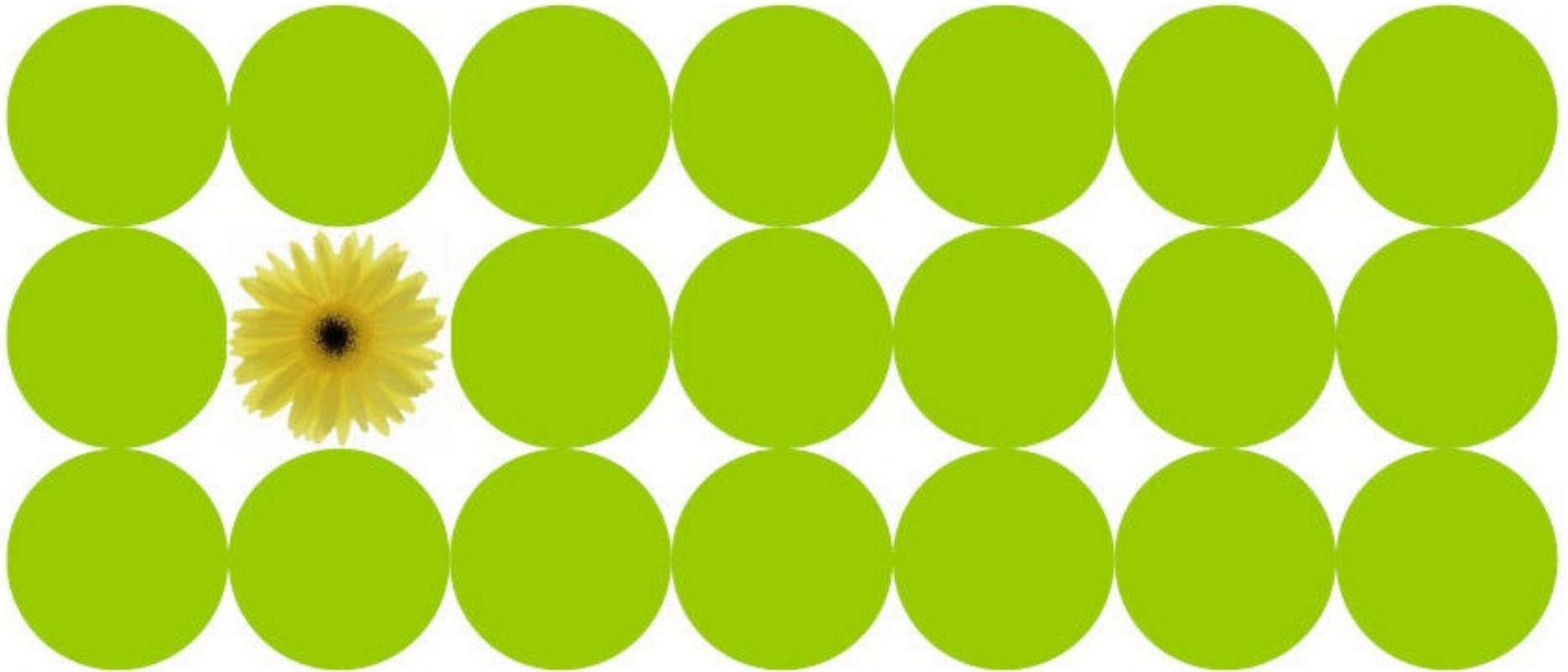


Hydro and the future of the Nordic market

Aluminium as an energy play and key balancer in the Nordic power market



Arvid Moss, Executive Vice President and Head of Energy and Corporate Business Development
Nordic Energy Summit, March 28, 2012

1

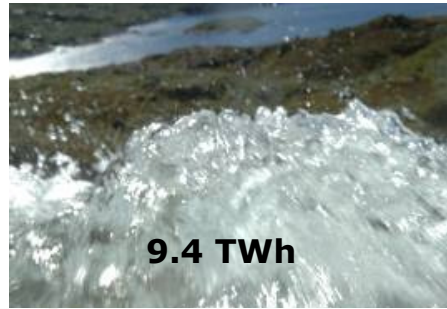
Hydro's new platform

Attractively positioned, global reach

Bauxite & alumina



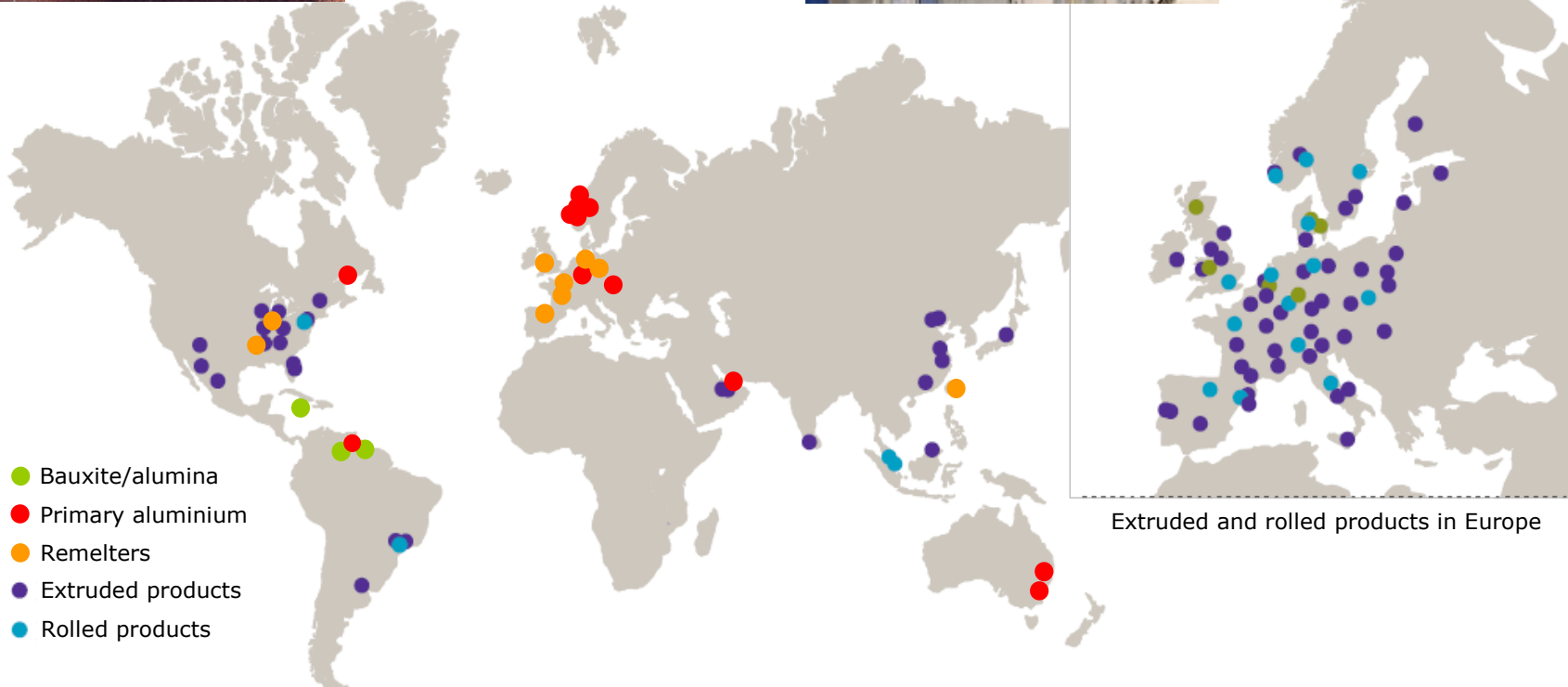
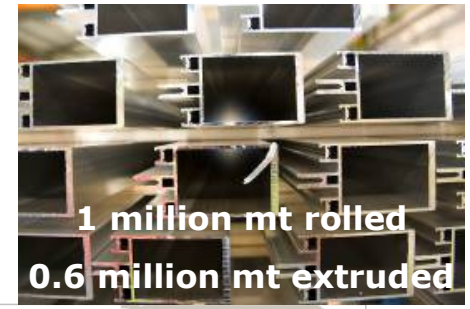
Energy



Metal products



Fabricated products



*In metal equivalents, 100% of volumes that are fully consolidated

Significant portfolio measures

Acquisition of Vale's aluminium assets



Qatalum producing at 600 000 mtpy

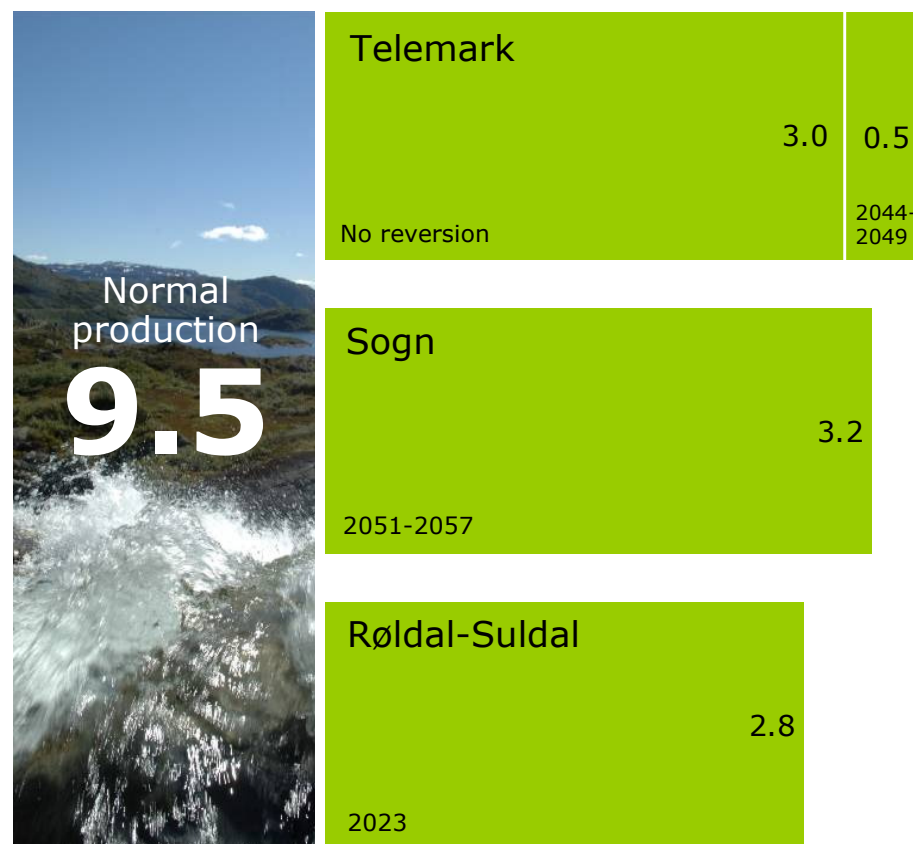


Substantial values in long-term assets in Norway

- Stable and solid cash generation
 - Indicative annual EBITDA NOK 1.6 – 1.8 billion
- Hydro's power balance, normal year

• Normal production	~9.5 TWh
• Sourcing on long-term contracts	~7.0 TWh
• Consumption in Primary Metal*	~12.5 TWh
• Contract sales and concession power	~1.0 TWh
• Spot sales	~3.0 TWh
- Value enhancement potential
 - Growth opportunities in Norway
 - Holsbru project to add 84 GWh from 2012
 - Optimization of power value in market, and in cooperation with smelters

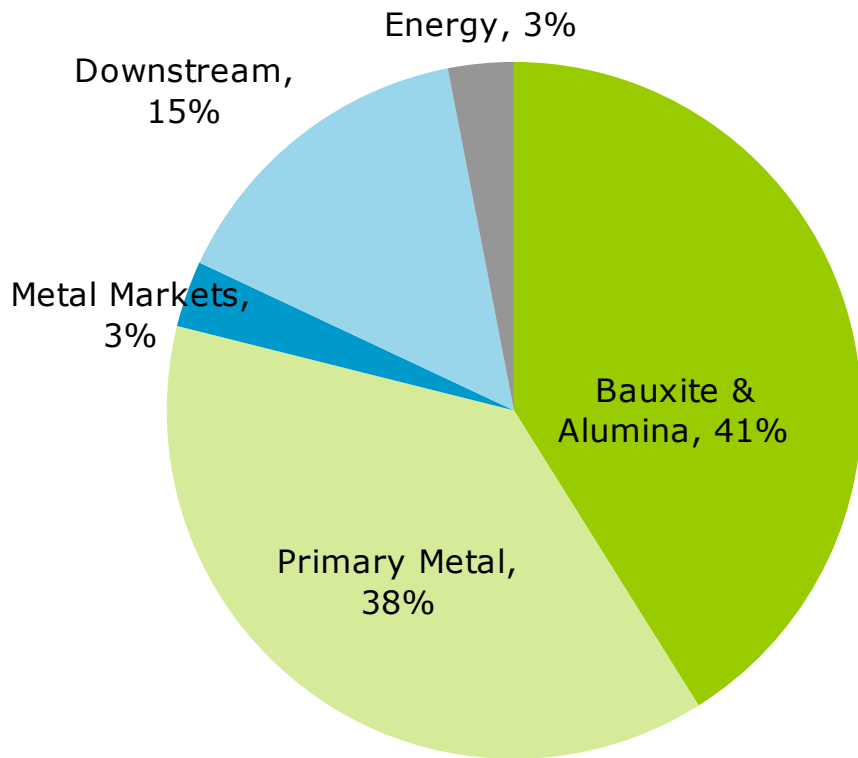
Power production capacity (TWh)
per region and reversion year



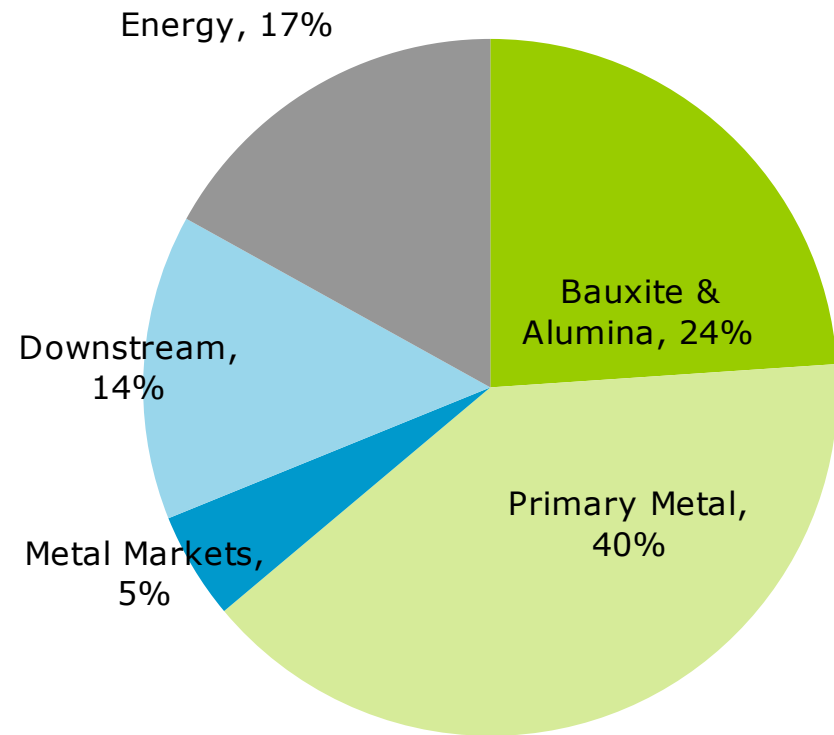
* Including Sunndal 3 line currently curtailed

Upstream focus

Capital employed¹



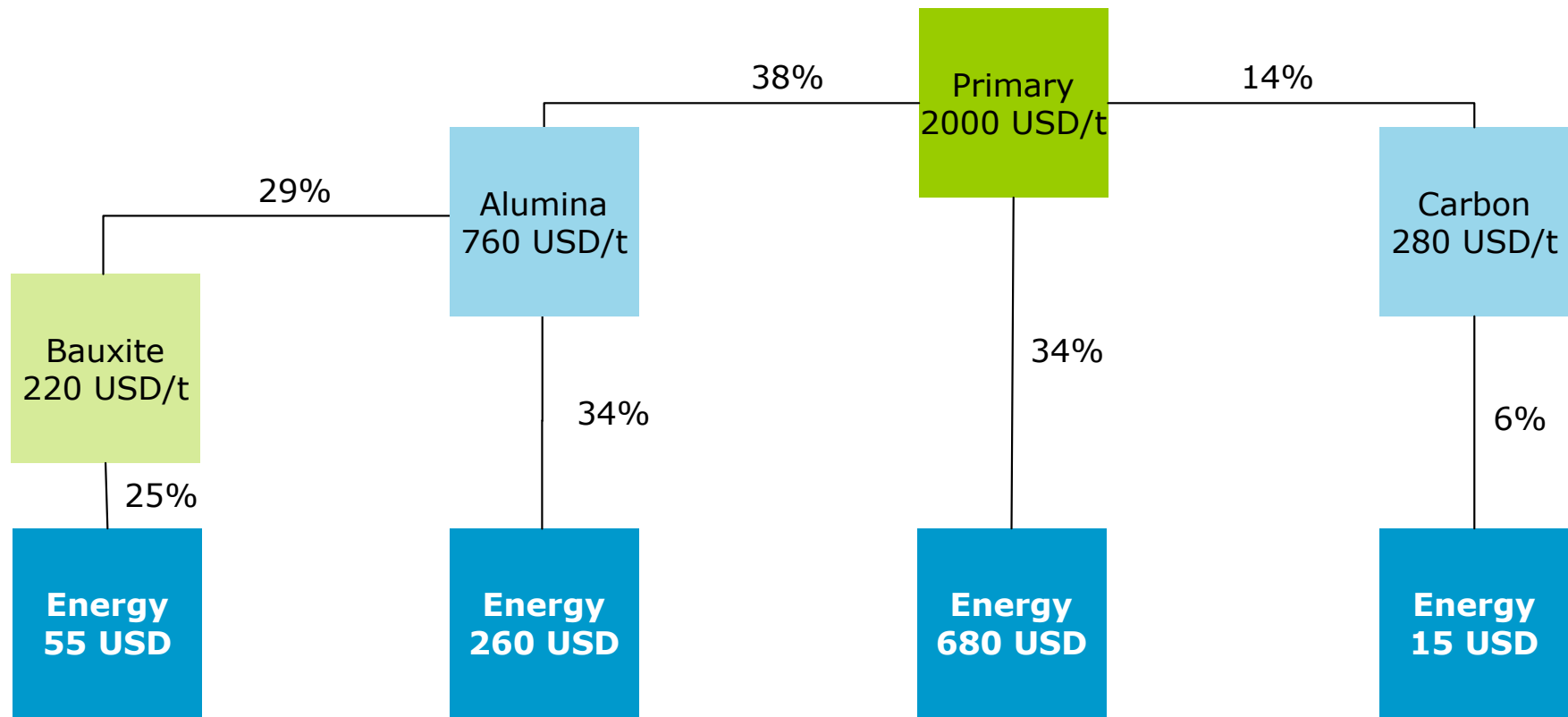
2011 EBITDA²



1) Q4 2011, graph excludes NOK 7.9 billion in negative capital employed in Other and eliminations

2) Pro forma, graph excludes NOK 341 million in negative EBITDA from Other and Eliminations

Aluminium is an energy play



Total energy cost: 1010 USD ~50 %

Indicative figures
Source: CRU, Hydro Analysis



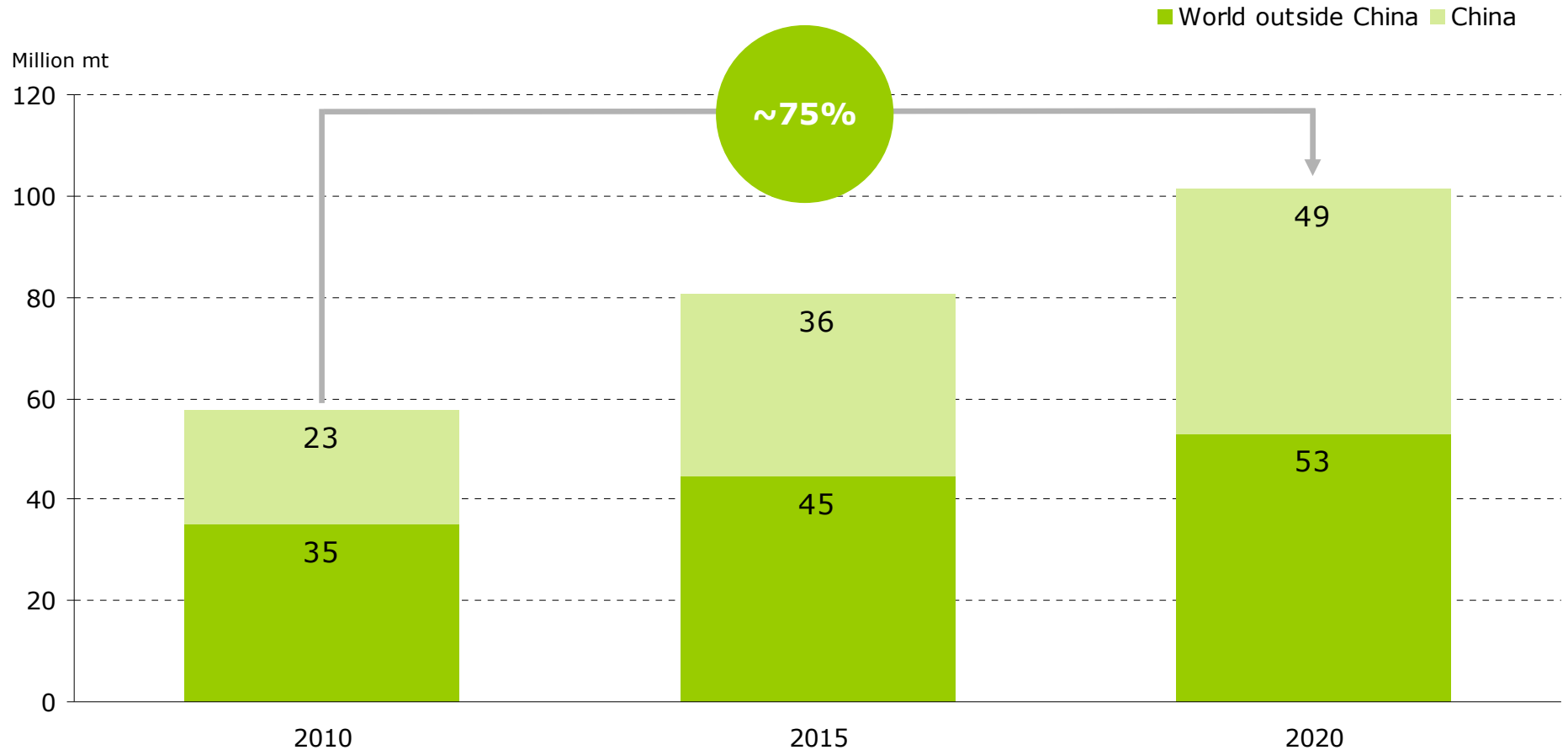
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A challenging 2012

Long-term outlook remains encouraging

Aluminium remains the metal of the future

Demand for semis

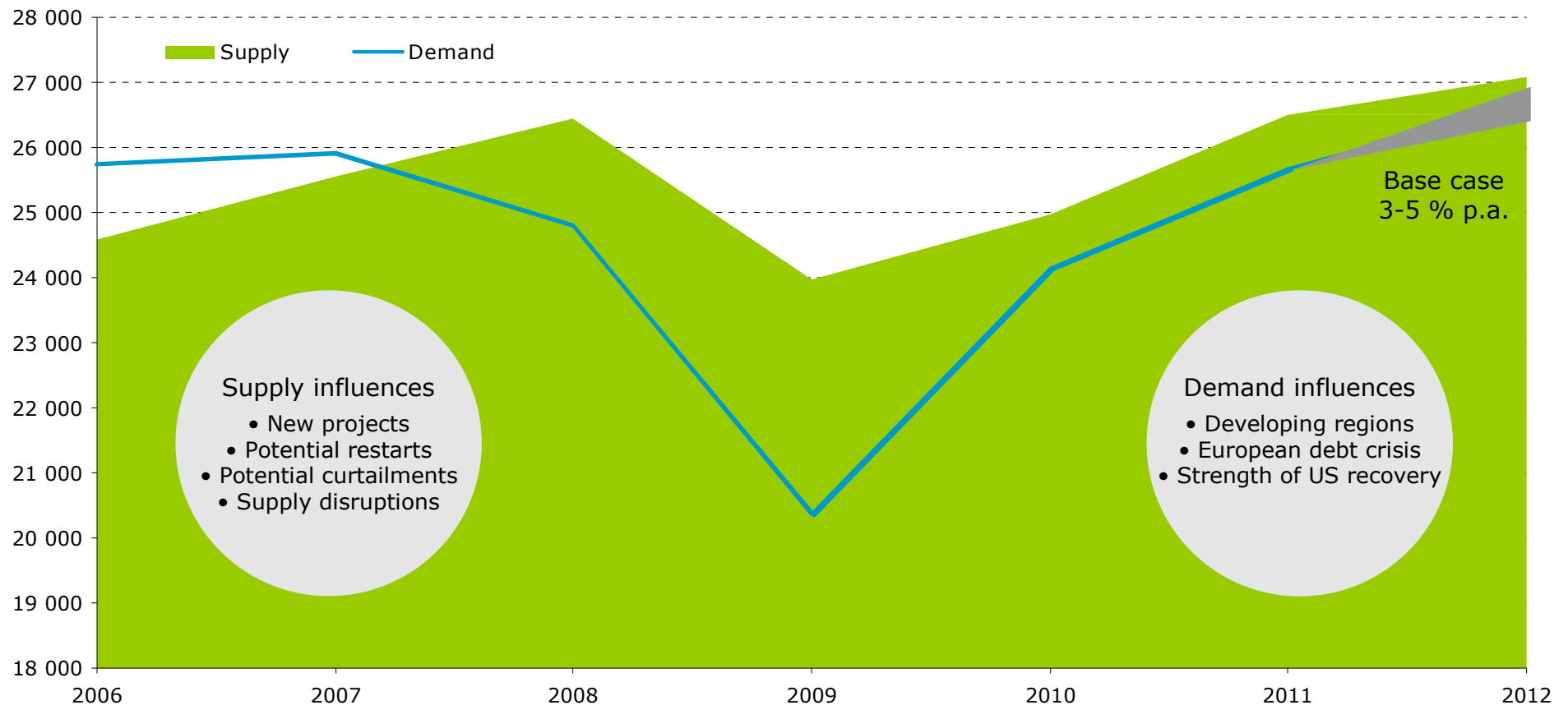


Source: CRU

Healthy demand growth expected

Manageable supply/demand balance

World excluding China, thousand mt

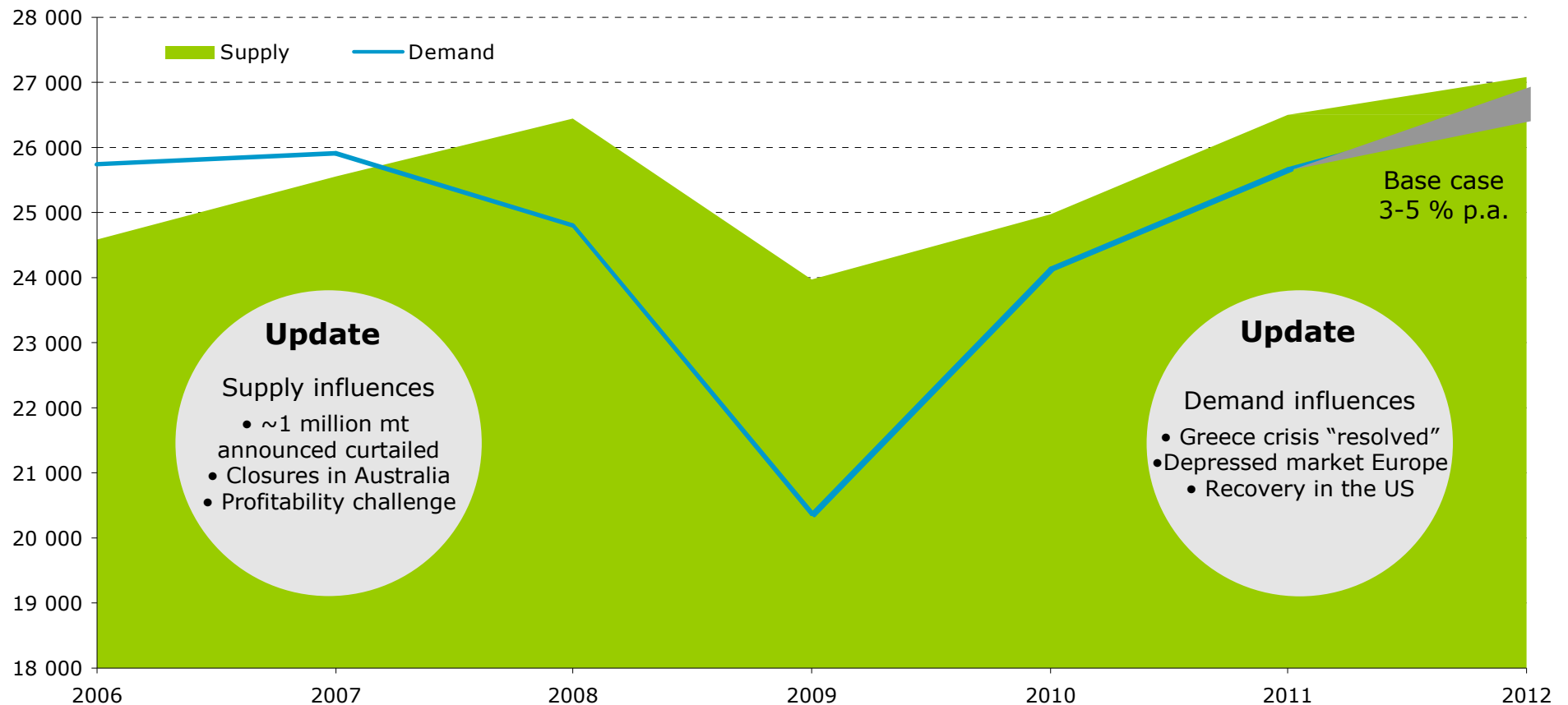


Source: CRU/Hydro

Healthy demand growth expected

Manageable supply/demand balance

World excluding China, thousand mt

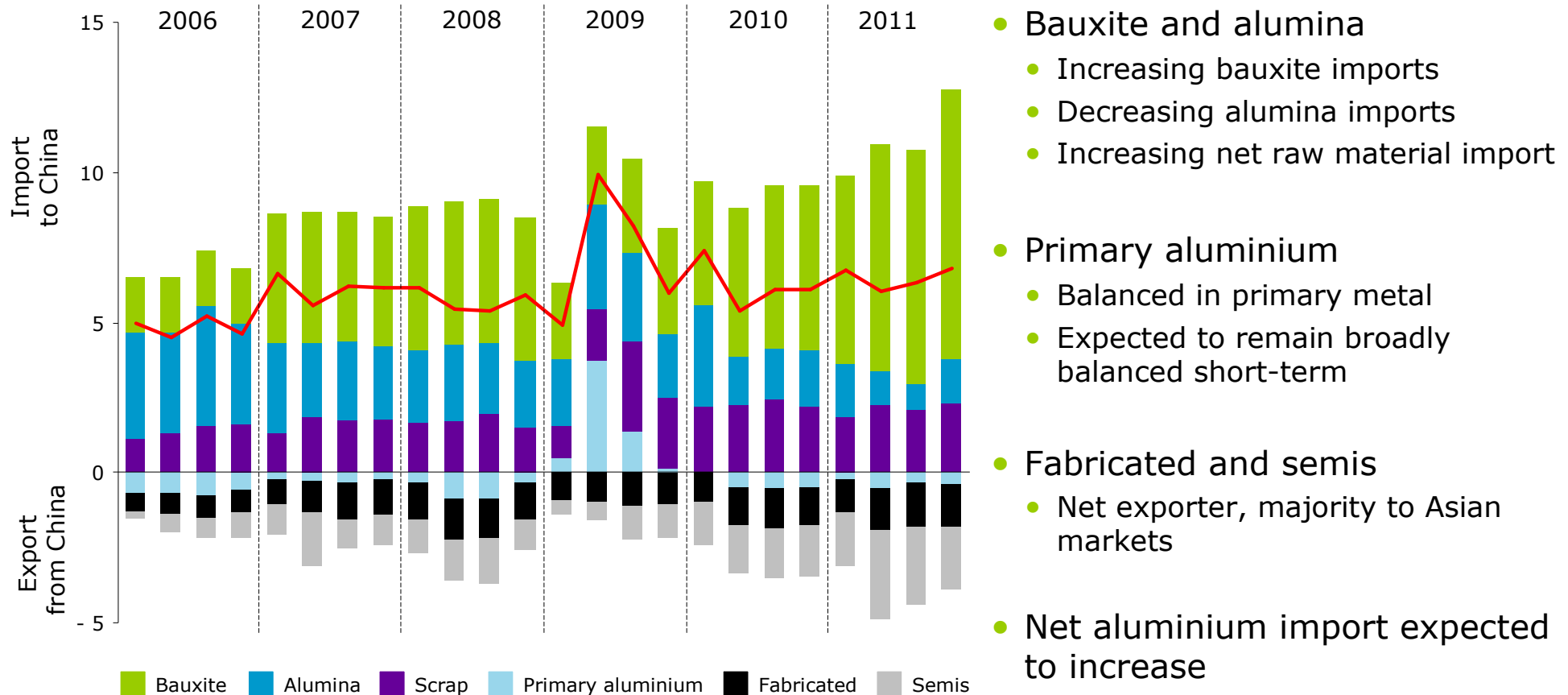


Source: CRU/Hydro

China a significant net importer

In terms of aluminium equivalents across the total value chain

Annualized aluminium equivalents*, million mt



Source: CRU/Antaika/Hydro * Bauxite/alumina to aluminium conversion factor: 5.4/1.925



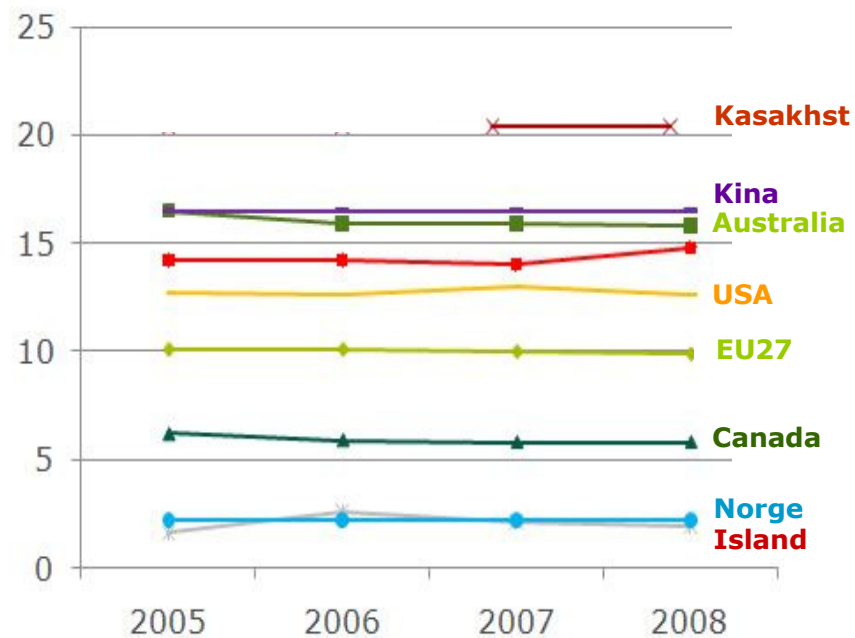
3

Hydro and the future of the Nordic power market

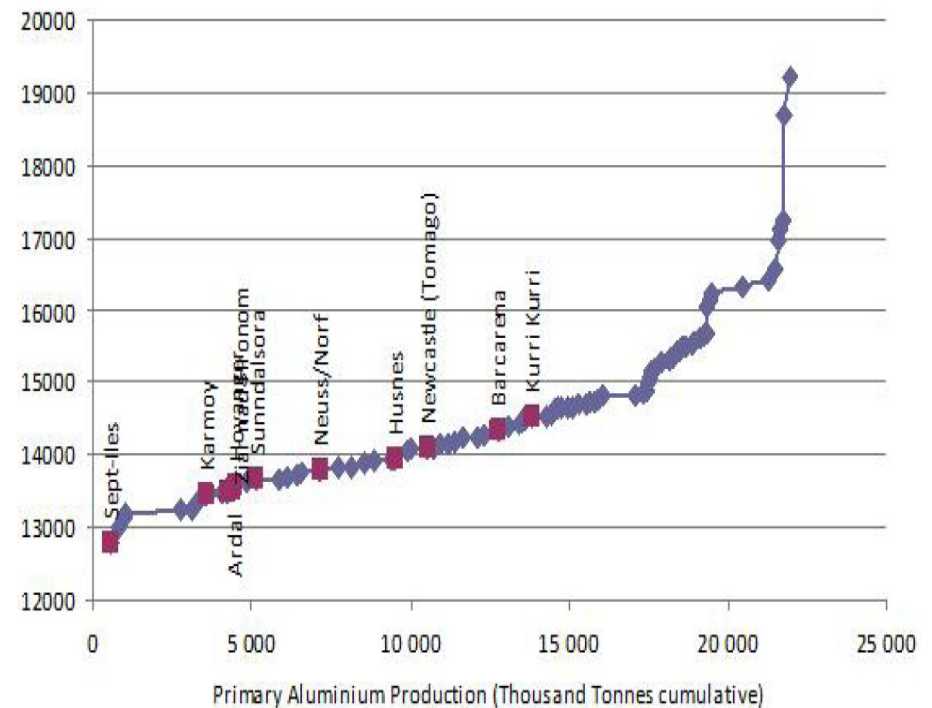
Energy and climate in a global perspective

Carbon footprint should become key location factor in the future

In tonnes CO₂-equivalents per tonne aluminium



2010 IAI Energy Survey
Primary Aluminium Smelting - Electrical Energy Consumption (DC)
All Technologies



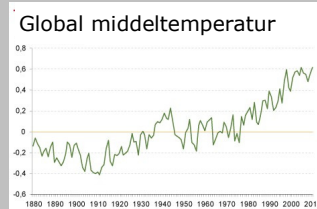
Source: Institut für angewandte Ökologie (Öko-institut e.V.), 12.5.2011

Nordics turn towards considerable surplus

4 key developments

Consequences

Climate change
Warmer, wetter, wilder—
more hydropower, less
consumption for heating



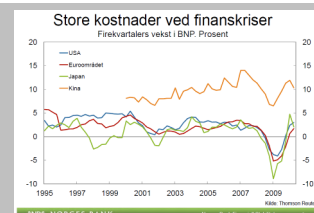
New renewables
Green certificates result
in increased production
from wind and hydro



**Increased nuclear power
production in Sweden and
Finland**



**Energy-efficiency measures
and weaker economic growth
rate**



**Considerable surplus in
the Nordic power market**



Drop in power prices

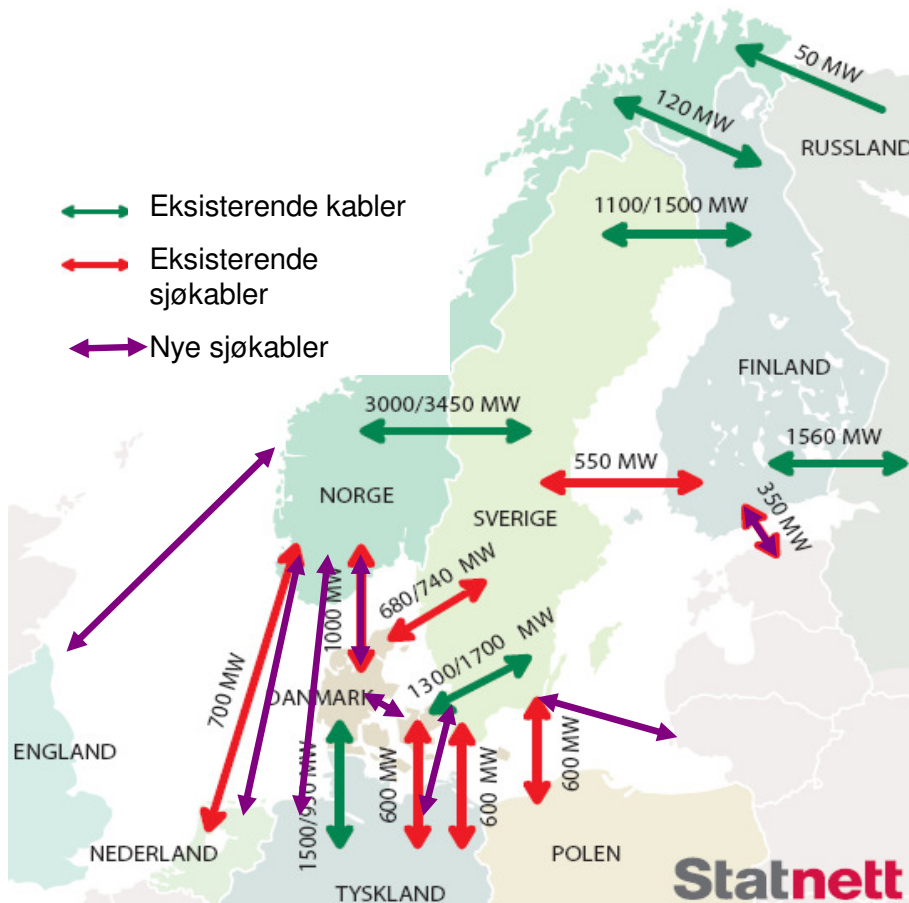


**Less industrial activity
and bigger drop in
power prices
vs
more aluminium
production and smaller
fall in power prices**

Interconnectors are no one-way street...

Power flows both ways in accordance with supply and demand

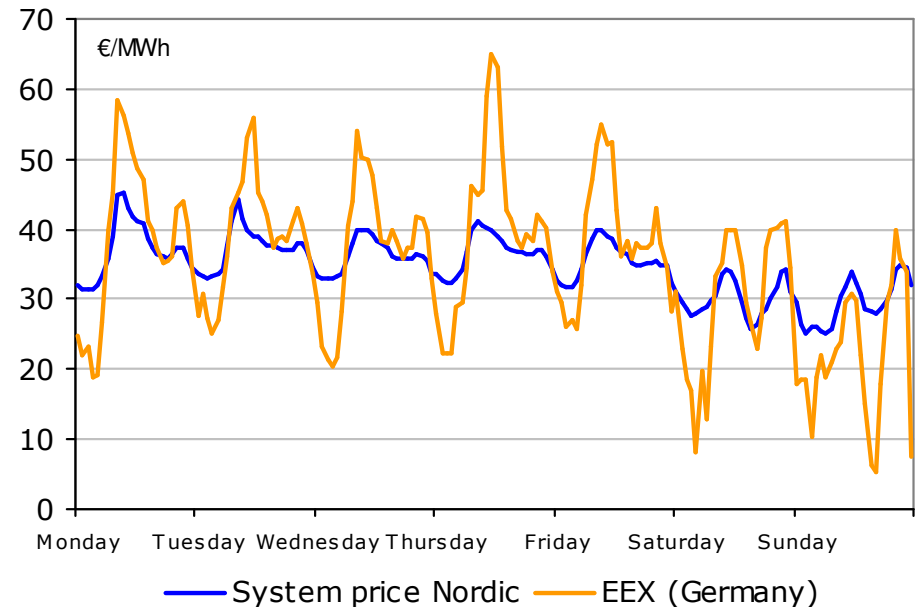
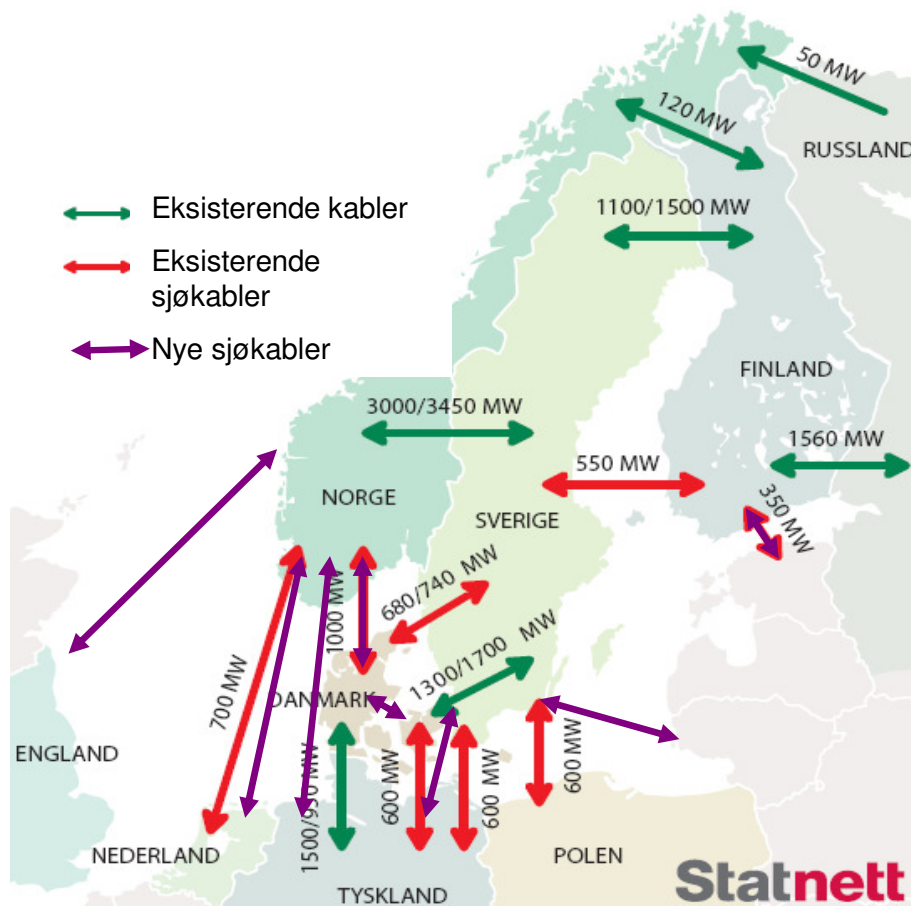
Considerable focus on interconnectors...



Interconnectors are no one-way street...

Power flows both ways in accordance with supply and demand

Considerable focus on interconnectors... ...but power will flow both ways

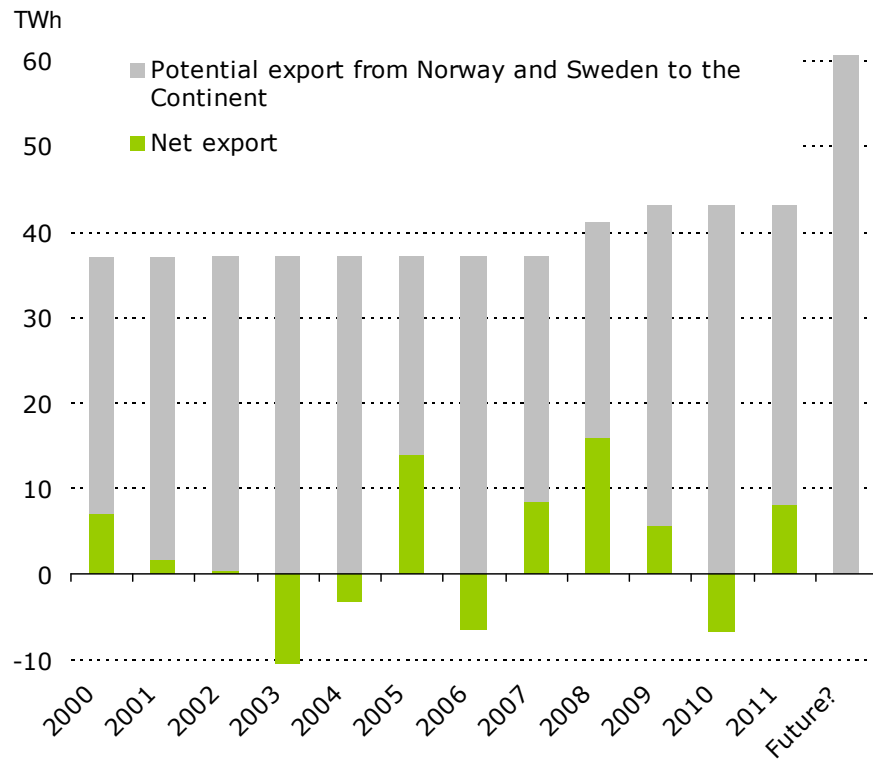


- New interconnectors will give Europe increased effect stability, but not solve the Nordic oversupply situation
 - Day-time power flow to Continental Europe
 - Night-time flow back to Nordic market
- Low night-time prices at Continent due to nuclear and coal production combined with low demand
- Only reduced import and increased export can push more energy out of the Nordics

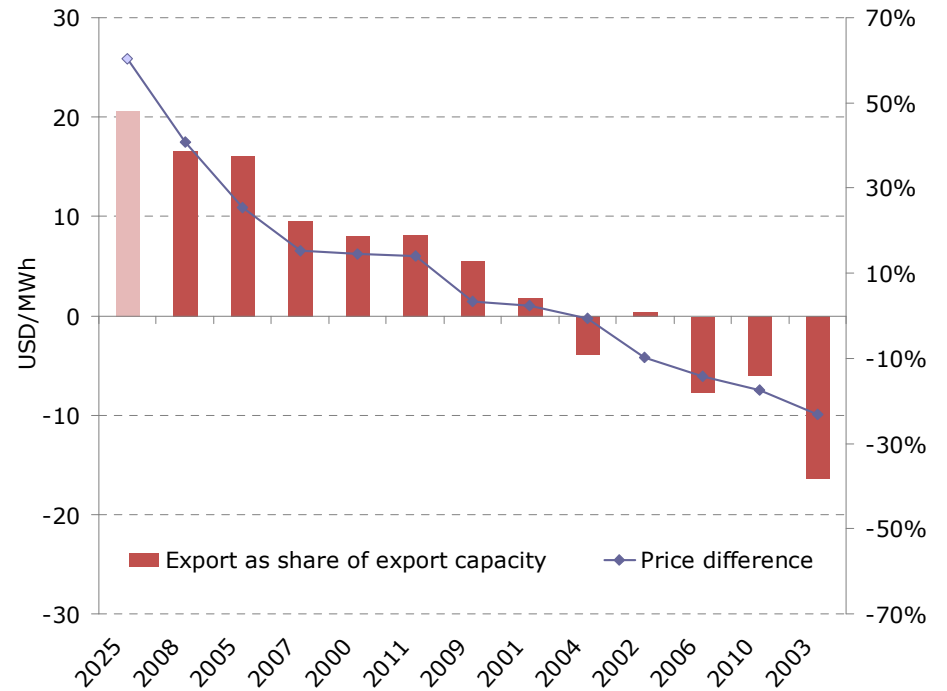
Considerable Nordic power export - and import

The net effect is limited

Net export from Norway and Sweden, and total export capacity to continental Europe



Price difference between Norway and Germany, and export from Norway and Sweden in % of capacity



Growing consensus among key stakeholders

'Energy Dialogue', 'Energy Panel', 'Energy Government Report'



Norsk Industri EnergiNorge

Industri og kraft:
**Felles plattform
for økt verdiskaping**

Foto: Kristian Haansen, Norsk Industri



Norge som energinasjon

NHOs Energipanel

NHO

(Foreløpig utgave)

NOU Norges offentlige utredninger 2012: 9

Energiutredningen
Verdiskaping, forsyningsikkerhet og miljø



Foreløpig utgave

Growing consensus among key stakeholders

'Energy Dialogue', 'Energy Panel', 'Energy Government Report'

Norsk Industri EnergiNorge

For more than 100 years, access to renewable energy has contributed towards value creation and represented a competitive advantage for for Norwegian industry and business

The Committee is of the opinion that the energy resources should contribute to welfare and value creation throughout the country also in the future.

Industri og kraft:
**Felles plattform
for økt verdiskaping**

NOU Norges offentlige utredninger 2012:9
NOU
Energiutredningen
Verdiskaping, forsyningsikkerhet og miljø

Word cloud terms: energi, verdiskaping, forsyningsikkerhet, Norge, kraft, industri, produksjon, pris, miljø, energiutredningen, and many others.

Different industries, common cause

Nordic EII's and the energy sector have a joint challenge – and opportunity



Strategy for further value creation

Bauxite & Alumina



- Excellence in operations
- Commercialize
- Expand capacity

Primary Metal



- Reposition
- Keep solid cash flow in current assets
- Expand in first quartile assets

Energy



- Increase value of energy business
- Develop current base
- Global approach to power sourcing

Mid- and downstream



- Adjust capacity and cost base to market
- Continue proven high-end product strategy
- Expand selectively in emerging markets

www.hydro.com