

BASREC WS, St. Petersburg, February 28th, 2014

NORD POOL SPOT – LEADING THE POWER MARKETS INTEGRATION

North – Western Europe (NWE)

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- Project including 13 TSOs and 4 Power Exchanges
- First region to implement PCR
- Covers 75% of consumption in Europe
- NWE was successfully launched February 4th
- Calculation of prices and flows from France to Finland and Balticum in one integrated calculation

What is Nord Pool Spot

- Nord Pool Spot operates the leading markets for buying and selling power in Europe:
 - Elspot day-ahead market in the Nordic and Baltic regions
 - Elbas intraday markets in the Nordic and Baltic regions
 - N2EX market in the UK
- 370 companies from 20 countries trade on Nord Pool Spot's markets
- In 2013, 493 terawatt hours (TWh) were traded at Nord Pool Spot. This is equivalent to the power consumption of Oslo for 61 years



Our function

- To provide liquid, secure power markets
- To provide accurate information to the whole market, ensuring transparency
- To provide equal access to market for everyone wanting to trade power
- To be the counterparty for all trades; guaranteeing settlement and delivery

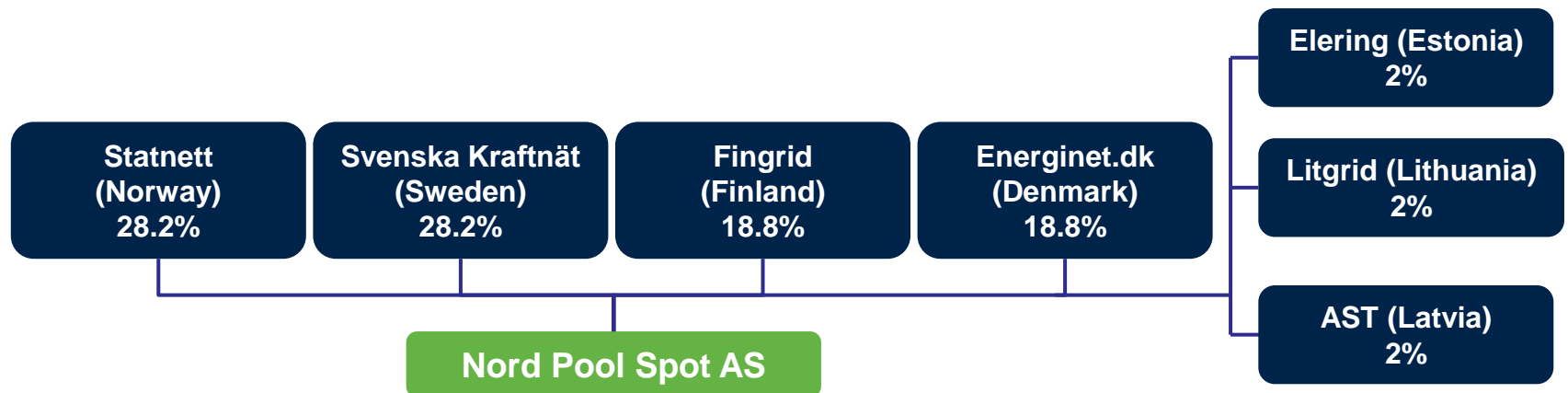


Our history

- 1991:** Norwegian power market deregulated
- 1993:** Nord Pool Spot established by the Norwegian TSO as 'Statnett Marked'
- 1996:** Rebranded to Nord Pool when Sweden joins, this is the world's first international power market
- 1998:** Finland joins Nord Pool
- 1999:** Elbas becomes the first international intraday market
- 2000:** The Nordic market becomes fully integrated as Denmark joins
- 2001:** Market Surveillance is established as an independent function of Nord Pool Spot
- 2002:** Nord Pool Spot established as a separate company for short term power trading
- 2005:** The Kontek bidding area in Germany opens for both day-ahead and intraday power trading
- 2008:** Financial part of Nord Pool sold to NASDAQ OMX Commodities
- 2009:** Market coupling of 11 European countries launched through EMCC (European Market Coupling Company) by Nord Pool Spot and EPEX
- 2010:** N2EX launched by Nord Pool Spot and NASDAQ OMX Commodities. Nord Pool Spot opens bidding area in Estonia
- 2011:** Elbas licenced to APX-ENDEX as the intraday market in Belgium and the Netherlands
- 2012:** Nord Pool Spot opens bidding area in Lithuania
- 2013:** Elspot bidding area opened in Latvia. Intraday market, Elbas, introduced in both Latvia and Lithuania

Stakeholders

- Owned by the Nordic and Baltic transmission system operators
- Regulated by the Norwegian Water Resources and Energy Directorate (NVE)



Our locations

- The Nordic and Baltic market: day-ahead and intraday
- The UK market N2EX: day-ahead and intraday
- System provider for day-ahead and/or intraday

Norway

Oslo, Headquarters

Finland

Helsinki

Sweden

Stockholm

Denmark

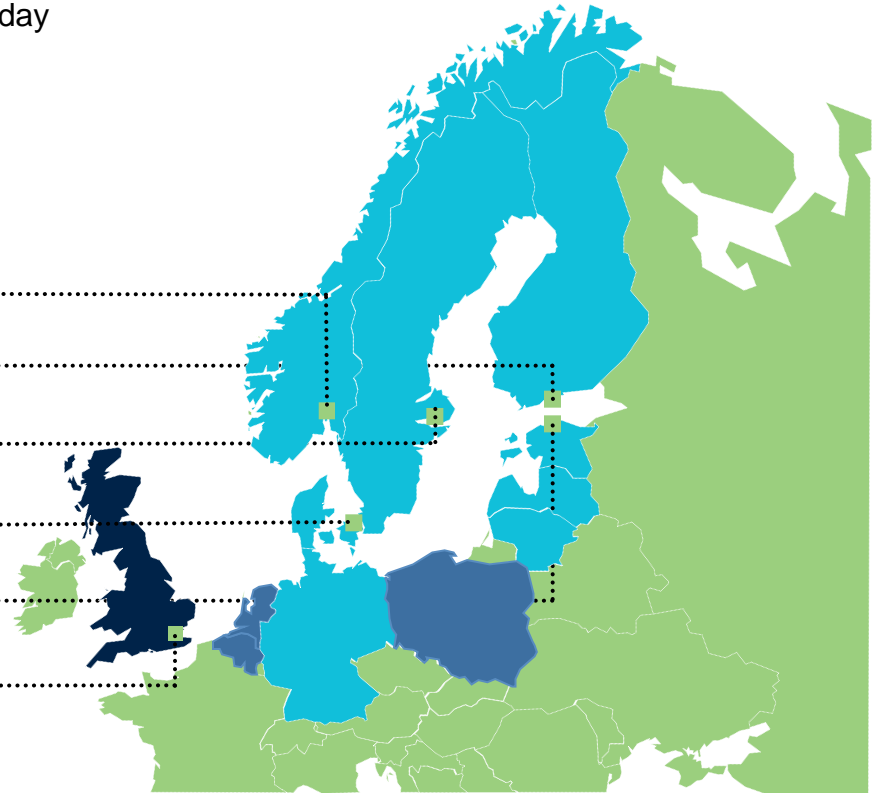
Copenhagen

Estonia

Tallinn

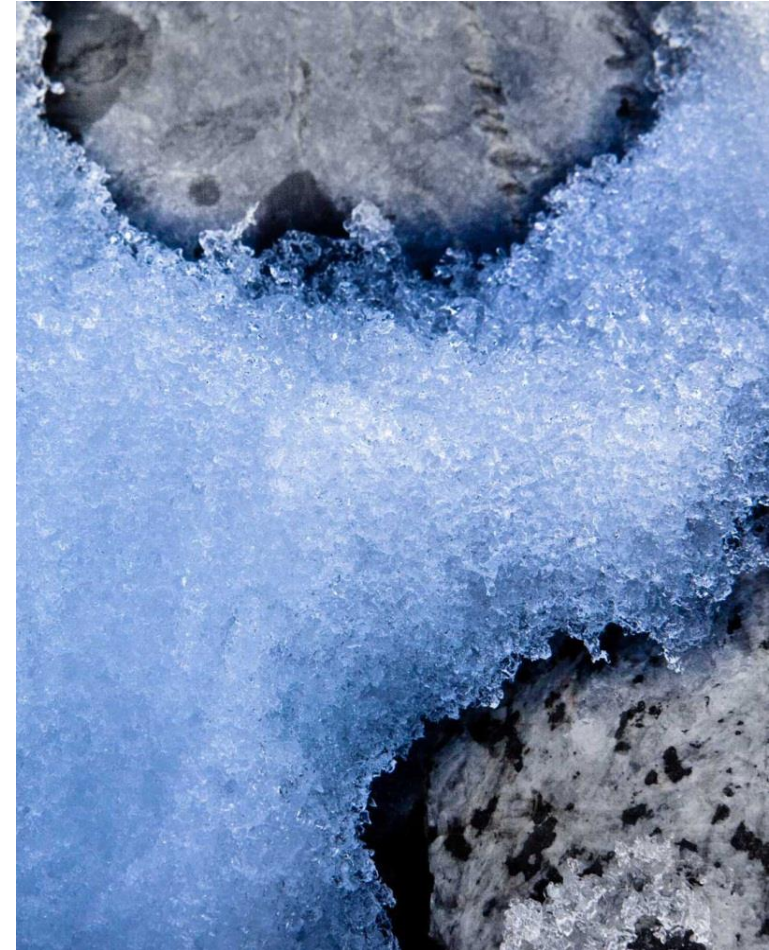
United Kingdom

London

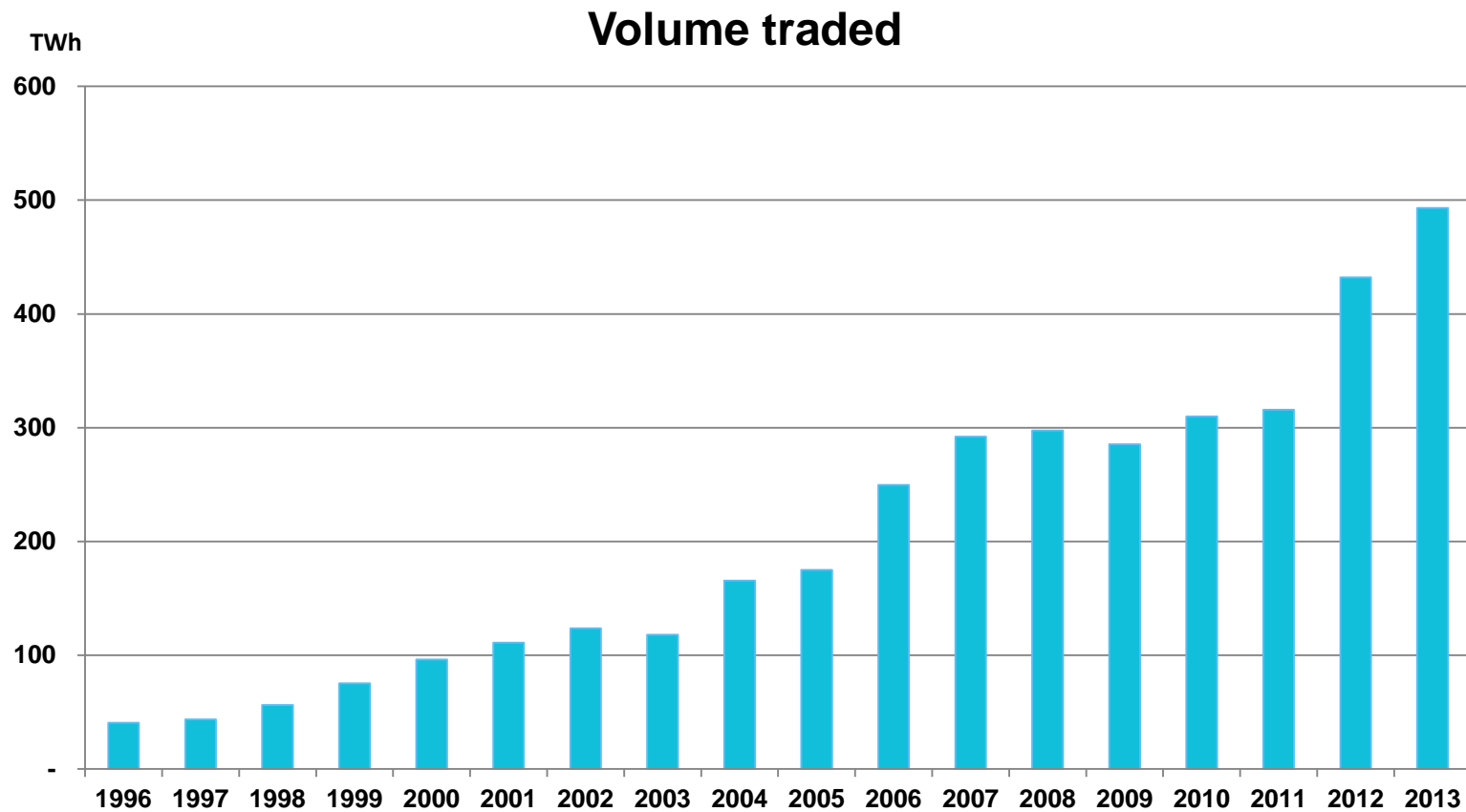


Our members

- Our members are typically power producers, suppliers and traders
- Large end-users also trade on the markets and buy power directly from Nord Pool Spot rather than through a supplier



Our power trade growth 1996-2013



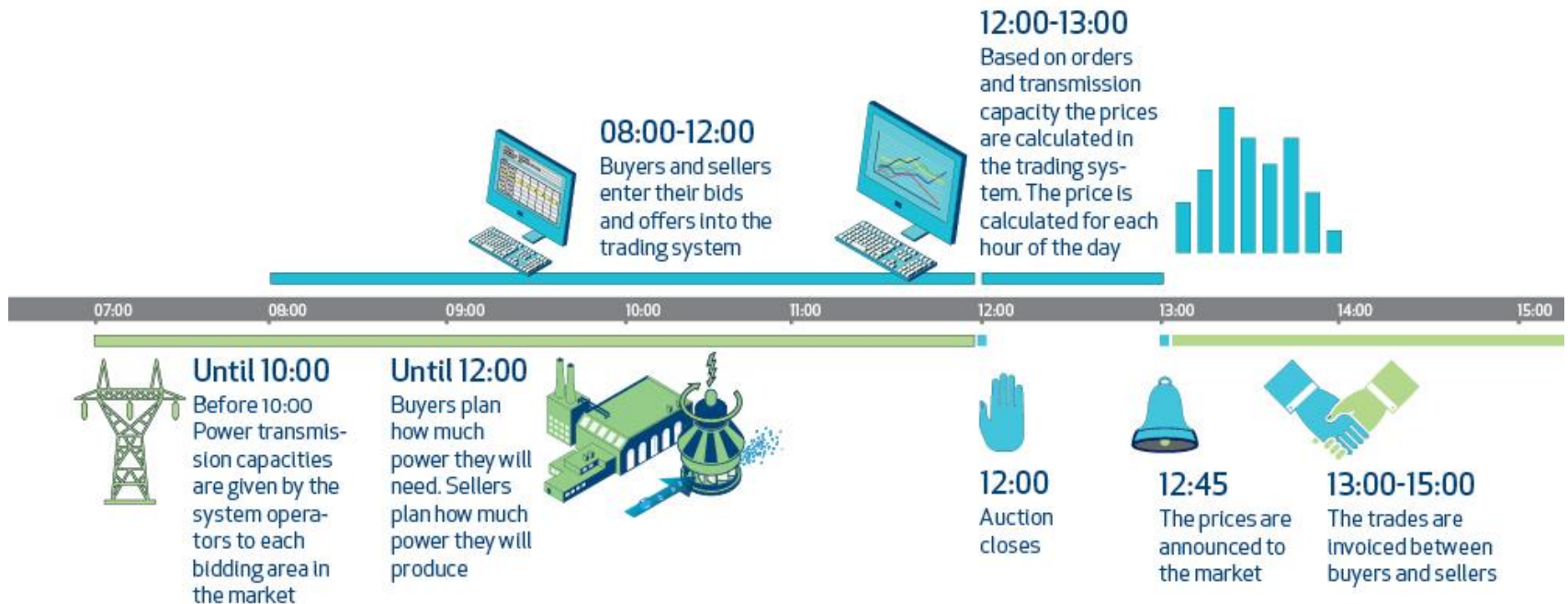
The Elspot market

- An auction of power for delivery the following day
- Prices are calculated based on supply, demand and transmission capacity (how much power can be moved from one area to another)
- 84% of Nordic and Baltic power consumption is bought on Elspot
- Elspot is Europe's most liquid day-ahead market, producing a robust and credible reference price



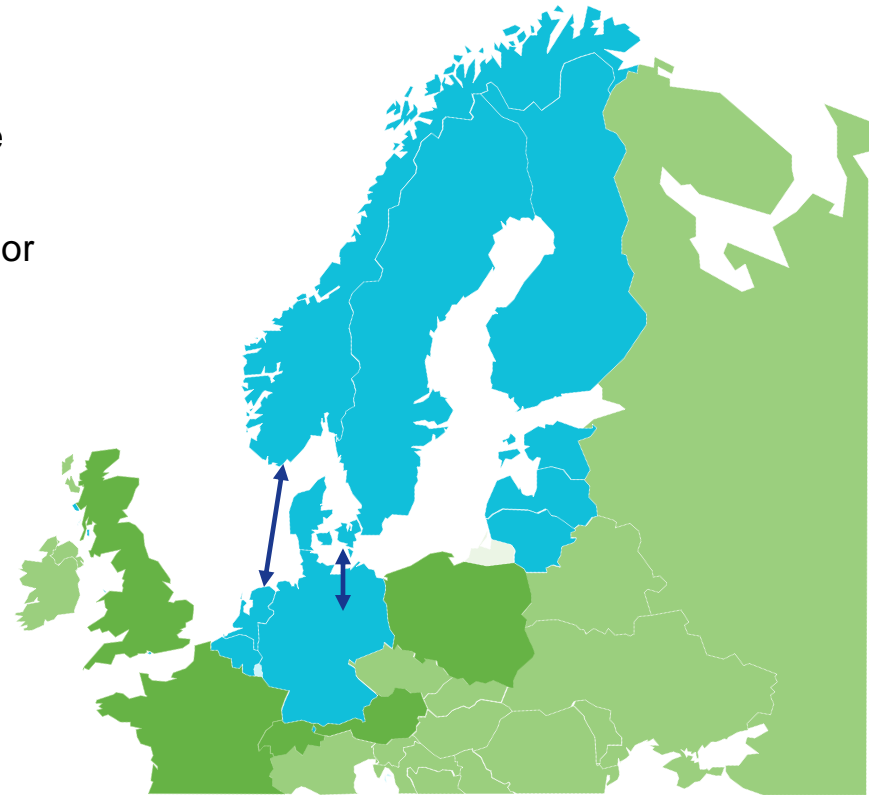
■ Elspot bidding areas in the Nordic and Baltic regions
↔ Interconnectors to adjoining markets

Elspot trading – daily routines



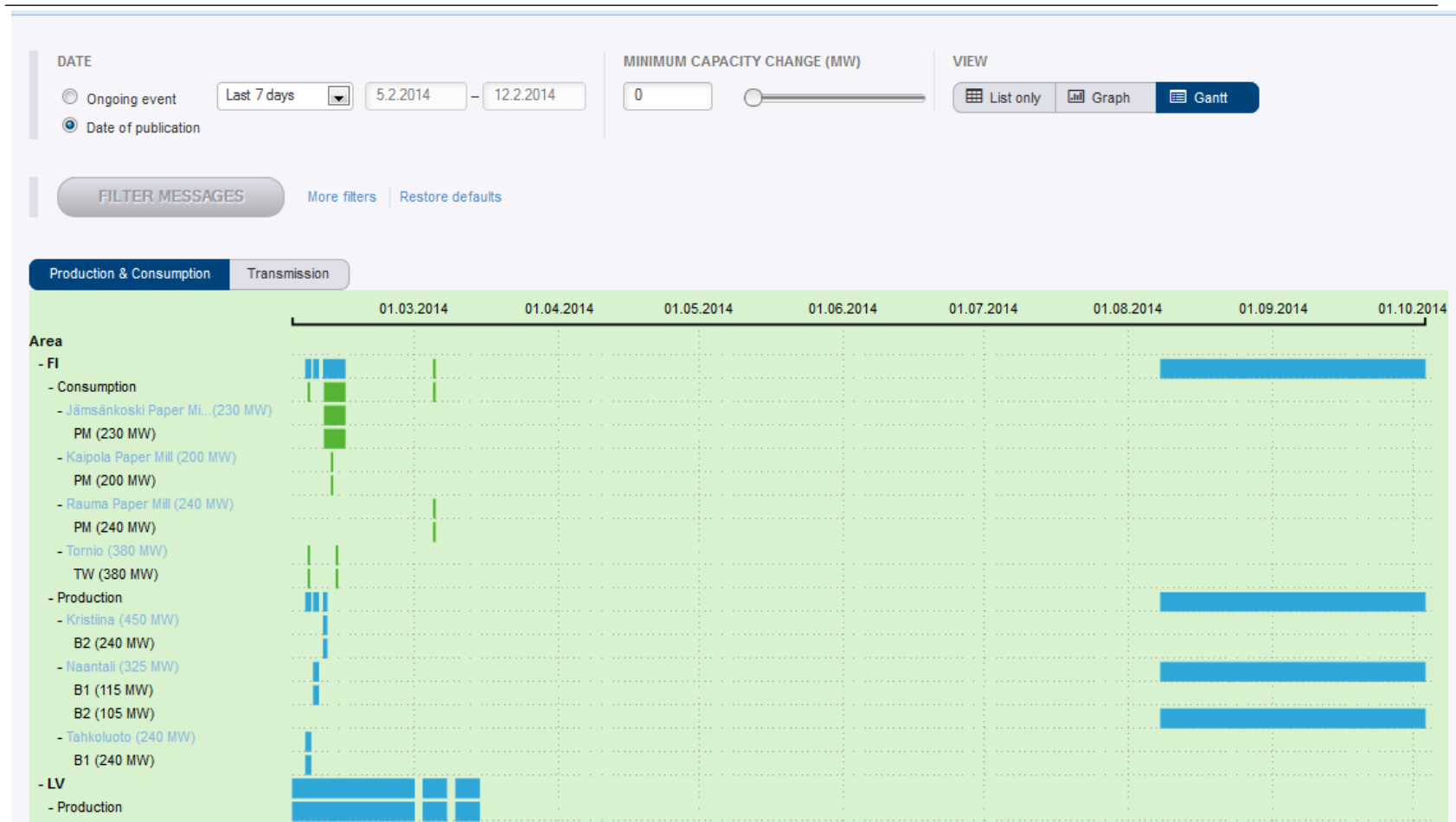
The Elbas market

- Elbas is a continuous market where power trading takes place until one hour before the power is delivered
- Members can adjust their power production or consumption plans close to delivery
- Every day, transmission system operators publish their power transmission capacity to Elbas
- Members 'offer' how much power they want to sell and buy and at what price. Trading is then set based on a first-come, first-served basis between a seller and a buyer
- If transmission capacity is available, neighbouring countries can trade on the Elbas market



- Elbas areas, including licenced areas
- Additional countries with Elbas members

Transparency – cornerstone of the Nordic market



How the markets work together

Financial market

Used for managing risks. Contracts can be made for up to six years. The Elspot system price is used as reference price.

Day-ahead market - Elspot

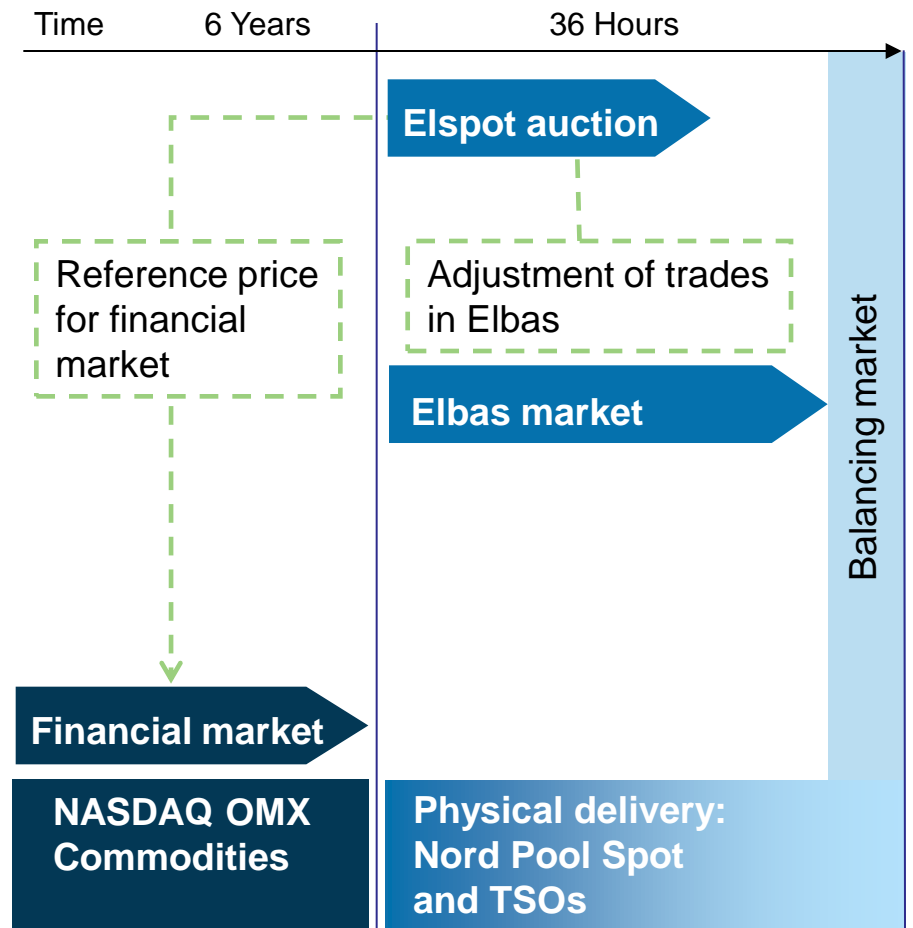
Day-ahead auction of power for delivery the next day. Nord Pool Spot calculates power prices based on supply and demand for every hour the following day.

Intraday market - Elbas

Continuous trading up to 30 minutes before delivery to adjust power production or consumption plans.

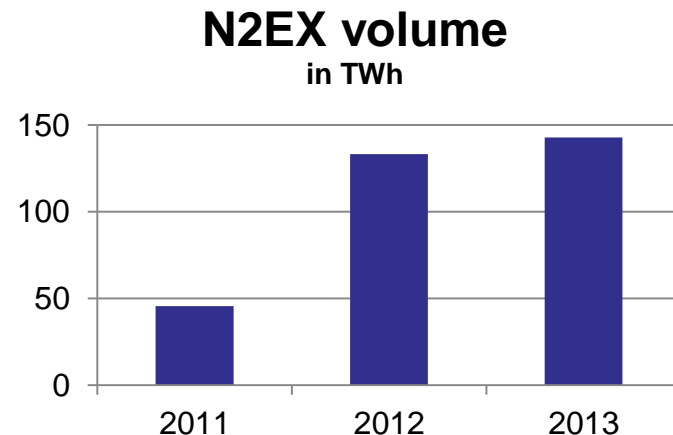
Balancing market

Operated by the respective transmission system operators. Final adjustments are made to ensure the correct frequency in the grid and security of supply.



The UK's power trading market (1)

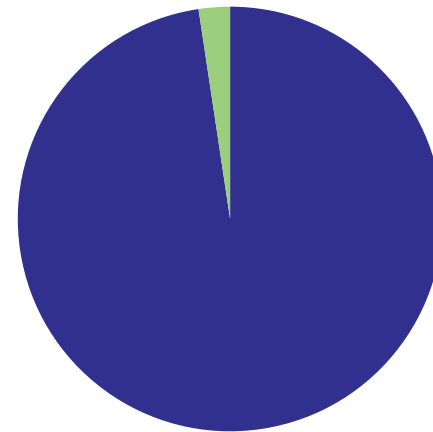
- N2EX launched 2010 by Nord Pool Spot and NASDAQ OMX Commodities
- Offers both short term and future power contracts
- Provides a robust and credible reference price for UK power by increasing the amount of frequency of power traded



The UK's power trading market (2)

- N2EX offers three products:
 - Day-ahead auction where members trade to meet their power delivery needs for the next day
 - Prompt market offering members standard contracts, traded up to 48 hours before delivery
 - Spot (or intraday) market - a continuous market offering contracts that can be traded up to 75 minutes before delivery
- N2EX has 44 members including key UK and international power producers, suppliers and consumers

**N2EX share of turnover
2013**

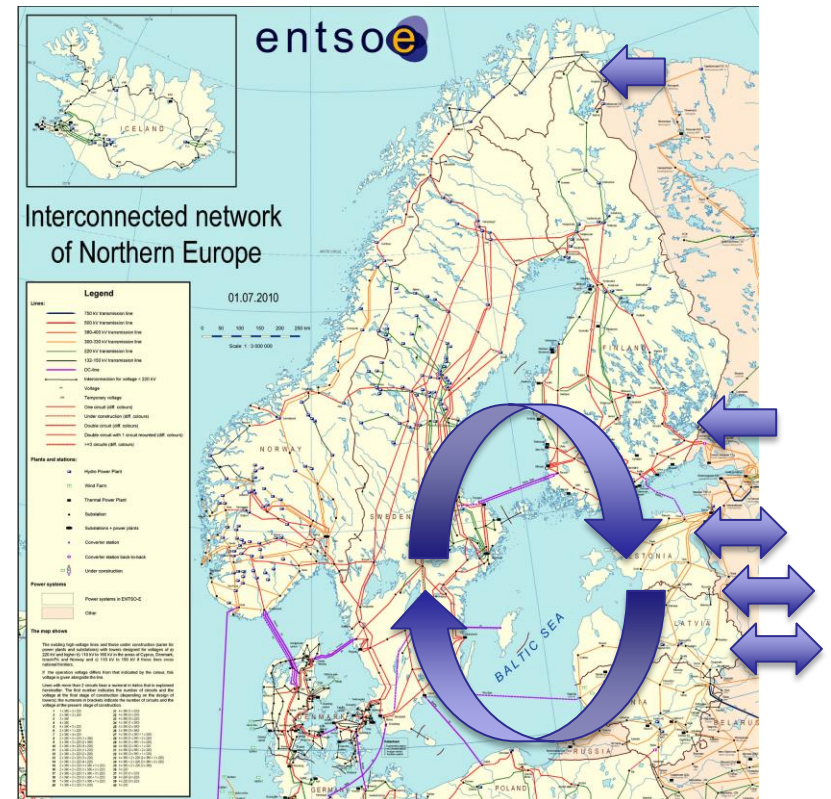


- Day-ahead auction volume: 139.4 TWh
- Prompt and spot volume: 3.4 TWh

Current Nordic/Baltic setup

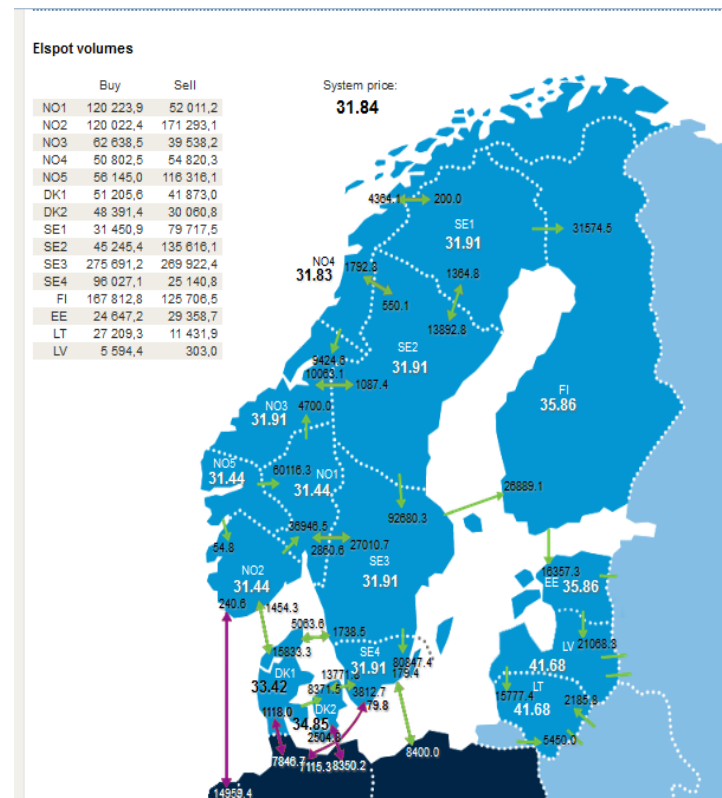
- RU-FI 1,300MW
- RU-EE 950MW both ways
- RU-LV 300MW both ways
- BY-LT 1,100MW both ways
- KAL-LT 600 both ways
- **TOTAL access: 4,250MW**

Capacity auction on FI border, NPS allocation on Baltic borders

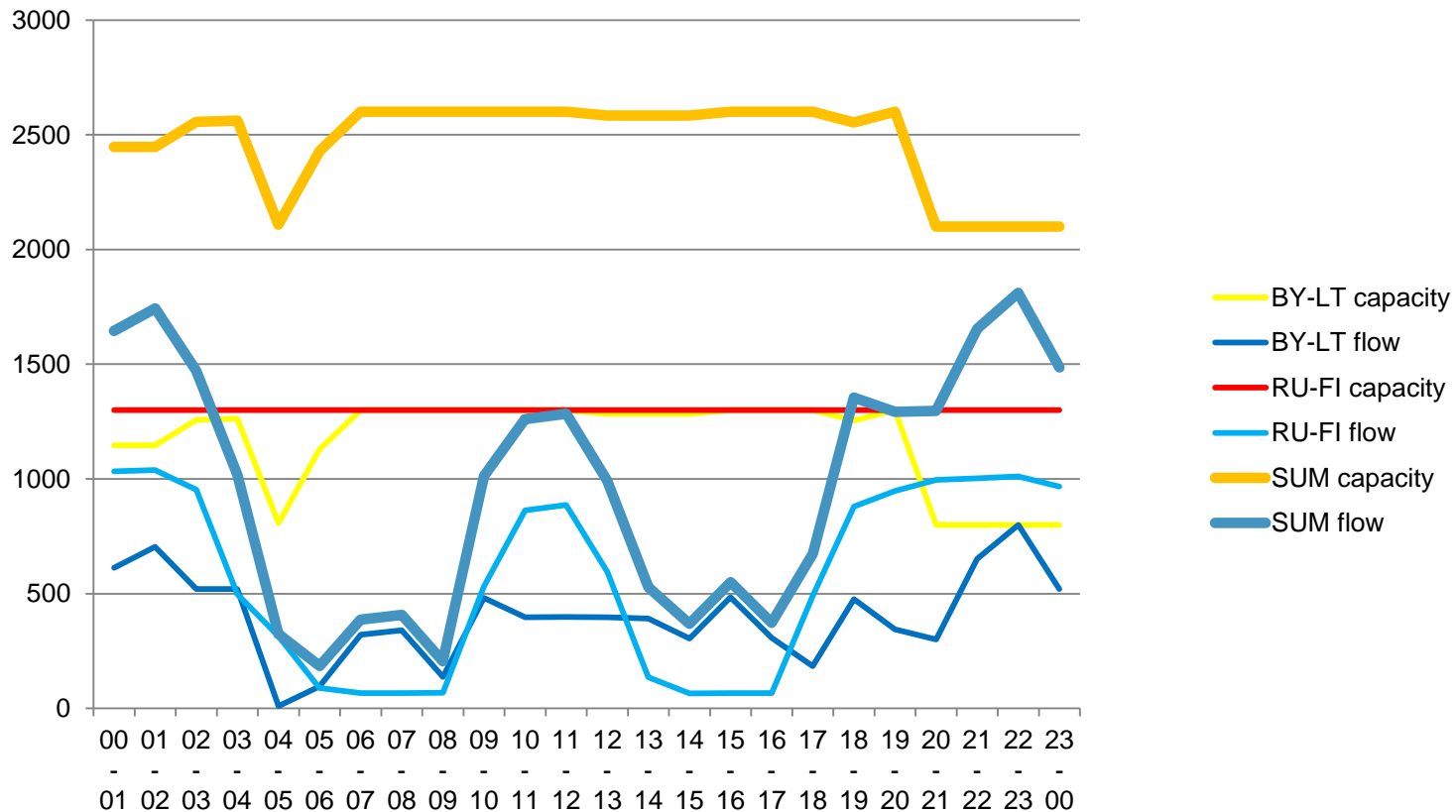


Different markets in many ways

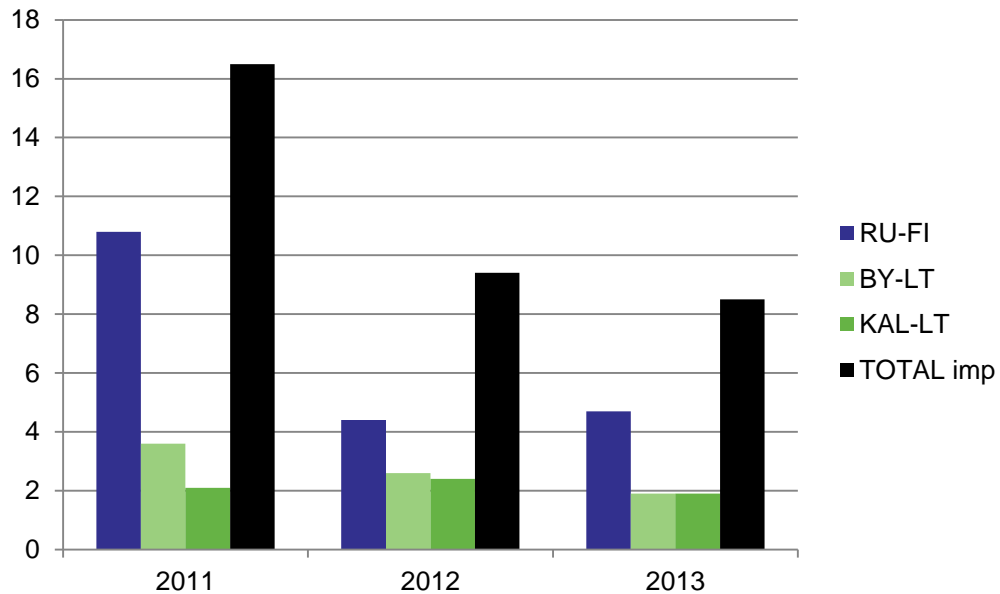
- Hydro based vs thermal
- Power only vs power + capacity
- Zonal vs nodal
- Market based vs central dispatch
- Emissions market in EU
- Different gas price formation



Typical commercial flow (23.01.2014)



Trades dynamics; TWh



	2011	2012	2013
RU-FI	10,8	4,4	4,7
BY-LT	3,6	2,6	1,9
LT-BY	0	0,15	0,12
KAL-LT	2,1	2,4	1,9
TOTAL imp	16,5	9,4	8,5
TOTAL exp	0	0,15	0,12

Current challenges

- Russian power market has been developed based on internal needs, export has not been in loop
- Capacity fee makes Russian electricity very expensive on the peak hours
- No capacity fee rules for the Nordic export to Russia
- Commercial flow should always follow the price incentive, not the case today
- D-2 export planning doesn't allow efficient flow formation, risk for trader
- Different cross border setups
- No links to intraday market
- Singel trader

How the trading could develop?

- Best coupling method between two market areas based on maximized socio economic benefit on both sides.
- Multiple traders and both ways trade
- More information about Russian power market and price formation for EU market members
- Planning time as close as possible to delivery
- Harmonization of the markets as much as possible (gate closure time)
- Intraday market having increasing role needs some link between two markets.

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