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# Responsible conduct – an integrated part of business

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# Agenda

1. Company overview
2. Aluminium – part of the solution
3. Reducing our energy consumption
4. Helping our customers reduce their energy consumption
5. Reforestation in Brazil  
– our licence to operate
6. And ...
7. Summing up

Pål Kildemo and Kirsten M. Hovi

André Fey



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# Company overview

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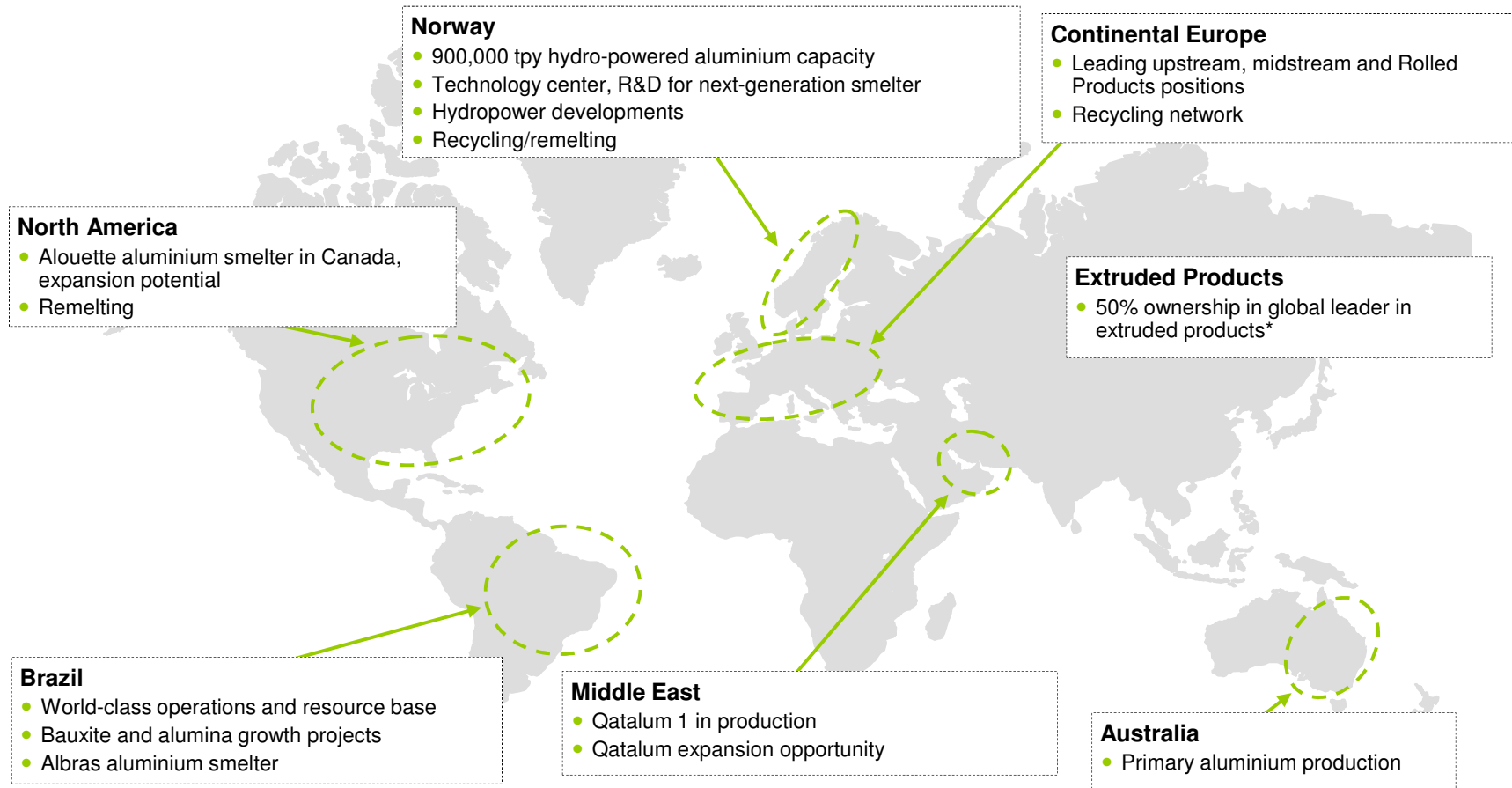
# Resourceful and integrated



- Global provider of aluminium and aluminium products
- Leading businesses along the value chain: energy, raw materials, primary metal products, aluminium components and solutions, recycling
- 22,000 employees in 40 countries. 40,000 customers in 110 countries
- Annual revenues NOK 64 billion (2012)
- Market cap ~NOK 55 billion (May 2013)
- Annual R&D: NOK 250 million (2012)
- Included on Dow Jones Sustainability Indexes and FTSE4Good

\* Agreement with Orkla to merge Extruded Products with Sapa – pending regulatory approval

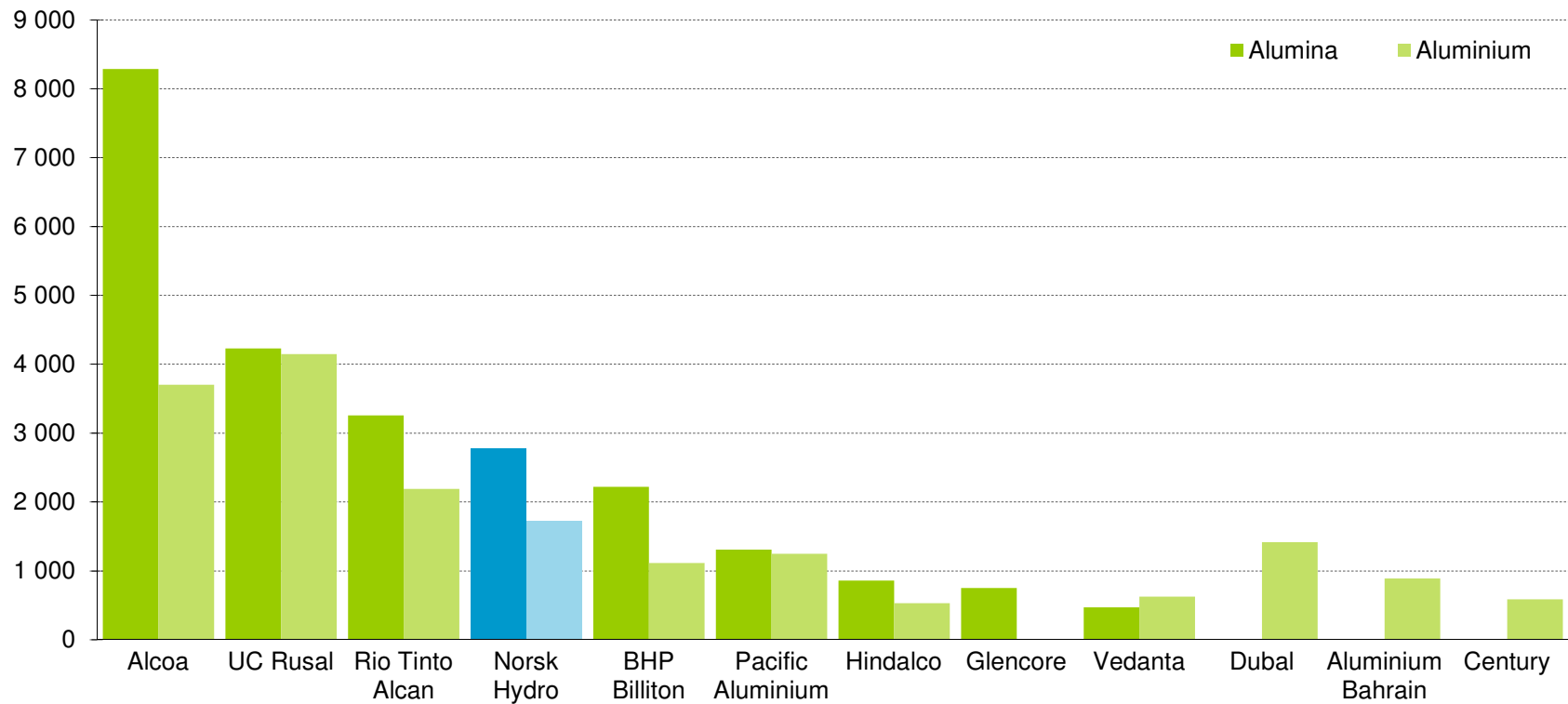
# Attractively positioned, global reach



\* Pending regulatory approval

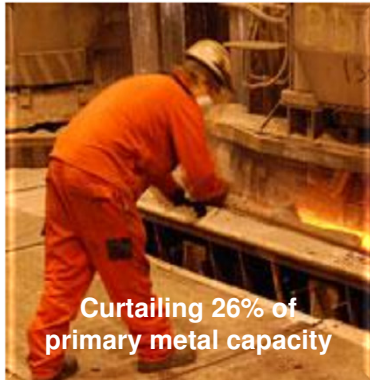
# Hydro – a first tier aluminium company

Production in 2012 in aluminium equivalents excluding China, thousand mt



Source: CRU, Hydro

# We are strengthening our asset base



Curtailing 26% of primary metal capacity

2009



Launching USD 300 program

2010



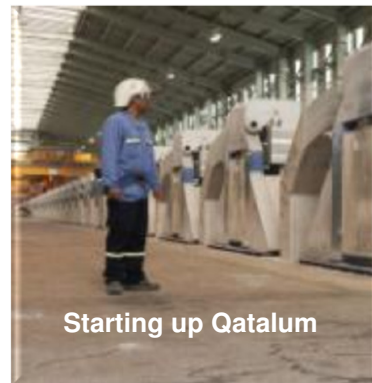
Climb 10

2011



From B to A

2012



Starting up Qatalum



Acquiring bauxite and alumina assets



Announcing SAPA JV

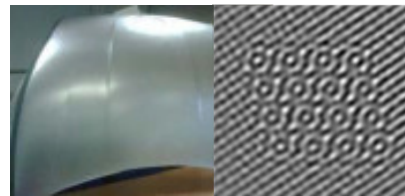
# Innovations in R&D and technology

## Bringing Hydro to technology and industry leadership



### Casting technology

- GC (Gas Cushion) casting technology for extrusion ingot
- SIR/RAM: Melt refining units
- Casting reference center, Sunndal (1999)
- Flexible molds for sheet ingot



### Alloy development

- High-speed alloys for building applications
- 6xxx alloys for high formability BIW automotive applications
- Heat transfer alloys (long-life)
- Recycling Friendly Alloys for lacquered sheet
- 1xxx alloys for litho



### HAL300 implementation

- Sunndal Su4 (2003)
- 13.3 kWh/kg Al
- 1.6 kg CO<sub>2</sub>/kg Al
- Qatalum built on HAL300 and Hydro casting technology (2010)



### Bauxite pipeline

- World's first and only bauxite pipeline



### Electrolysis cells

- Årdal pilot plant
- HAL4e: 12.5 kWh/kg Al
- HALsee: <12 kWh/kg Al

1985

1990

1995

2000

2005

2010

### Litho line, Grevenbroich

Global market leadership; volume and quality



### Extrusion die technology

- High-productivity hollow dies: 30-50% productivity increase
- Multi-port extrusion dies



### Process simulation

- Alsim
- Alstruc
- Rose-Rolll



### Automotive line/litho expansion, Grevenbroich

Market entry in automotive strip



### Energy-efficient buildings

- Bellenberg, DE: Energy-positive pilot building
- Other HBS innovations



### New product applications

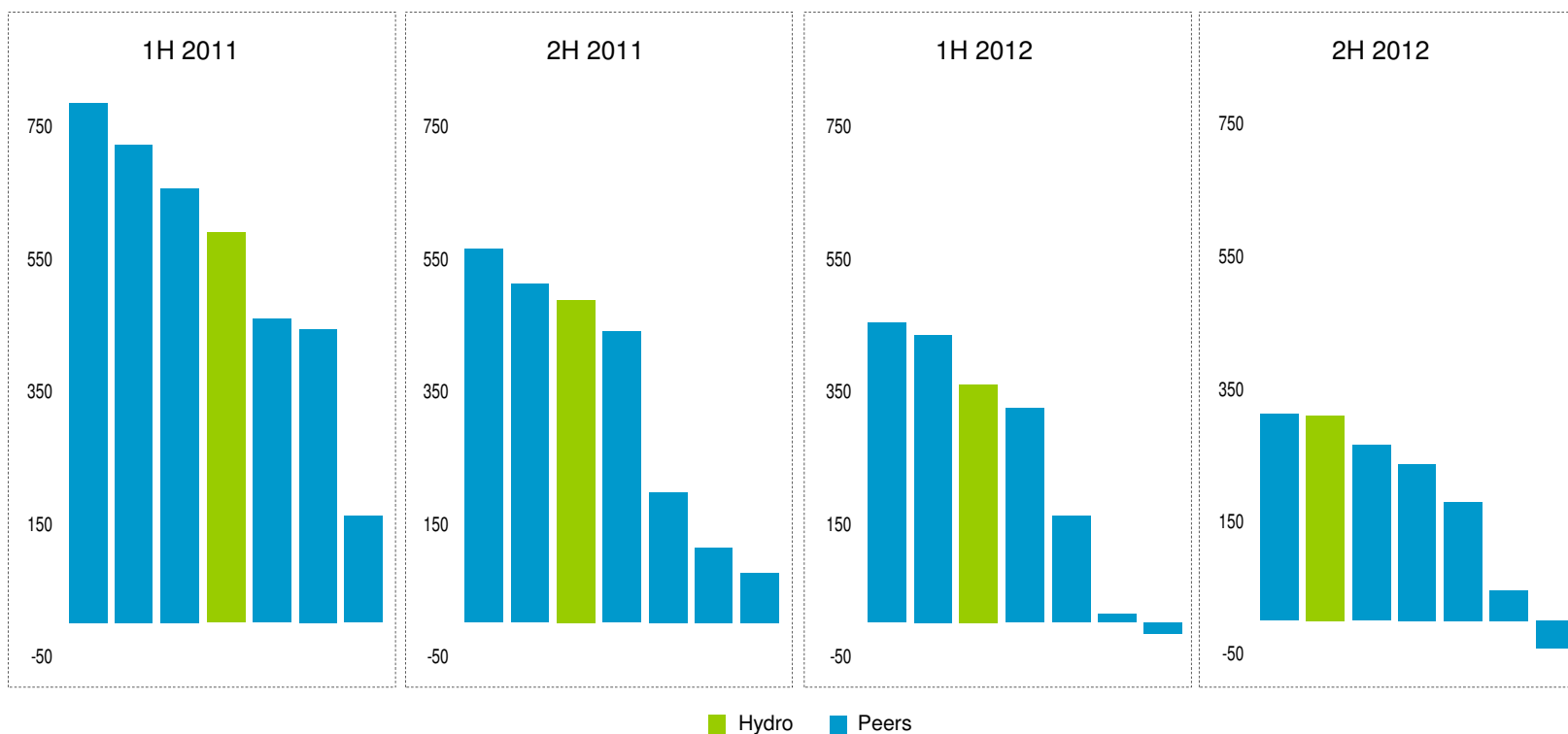
- HVAC industry accepts Al tubes in their products
- New automotive applications
- Entry solar thermal market





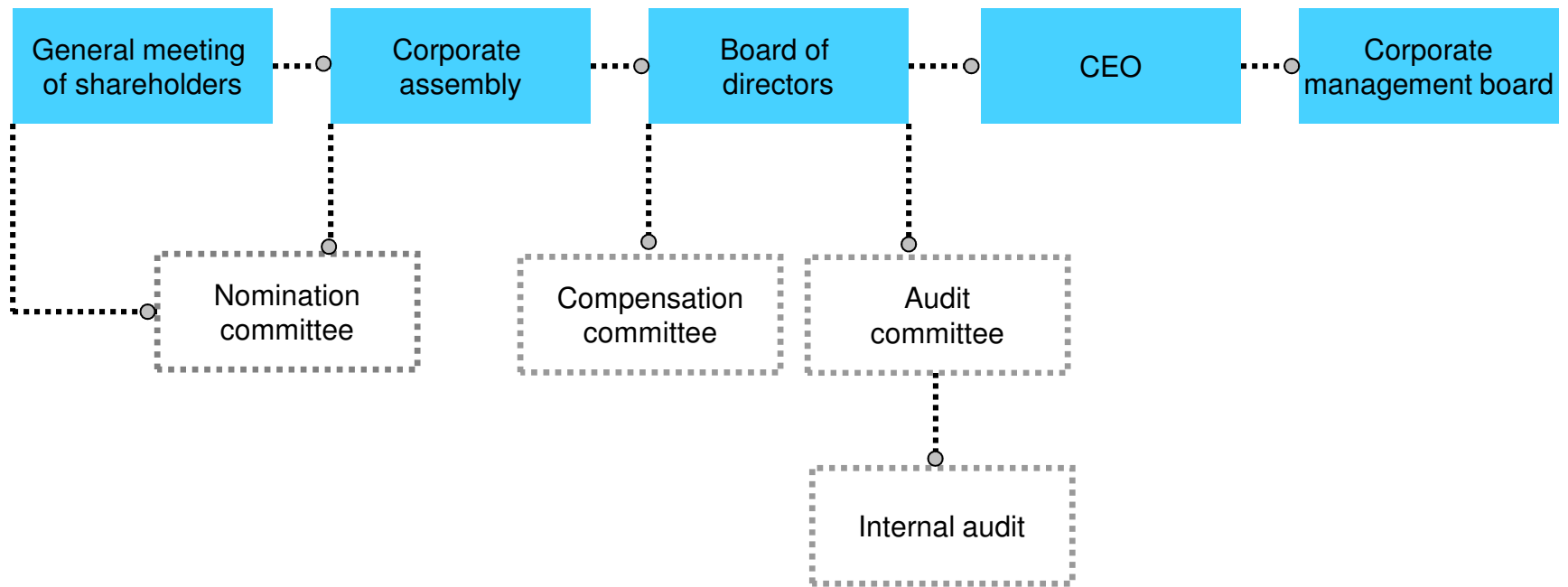
# Ambitious improvement programs delivering results

Underlying EBITDA per mt in USD for respective primary metal divisions



All figures based on public accounting data, not verified by Hydro. Data not adjusted for different accounting principles and non-specified underlying items. Hydro makes no representation as to the accuracy or completeness of such information. The analyses are based on assumptions subject to uncertainty and therefore intended only for general comparisons across companies and should not be used to support any individual investment decision. All results are provided for informational purposes only.

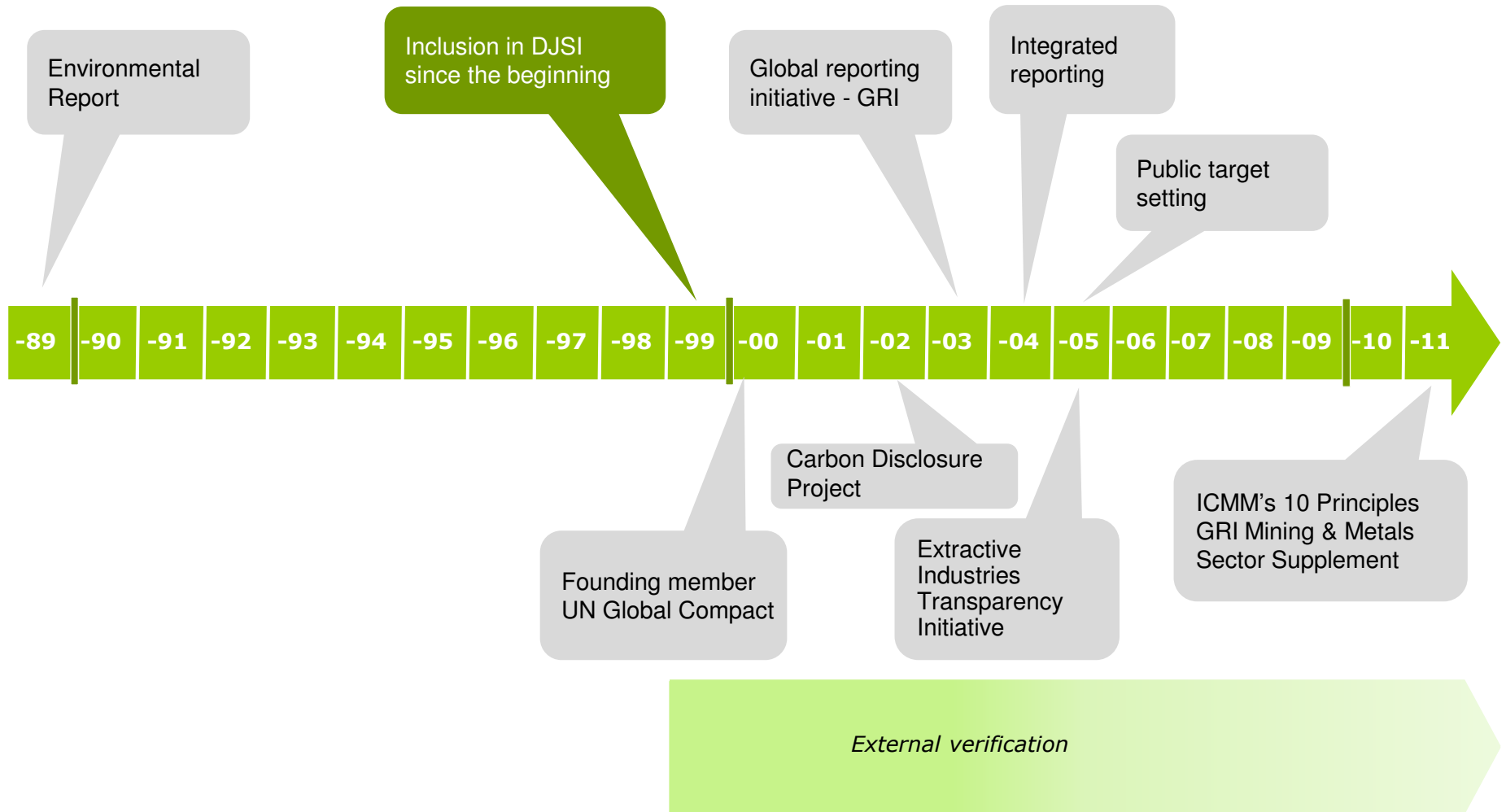
# Governance structure following Norwegian corporate law



# Corporate governance

- All corporate directives are based on The Hydro Way
  - Hydro's Code of Conduct
    - Valid to all employees and board members
    - Extensive training in the code and Hydro's integrity program
  - Hydro's People Policy
  - Hydro's Social Responsibility
  - Hydro's HSE Policy
- Hydro follows the Norwegian code of corporate governance of October 2012
  - Two deviations related to section 6, General meeting of shareholders:
    - The entire board of directors has generally not participated
    - The general meeting is chaired by the chair of the corporate assembly – as stated in Hydro's articles of association
  - One deviation related to section 14, Takeovers:
    - The board of directors has chosen not to prepare explicitly formulated general principles for handling takeover bids
    - The Norwegian state owns 34.26 percent of the Hydro shares and has clearly expressed a long-term ownership perspective in Hydro

# An early mover



2

Aluminium  
– part of the solution



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# Aluminium – part of the solution



We reduce energy consumption and emissions in our own processes



We develop products and solutions that help our customers reduce energy consumption and emissions



We recycle aluminium using only 5% of the initial energy consumption

# Transforming the way we use energy

<p>Energy efficient, low-emission electrolysis</p>	<p>Lighter vehicles</p>	<p>Zero emission/ Energy surplus buildings</p>	<p>Enhance solar energy growth</p>	<p>Packaging that reduces food waste</p>	<p>Recycling and reusing aluminium</p>
					
<p>Reduce energy consumption, improve cell efficiency, CO2 capture ready cells</p>	<p>Reduce fossil fuel consumption and GHG emissions from cars by making them lighter with use of aluminium</p>	<p>Reduce energy consumption and GHG emissions from buildings</p>	<p>Reduce emissions from fossil fuels by contributing to make solar energy solutions lighter, simpler and cheaper with use of aluminium</p>	<p>Reduce GHG emissions related to food production by conserving and protecting food better in storing and transport, thus reducing food waste</p>	<p>Reduce waste in a world of limited resources by recycling aluminium endlessly</p>

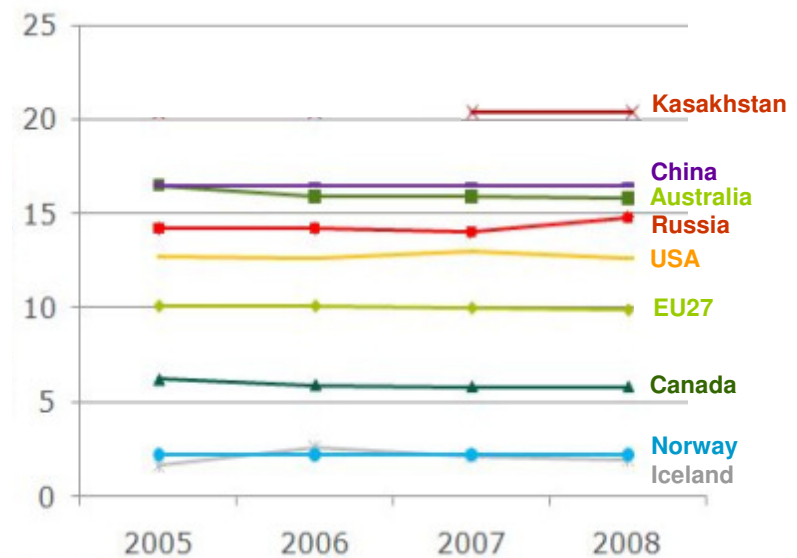
# The world demands more and more aluminium

Half of Hydro's production contributes to net GHG reductions



## Norwegian aluminium in the forefront

Ton CO2 equivalents per ton aluminium



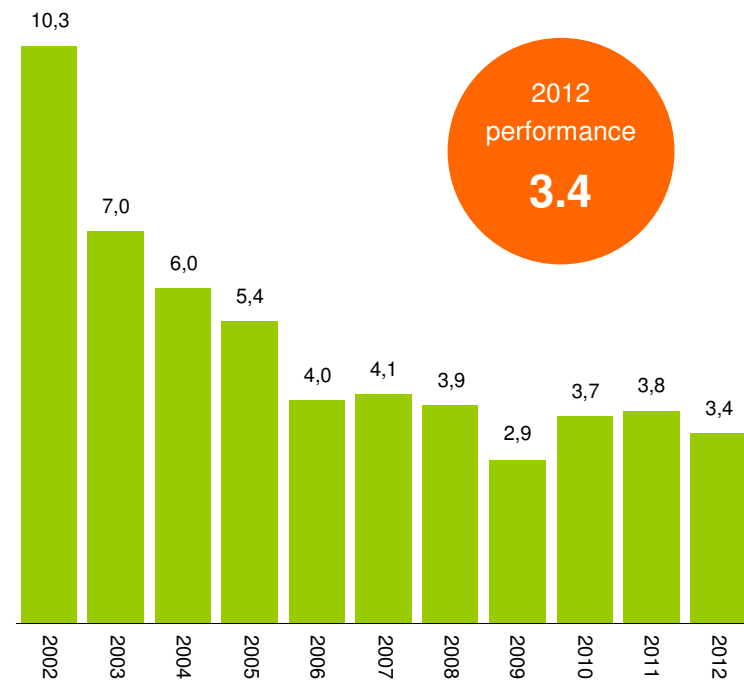
Source: Institut für angewandte Ökologie (Öko-institut e.V.), 12.5.2011



# HSE, CSR and compliance are key components in a performance culture



TRI rate (1 million hours worked)



People

3

Reducing our energy  
consumption

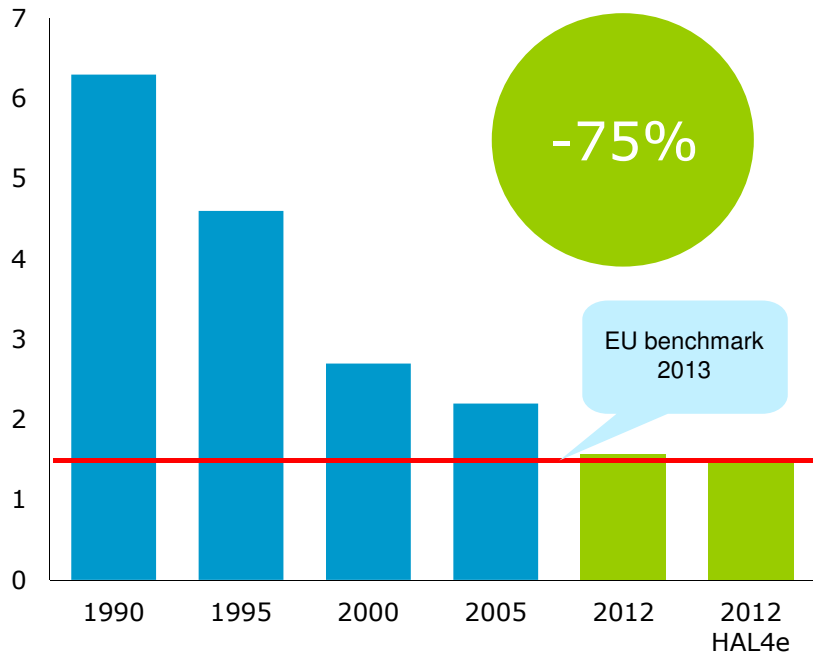


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# Significant improvements in Hydro's emissions

## Lower GHG emissions

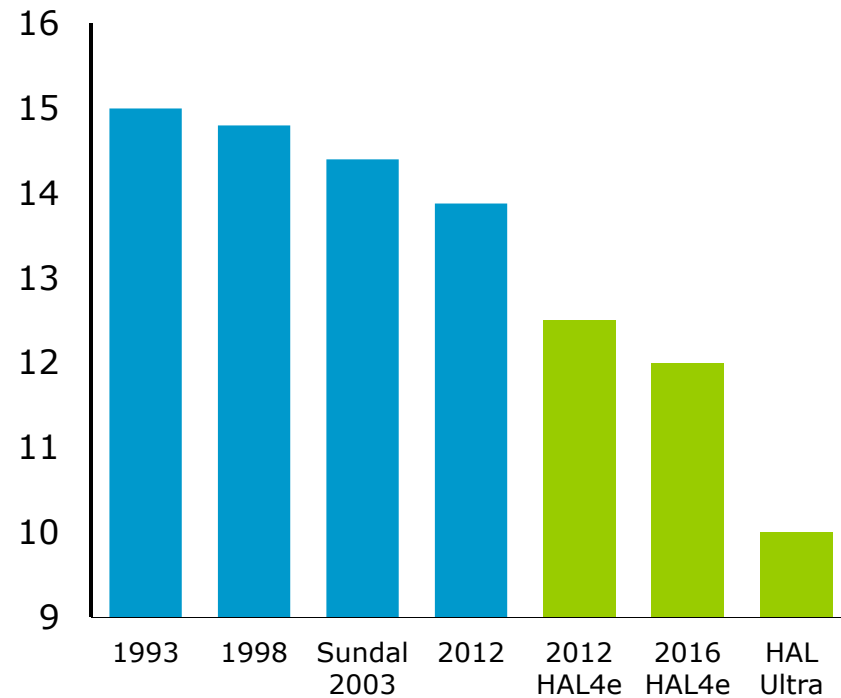
Kg CO<sub>2</sub>e / kg aluminium



Specific emissions (average) from Hydro's Norwegian aluminium plants

## Lower energy consumption

KWh / kg aluminium



Specific energy consumption (average) at Hydro's Norwegian aluminium plants

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Helping the customers  
reduce their energy  
consumption

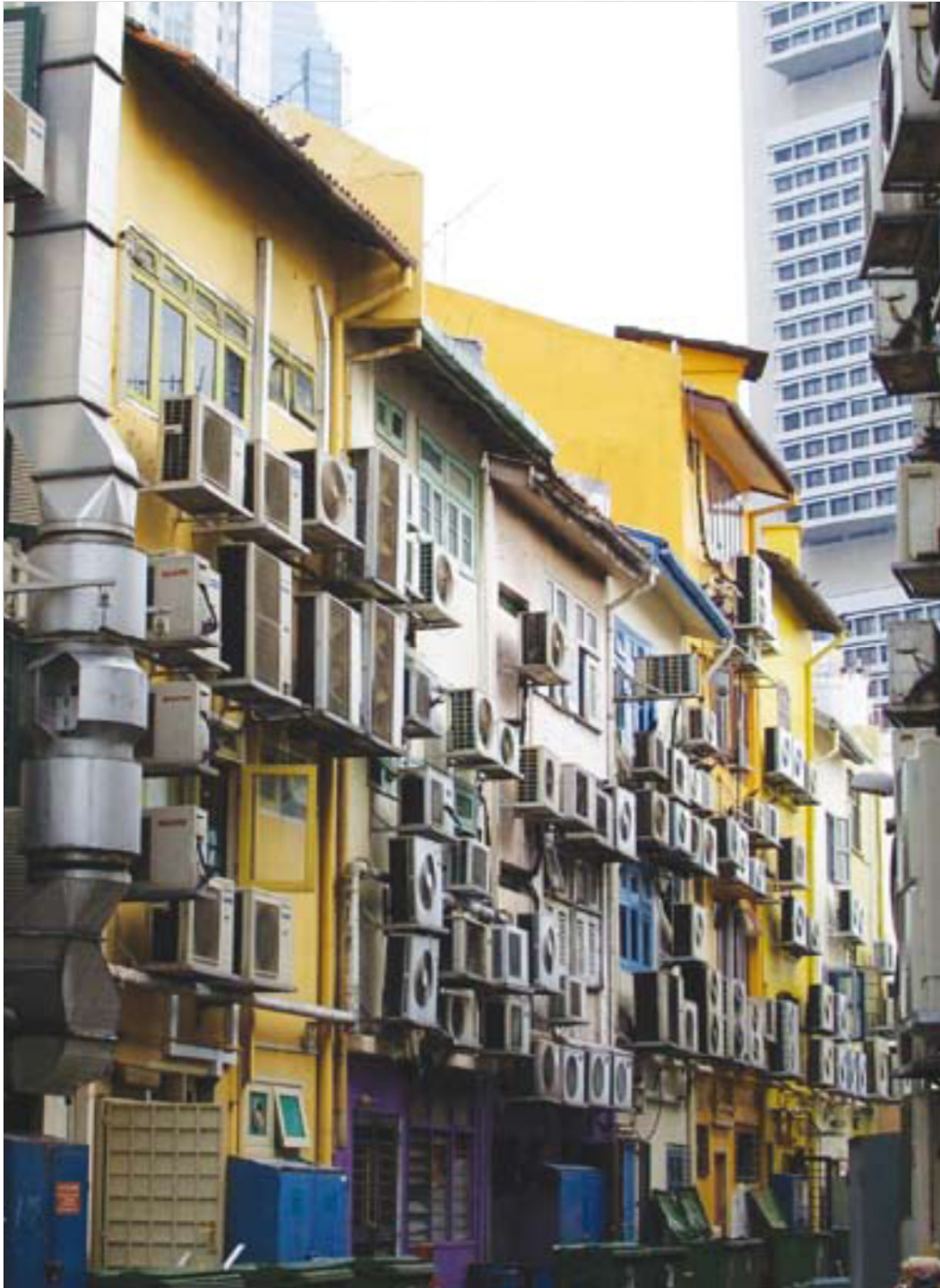


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A construction site featuring a large array of solar panels on a flat roof. In the foreground, a worker in a high-visibility vest stands on the roof. In the background, another worker is visible near the solar panels. A crane is lifting a large, rectangular metal cage structure from the sky. The sky is blue with scattered white clouds. The overall scene is bright and clear.

# POWERHOUSE

Illustrasjon: SNØHETTA / MIR



40%

Buildings account for 40 %  
of the world's energy  
consumption



EU: All new buildings shall be near energy-neutral in 2020

A great opportunity for companies developing solutions





The Powerhouse founders:

+ Skanska, developers

+ Snøhetta, architects

+ ZERO, environmental organization

+ Entra, property developers

+ Hydro, aluminium company






Powerhouse is a collaboration on energy-positive buildings

We want to change how we cooperate in the building industry

All key competence in a project should be available from the beginning



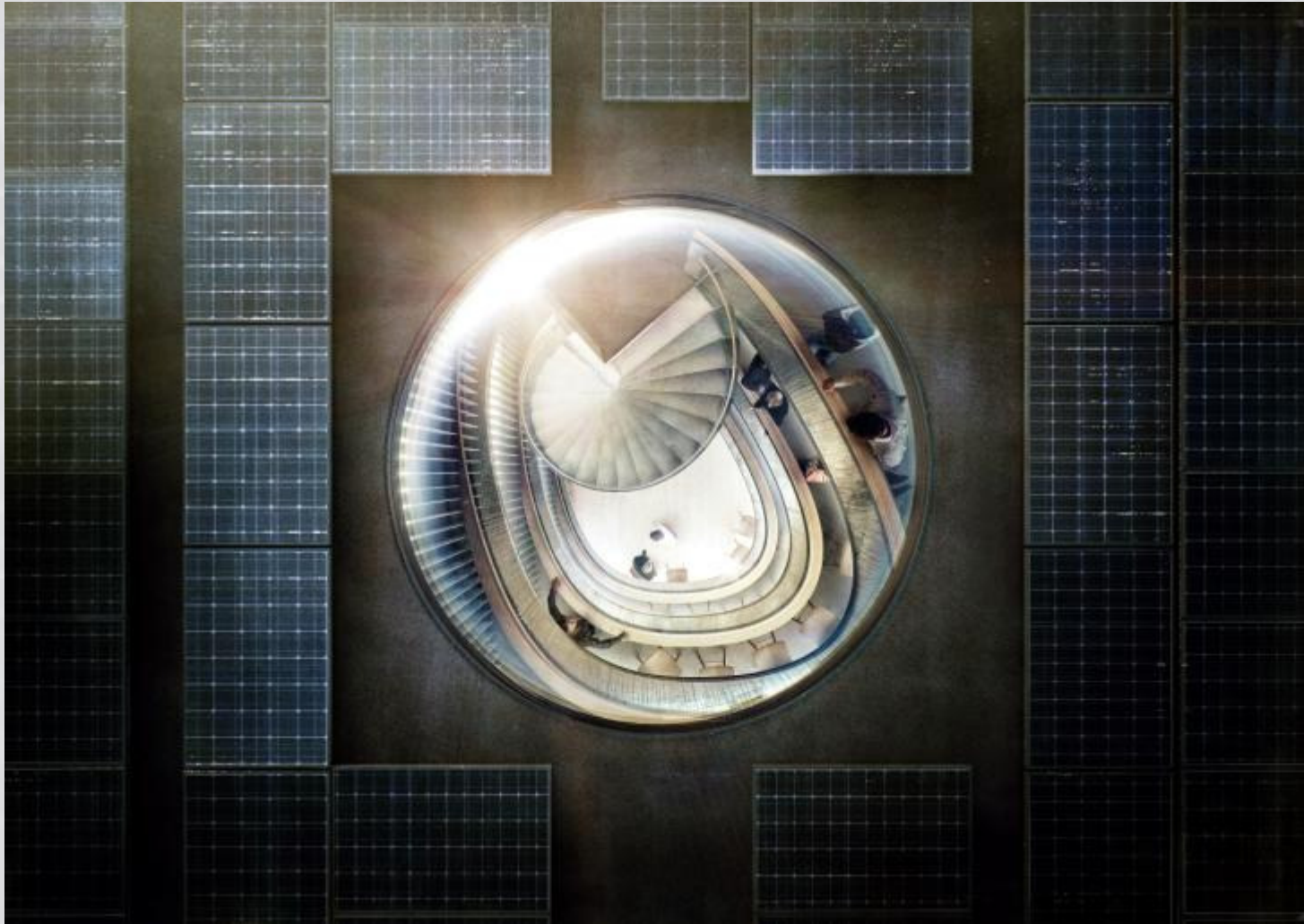


An energy-positive building is a building which during its operational phase generates more renewable energy than what was used for the production of building materials, its construction, operation and disposal




## Energy self-sufficient

- + To be completed February 2014
- + Two office buildings of approx 5200 m<sup>2</sup>
- + Before the renovation started the buildings consumed approx 250 kWh per m<sup>2</sup> annually
- + Energy ground-wells provide natural heat and cooling
- + Efficient heat recovery reduces energy demand
- + Good insulation
- + 230 000 kWh from solar cells
- + Extensive re-use of materials

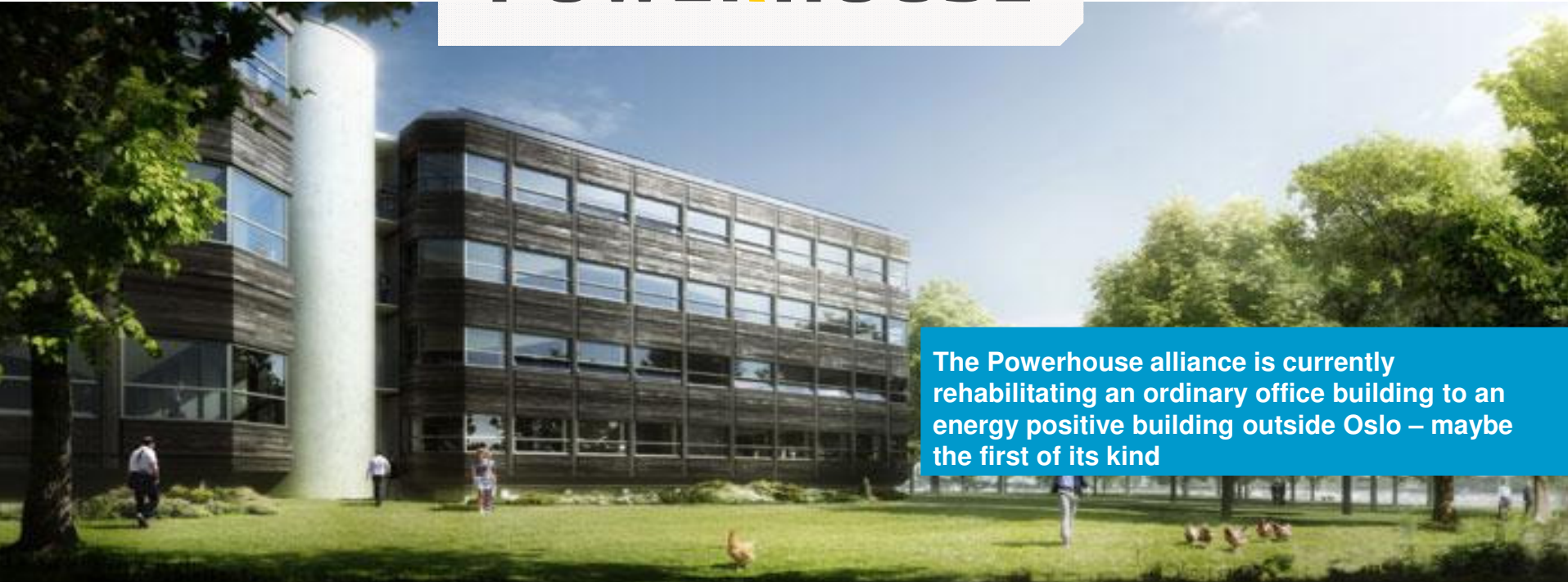


Norway's largest solar cell plant,  
to produce 230 000 kWh annually



The Powerhouse alliance is planning for the world's northernmost energy positive building in Trondheim, Norway

# POWERHOUSE



The Powerhouse alliance is currently rehabilitating an ordinary office building to an energy positive building outside Oslo – maybe the first of its kind

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Reforestation in Brazil  
– our licence to operate

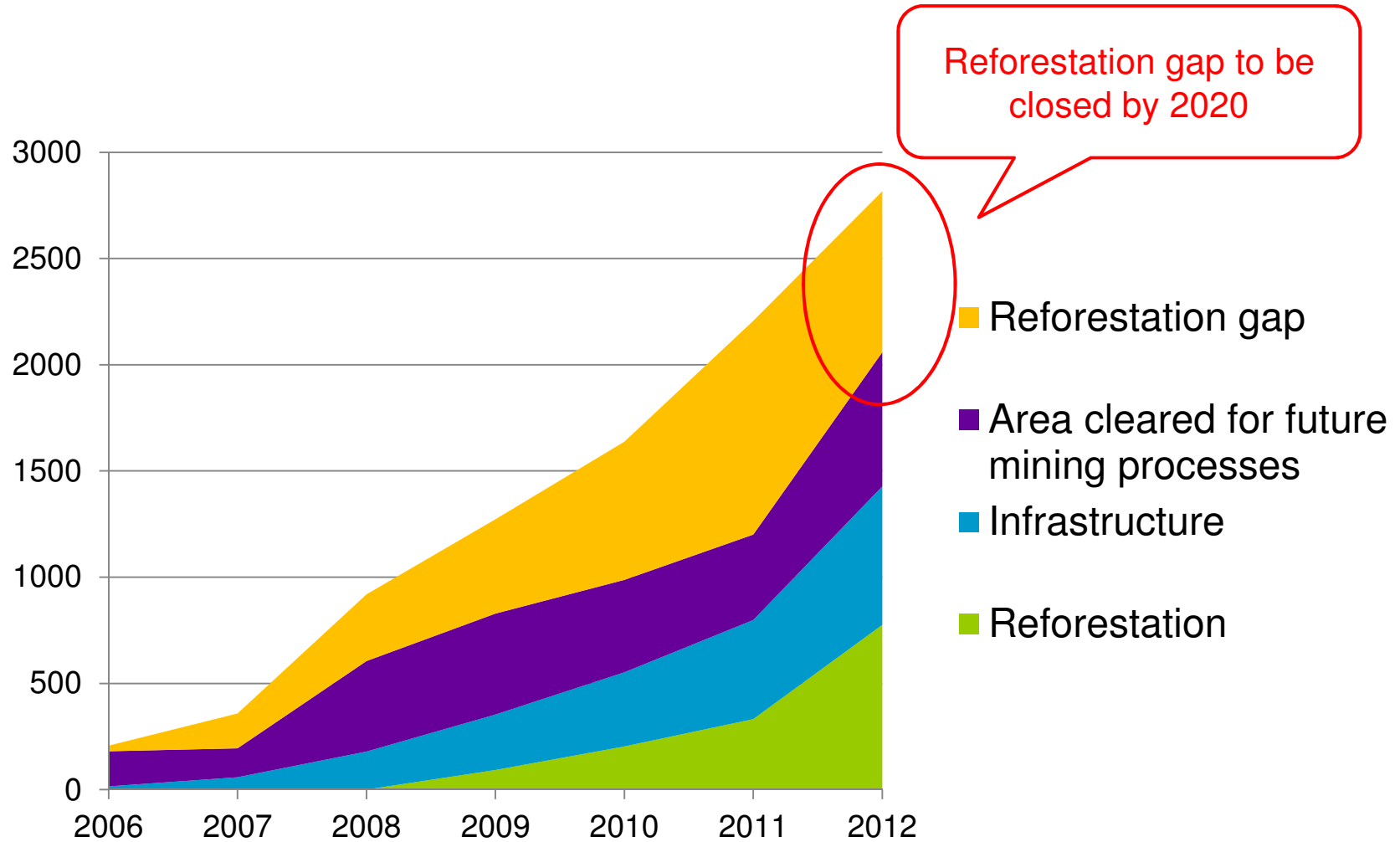


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**Reforestation is key  
to long term viability**



# Closing the reforestation gap





## We use best available technology



- Preserving natural biodiversity
- Exchanging best practice
  - Juruti, MRN and Paragominas on the nucleation method
  - University of Oslo to create a research program connected to our mining operations
  - Supporting Green Municipalities to train 90 technicians in forest surveillance
- Closing the reforestation gap by 2020

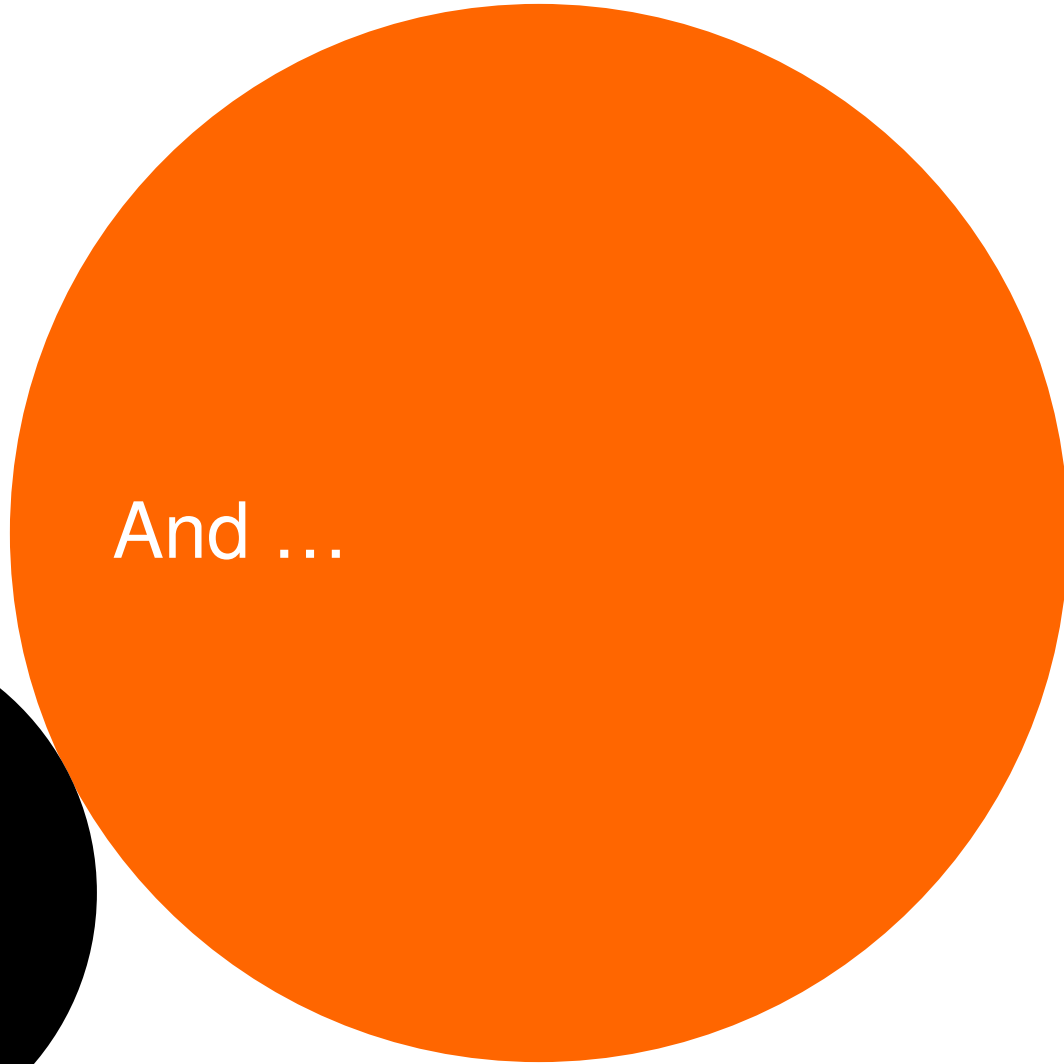
# Leaving something behind

Investing in education





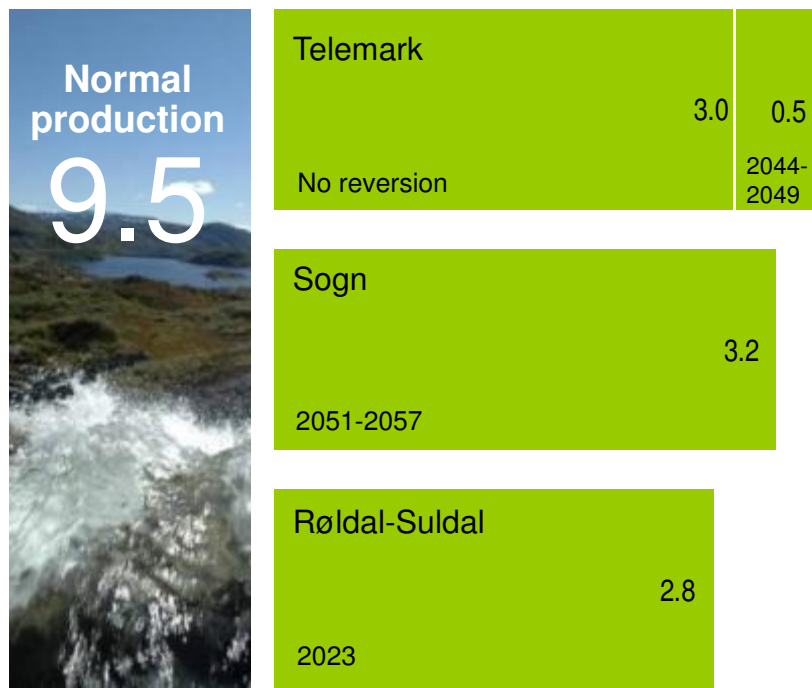
And ...



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# Aiming to lift hydropower production to 10 TWh

Power production capacity (TWh),  
per region and reversion year



- Power producing assets and ongoing projects
  - Maintain cost control in operations and projects
  - Holsbru and Vasstøl power plants into operation during 2012
  - Rjukan upgrade project ongoing
- New growth projects
  - Mature new equity growth options
  - Growth potential in excess of 0.5 TWh
- Framework conditions
  - Reversion regime secures full value of energy assets
  - EI-certificates support investments in new capacity

# Recycling – a *pure* bonus

Aluminium – the energy bank



**75%**  
still in use



**5%**  
of initial energy  
use to recycle



## • **Summing up**

- Reducing our footprint
- Helping to reduce the customer's footprint
- Giving used aluminium a new life





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