

Nordic power market update

Pirja Heiskanen

Head of Trading and Industrial Intelligence

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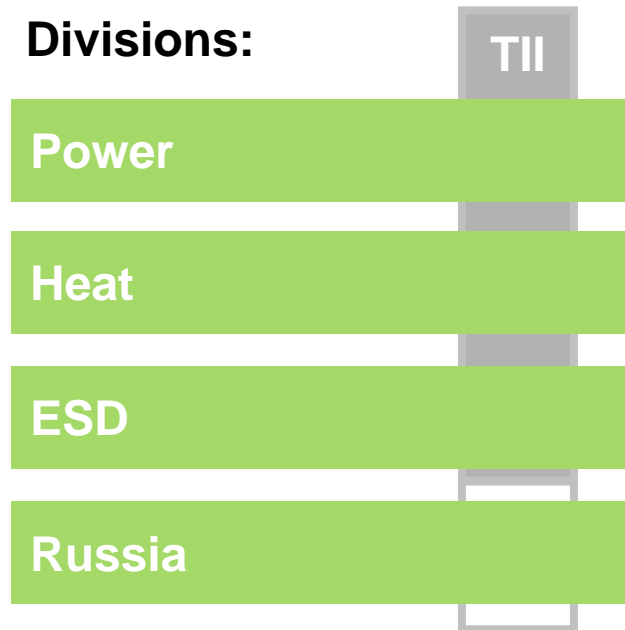
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Trading and Industrial Intelligence (TII)

– centralised portfolio management and trading

Divisions:



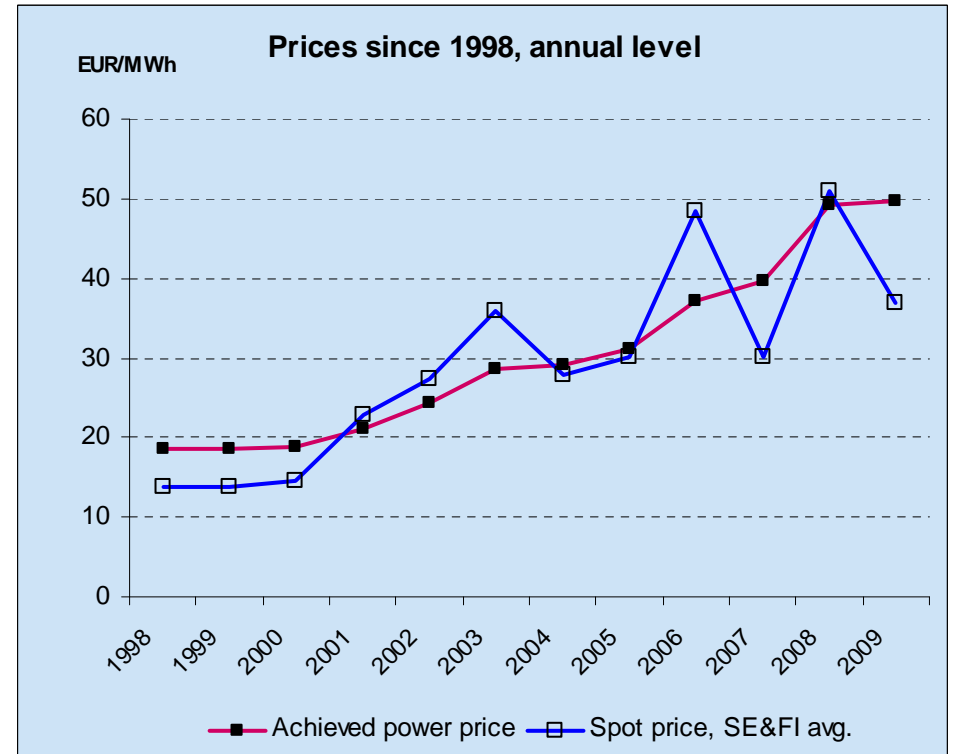
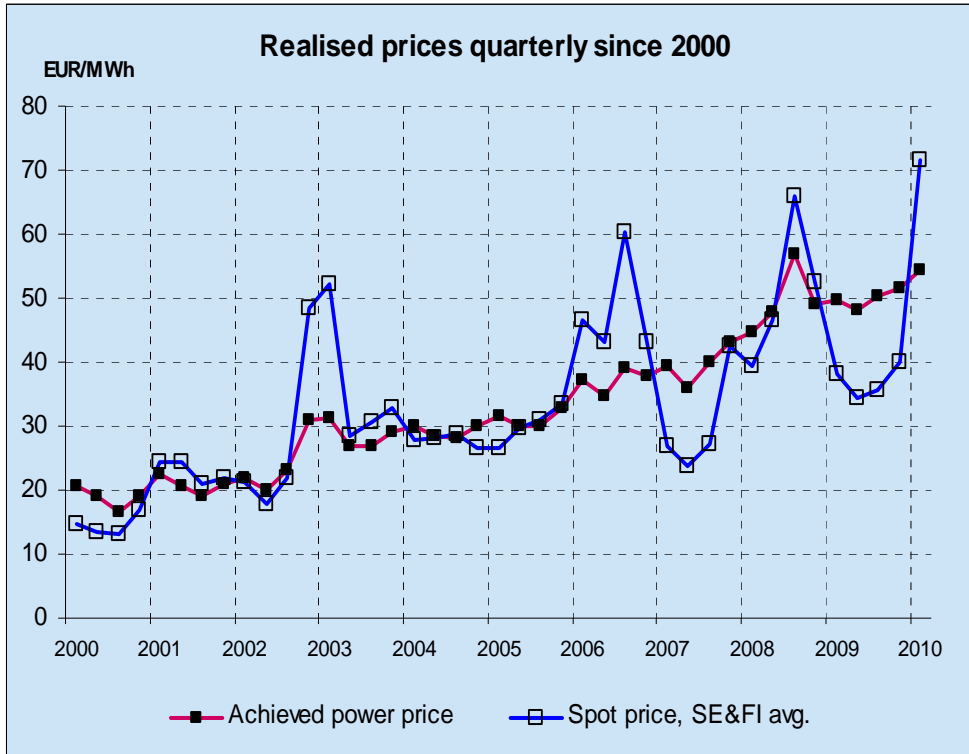
Role:

- One market view covering all time horizons
- Hedging of group level result (not only electricity price)
 - proposal for mandates and references
 - development of hedging strategy and execution of actual hedges within set mandate
- Integrated fuel procurement (excl. local fuels)
- Environmental value trading
- Proprietary trading

Right big picture with outstanding insights



The right big picture – Achieved power price is the prime goal



- TII – Trading and Industrial Intelligence

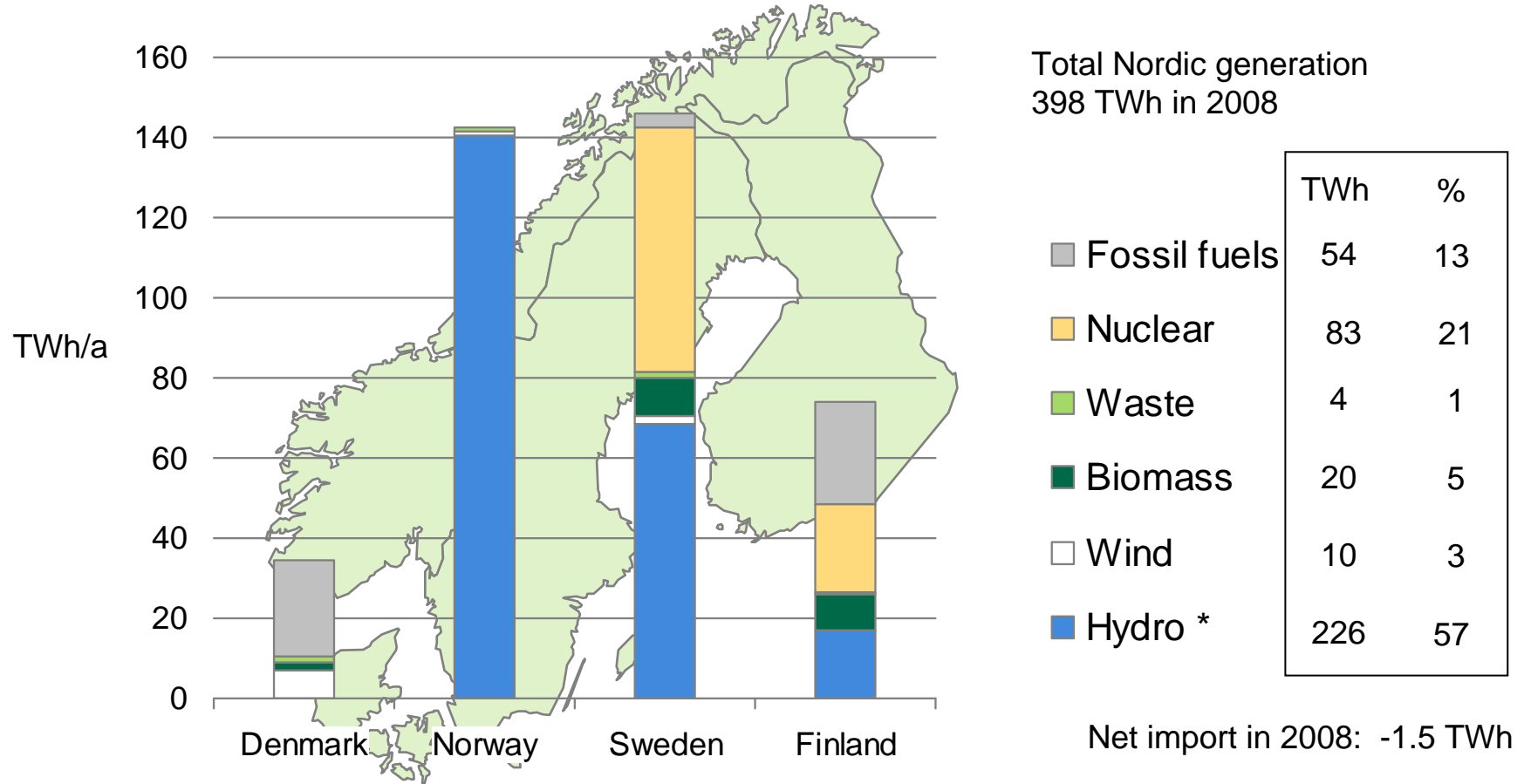
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Nordic power generation

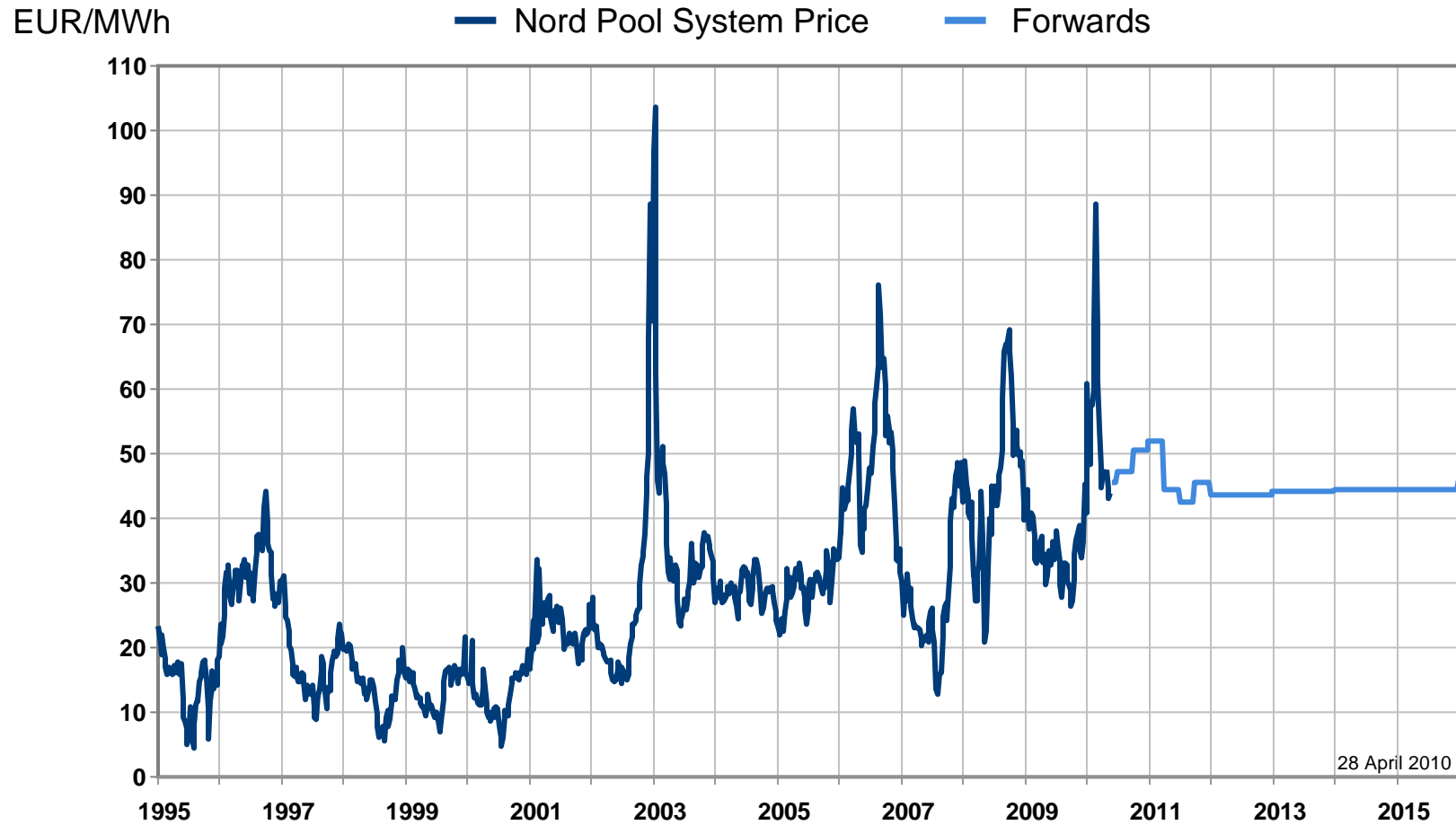
– dominated by hydro, but fossil needed



Source: Nordel

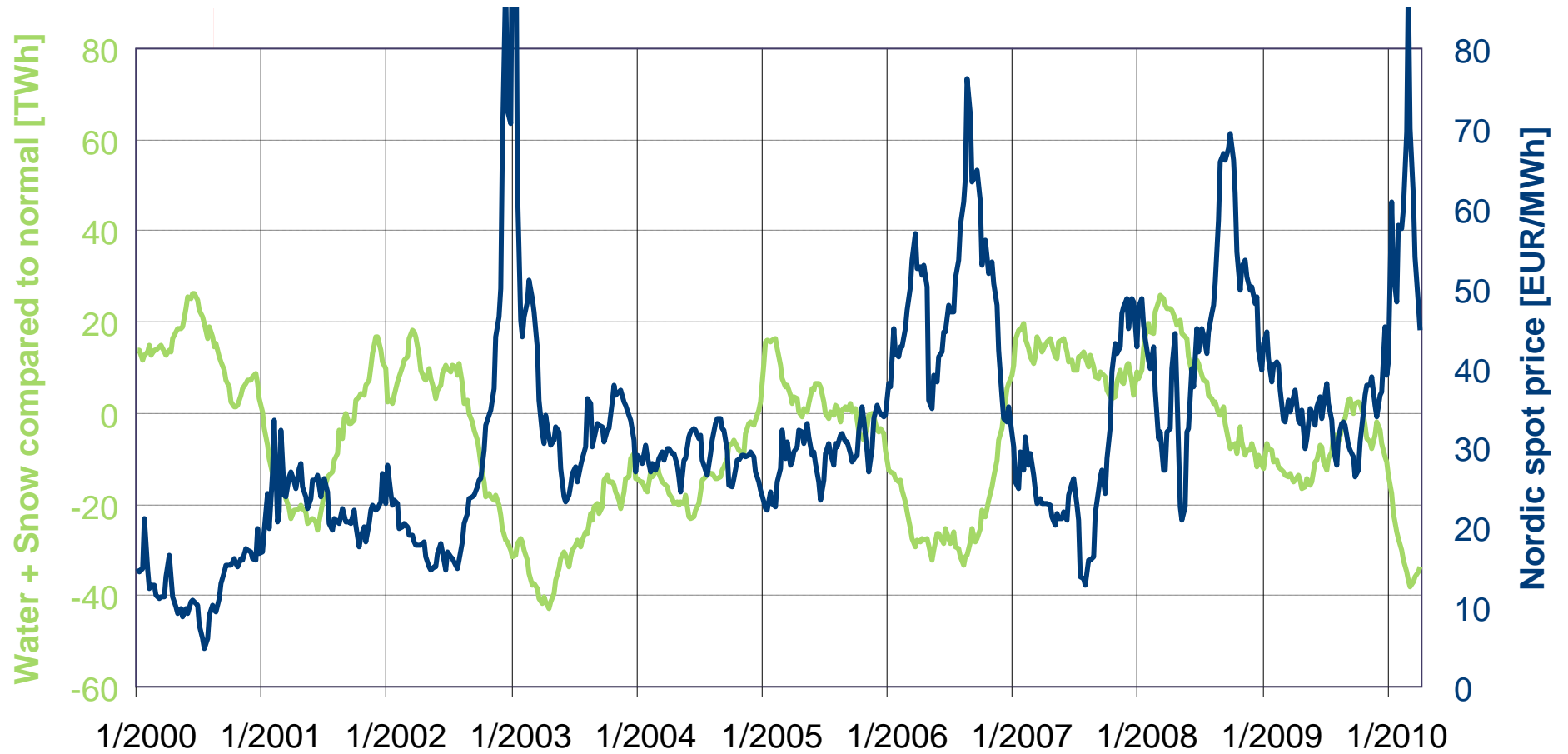
*) Normal annual Nordic hydro generation 200 TWh, variation +/- 40 TWh.

Wholesale price for electricity



Source: Nord Pool

Hydro balance affects the spot

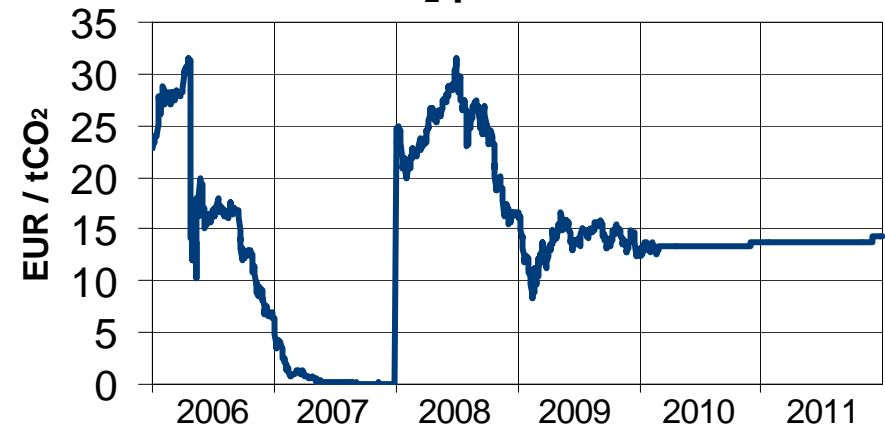


Fuel and CO2 allowance prices

Crude oil price (ICE Brent)



CO₂ price (NP EUA)



Coal price (ICE Rotterdam)

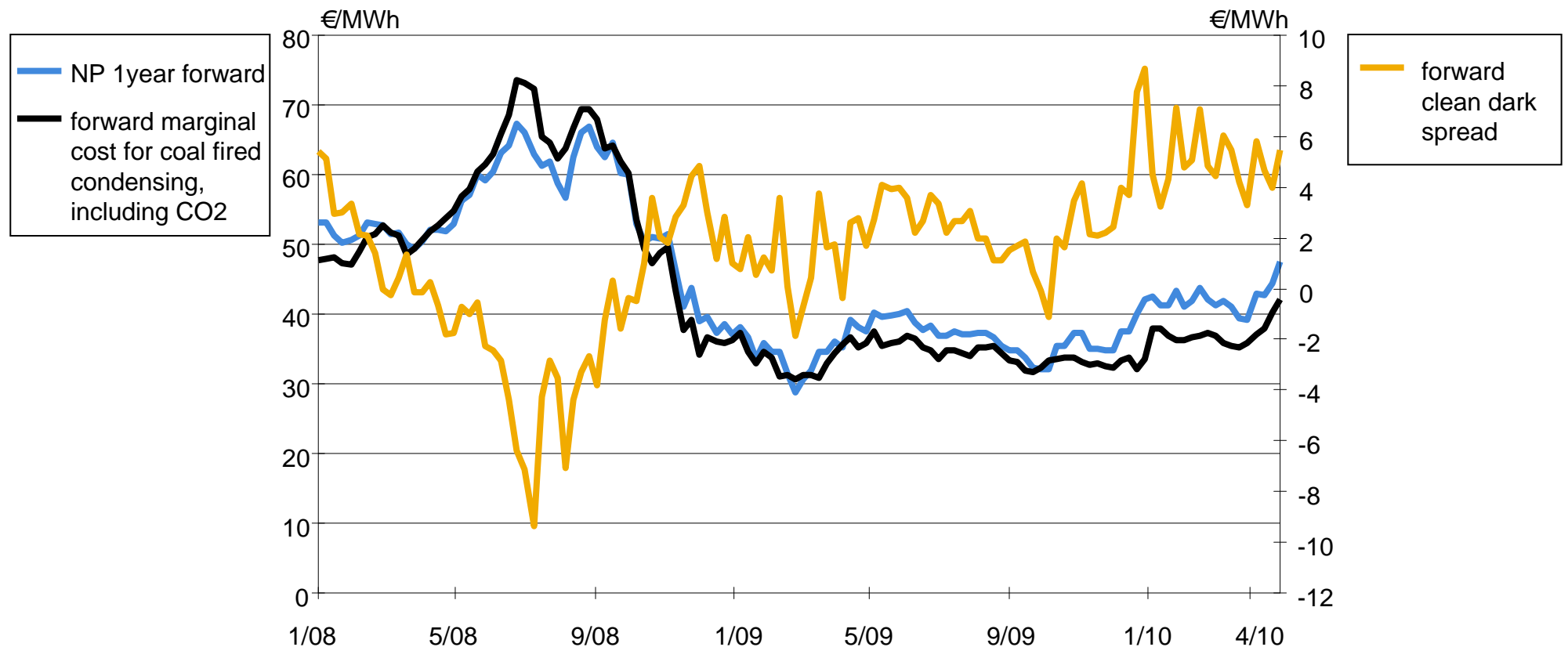


Gas price (ICE NBP)



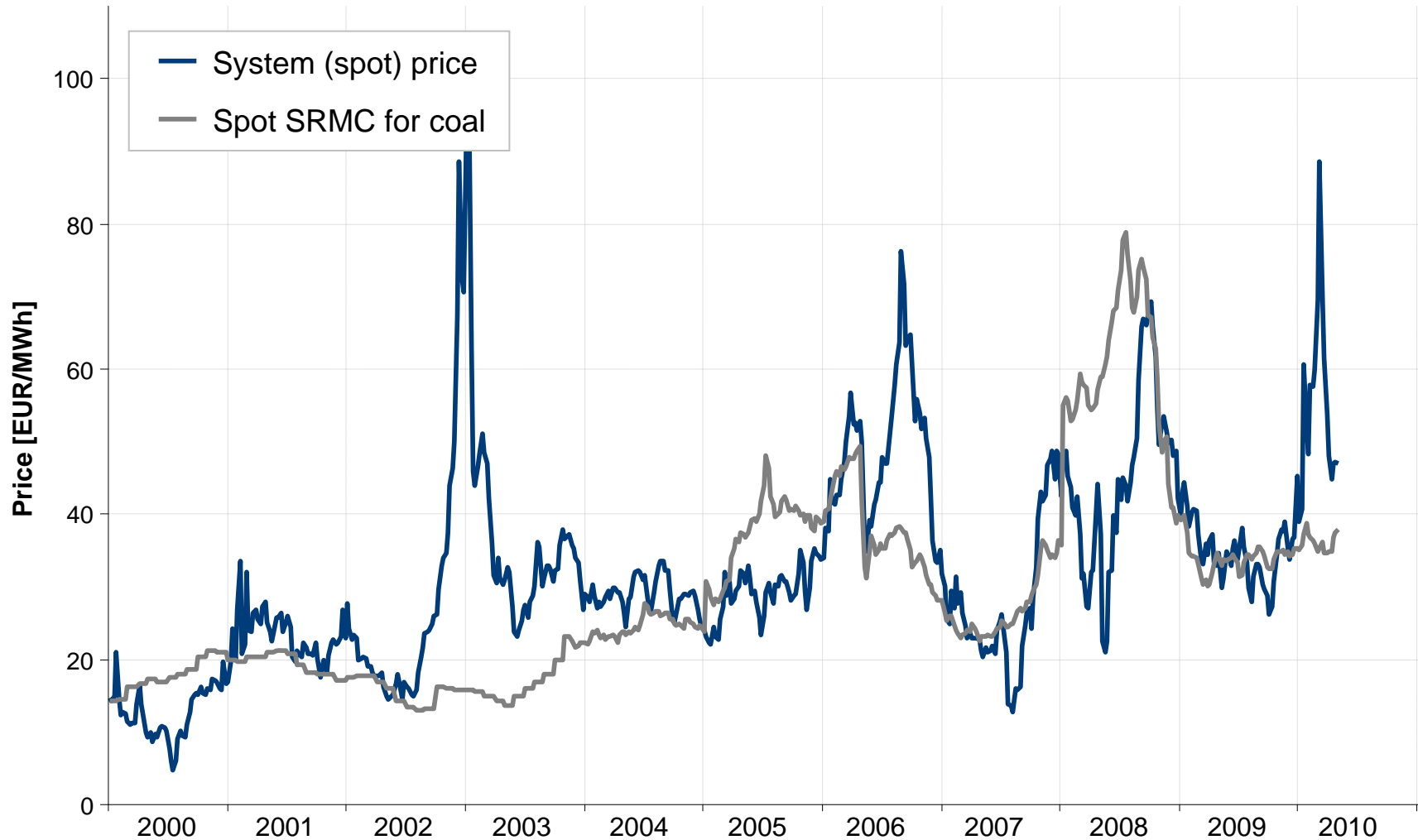
Source: ICE, Nord Pool

Nord Pool forwards have followed the (clean) SRMC for coal condensing power

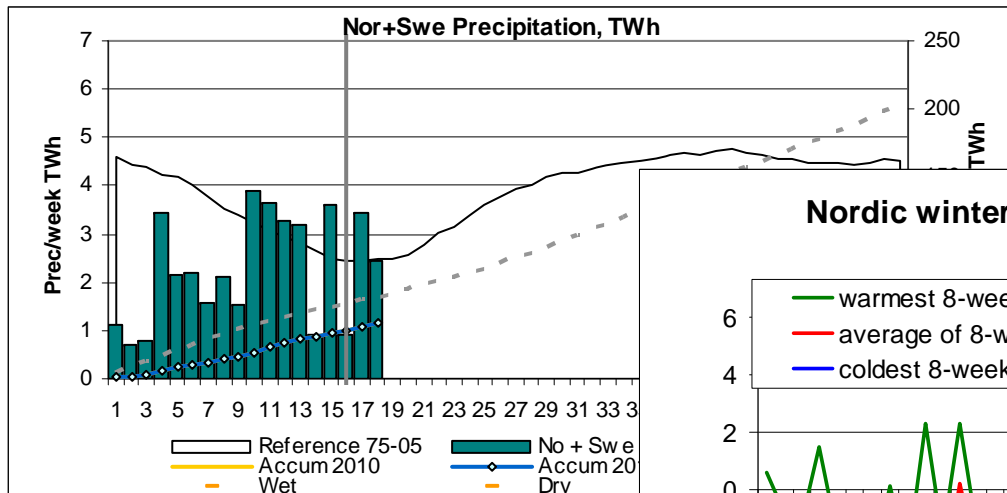


Note: Thermal efficiency 38%, hard coal with 7.1 MWh/ton energy intensity (25.6 GJ/ton)
0.9 tons of CO₂ per MWh electricity. Data to 30 Apr 2010, Bloomberg. Weekly average prices.

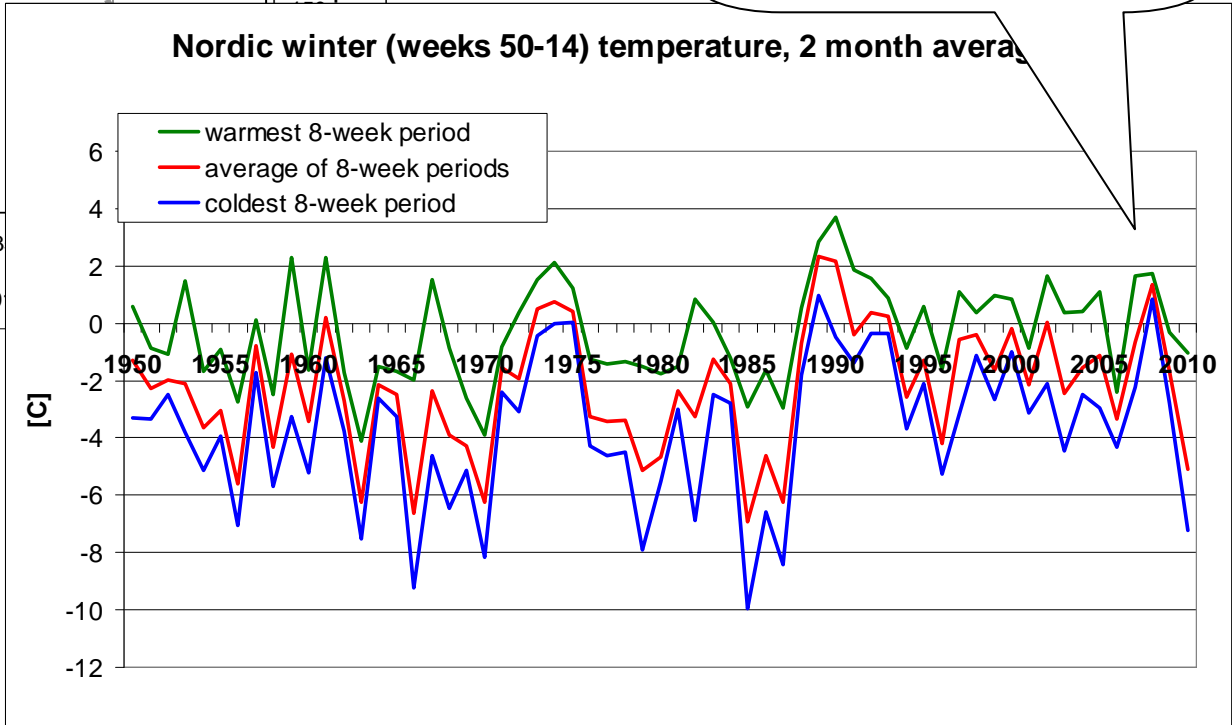
Nordic spot price deviates from SRMC for coal mainly due to changes in hydrological situation



Cold and dry winter, more "normal" since mid-March

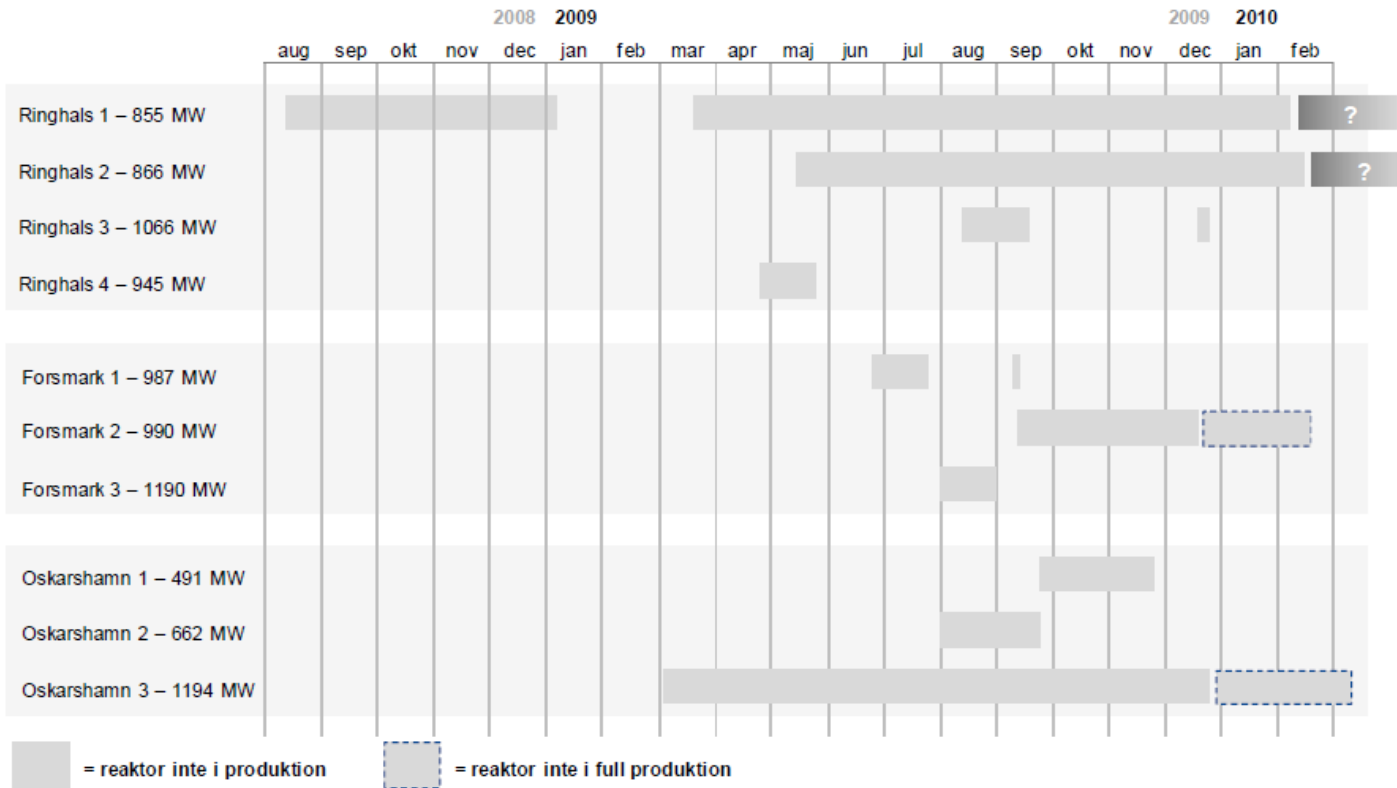


Coldest winter since 1987, until mid-March



Precipitation close to normal since March

Modernisation projects lowered Swedish nuclear availability in 2009 and Q1/ 2010

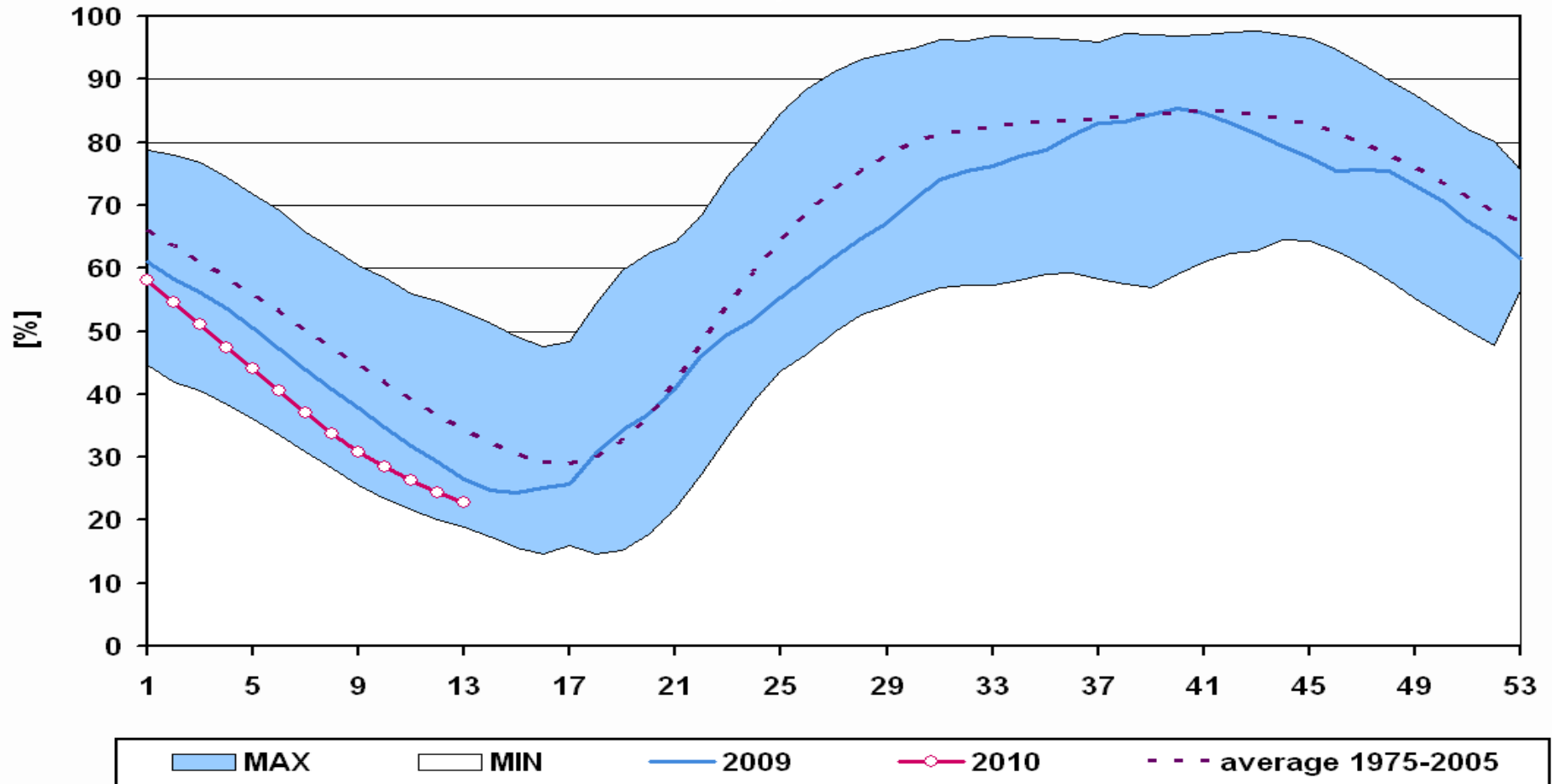


- Swedish nuclear production 2009: 50 TWh
- With an availability* of 85 % current capacity would give ~70 TWh
- Installed capacity in the end of 2009 was 9 300 MW
- If all upgrading projects are approved and realized the capacity post 2014 will be 10 100 MW

Grey parts show reactor out of operation. Source: Econ Pöyry.

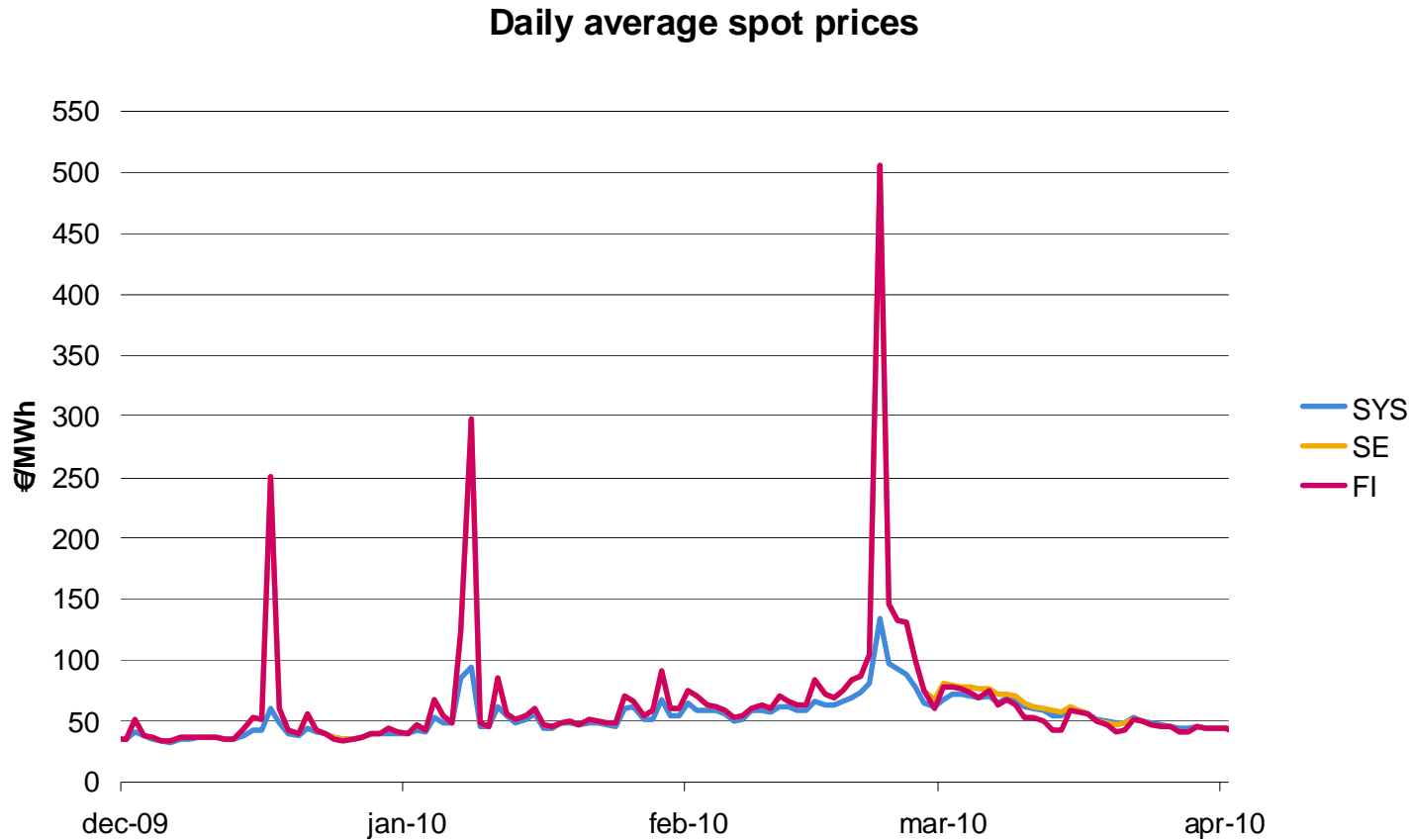
* Availability including planned maintenance

Nordic hydro balance decreased by ~20 TWh in Q1/2010



* Estimated Nordic hydro balance, water and snow included

Exceptionally cold weather combined with nuclear unavailability led to price spikes in December, January and February

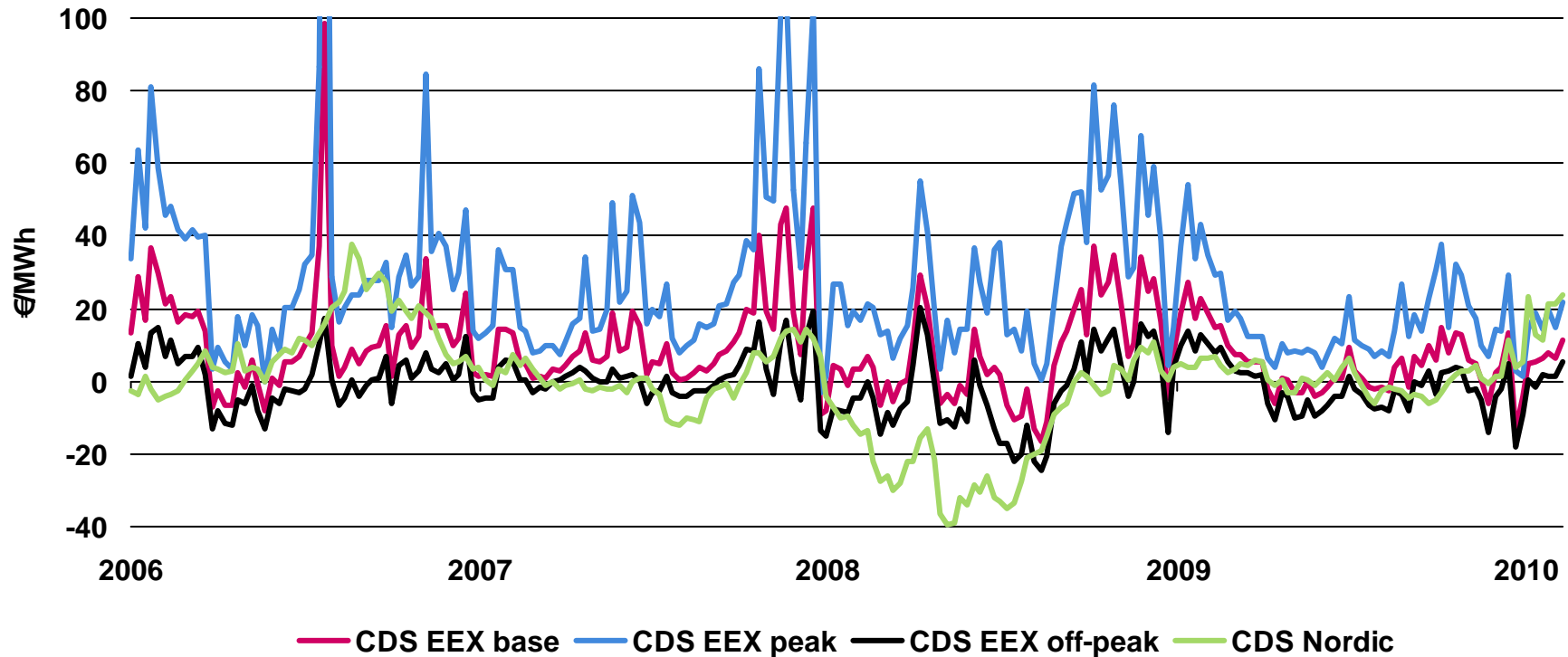


Nord Pool and German EEX forward year spread decreased constantly since October



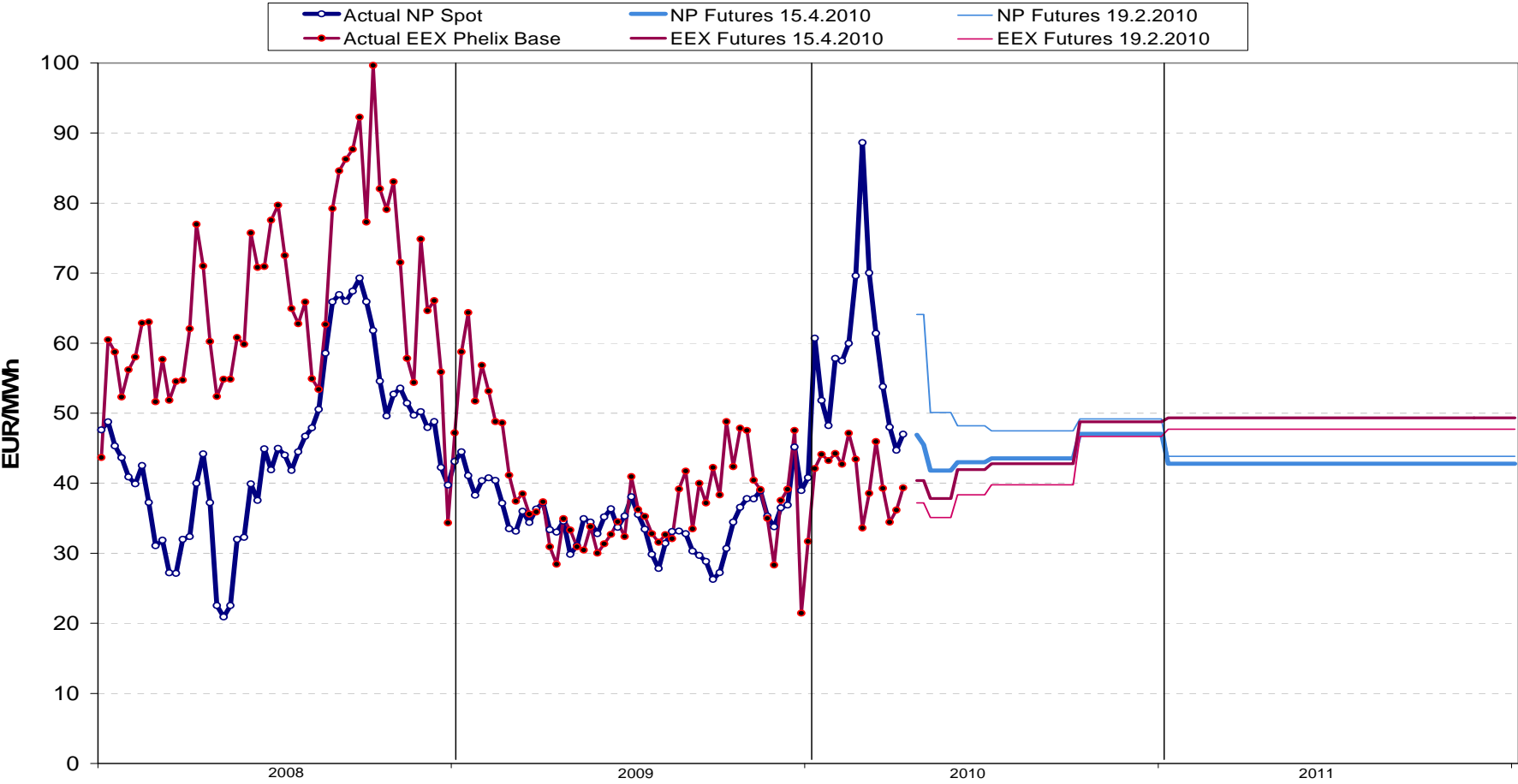
Nordic CDS normally follows EEX off-peak (night time imports) but has lately followed EEX peak (day time imports)

Weekly Clean Dark Spread EEX and Nord Pool



Note: Assumes thermal efficiencies for coal fired plants at 38% and other variable costs at 3 €/MWh

Market expects Nordic spot to exceed the German price till 2011



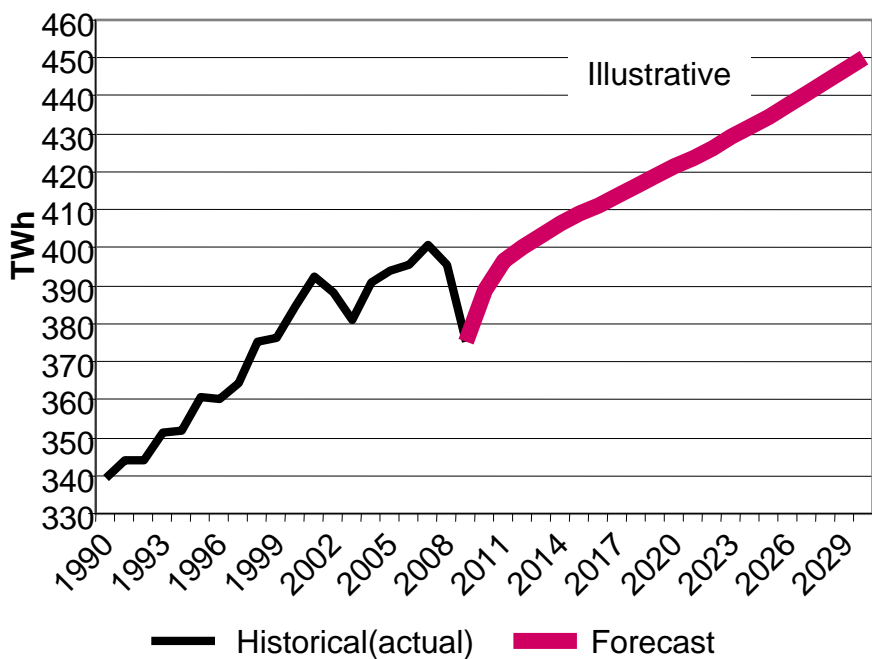
Next year forward has increased recently along with increasing coal and CO2 price

— ENOYR-11



Demand will continue to grow

– Pre-crisis level to be reached in 2012-2014



• Industry growth (+)

- Growth sectors: mining, metal, manufacturing
- Stagnant sector: forest industry. New products e.g. bio fuels will mean some growth

• Population growth (+)

- Nordic countries grow. NO and SE also from immigration

• Total energy efficiency

- Industry efficiency (–)
 - Productivity gains
 - Governmental stimuli: e.g. Swedish tax relief if joining efficiency programs
- Household and services (+/-)
 - Heat pumps: oil replacement (+), direct electric heating (-). Support programs
 - ECO design and light bulbs directives (-)

• Electric vehicles (+)

- Case Finland
 - EV consumption 0.15-0.20 kWh/km; 2.7m cars; on avg 17,000 km per year;
 - With 100% penetration, electricity consumption 9.2 TWh/a (total normal power consumption now around 90 TWh/a)

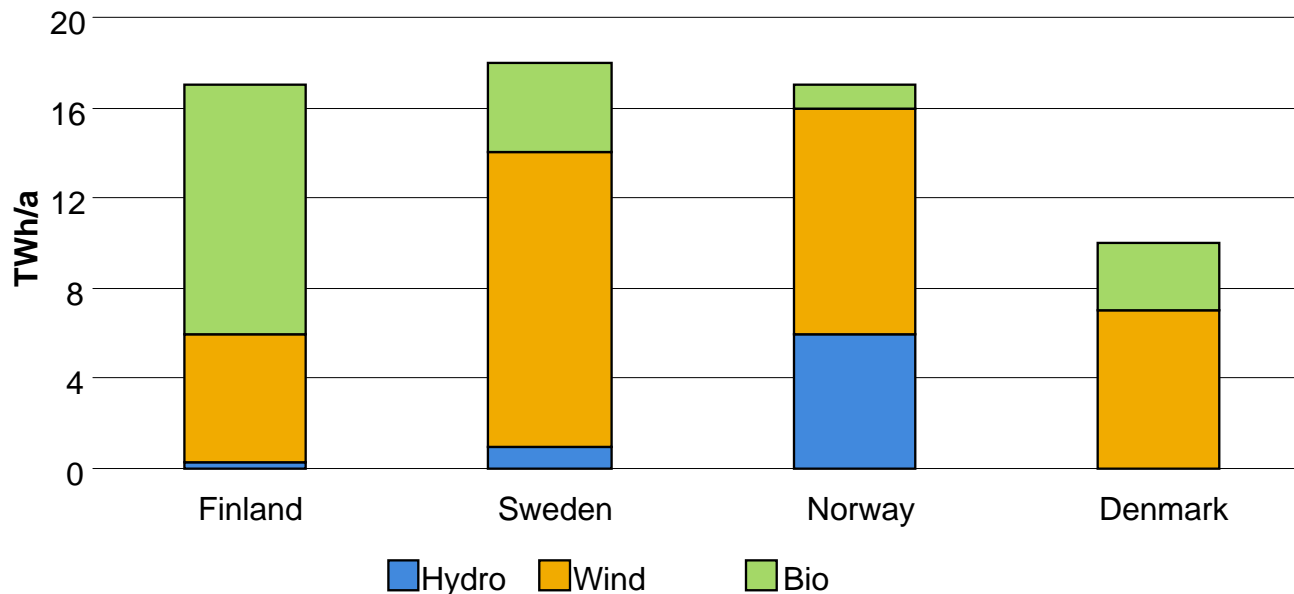
Renewables – the Finnish targets

- Under the EU Renewables Directive, Finland has to raise the share of renewables in the final energy use from 28.5% in 2005 to 38% by 2020
- In April 2010, the Finnish Government agreed in principle on a support package to reach the target mainly through the following measures:
 - bio energy in CHP: wood chipping subsidy; variable feed-in support (+ 19 TWh_{fuel})
 - bio energy in traffic: 20% bio fuel share; three bio refineries (+ 7 TWh_{fuel})
 - wind power: premium feed-in tariff, target price € 83.5/MWh (+ 5.7 TWh)
 - heat pumps: increase of the use of renewable heat from 2 TWh to 8 TWh
 - hydropower: investment subsidies to plants below 10 MW (+ 0.5 TWh)
- Final support legislation should be approved latest in spring 2011
- Investment subsidies in total € 408m, annual support € 341m in 2020

Source: Finnish Ministry of Employment and the Economy

Needed new renewable power generation for reaching the national RES-E targets

Targeted RES-E production by 2020 compared to 2008



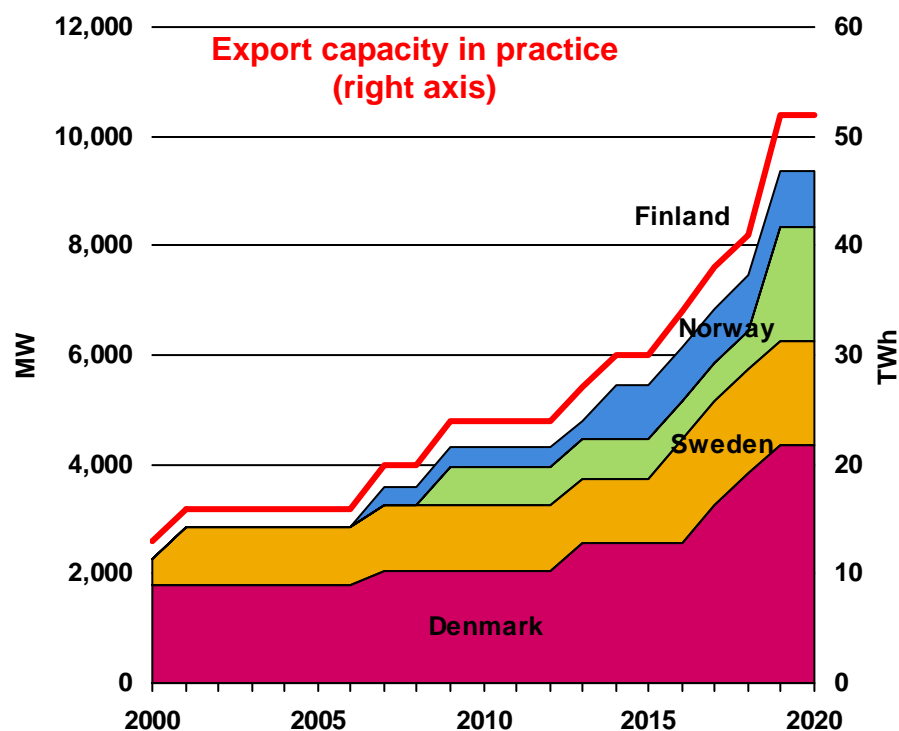
Hydro figures represent average year production levels. Bio would mainly replace old (CHP) capacity

- Certificate scheme in Sweden aiming for 25 TWh RES-E additions 2002-2020
- Norway plans to join the Swedish certificate system in 2012, with equal ambitions as Sweden
- Feed in tariffs for bio and wind in Finland to be introduced

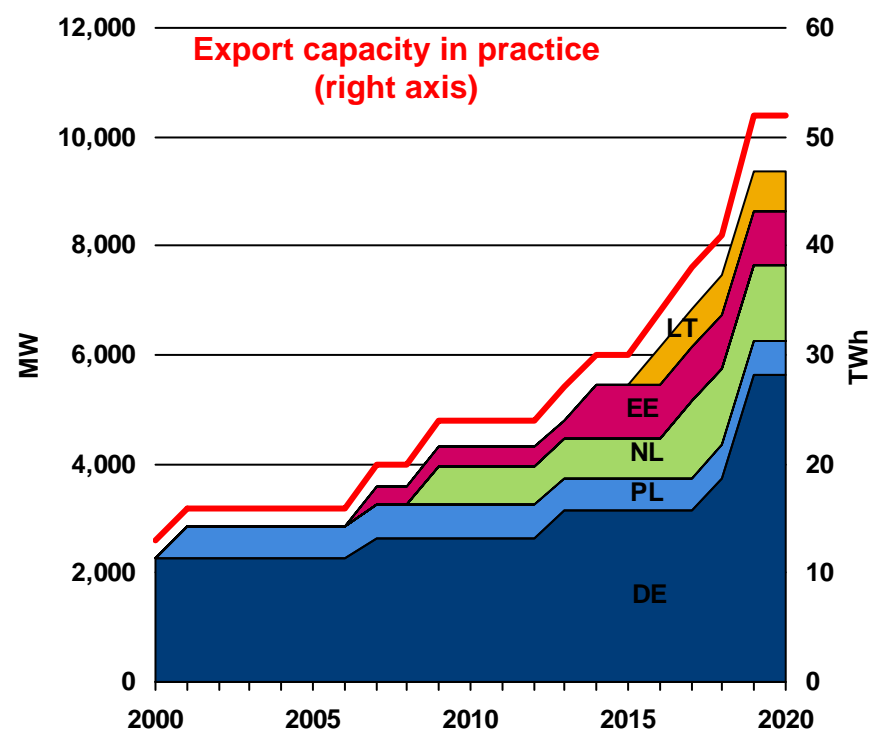
Note: National RES targets are for the total end-user energy consumption. Electricity targets (RES-E) are estimates based on the overall RES targets.

Export capacity to Continental Europe will at least double by 2020

Export capacity by exporting country



Export capacity by importing country



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Conclusions

- Seasonally hydrology and temperature continue to have a significant impact in Nord Pool pricing
- Commodity prices have a big role especially in forward but also in spot pricing
 - coal, CO₂ and gas
- Demand for electricity still growing
- Investments in new generation capacity needed
 - cost of new capacity driving the prices long term
 - demanding targets for renewables; economics and actual increase in capacity still open
- Import/export possibilities increasing through market coupling and new physical interconnections