

Our energy strategy going forward

Arvid Moss

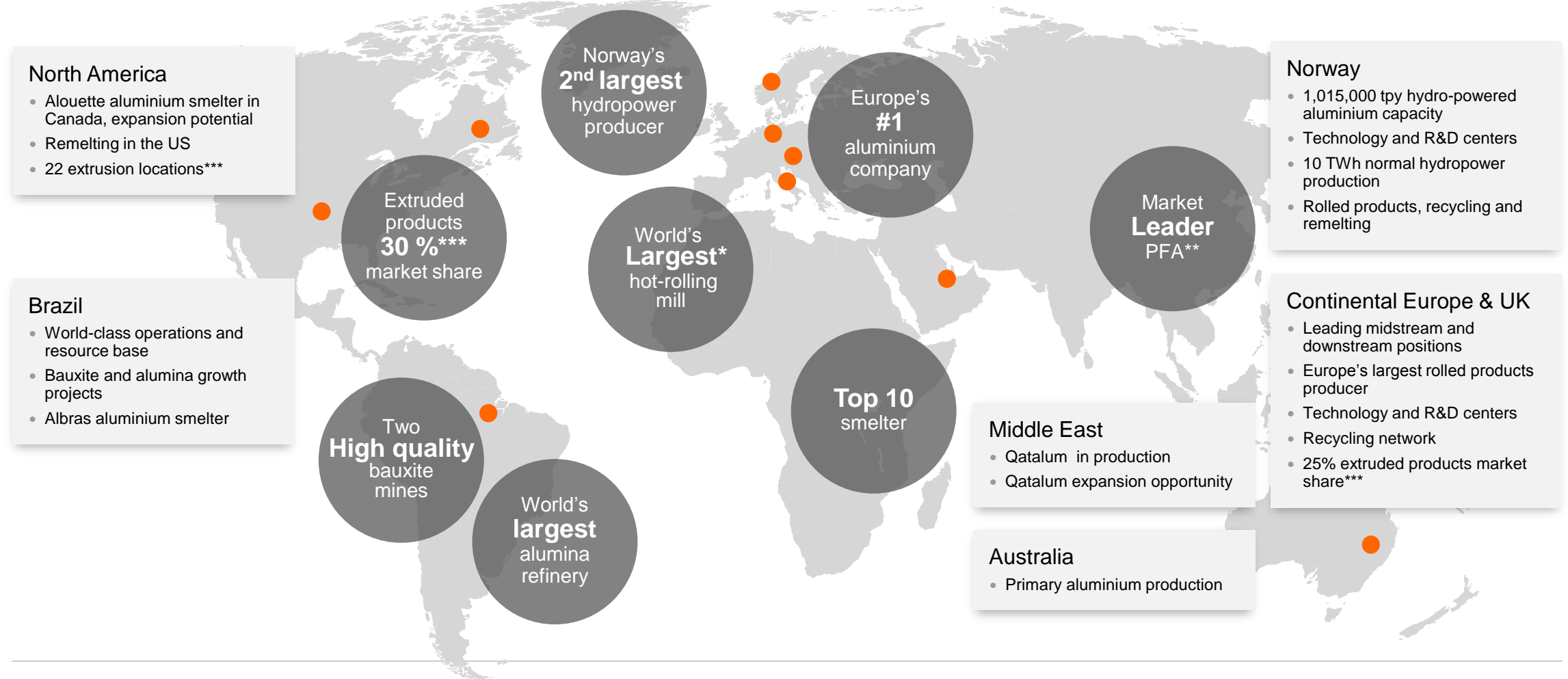
EVP and Head of Energy and Corporate
Business Development



HYDRO

Attractively positioned world-class assets with global reach

Now in a first-quartile position on the industry cost curve

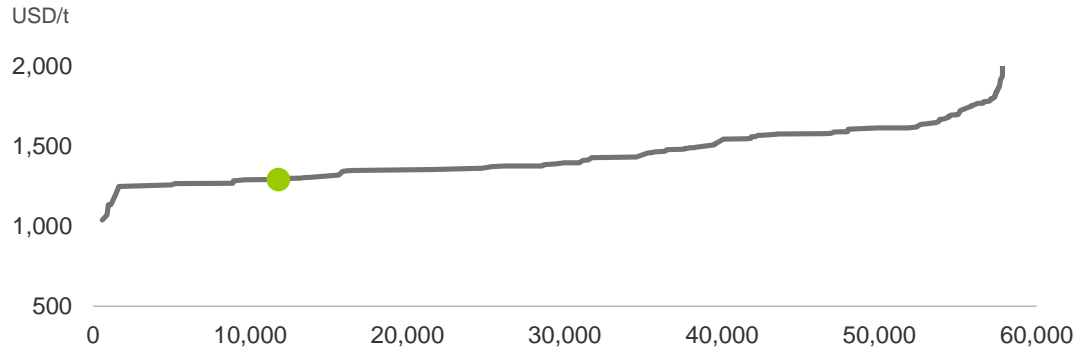


* Outside China
** Primary Foundry Alloys
*** Sapa JV

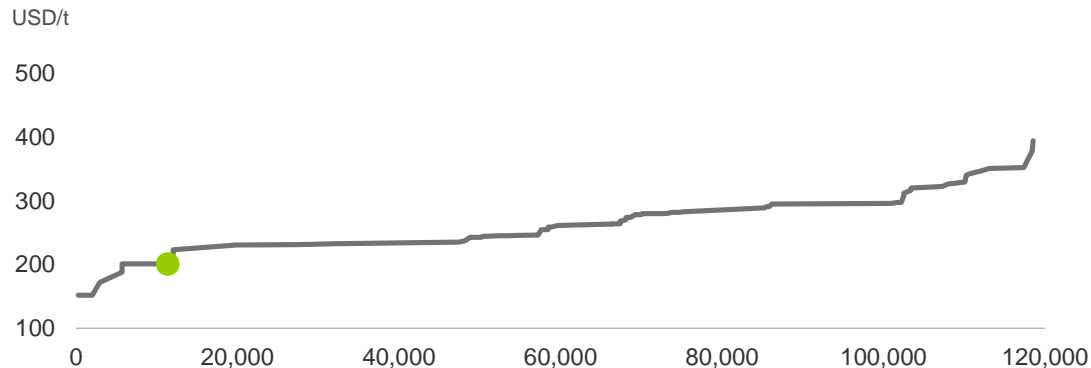
Leading performance compared to aluminium peers

Strong relative position drives value-creation in challenging markets

First-quartile aluminium producer

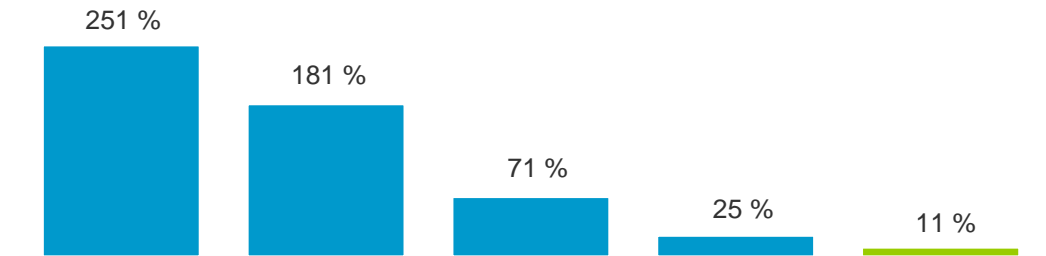


First quartile alumina position



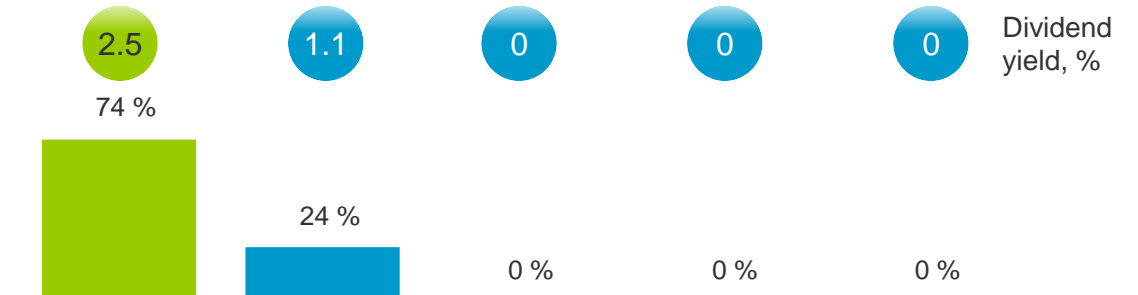
Strongest balance sheet,

Total Debt/Total Equity, 2010-2014



Highest underlying payout ratio and dividend yield

2010-2014



Source: ThomsonOne, CRU, company filings

Total debt/Total Equity= (Long Term Debt + Short Term Debt & Current Portion of Long Term Debt) /Equity attributable to shareholders

Dividend yield = Dividend Per Share / Market Price at Year End

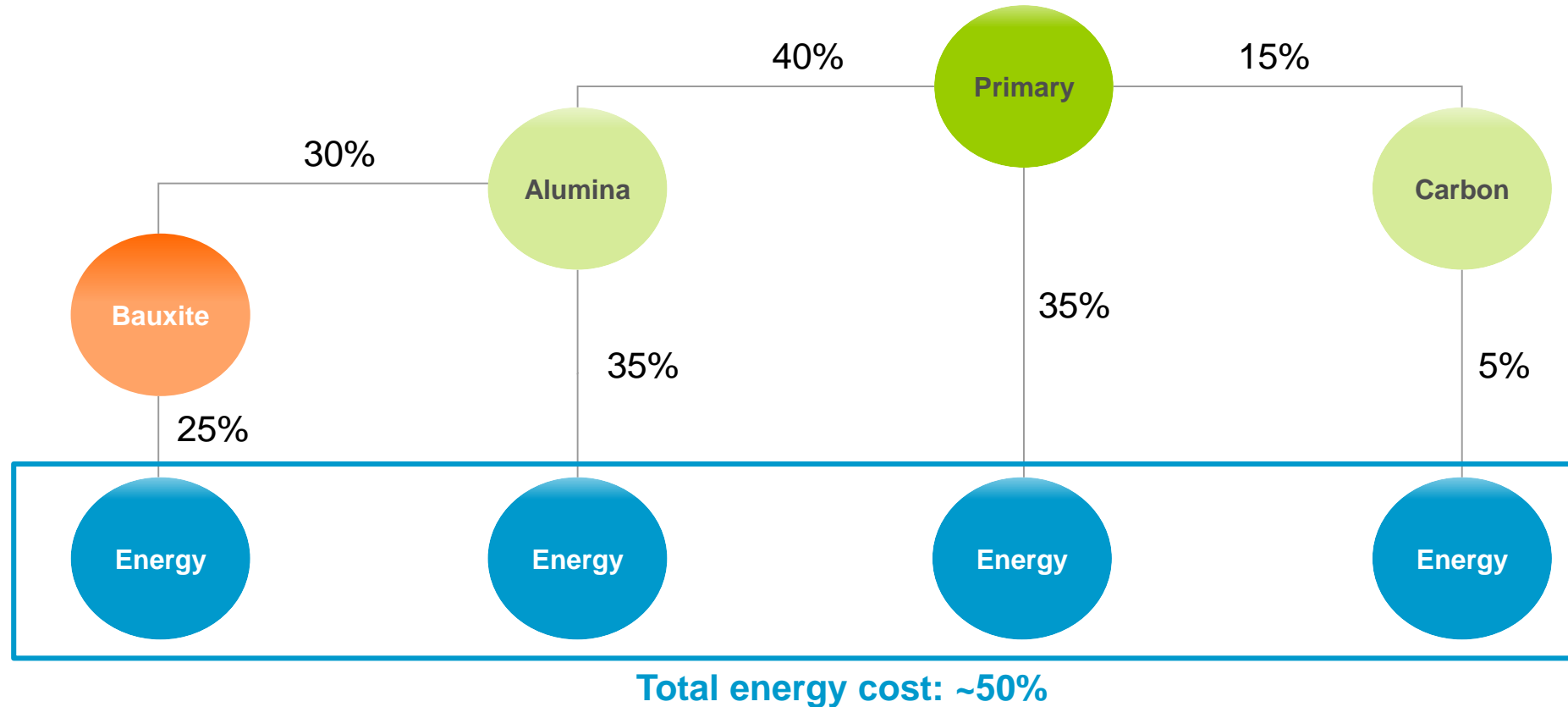
Underlying dividend payout ratio = Dividend Per Share / Underlying Earnings Per Share

■ Peers ■ Hydro

Aluminium peers included: Alcoa, Century, Chalco, Rusal



Energy represents ~ 1/3 of smelter cost and ~ 50% of the total value chain cash cost



Percentages indicate share of respective input costs globally

Illustrative figures
Source: CRU



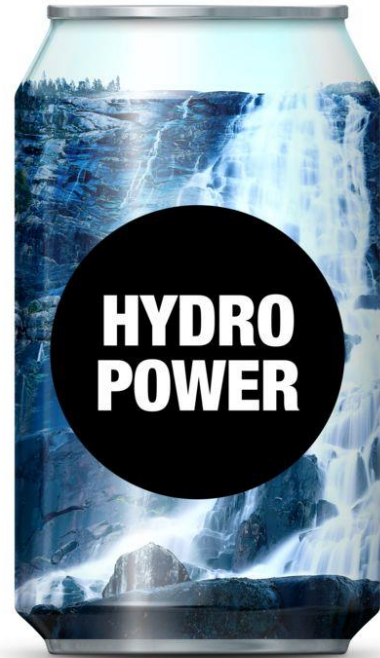
Energy strategic priorities

Better *Bigger* *Greener*

- Realize full potential of strong asset base and competencies
- Further improve operational and commercial performance
- Provide competitive global energy sourcing and competence
- Mature captive growth opportunities
- Raise income potential from market operations and commercial optimization
- Leverage value from Nordic power surplus
- Capitalize on strong climate position over time
- Capture value of the green certificate scheme in new growth projects
- Promote responsible energy policy in the regions where Hydro operates

Energy has a dual mission in Hydro

Strong, sustainable value creator *and* energy provider throughout the value chain



To own, operate and maximize value of Hydro's energy assets



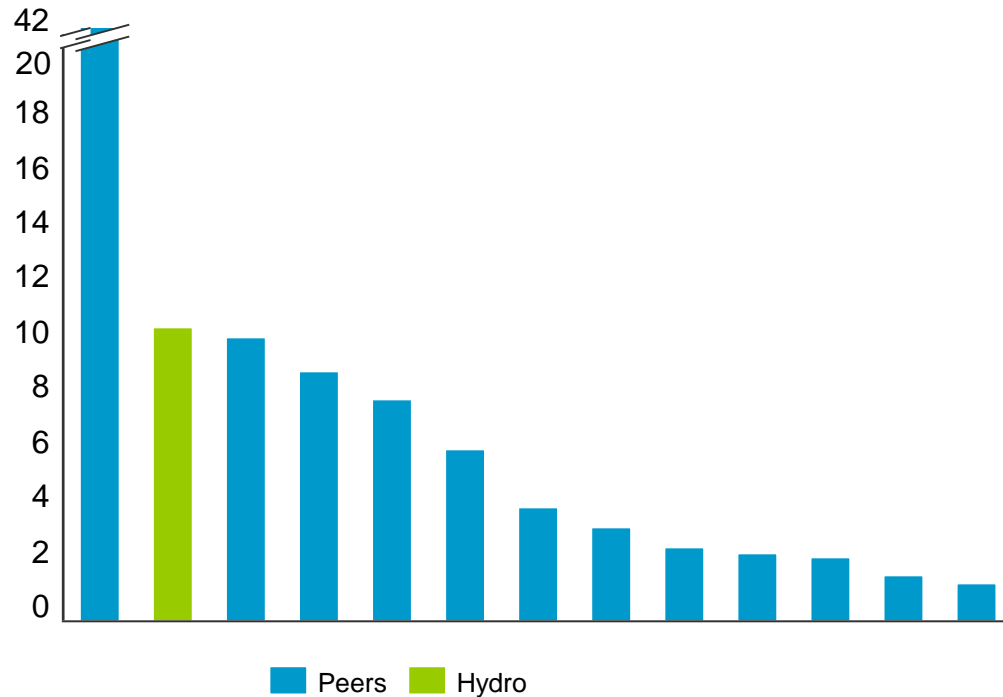
To provide competitive power sourcing and global energy competence

Hydro is second largest hydropower producer in Norway

But a net buyer of power globally

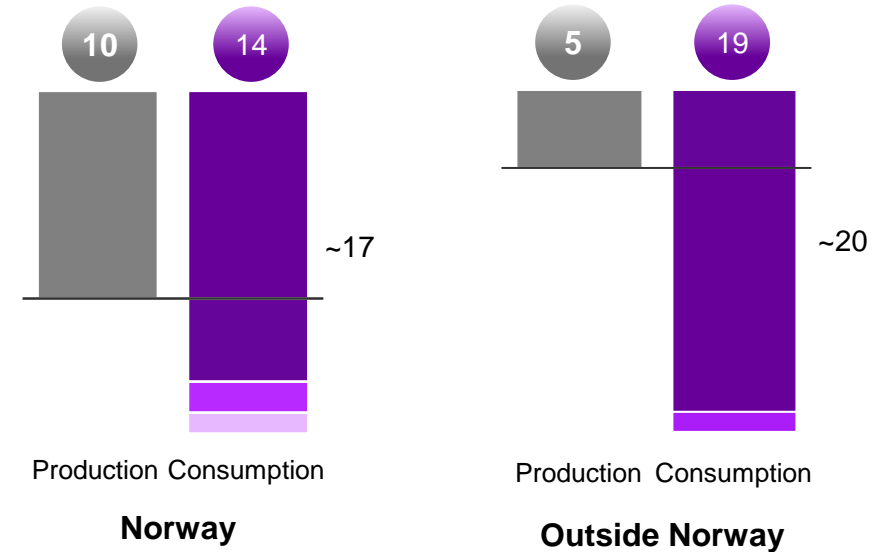
Norwegian power producers*

TWh normal production



Power production and consumption in Hydro smelters**

TWh

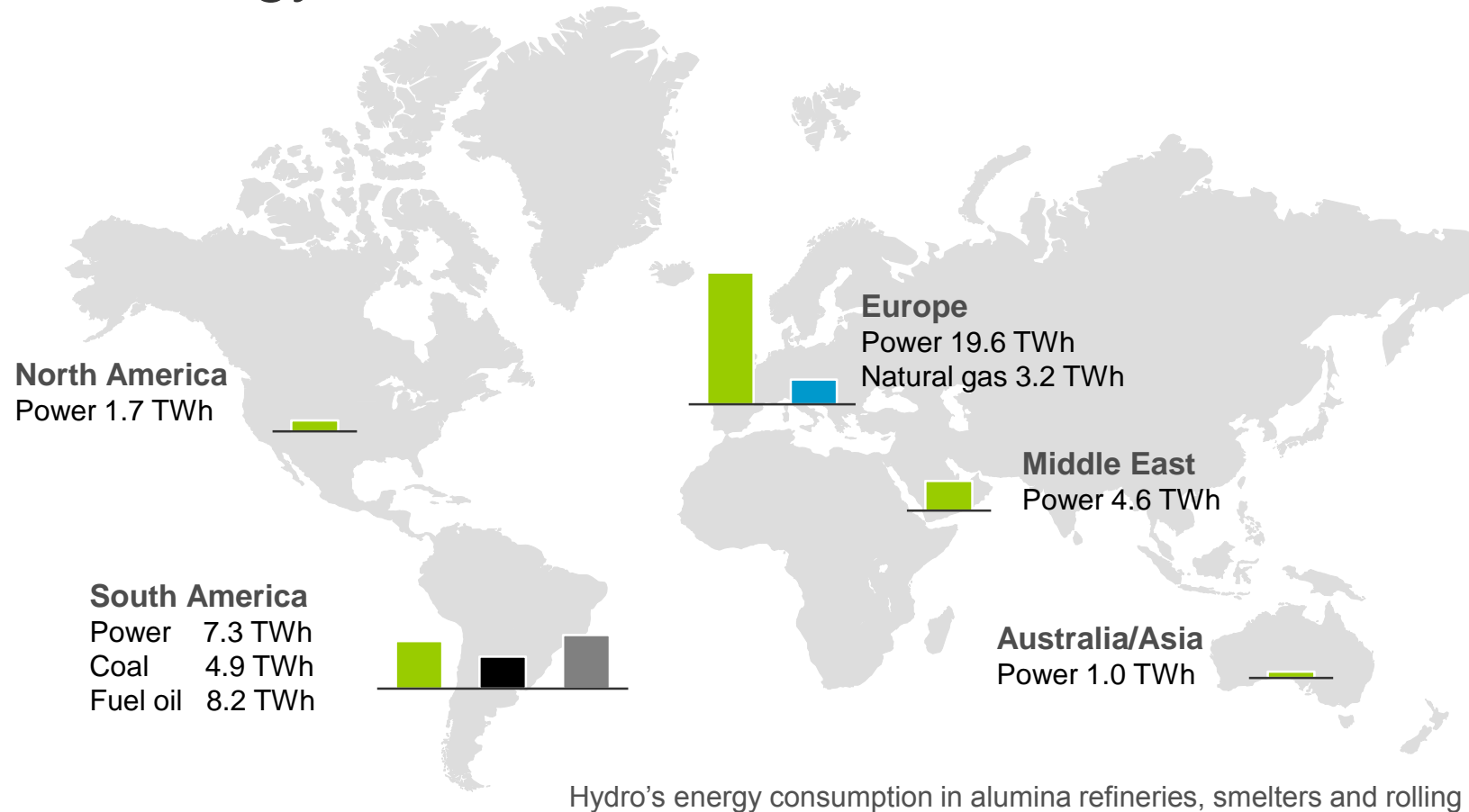


- Current consumption
- Consumption with full installed capacity
- Karmøy pilot

* Equity normal production

** Based on consolidated production in Hydro smelters, mid-2015

Hydro energy needs are spread across the value chain, global regions and energy carriers



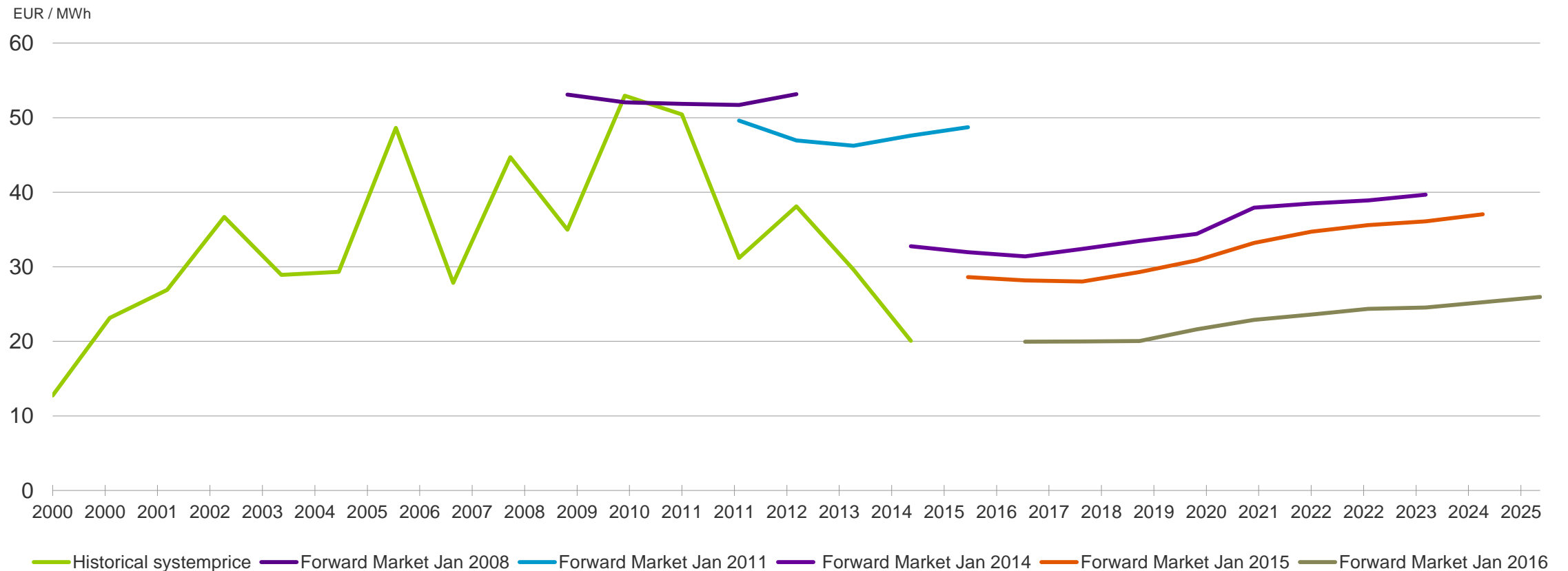
Based on consolidated figures mid-2015

01

Power Markets

Nordic power prices decline over the last years

Downward trend also reflected in forward curve



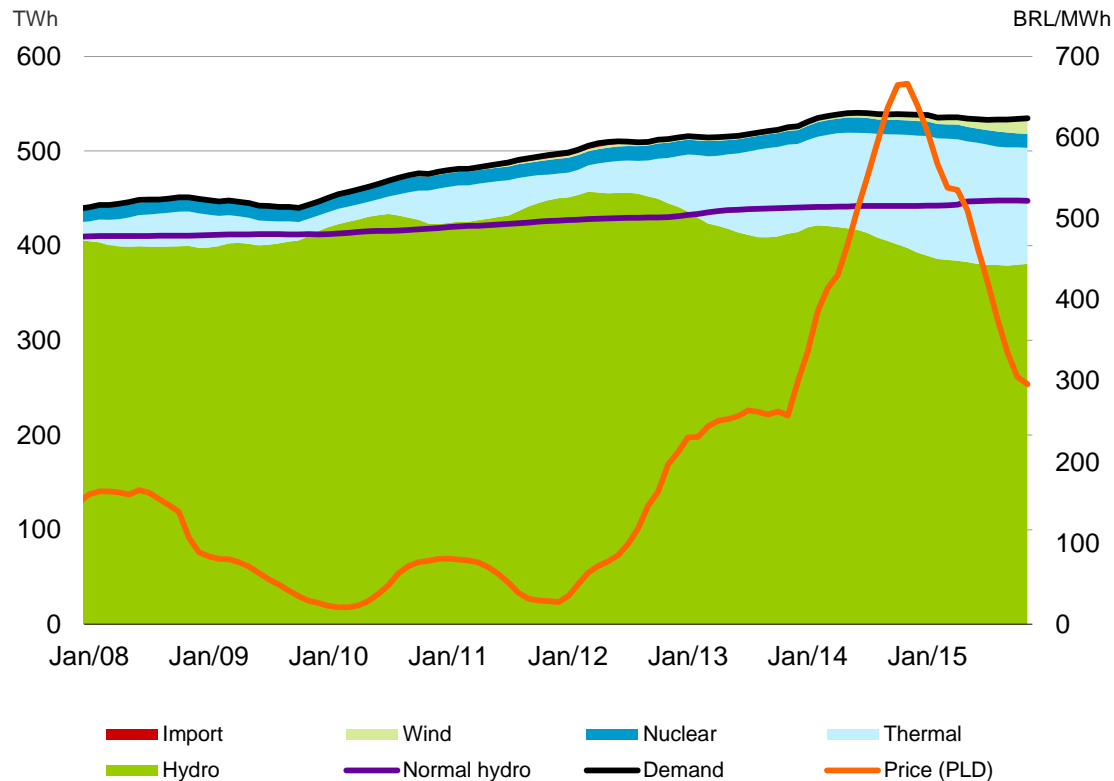
Source: Nordpool Spot
Prices expressed in yearly averages

Interconnected Brazilian hydropower-based system

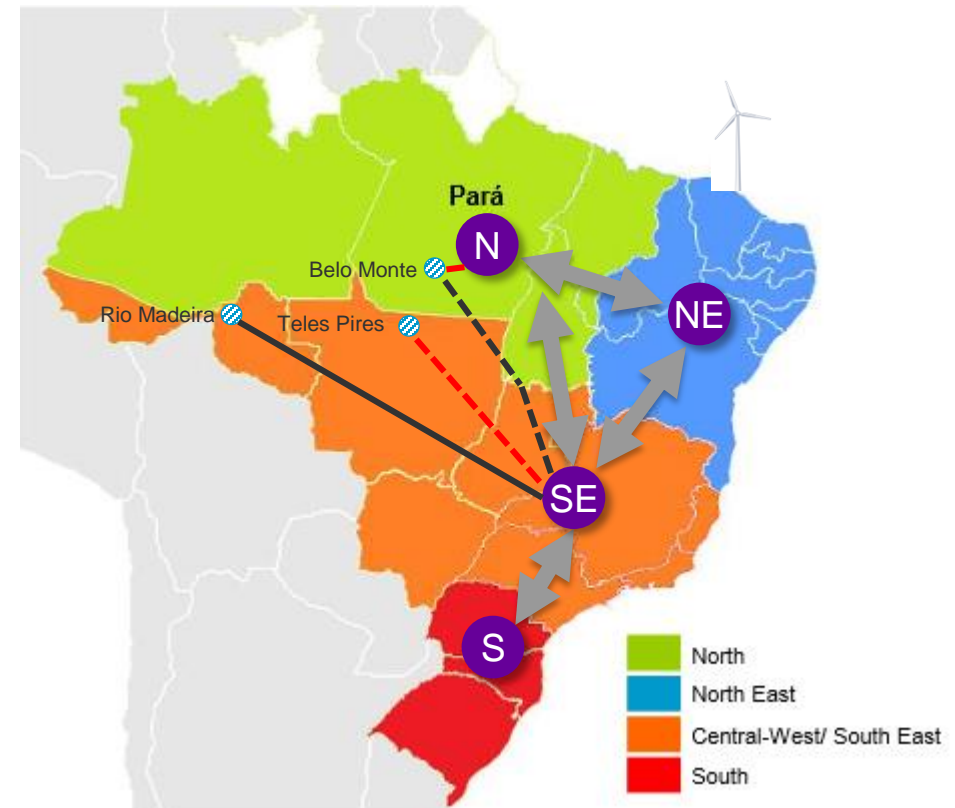
Thermal power has increased in importance during recent dry years

Brazilian power balance and price development

Rolling 12 month data



Interconnected power system, Brazil

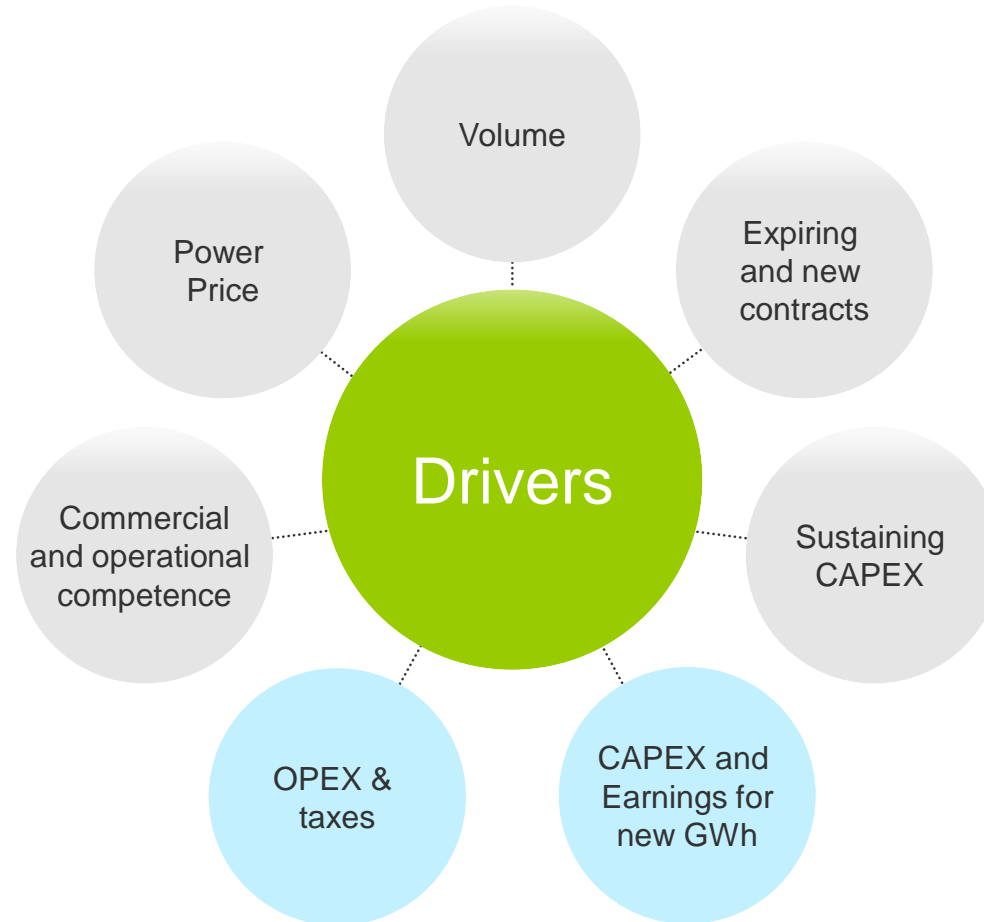


*Source: ONS, EPE, ANEEL.

02

Energy in Hydro

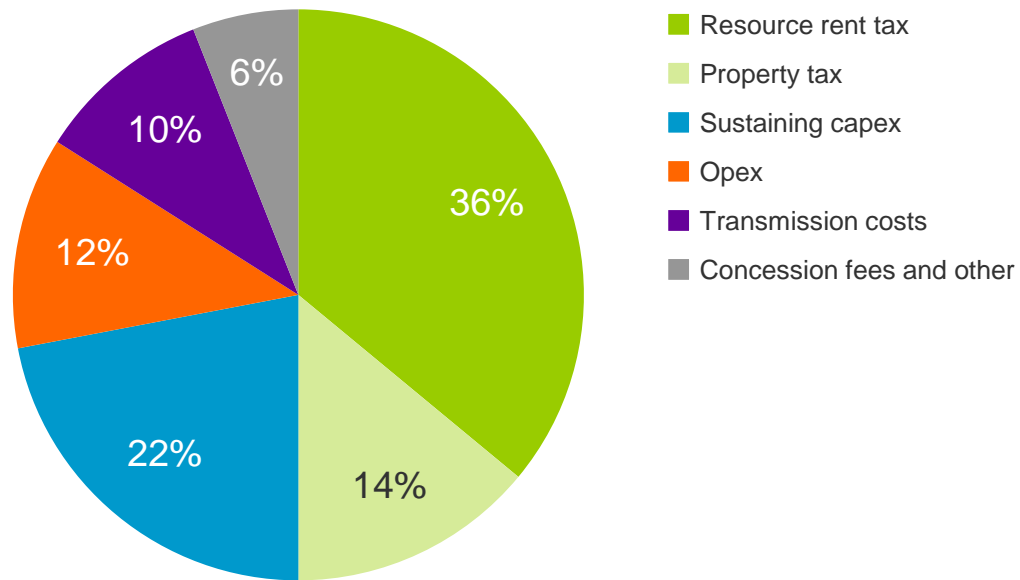
Value creation in Energy dependent on wide array of factors



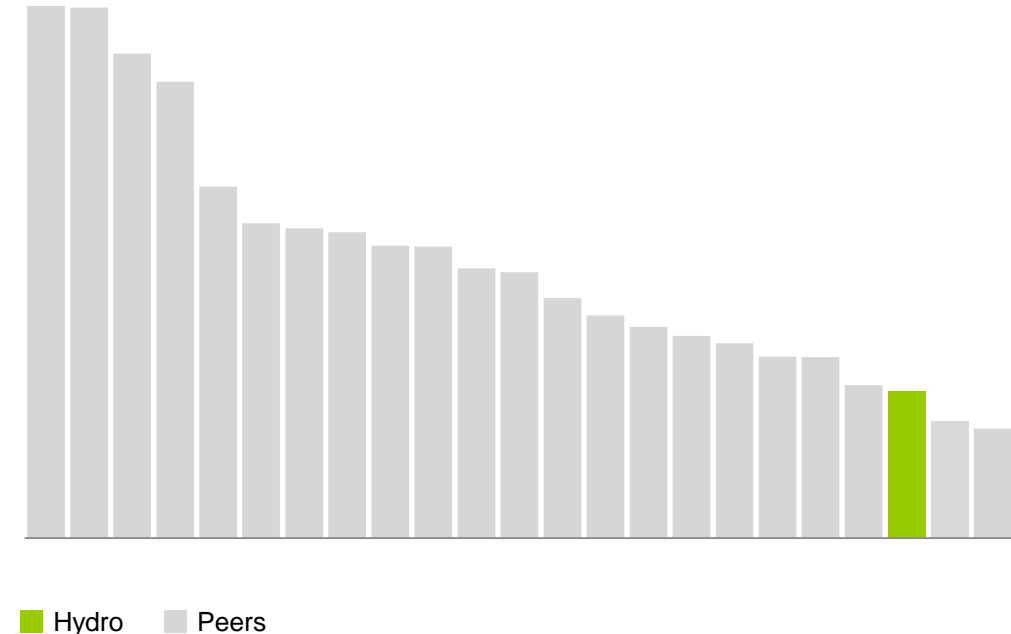
Competitive production costs driven by economies of scale and operational improvements

Taxes and fees account for a large share of costs, making sustainable framework conditions crucial

Average operating cost, incl. tax/fees, by category
2007-2014



Total operating costs for Norwegian power producers*
NOK/GWh

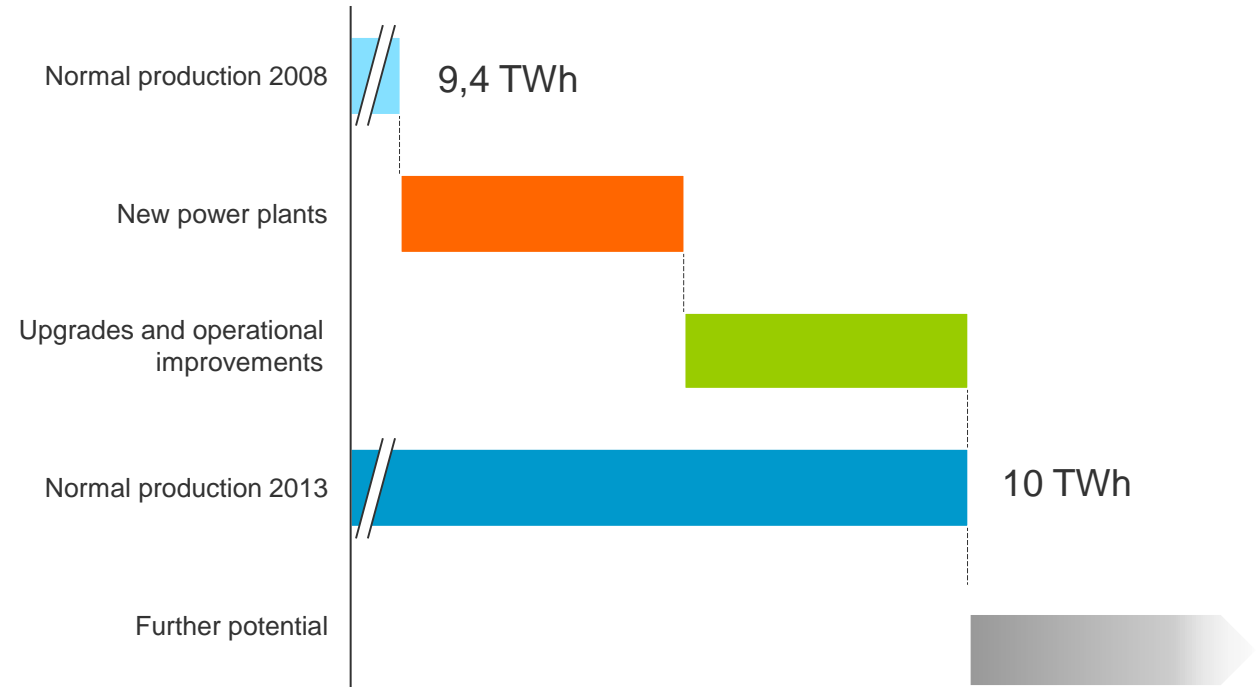


* Based on PA Benchmarking survey

Delivering value from growth

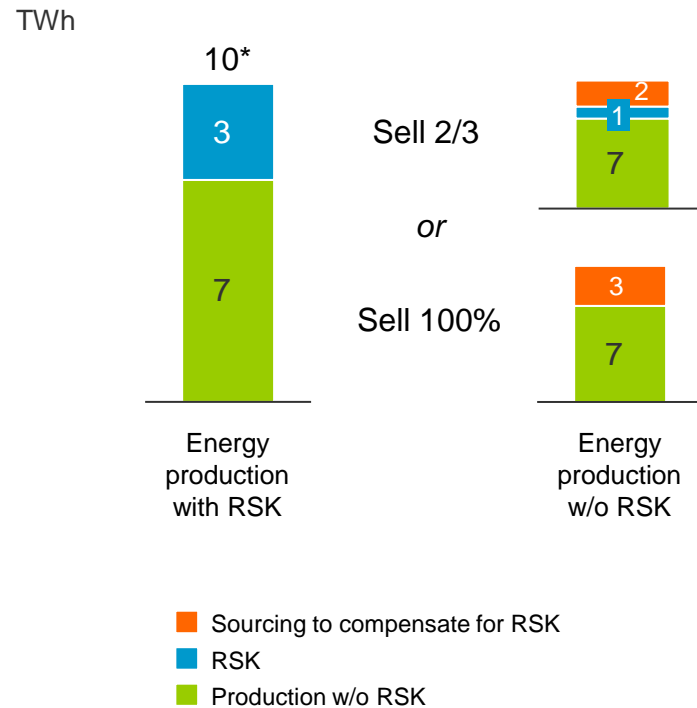
Driven by capacity additions, debottlenecking and operating competence

- The normal production in Hydro's power plants raised from 9.4 in 2008 to 10 TWh in 2013
 - New power plants since 2008
 - Holsbru, Vasstøl, and Vigeland acquisition
 - Improved power plant efficiency from replacement of turbine runners
 - Improved optimization through competence
 - E.g. handling flooding situation to minimize water losses and ensure safe operations
- Further potential
 - New power plants under construction
 - Midtlæger, Mannsberg
 - Utilizing regulatory frameworks supporting renewable power generation
 - Turbine runners as part of rehabilitations
 - Further improving long-term optimization

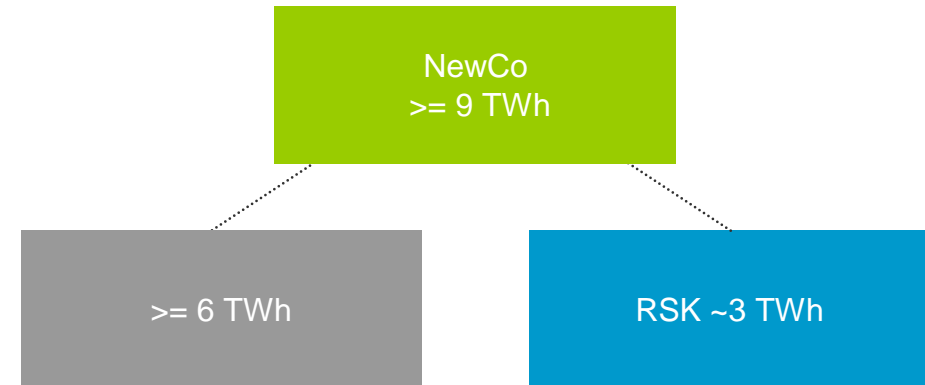


Broad optionality to maintain asset value within the reversion regime

Sell to a publicly-owned entity



Merge into a larger publicly-owned asset with one or several owners



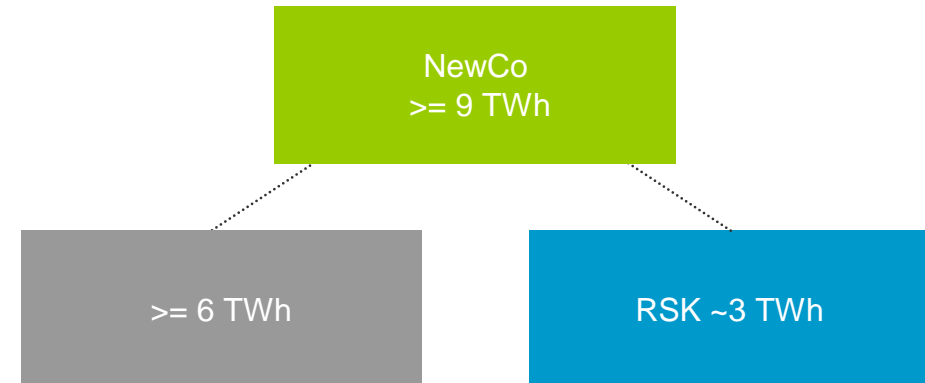
- Retain full production as part of a larger asset
- Max 1/3 Hydro (private) ownership
- No reversion after such a transaction
- Need partner(s) with min 6 TWh to maintain equity volume

The diagrams on this slide are simplified for illustration purposes
 * Normal production

Broad optionality to maintain asset value within the reversion regime

- Law proposal from government on industrial ownership published 9 November
- Proposal for hydropower JVs:
 - Maximum 1/3 private ownership maintained
 - Allow private owners access to physical power
 - Pro-rata power offtake in line with ownership share
- The new law would allow Hydro to maintain access to physical power through restructuring RSK assets into 1/3 ownership position in company with liability

Merge into a larger publicly-owned asset with one or several owners



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Providing competitive global energy sourcing and competence

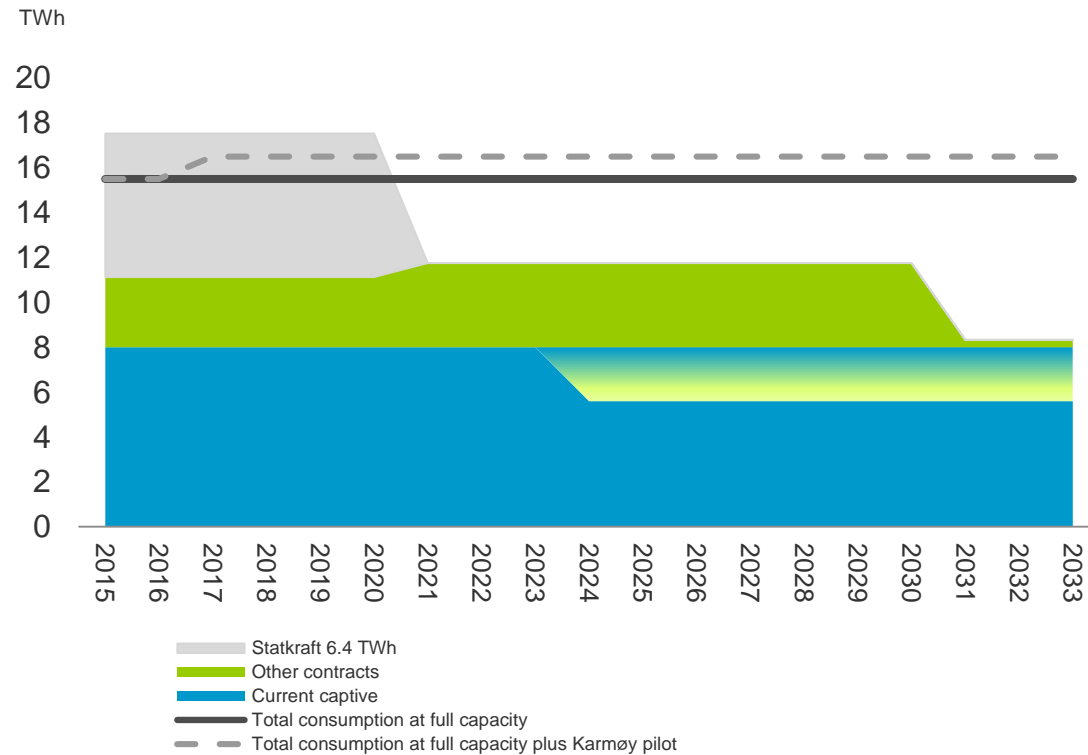
Commercial competence, analytical capability and market insight

B&A	Primary Metal	Rolled Products
Assist with energy sourcing strategies		
Analyze energy markets and provide insight		
Optimize power portfolio		
Lead power sourcing negotiations		
Improve security of power supply and manage grid agendas		
<ul style="list-style-type: none"> Fuel switch evaluations New power contracts for B&A operations Overall energy matrix optimization Increased Energy presence in Brazil to lead the sourcing processes and explore commercial opportunities Norsk Hydro Energia Ltda established as a vehicle for the power market operations 	<ul style="list-style-type: none"> 3.75 TWh power sourcing secured for the Norwegian smelter portfolio 2021-30 330 GWh power sourcing for the Norwegian smelter portfolio 2031-40 	<ul style="list-style-type: none"> Execution of hedging strategy New power contract secured for 2018-25 for Rheinwerk smelter Gas/power sourcing for rolling mills

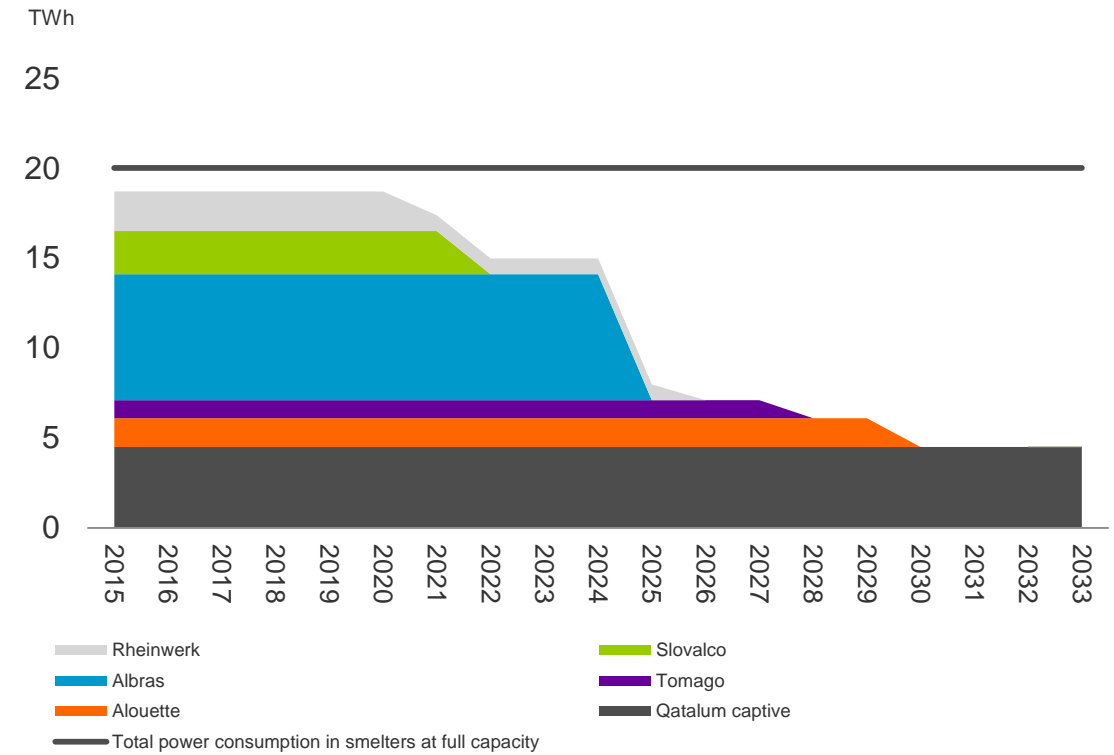
Improving smelter cost position with competitive power sourcing

Utilizing moderate pricing environment in Norway and abroad

Sourcing platform for fully-owned smelters, Norway*



Sourcing platform for JVs and Rheinwerk smelter**



* Net 8 TWh captive assumed available for smelters

** Albras and Slovalco on 100% basis

Energy mid-term goals

Creating shareholder value by maximizing value of own hydropower assets and ensuring reliable and competitive energy supply for Hydro

Ambitions

Ambitions	Target	Timeframe
• Improve safety performance – injury free environment	TRI <2	2020
• Robust industrial ownership for RSK – maintain physical power offtake post 2022	3,0 TWh	2022
• Deliver additional production volumes through upgrades/sustaining investments	~0,1 TWh	2020
• Secure new competitive sourcing contracts in Norway post 2020	4-6 TWh	2020
• Support competitive energy supply as well as energy policy and framework development for other business areas	Progress	Continuous

Better Bigger Greener

