

Capital Markets Day 2012

Nordic power market & Fortum's hedging

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Disclaimer

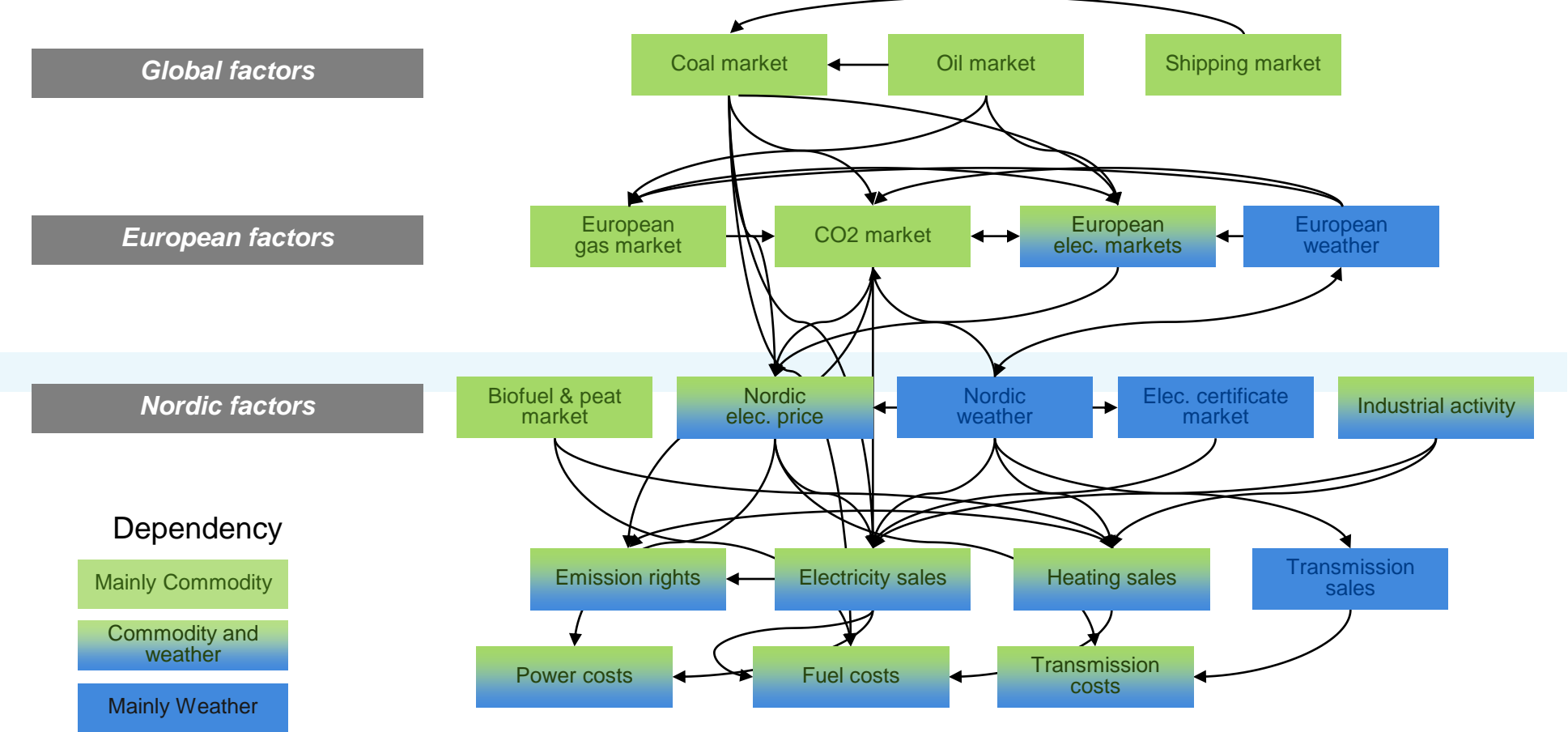
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Agenda

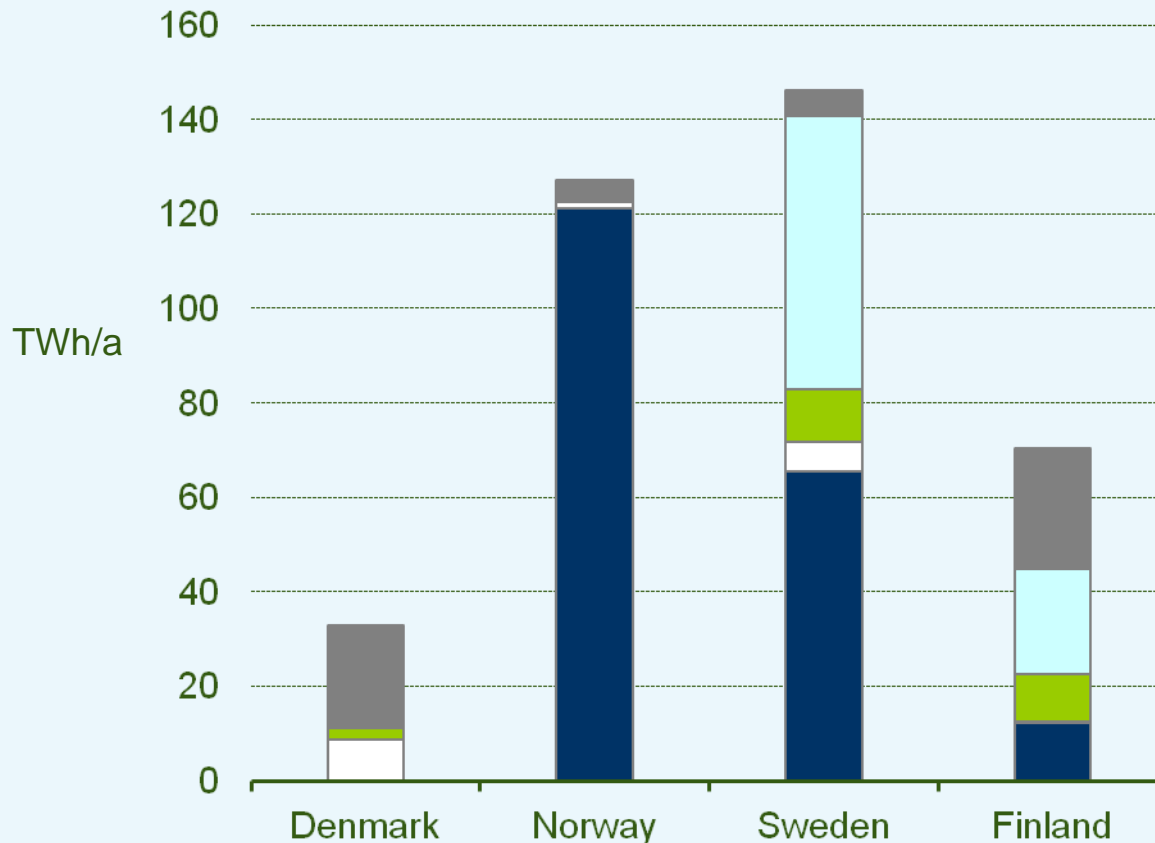
- Nordic Power market
 - Market structure
 - Hydrology a key driver for market prices
 - RES outlook in the Nordic markets
 - Increasing interconnection towards continental Europe
- Fortum's approach on hedging
 - Why hedging is needed
 - Toolbox for hedging
- Key takeaways

Success in hedging requires mastering the complexity of the Nordic power market



Nordic power generation

Half of the production flexible hydro, and fossil remains at the margin



Total Nordic generation 378 TWh in 2011		
	TWh	%
Fossil fuels	57	15
Nuclear	80	21
Biomass	24	6
Wind	17	5
Hydro *	200	53
Net import in 2011: 3 TWh		

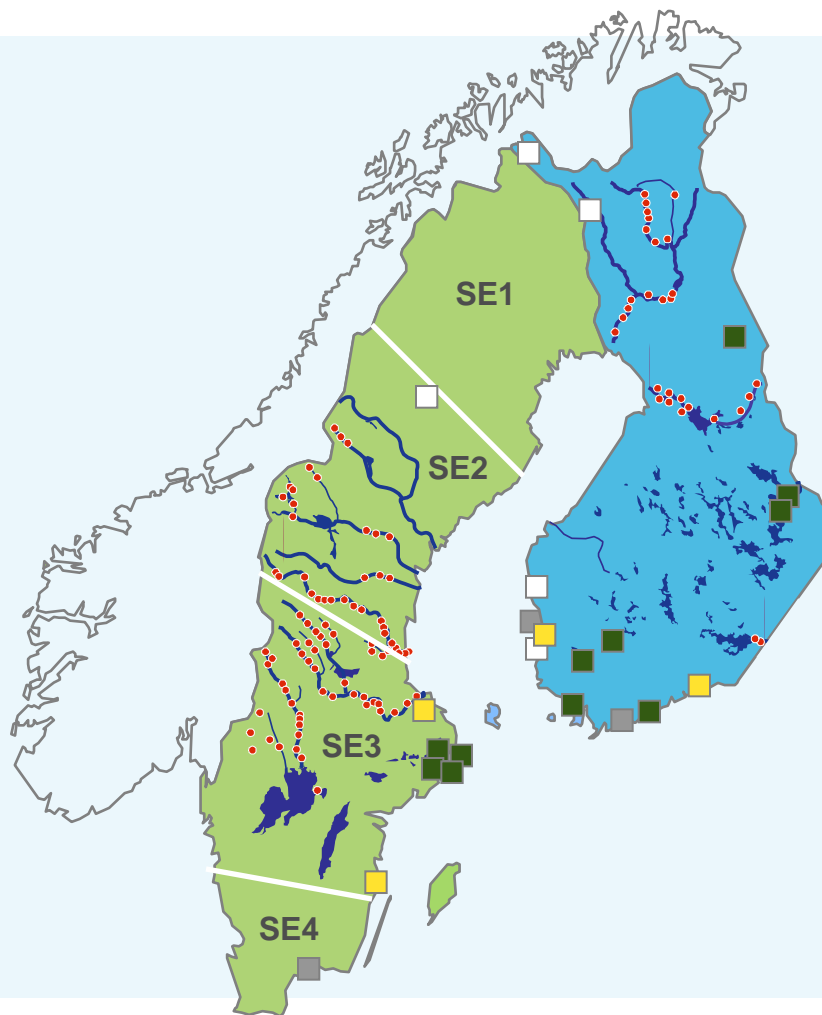
Source: ENTSO-E Memo 2011

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

Fortum's Nordic generation capacity

Sweden

Price areas	MW
SE2	1 557
Hydro	1 543
Wind	14
SE3	4 022
Hydro	1623
Nuclear	1 787
CHP	612
SE4	
Other thermal	297
Generation capacity in Sweden	5 876



Nordic

	MW
Hydro	4 665
Nuclear	3 247
CHP	1 315
Other thermal	1 685
Wind	17
Nordic capacity	10 929

Finland

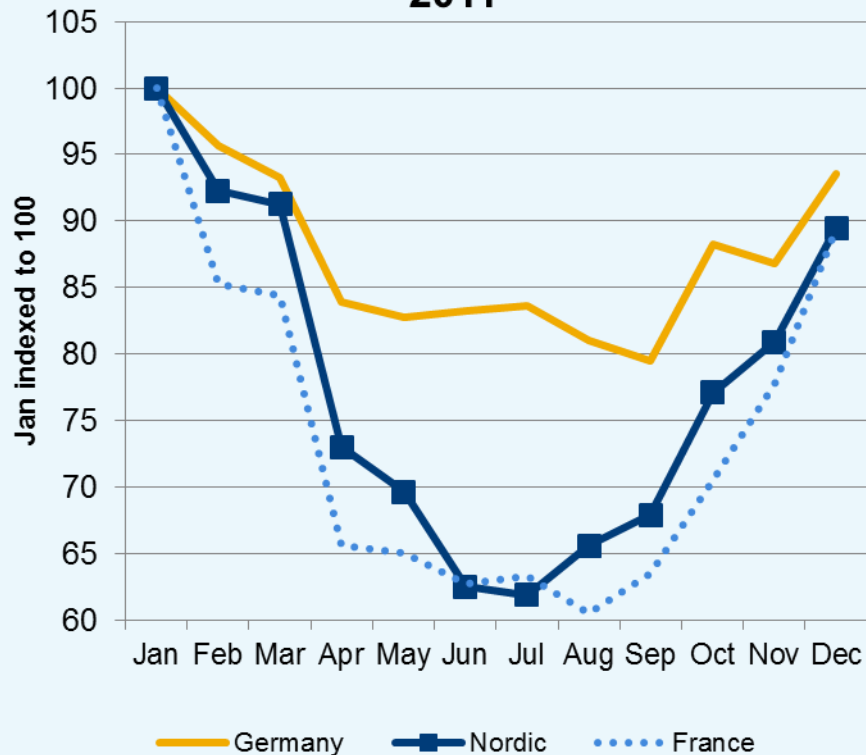
	MW
Hydro	1 499
Nuclear	1 460
CHP	703
Other thermal	1 388
Wind	3
Generation capacity in Finland	5 053

At the end of Q3 2012

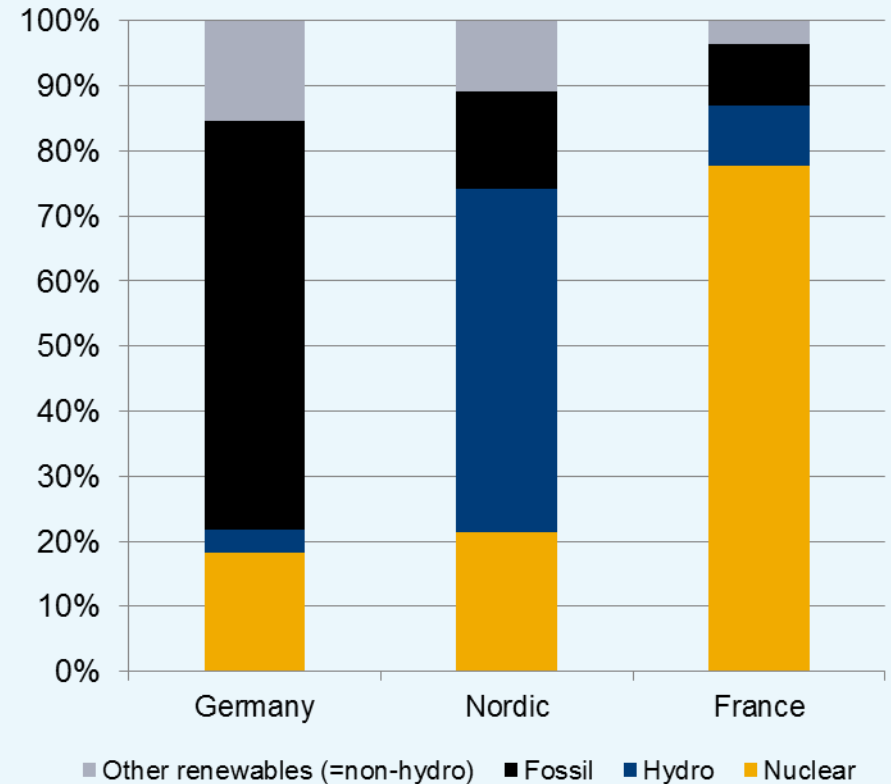
Electricity demand is seasonal

Flexible production is valuable

Seasonality of selected markets, 2011

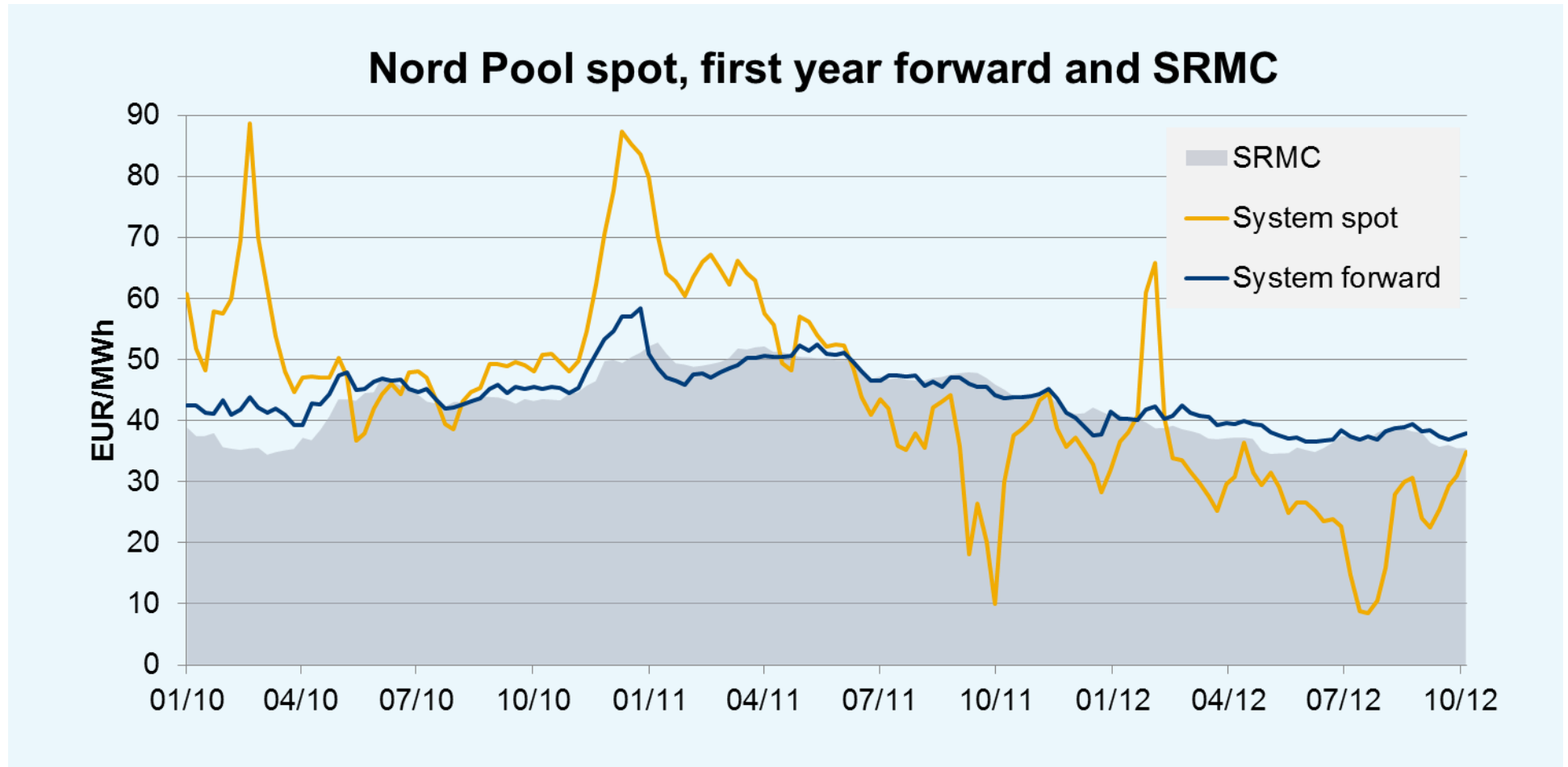


Production mix



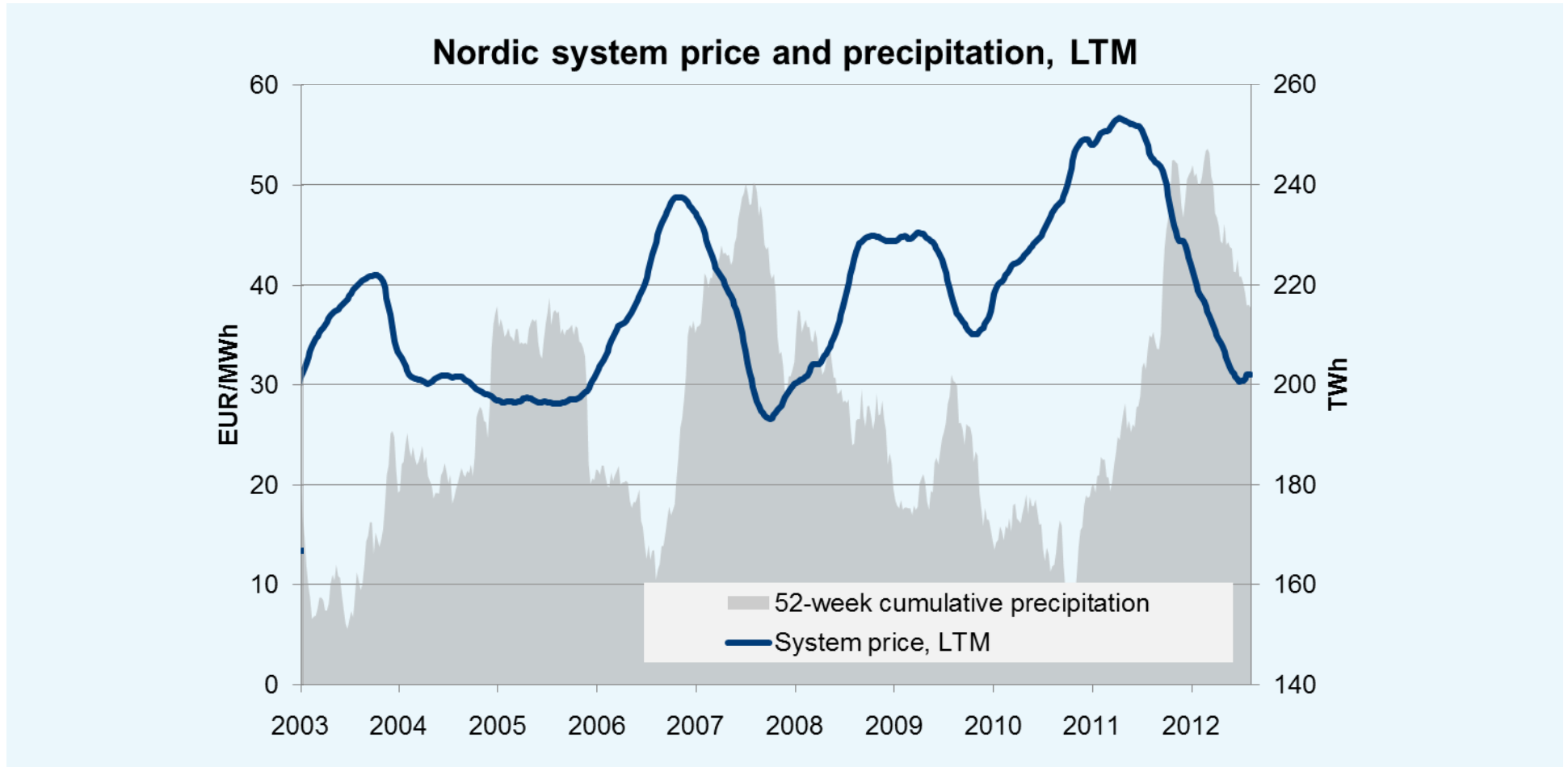
Nord Pool forwards follow SRMC of coal fired power

Spot market reacts to seasonality and changes in hydrology

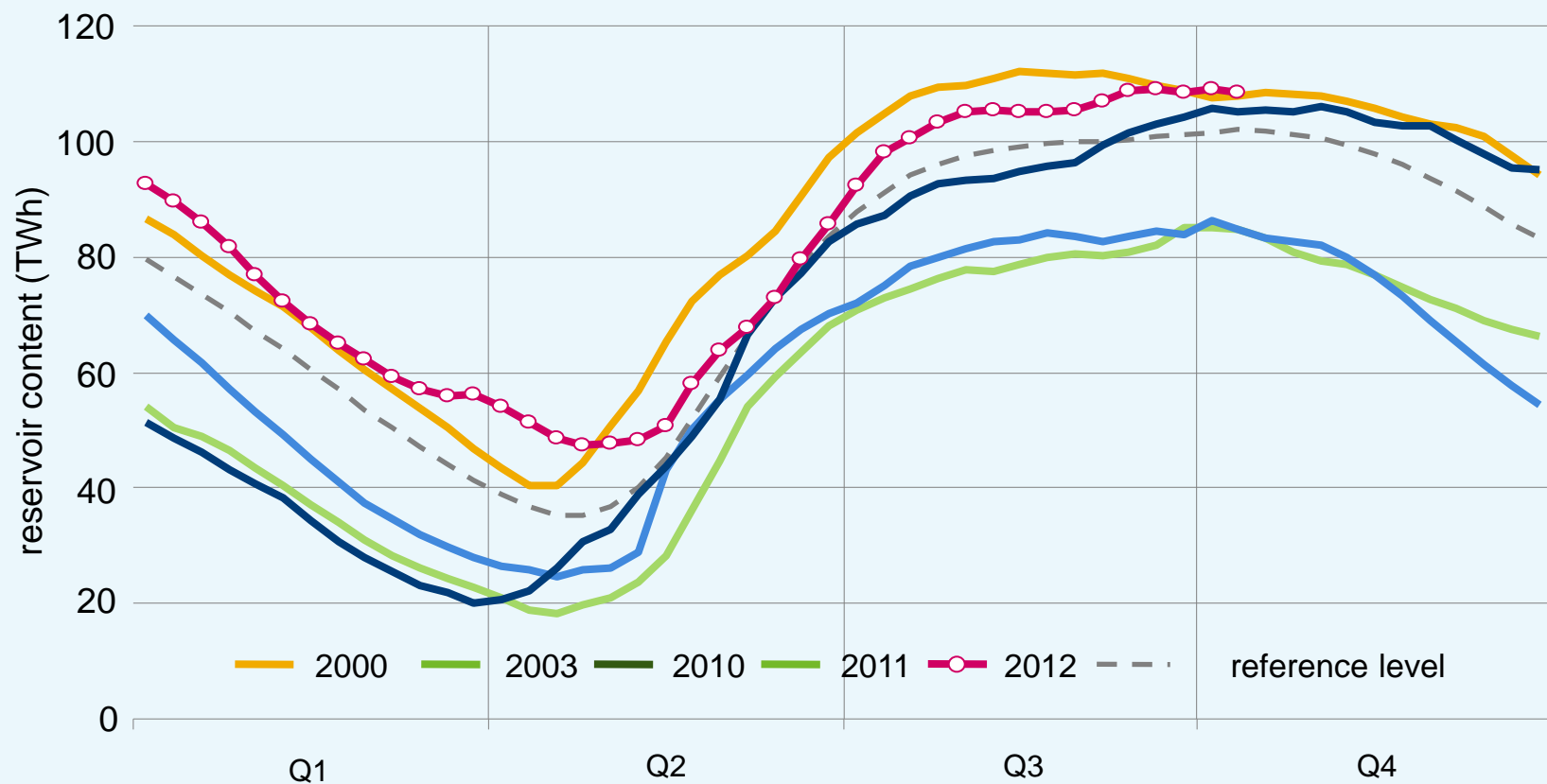


Precipitation is an important driver for Nordic prices

Summer price drop coincided with high 52-week rainfall



Nordic water reservoirs have been above average through the year

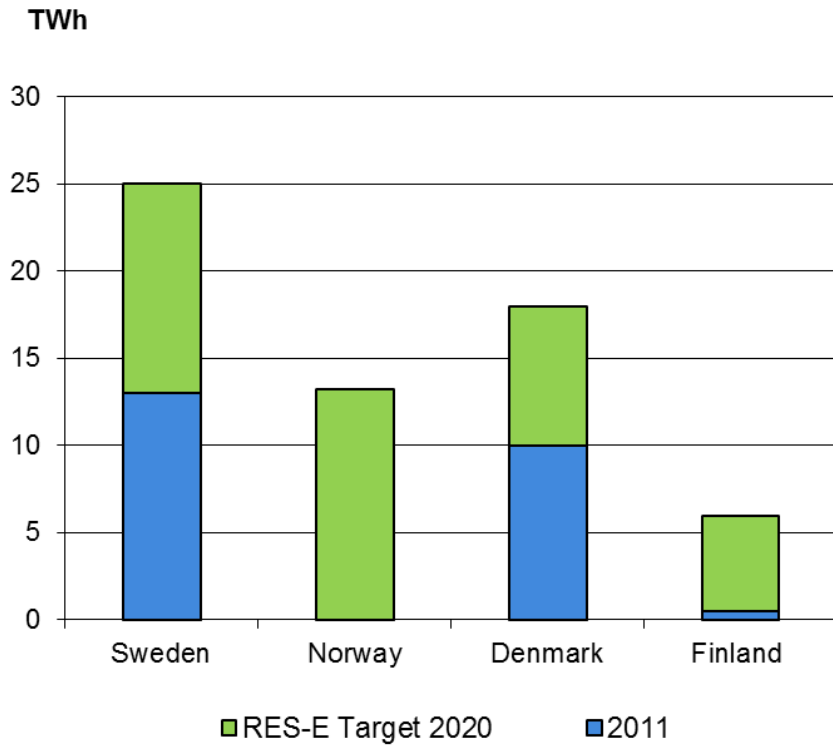


Source: Nord Pool Spot

Nordic RES targets are ambitious

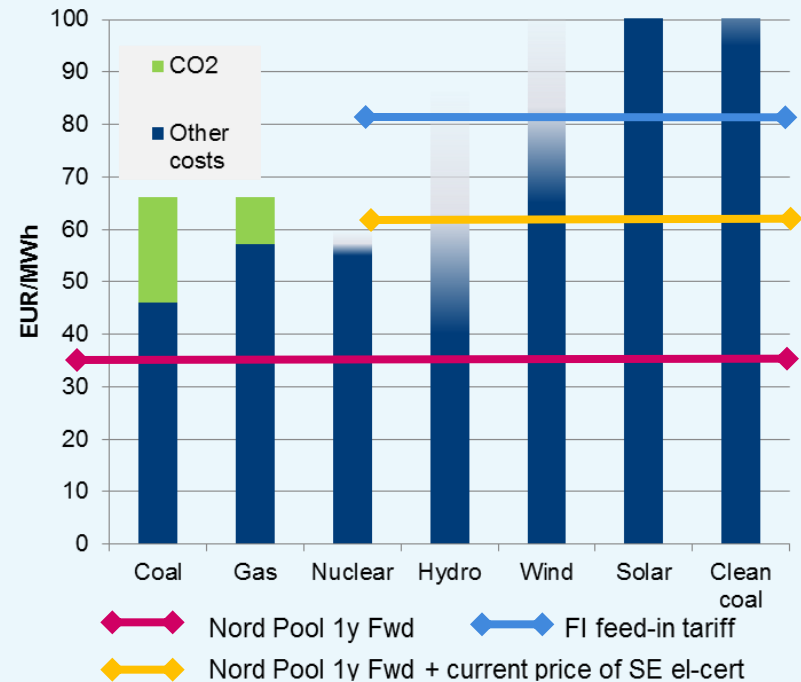
Increasing subsidies needed

RES-E Nordics



Source: Official RES strategies for Finland and Denmark, CERT system for Sweden and Norway; Nord Pool

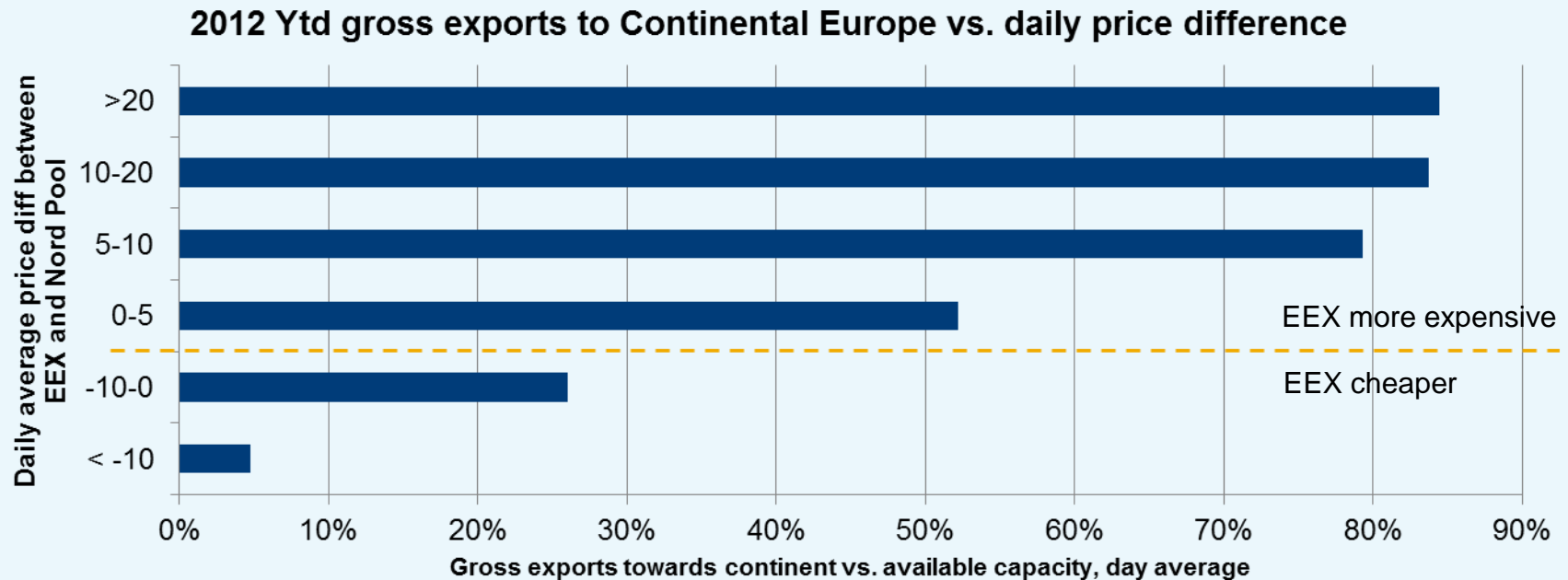
Indicative lifetime average costs of the key technologies



Indicated estimated lifetime average costs

Interconnectors are in efficient use

Use of interconnectors increases with price differences



- Increasing interconnector capacity with market coupling is an efficient way to reduce market imbalances
- At daily average price differential of EUR 10 between EEX and Nord Pool, exports stabilise to around 80% of the available capacity.

Stronger grid connections enhance power exchange opportunities with Continental Europe

- By 2020, planned increase of export capacity from Nordic countries is more than 6 GW in addition to the existing 4,275MW.
 - Of this, 1,350MW already being invested in (plus 700 MW to facilitate exports towards the Continent).
 - The planned capacity could imply 45 TWh increase in potential exports from the Nordics (10-12% of the current Nordic demand)*.
- Estlink-2 will improve Nordic Power exchange with the Baltic countries by 650MW (due in 2014).
- Incremental 2,400MW already being planned for 2020-2030 period, in addition to the proposed North Sea Supergrid.
- There are also plans to turn a part of Russian exports two-way by Q2/2013 (estimated ca. 330MW).

* Assuming 80% exports

Connection	Capacity (MW)	TYNDP*	Remarks
FI-EE (Estlink 2)	650	2014	under construction
DK-NO (Skagerrak 4)	700	2014	under construction
SE-LT (NordBalt)	700	2015	contracted
DK-NL (Cobra Cable)	700	2016-	wind link, uncertain
DK (Jutland)-DE	1000-1500	2017	new 400 kV route or 220 kV upgrade
DK-DE (Kriegers Flak)	600	2017-	offshore wind link
NO-DE	1400	2018	
NO-UK	1400	2020	
LT-PL (LitPol Link)	500/1000	2015/20	
EE-LV (3rd 330 kV)	450-600	2018/20	

Source: ENTSO-E Ten year development plan, Fortum

What is the purpose of hedging?

1

Secure 'Minimum EBITDA' to meet company's financial obligations

2

Further decrease volatility in company result due to power price variation to improve predictability of result

3

Increase Fortum result in the long run in comparison to result without hedging

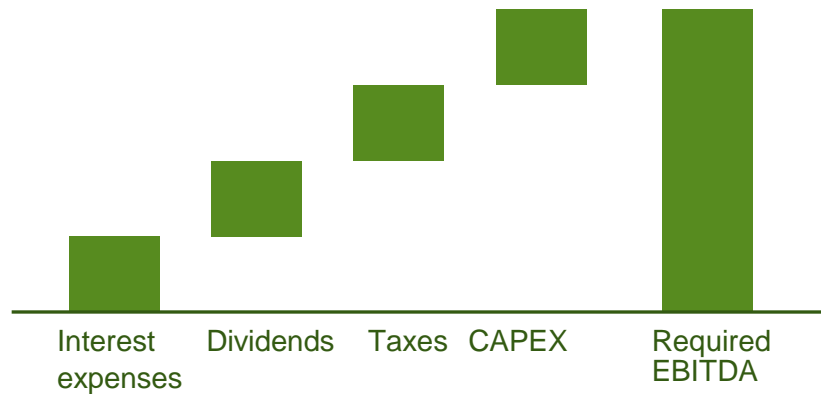
Managing EBITDA uncertainty to meet financial obligations

ILLUSTRATIVE

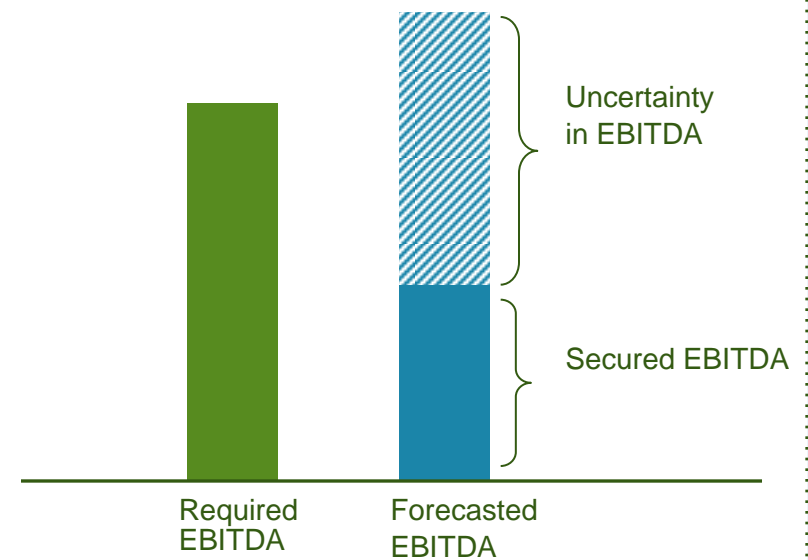
Financial obligations

EBITDA requirements

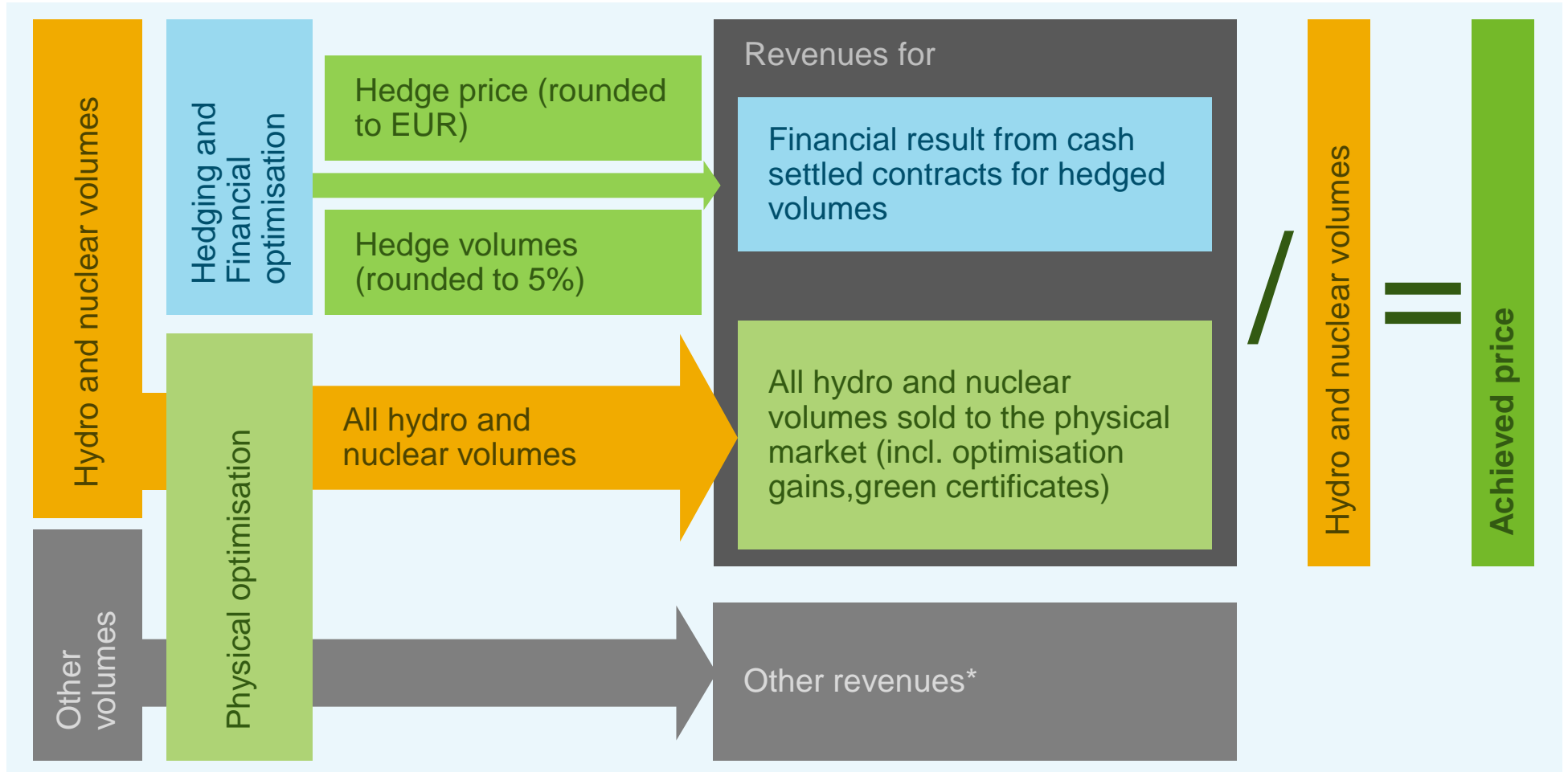
Calculate the required EBITDA level required to fulfill key financial obligations and capex plans



Guidelines to risk management



Fortum's optimisation, hedges and achieved price



*Revenues of power division also include revenue from spread-driven capacity, pass through and other minor items

Fortum's Nordic power price exposure is mainly in nuclear and hydro assets

Volumes for calculating hedge ratio

	Outright	Spread
Must-run *	<ul style="list-style-type: none">• Nuclear and must-run* hydro power (run-of river)• Price-taking capacity with low variable costs• Exposure to Finnish and Swedish power price	<ul style="list-style-type: none">• Co-generation of heat and power• Some flexibility (boilers can be used if power price is too low)• Exposure to margin between power/heat price and short run production cost (fuel, CO2, FX)
Option	<ul style="list-style-type: none">• Controllable hydro power with reservoirs• Extremely adjustable, can take benefit from intraday peaks and balancing power needs• Control depends on the level of reservoirs, and precipitation	<ul style="list-style-type: none">• Condensing power/additional condense from CHP• Optional exposure to margin between power price and short run production cost

* no possibility not to run or marginal cost of production very low.

Wide toolbox for hedging – but liquidity limits usability of some products

Nord Pool system forwards and options

- Cash-settled, cleared instruments against system price
- The main instruments for hedging
- Good liquidity in the front end

Contracts for difference (CfD)

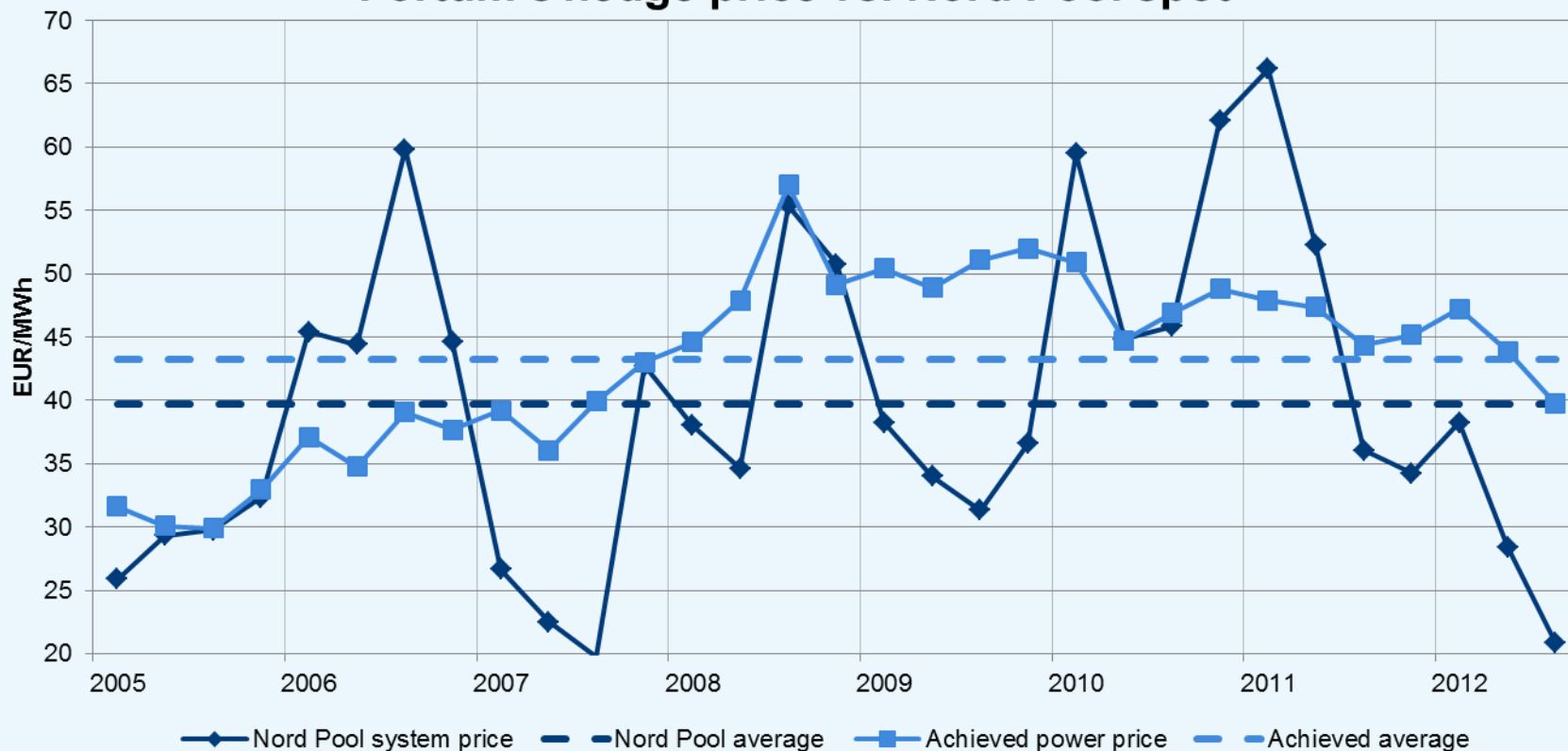
- Forwards used for hedging area price difference vs. system
- Cash-settled
- Liquidity decreases quickly with time

Forwards for variable cost items

- Particularly coal and CO2
- Used for e.g securing price premium against cost of coal fired power plants
- Very liquid
- Can also be used for reducing the price risk of fuel inventories

Hedging has stabilized achieved power price and Fortum's earnings

Fortum's hedge price vs. Nord Pool spot



Hedging has improved predictability of Fortum's achieved price and earnings

Key takeaways

- Half of Nordic power production is hydro power. This increases flexibility and causes precipitation driven seasonality.
- Annual forward prices have most of the time followed marginal cost of coal fired power. Spot has weather driven volatility.
- Nordic markets have ambitious targets for RES, which may increase cost burden for consumers.
- Several new interconnectors are being planned to further improve connections to the Continental Europe.
- Fortum manages its EBITDA against the volatility by actively hedging the relevant market exposure
- Fortum's achieved power price has been more stable and on average beaten the system price, thanks to hedging, physical optimisation, and location of assets.