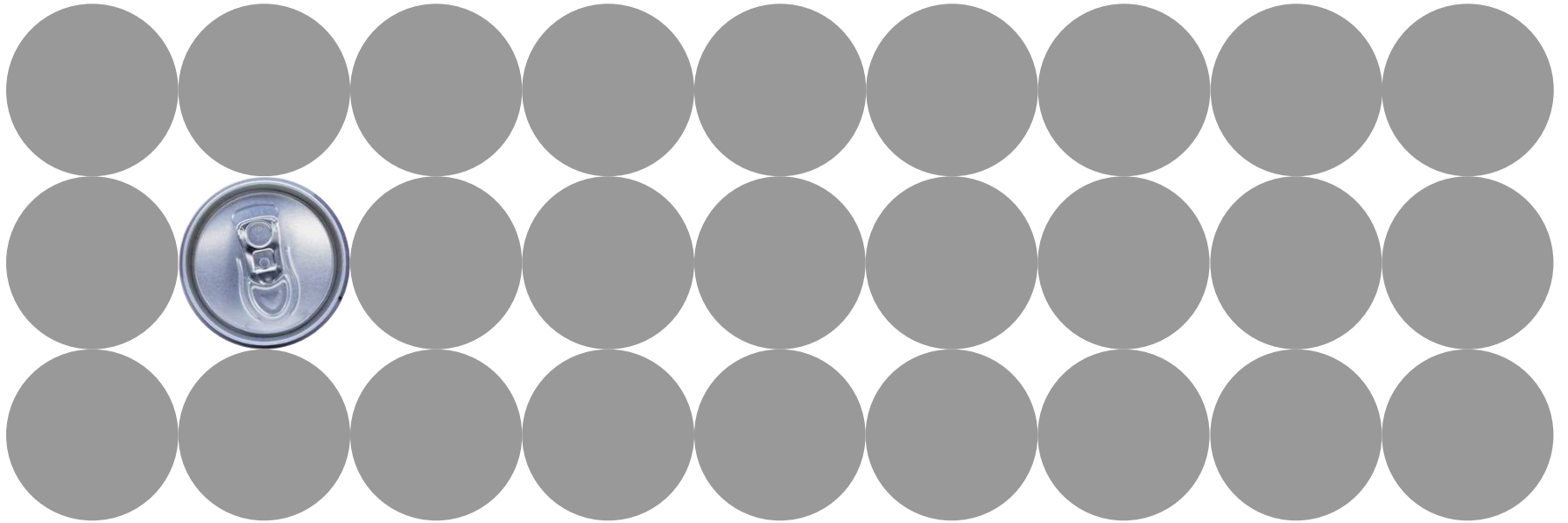


Market outlook

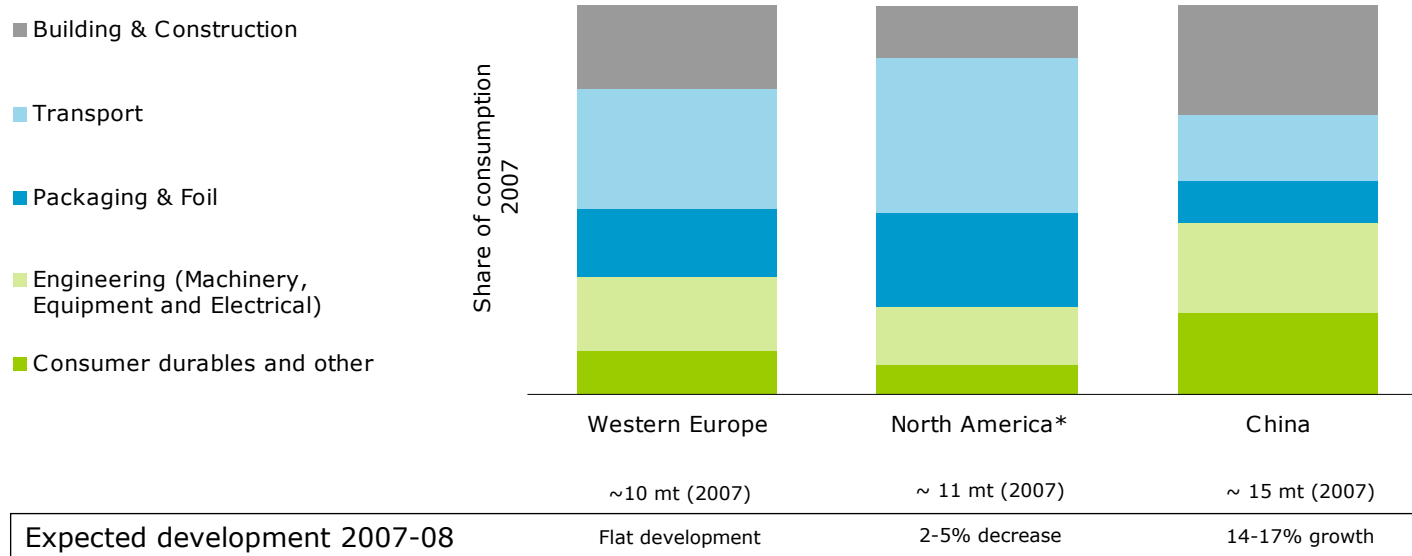


Arvid Moss, Executive Vice President and Head of Strategy and Business Development
September 25, 2008

1

Short-term outlook

Solid growth in aluminium semis consumption 2008

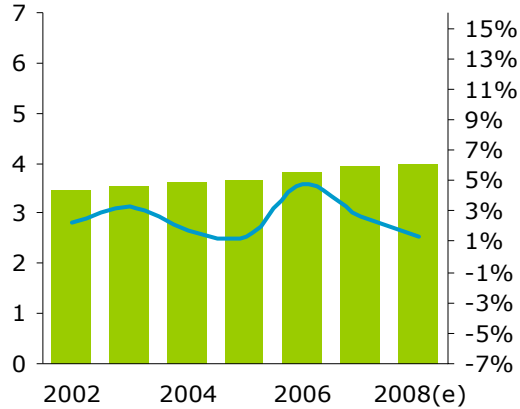


Source: CRU / Hydro
 * Including Mexico

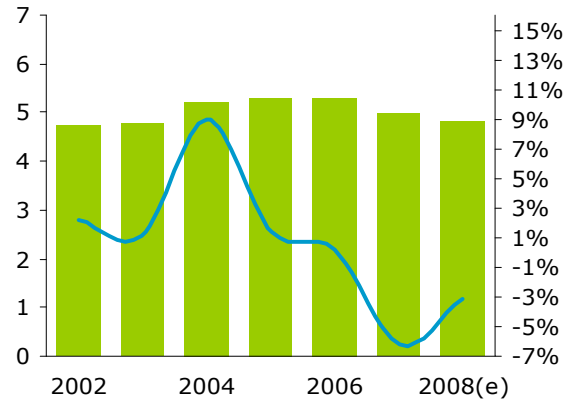
Rolled products consumption

Moderate, but positive growth rates in Europe

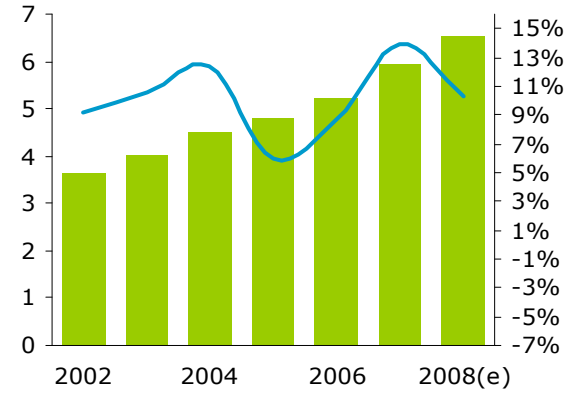
Western Europe
Million tonnes



North America
Million tonnes



Asia Pacific
Million tonnes



■ Million tonnes — % growth (RHS)

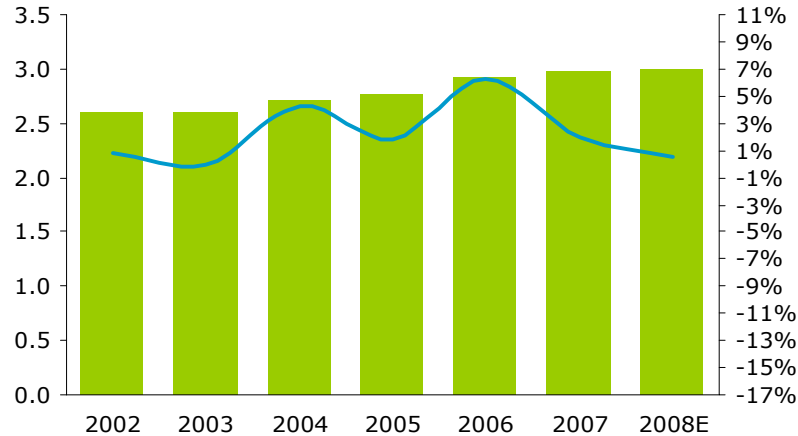
Source: CRU August 2008. North America includes Mexico

Extruded products consumption

Soft landing in Europe, but large fall in American demand

Europe

Million tonnes

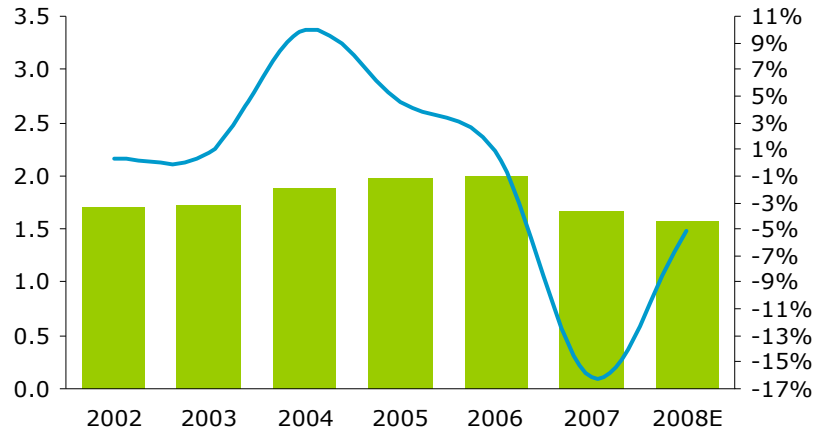


■ Million tonnes — % growth (RHS)

Source : CRU 2008/Hydro

North America

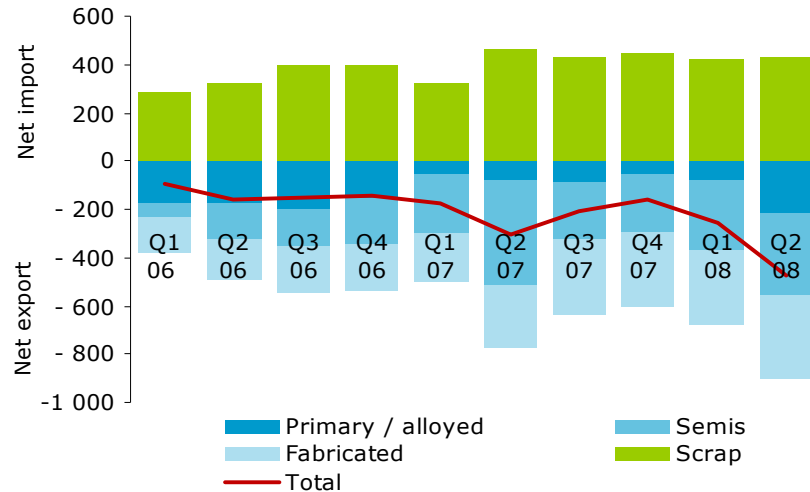
Million tonnes



Source: CRU August 2008/AA / Hydro

China – new export loop-hole closed

1 000 tonnes

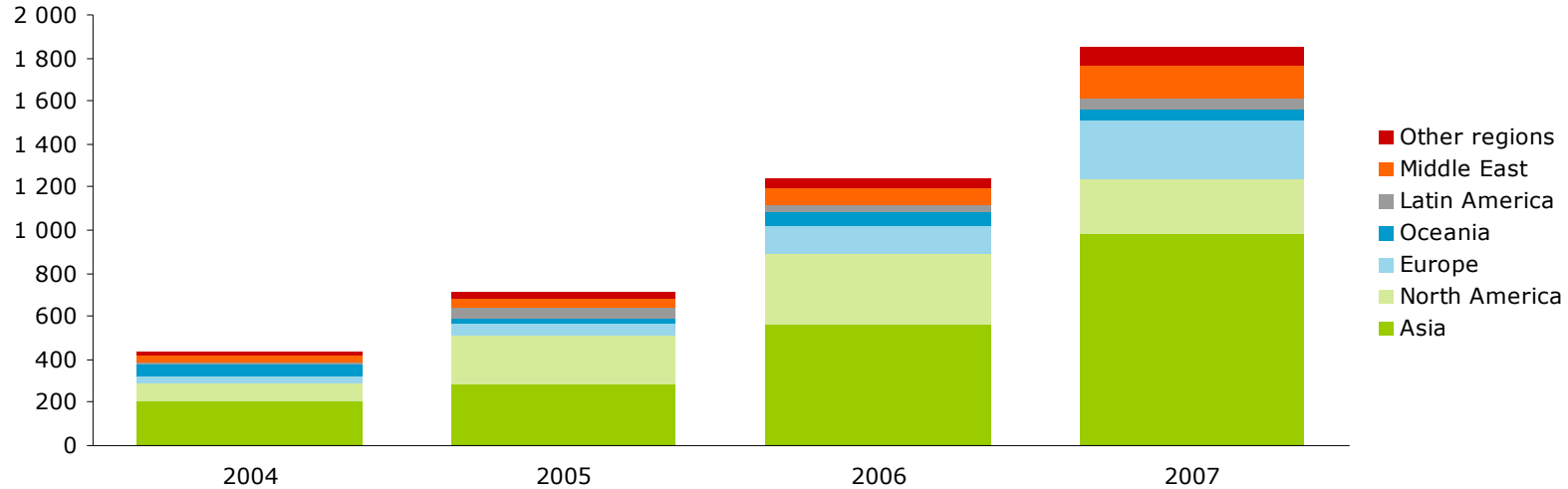


- 15% export tax on non-alloyed primary metal and extruded products from mid 2007
- From August 20, 2008: 15% export tax also on alloyed primary metal
- Power prices to grid has increased twice in 2008, up ~100 USD/tonne aluminium
- From August 20, 2008: new 10% export tax on coal

Source: Hydro / Antaika, September 2008

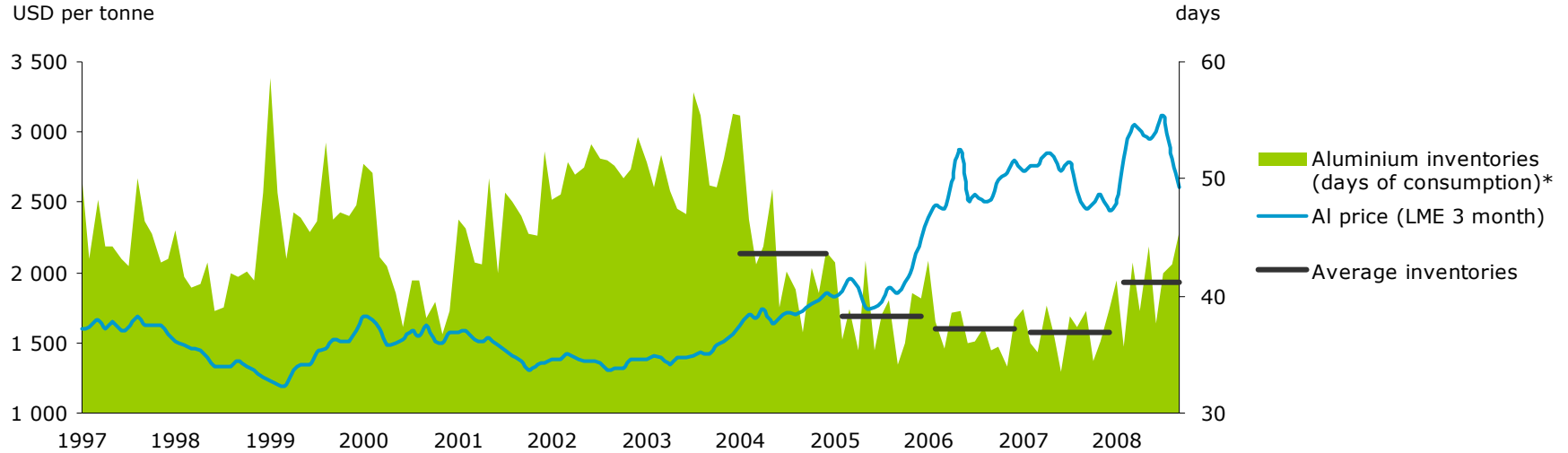
Most export of semis and fabricated from China ends up in Asia

1 000 tonnes



Source: Antaike February 2008

Slight increase in inventories year to date



*IAI and LME reported stocks, annualized Western World consumption. CIS and China not included.

2008/2009 outlook



- Primary aluminium consumption seen up ~7% in 2008, lower growth expected in 2009
 - Driven still by China
 - US still weak, Europe is weakening
- Consumption effects from latest financial unrest
- European semis consumption expected at a somewhat lower level in 2009 than in 2008
 - European semis has enjoyed a stable market until August, lower level expected in the second half of 2008
- Aluminium price dependant on development in
 - Aluminium supply/demand
 - Energy price and US dollar impacting the cost support level

2

Long-term outlook

Healthy demand for aluminium

- Properties lead to increased market share
 - Aluminium intensive urbanisation and infrastructure
 - Climate challenge – aluminium as part of the solution
 - Recyclability more important with high energy price
- Expected annual demand growth 5-6% coming 10 years
- China represents almost 2/3 of expected growth

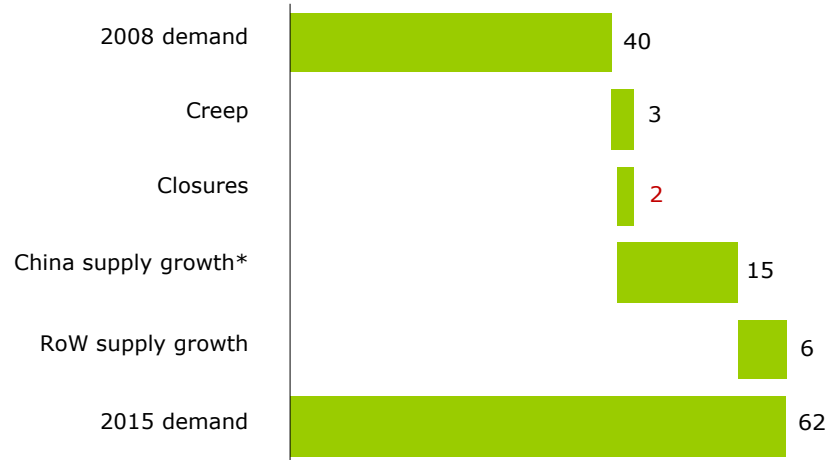
Source CRU LT: 2007-2017



Considerable new smelter capacity needed

Estimated capacity changes 2008-15

Million tonnes



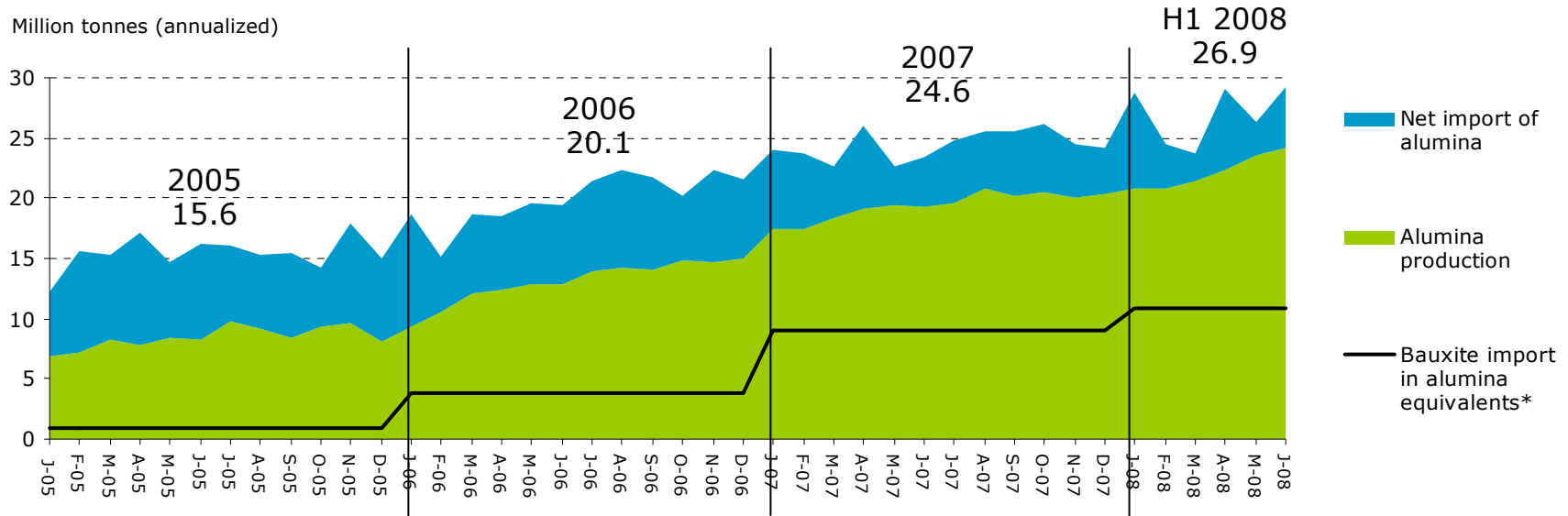
Implies > USD 100 billion in total investments over next 7 years

Represents ~6 new smelters annually with 500 000 tonnes per year capacity

Sources: CRU/Hydro

* ~2 million tonnes estimated current excess capacity not included

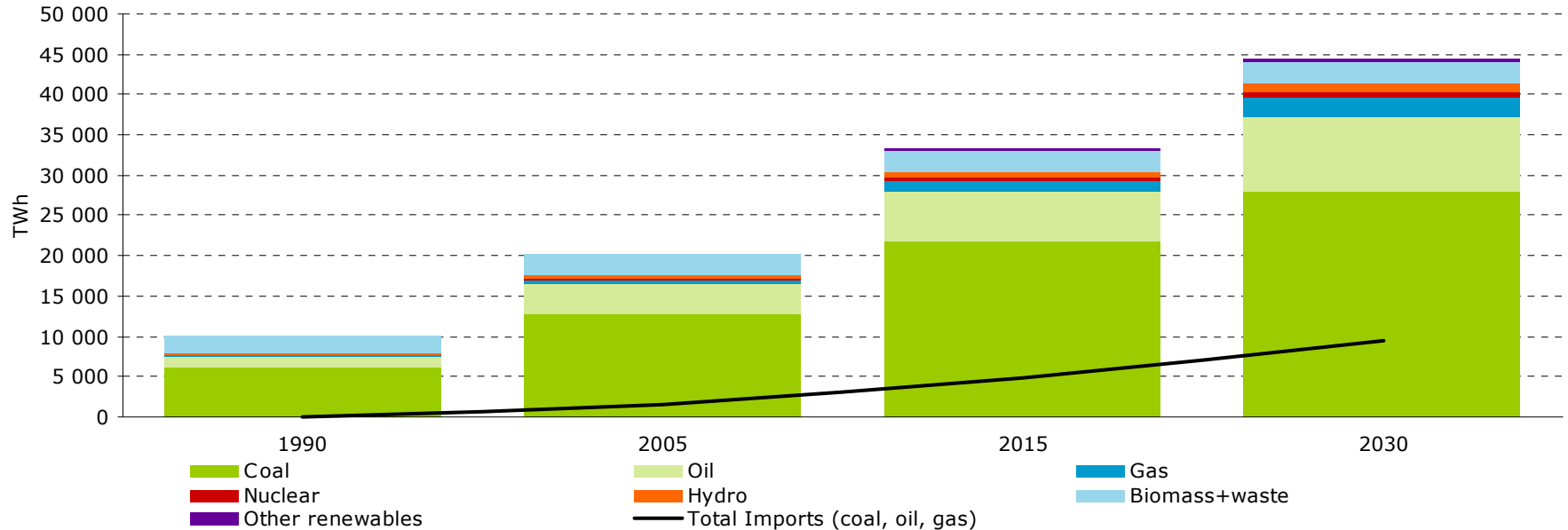
China: increasingly dependant on import of bauxite/alumina



Source: Hydro, Antaike,

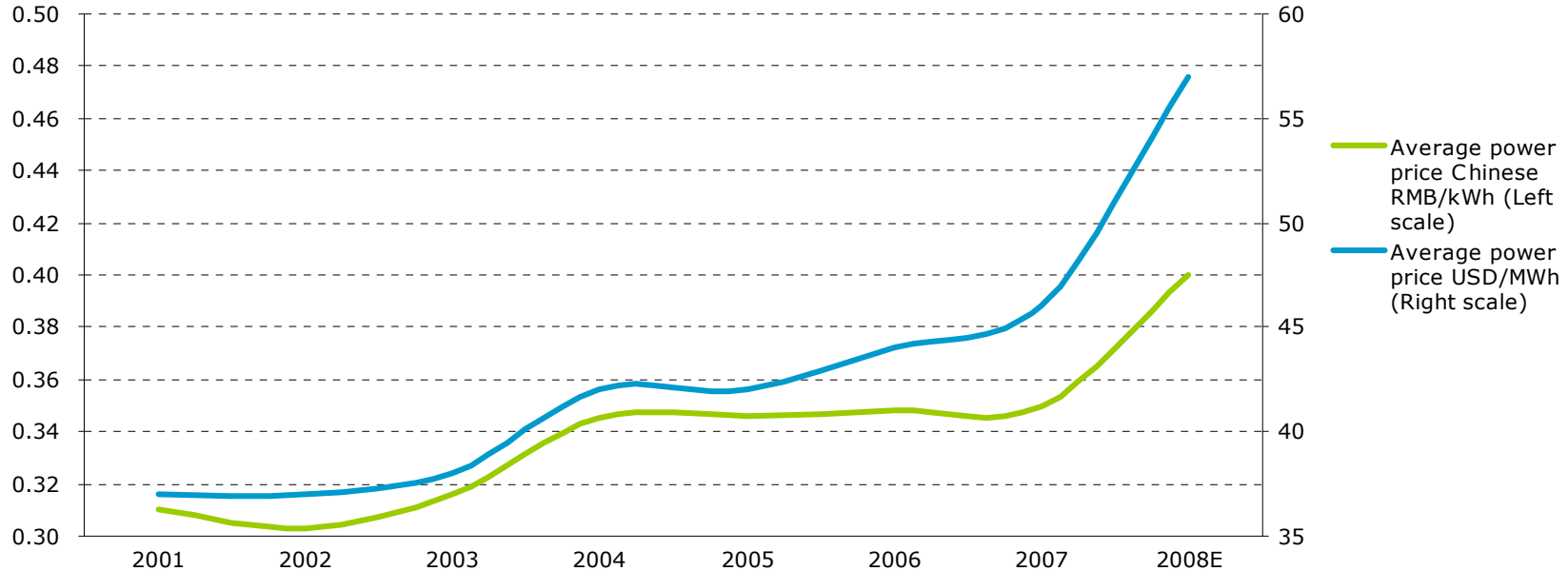
* Assume 2.5 tonnes bauxite to produce 1 tonne alumina

China: increasingly dependant on import of energy



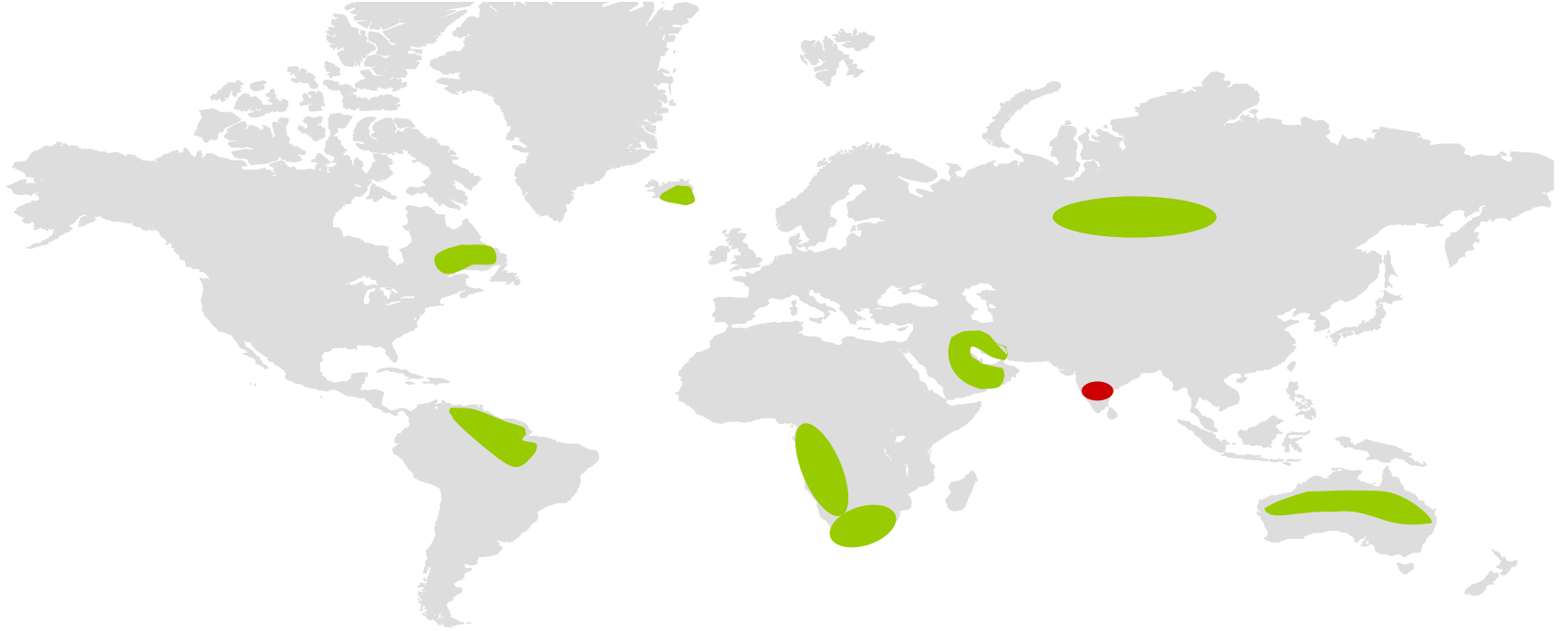
Source: IEA-World Energy Outlook 2007 Reference Case

Strong increase in power price to the aluminium industry in China since 2002



Source: Antaika 2008

Regions with available and competitive energy resources getting fewer



New investments: complex and expensive



Very long lead times for projects outside China

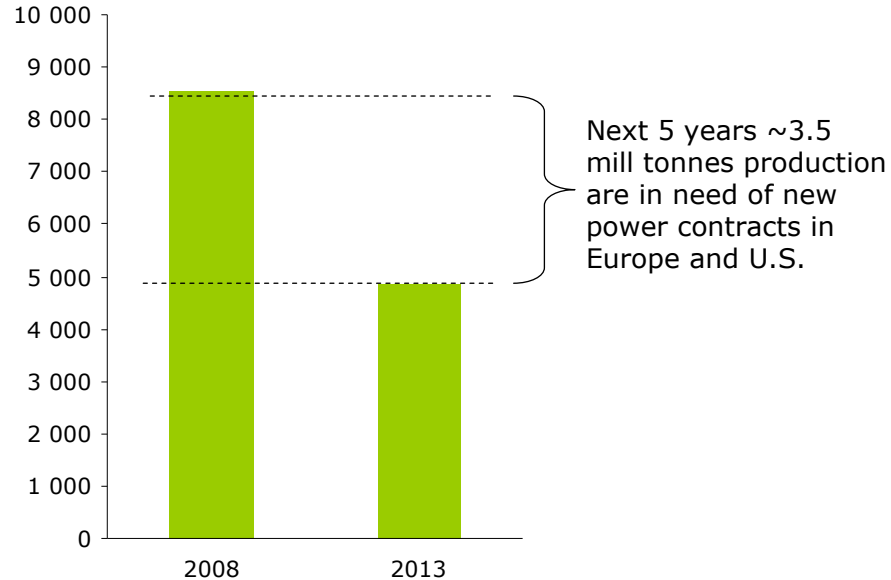
- Minimum 5-7 years for greenfield aluminium projects, more for alumina projects

Increase in construction cost > 50 % over last 4 – 5 years

- Smelters, alumina plants, power plants

Power contracts in U.S. and Europe expire

Production in Europe/U.S. (1 000 tonnes)
covered by existing power contracts



Source CRU / Hydro: Contracts expiring in USA and Europe.

- Current avg. power price (CRU) for this capacity is ~50 USD/MWh in 2008
- The corresponding est. avg. market price H1 2008 was ~90 USD/MWh
- Example of potential effects: Facing the market power prices would increase the avg. cash operating cost with 500-600 USD/tonne for the ~3.5 mill tonnes capacity
- Positive support for LME

Climate policies – effects on aluminium

Demand-effect

- Changed semi's and end-product prices
 - Aluminium vs. steel and plastics when CO₂ emissions get a price tag
- Regulatory measures

Supply – effects on production cost and long-term prices

- Cost per tonne CO₂ increases over time
 - Direct carbon emissions in electrolysis process
 - Power cost (indirect effects)
 - Regional differences
- Effect on location of new capacity



Potential CO₂ effects on demand



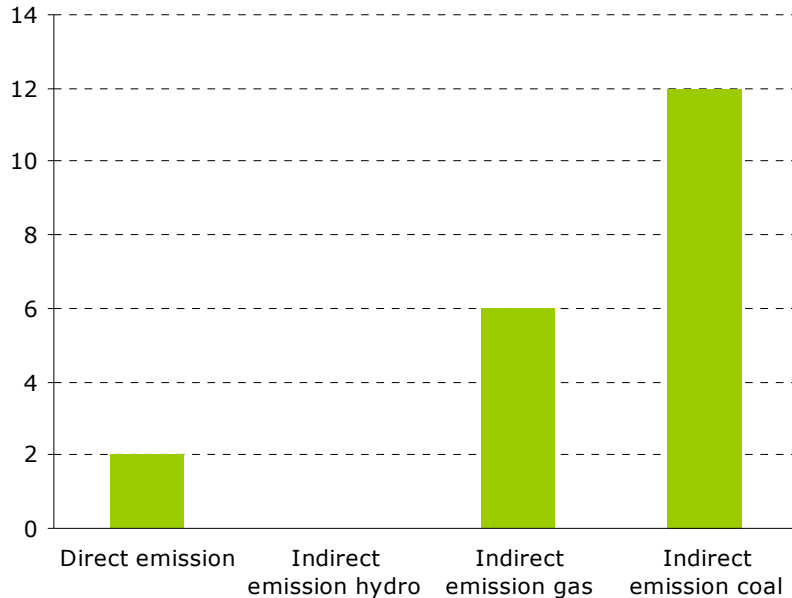
	Price	Technical performance Customer preferences	Regulation
Automotive	Neutral	Neutral	Opportunity (top) / Threat (bottom)
Other transportation*	Neutral	Neutral	Neutral
Construction	Opportunity	Neutral	Opportunity (top) / Threat (bottom)
Electrical	Neutral	Neutral	Neutral
Packaging	Neutral	Threat	Threat
Engineering/ machinery	Neutral	Neutral	Neutral
Consumer durables	Neutral	Neutral	Neutral
Other semis**	Neutral	Neutral	Neutral
Recycling	Opportunity	Opportunity	Opportunity

*Trucks, trains, planes, ships, motorcycle, bicycles. **Including metallurgical products
 Source: McKinsey/Hydro

- Total effect limited
- Automotive: potential for weight reduction – but not the only measure for CO₂ reduction
- Construction: potential to create energy efficient building solutions – but competes with alternative materials
- Packaging: currently difficult to collect and recycle
- Recycling: Properties and low energy consumption creates comparative advantages

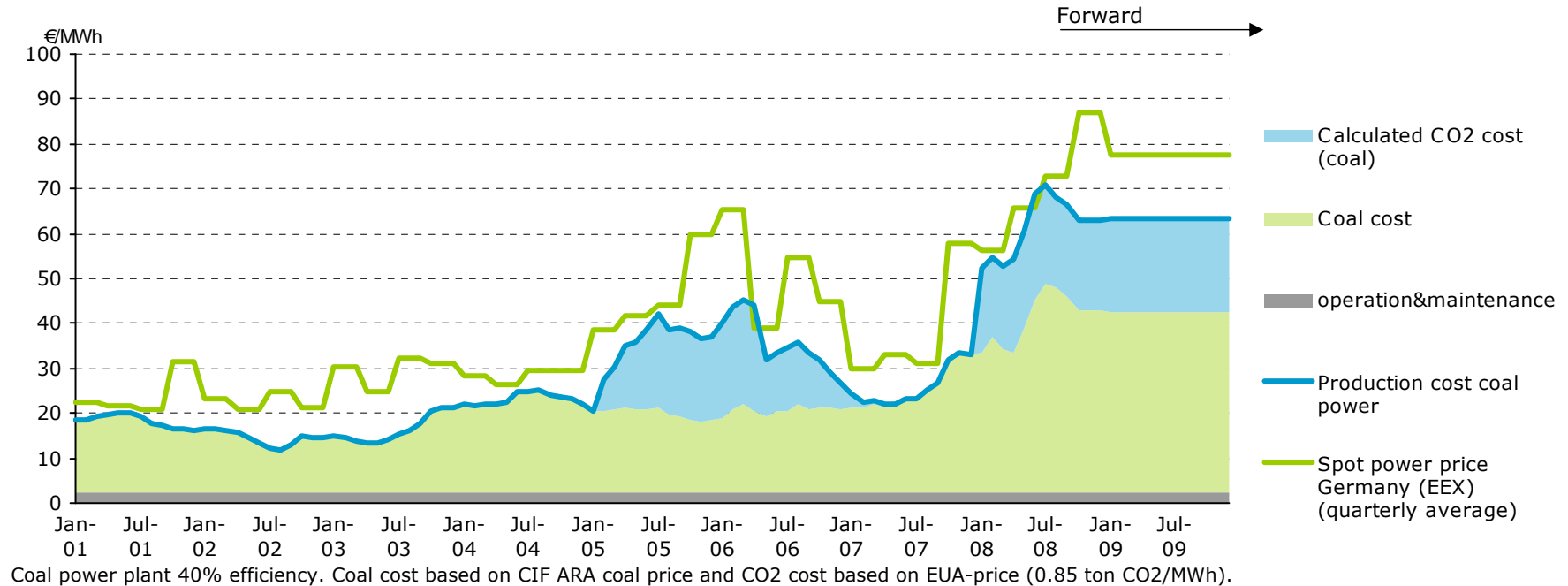
CO₂ emission trading systems impact the production cost for primary aluminium

Tonne CO₂ per tonne aluminium produced



- Direct emissions from the smelting process
- Indirect emissions from power generation needed to produce aluminium
- Future price for CO₂ emissions at a ~40 USD/tonne level
 - 80 USD/tonne direct emission cost
 - 0-500 USD/tonne indirect emission cost, dependent on power source and power market

The indirect effect from CO₂-cost has been substantial in Europe

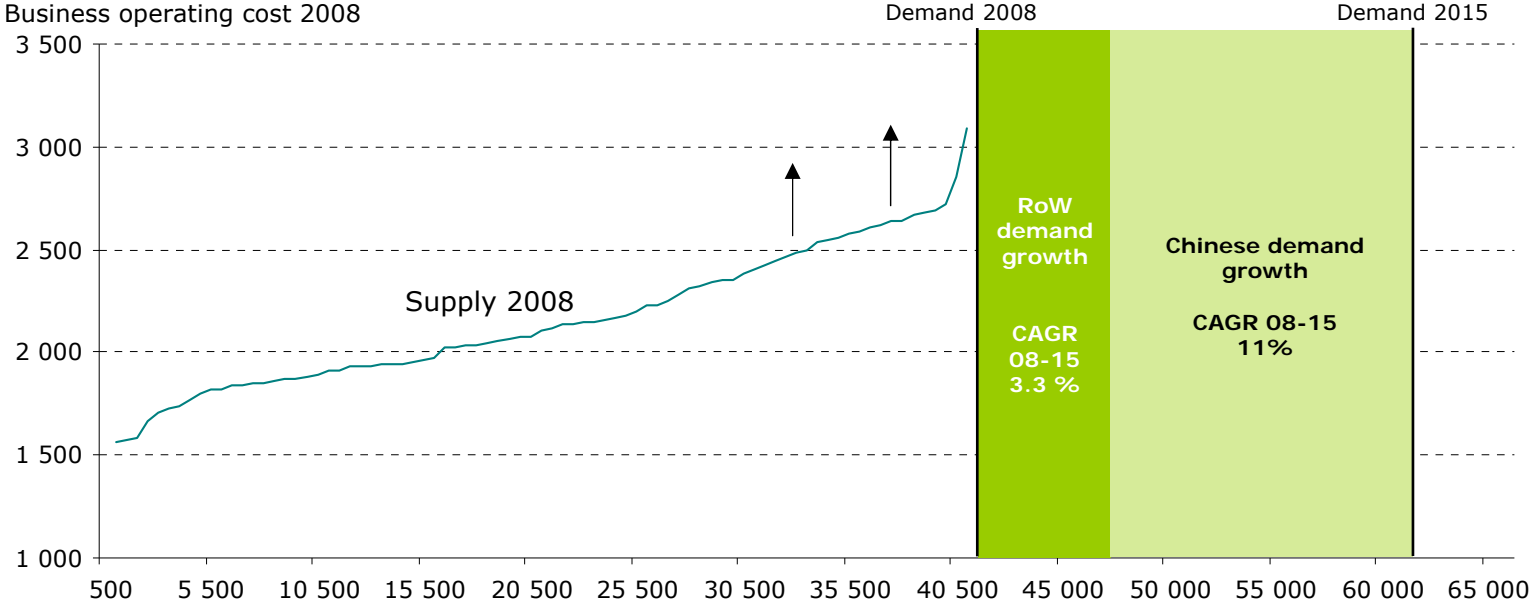


Global introduction of CO₂ emission trading systems under development

Region		2008 - 2012	2013 - 2020	2020 - 2030	2030 - 2050
EU, EEA	Direct	Outside scope	Compensation	Compensation gradually reduced?	
	Indirect	No compensation	Compensation?		
Australia/NZ	Direct		Compensation		
	Indirect				
US, Canada	Direct		Compensation?		
	Indirect		Compensation?		

Russia, Middle East, China expected to introduce CO₂ measures in the 2020-30 period

Summing up



Source: CRU/Hydro



Summing up

Considerable new smelter capacity needed

- Takes more time - high energy and construction costs drive full costs for new capacity
- Cost for new bauxite-, alumina- and power capacity also increasing

Most of existing capacity will need to be in production to meet demand

- Higher delivered cost at expiry of power contracts, also due to CO₂-cost



Demand growth and cost development support strong metal prices



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