The European Emission Trading and the Aluminium sector

Alessandro Profili

IEA Workshop Paris, September 2005

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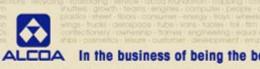
Aluminium and ETS

Is the European ETS achieving its goals ??

Is it impacting sectors not included in the Directive ??

•What is the best way of including other sectors ??

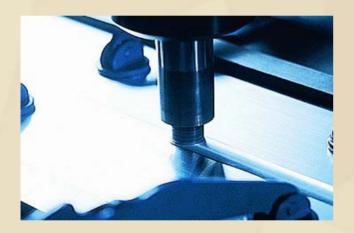
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Aluminium Offers...

Innovative products





Innovative processes

While contributing to a sustainable progress !



How aluminium is made

First Bauxite extraction (Guinea Boké)



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Mining and reforestation



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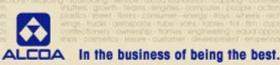
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How aluminium is made

4 kg **Bauxite Alumina** 2 kg 1 kg

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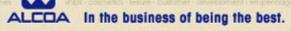
How aluminium is made

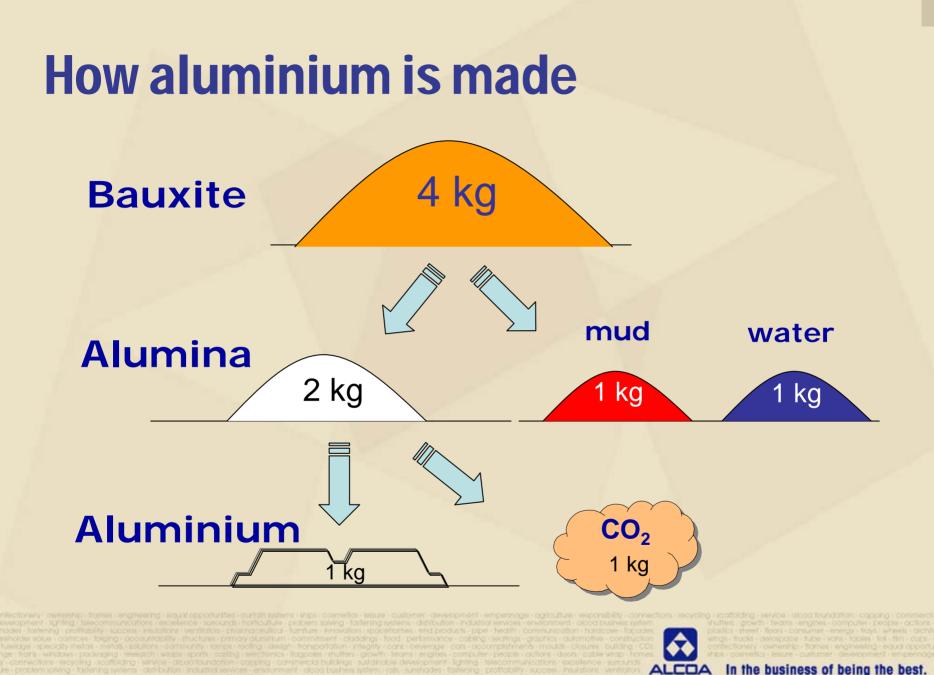
Second, Alumina production (San Ciprián)



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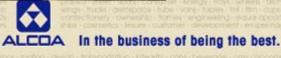


How aluminium is made Third, Aluminium smelting (Porto Vesme)



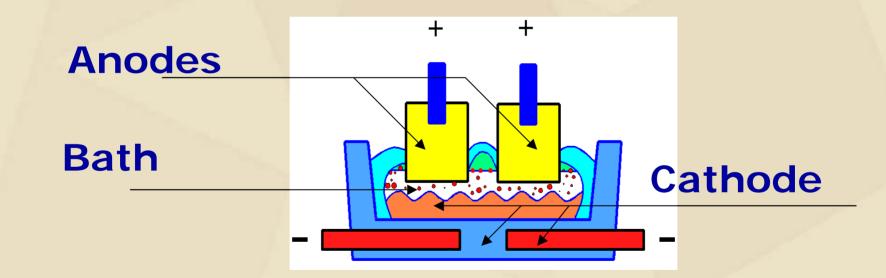
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How aluminium is made

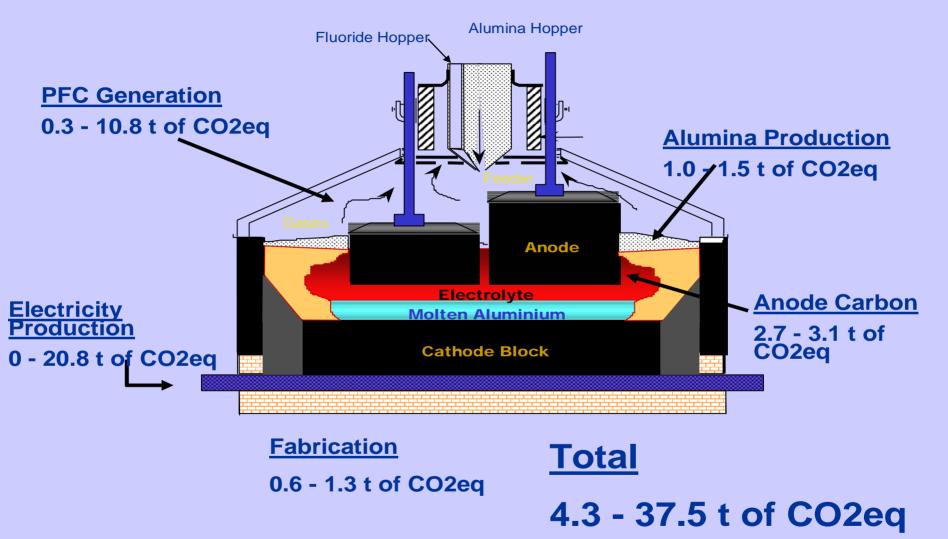
• Electrolytical process, Hall Hérault (early '900):



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GHG Emission Sources



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Aluminium and ETS

• As all non-ferrous metals, Alu currently not included in European ETS, but affected by indirect cost

Can be considered a good "leading indicator"

 Aluminium smelting is the most electricity intensive industrial process; 15 kW/hrs needed per kilo of aluminium; 5 kW/hrs for zinc

Electricity represents up to 40% of production costs
Global commodity submitted to strong competitive pressure – no passing on of costs

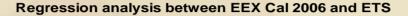
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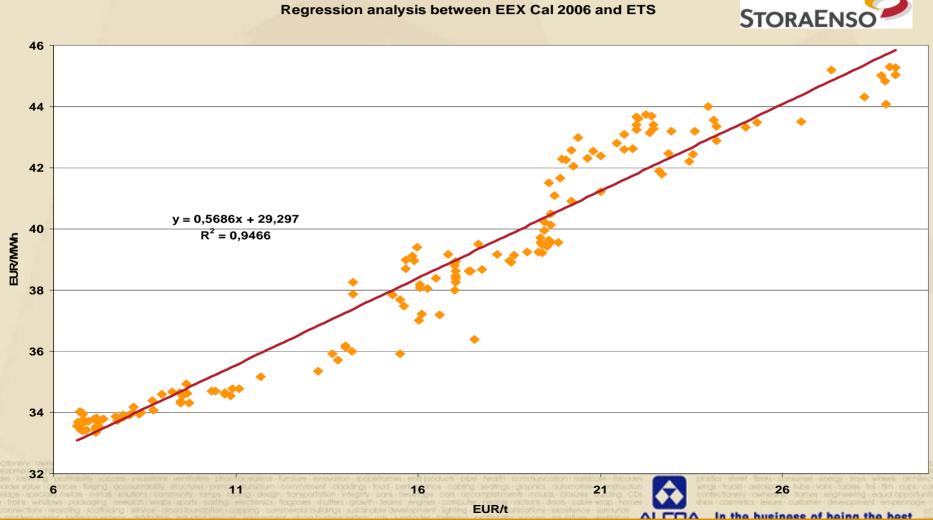
CO₂ certificate trade increases power price, despite free of charge allocation



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Very Strong Correlation - 95%

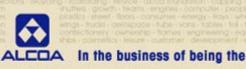




The Aluminium Industry has identified 3 main paths to reduce its Climate Change Impact

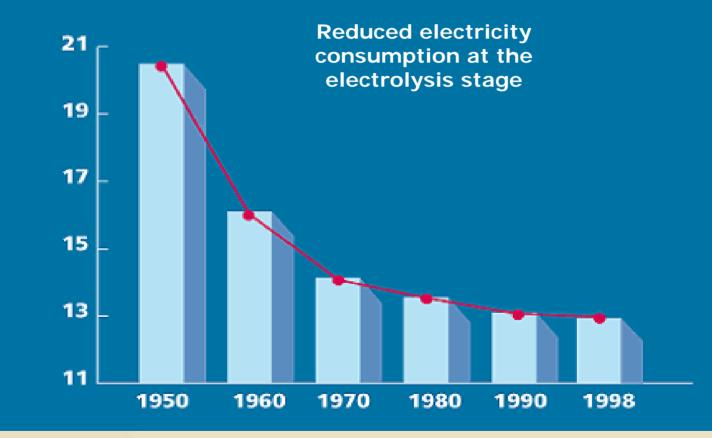
- **1.** Reducing emissions per ton of primary metal produced through:
 - a) investment in modern technology;
 - b) attention to good operating practices.
- 2. Maximising the potential for aluminium recycling.
- 3. Encouraging applications of aluminium in transport which reduce weight and GHG emissions from transport, a sector responsible for a third of GHG emissions globally.

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1) Significant Reduction of Electricity Consumption for Smelters

kWh per kg of aluminium



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2) Aluminium Recycling

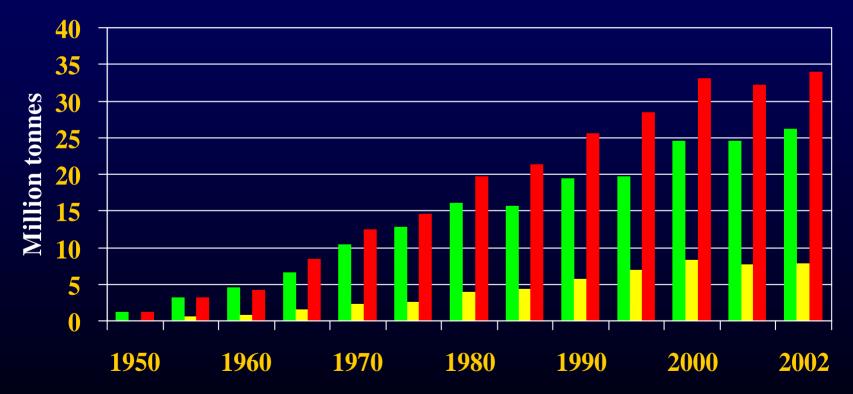


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World aluminium usage and recycling 1950-2002

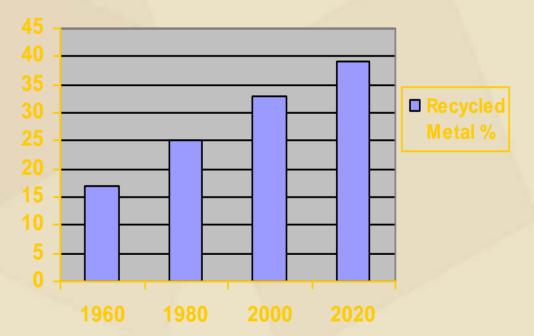
Primary Production Used Scrap Recovery Total Usage



Global Aluminium Supply Mix

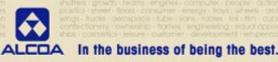
Modeling indicates that the industry's average metal supply from <u>old &</u> <u>new scrap:</u>

- has increased from 17% in 1960 to over 33% today;
- is predicted to increase to 39% by 2020.

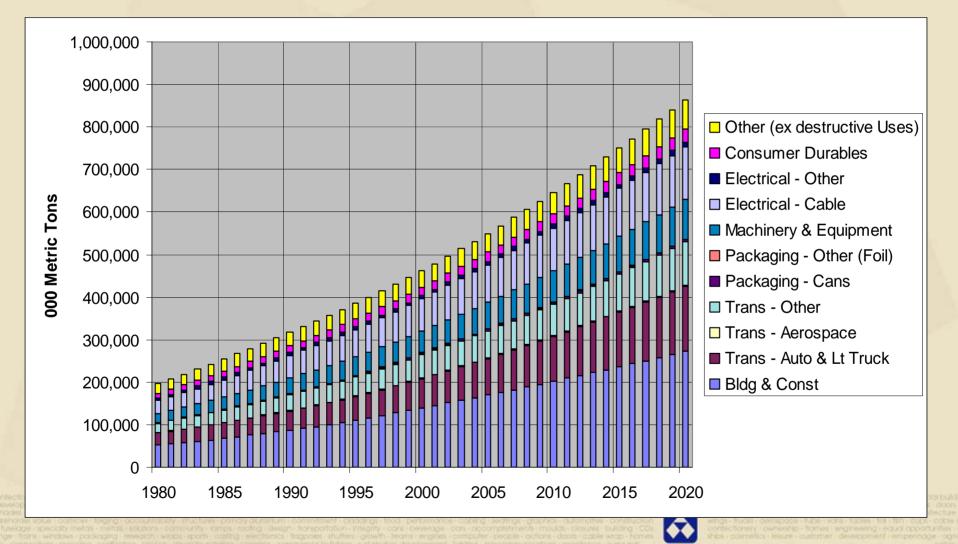


% Old & New Scrap to Total Metal Consumed

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Global Product Inventory by Market



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3 – Aluminium in Transport



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A380 – New Solutions for a Super-sized Aircraft





New alloys and solutions for very large parts

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Europe's New Generation of Mass Transport

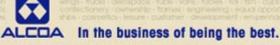




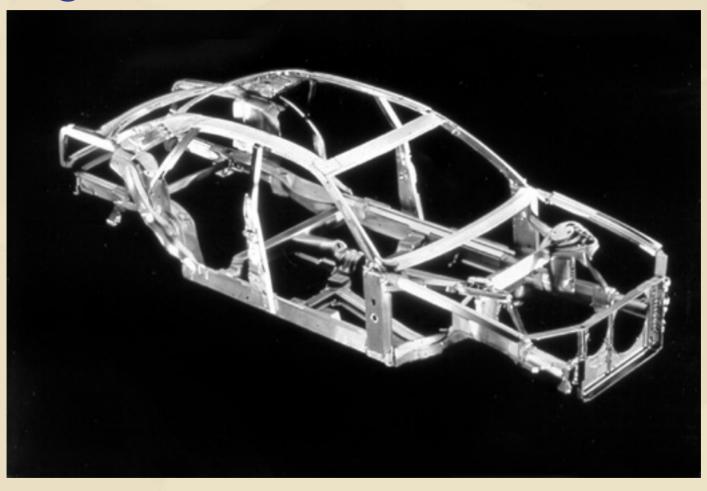




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Moving towards the all-alu car



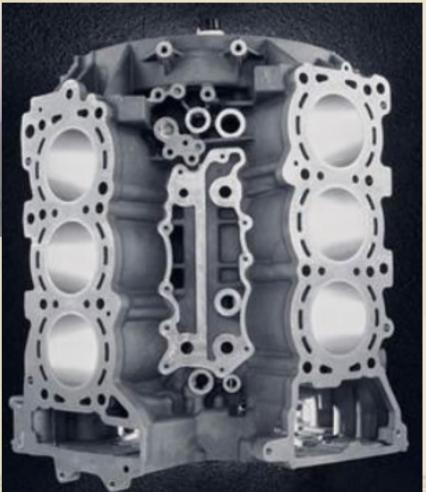
The Audi A8 Spaceframe

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Innovative breakthrough to support dieselization





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Light Weighting for Performance and Energy Saving





Aluminium Light-weighting: Impact on CO2 Emissions 20 Tonnes

1 Tonne of Aluminum



of CO_2

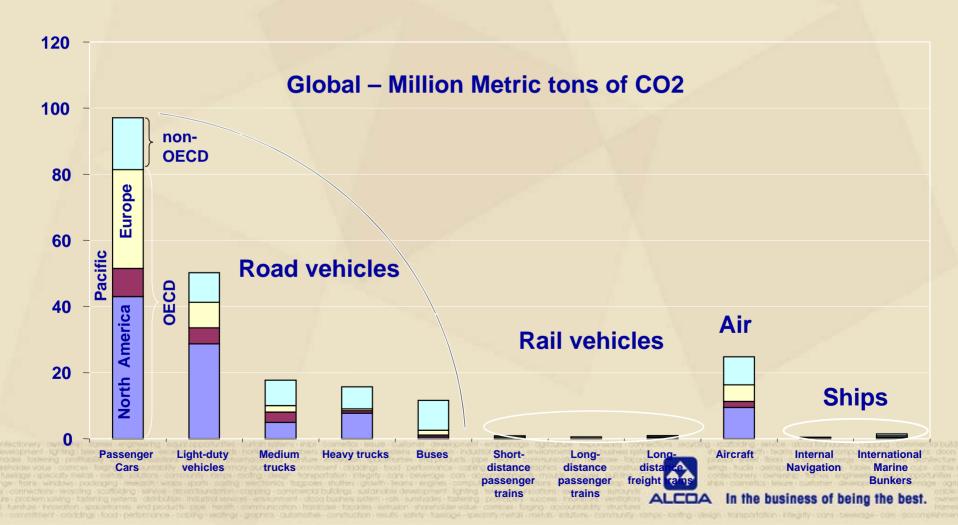
Emissions

Life-time CO₂ Savings for Road Vehicles



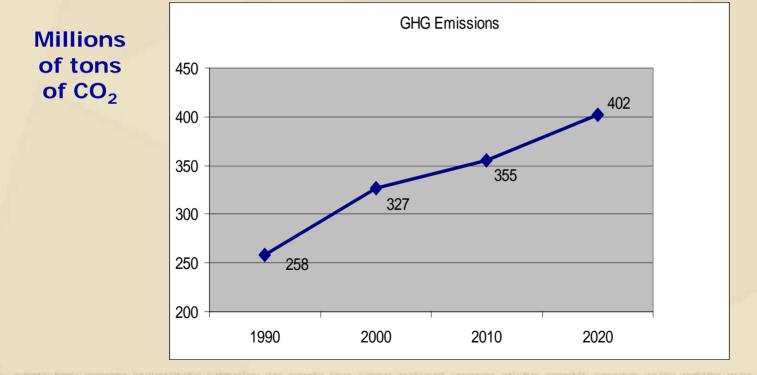
Light duty commercial delivery vehicles show highest relatives savings the best.

Total CO₂ Savings Potential by Transport Market

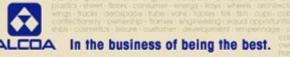


In summary

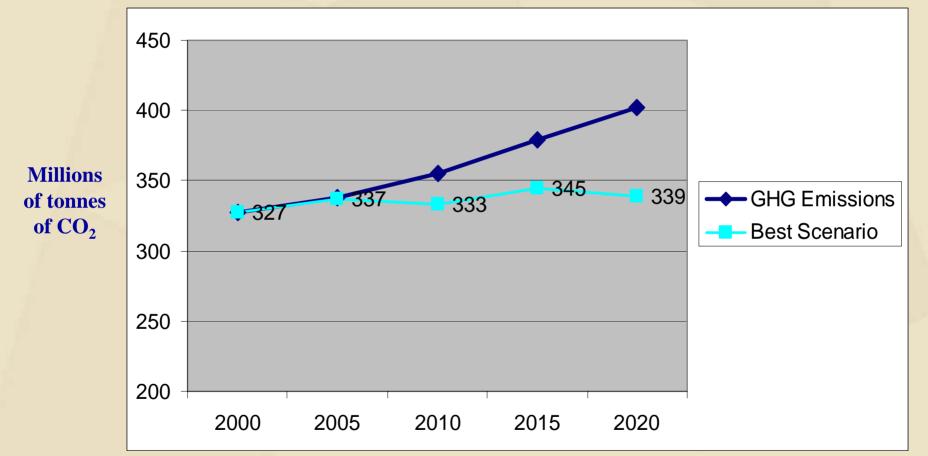
Despite emission reductions, total emissions would still increase due to growth in production



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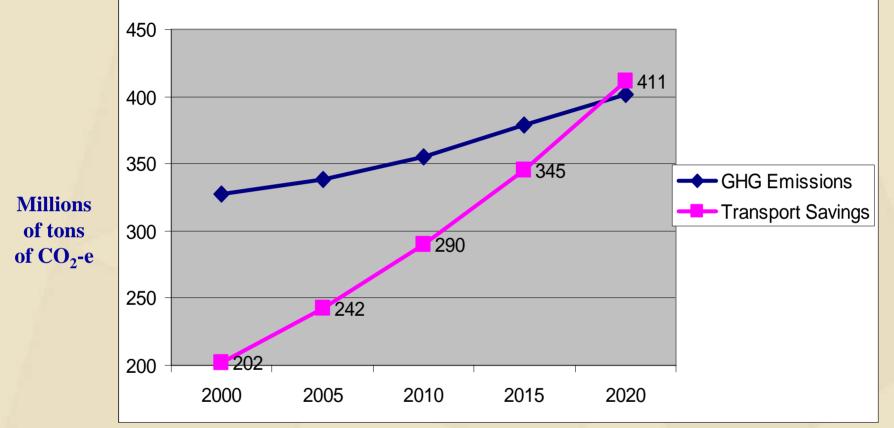
Aluminum Production Movement to "Today's Best Practice"



Full Industry Adoption of "Today's Best Practice" Could Stabilize Growth of Global Production HG Emissions

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Potential Magnitude of Transport Savings

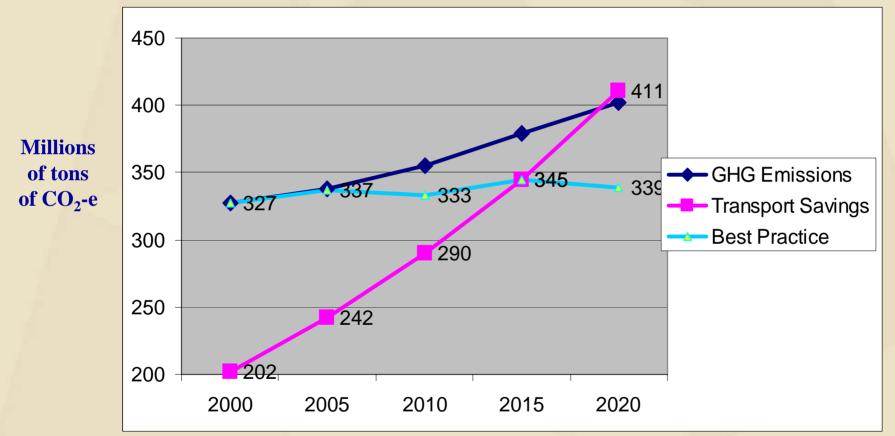


Potential Emissions Savings From Transport Growing Faster than Al Production Emissions

Potential for Al Industry to be "Climate Neutral" By 2020

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Best Practice and Transport Savings



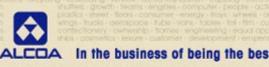
Potential for Al Industry to be "Climate Neutral" By 2015 by accelerating movement toward today's best practice

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The STORY!

The Aluminium Industry may be able to demonstrate, on the basis of GHGs, that the net impact on society of the use of aluminum as a material is a <u>positive contribution</u> to the challenge of Global Climate Change.

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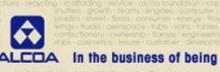
The Aluminium Industry and the European ETS

1. Climate Change can only be resolved globally:

- a) Not by delocalising industry away from Europe;
- b) Global sector approach.
- **2.** Maximising the recovery for aluminium recycling.

3. Encouraging the use of aluminium in transport, a sector responsible for a third of GHG emissions globally.

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The Aluminium Industry and the European ETS revision

- **1.** Solve the non-functioning of the Electricity market
- 2. Before adding new sectors:
 - a) must evaluate cost of abatement;
 - b) Must evaluate capability to pass along costs.
- **3.** Include all gases.

4. Eliminate distortions and harmonise definitions.



