power price



ETS Guidelines revision: 1/ Eligibility criteria

Industries where:

- 1) **Electricity cost is a major factor** and
- 2) **Product prices are set globally**, with no ability to pass on carbon costs
should be eligible

✓ Agree with the Commission proposal (Roadmap):

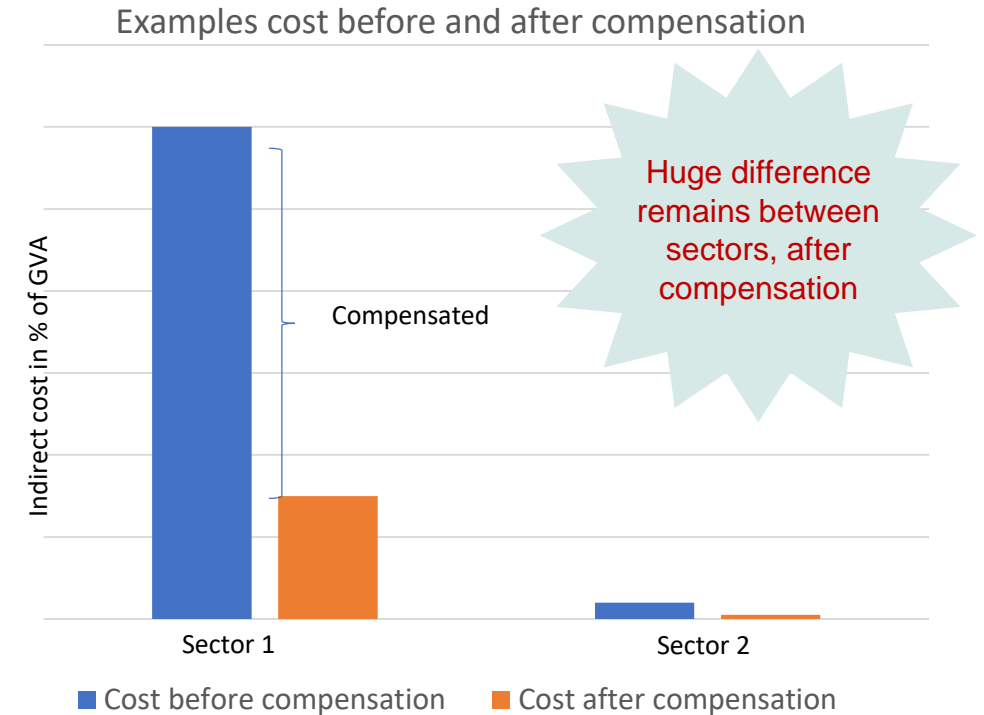
..the list should be based on to economic situation of the relevant sectors, with two factors; 1) exposure to international commercial activity and 2) exposure to indirect ETS costs being most relevant.

2/ Compensation formula is ok, but two variables need to be revised..

Aid intensity

Current partial and decreasing compensation → huge carbon leakage risk for the most electro intensive sectors

- Current system ends at 75% in 2020
- Cost remains very high for the most electro intensive undertakings, *even after* compensation
- Huge difference and market distortion between industries:
 - Sectors with high electro intensity vs sectors with low electro intensity
 - Sectors exposed to direct emissions vs indirect emissions
 - 100% full and predictable at benchmark level vs 75% partial and declining at benchmark level



Indirect carbon cost exposure should be more *proportional*

Aid intensity - post 2020

A more proportional approach is needed for most CL exposed sectors and companies

1. Aid intensity should be **85%** and remain **stable** over the entire period



2. In addition, for **those companies particularly exposed** to indirect costs, i.e. with an electro-intensity of at least 20%:

- Introduce a mechanism to ensure they shall face **no more than 0.5%** indirect costs in percentage of GVA, after compensation is granted

✓ A more proportionate approach will create a fairer level playing field

✓ The same principle adopted in the EEAG* 2014

Production level

Historical production level is not effective

Current phase:

- Based on 5 years historical production (2006- 2011)
 - Risk of overcompensation when industry reduce production
 - No incentives for industry to grow
- Compensation granted at Member State's level, year by year, no need for coordination by the European Commission



Next Phase:

- ✓ **Compensation should be based on previous year's production data**
- ✓ **It will provide incentive for industry to grow investment, and avoid overcompensation**

Key variables/ Other issues

- **CO2 Emission Factor**

- ✓ keep the current regional approach as it best reflects the national energy mix and the cross-border trading
- ✓ The marginal technology sets the price in each relevant region - not the physical emissions
- ✓ Regular update the factor until 2030 to cater for evolution in the markets (more and more renewables) and avoid overcompensation

- **CO2 Price**

- ✓ Keep the current use of the 1 year forward price

- **Benchmarks**

- ✓ Use current principles, to be updated and based on actual data for 10% best performers

- **No conditionality to further energy efficiency measures**

Conclusions

1. **Current ETS State Aid guidelines need to be adequately revised to protect the most electro-intensive sectors from the carbon leakage risk**
 - Partial and decreasing compensation is the main problem

2. Carbon leakage protection should be adequate for both carbon intensive and electro-intensive industries

3. A more accurate, **proportional approach for compensation** – which better take into account most exposed sectors - would be more effective in achieving the objectives of the guidelines

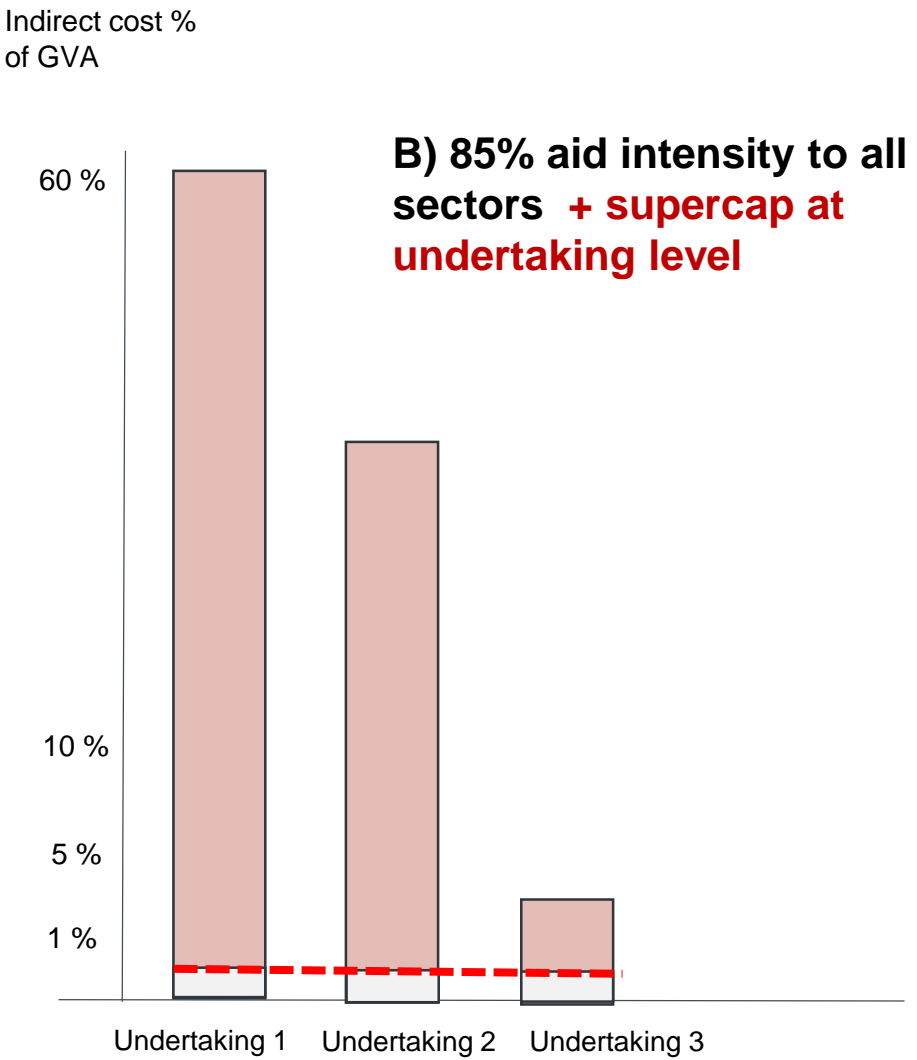
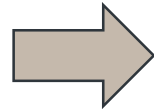
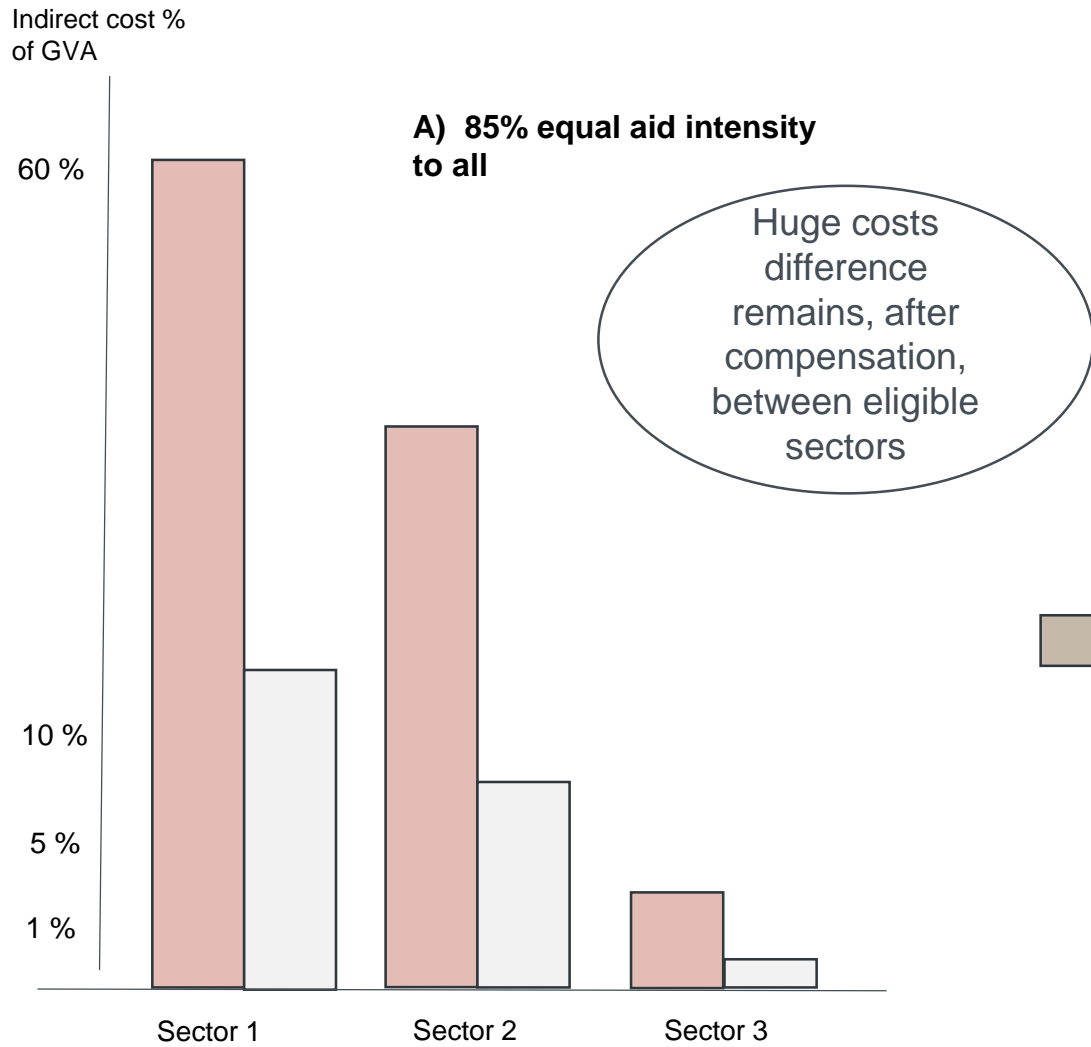


Hydro

We are aluminium



Back-up: Proposed Proportional Approach



Indirect cost **before** compensation

Remaining indirect cost **after** compensation

5% of GVA: Threshold quantitative eligibility
1% of GVA: Threshold qualitative eligibility