

FINANCIAL POWER TRADING

NORDREG WORKSHOP ON FCA GL

10 MAY 2016

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THE NORDIC POWER MARKET

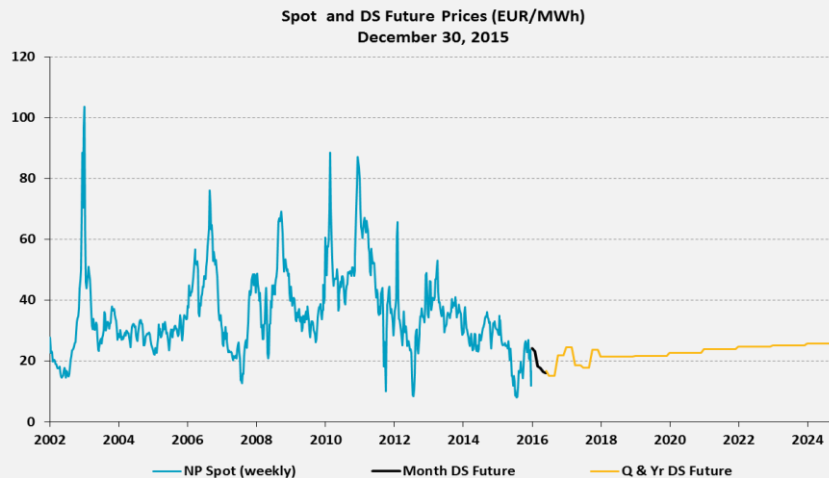
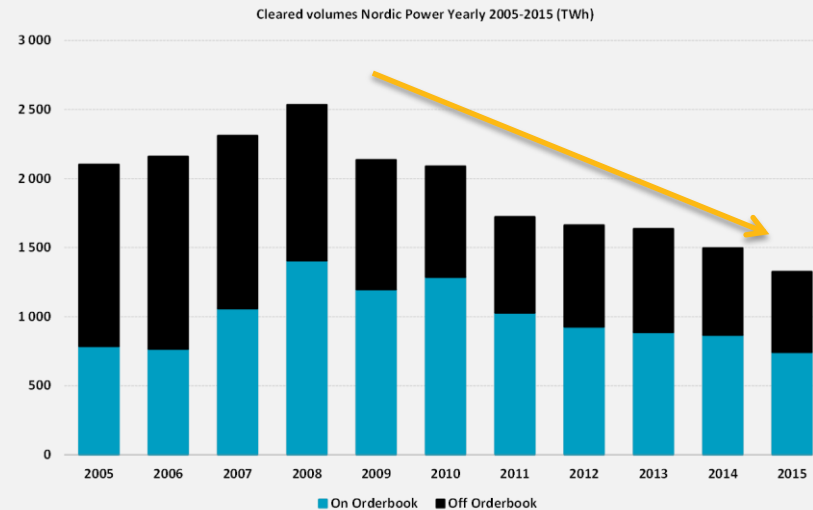


NORDIC POWER – MARKET TREND

The Nordic power prices were traded at a 15 year low in December 2015!!

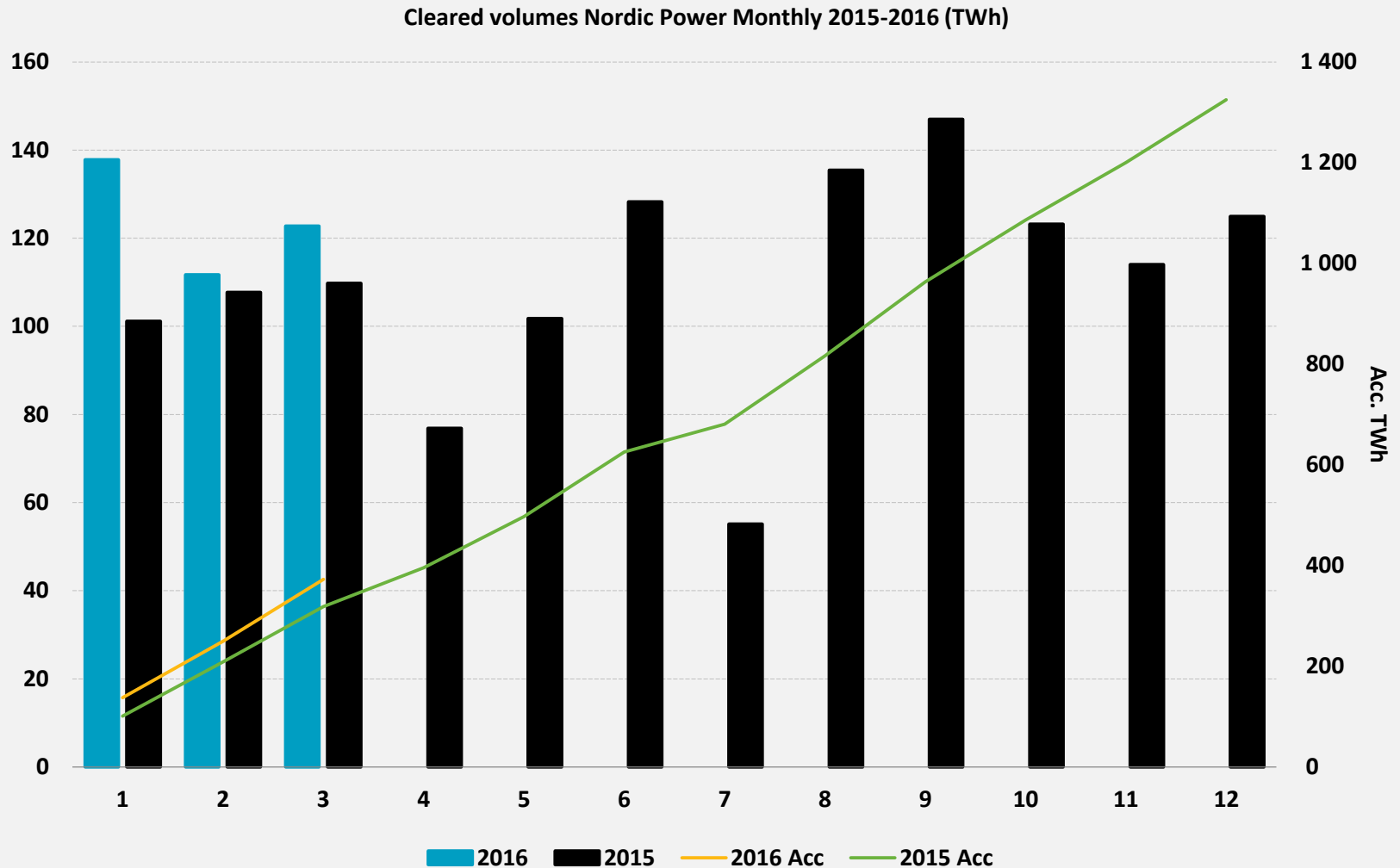
Oversupply, renewable subsidies, low fuel prices are pushing prices, margins and volatility down leading to less trading opportunities and reduced need to adjust hedged positions.

This, combined with regulatory requirements/ costs are creating uncertainty and major banks and funds exiting the market.



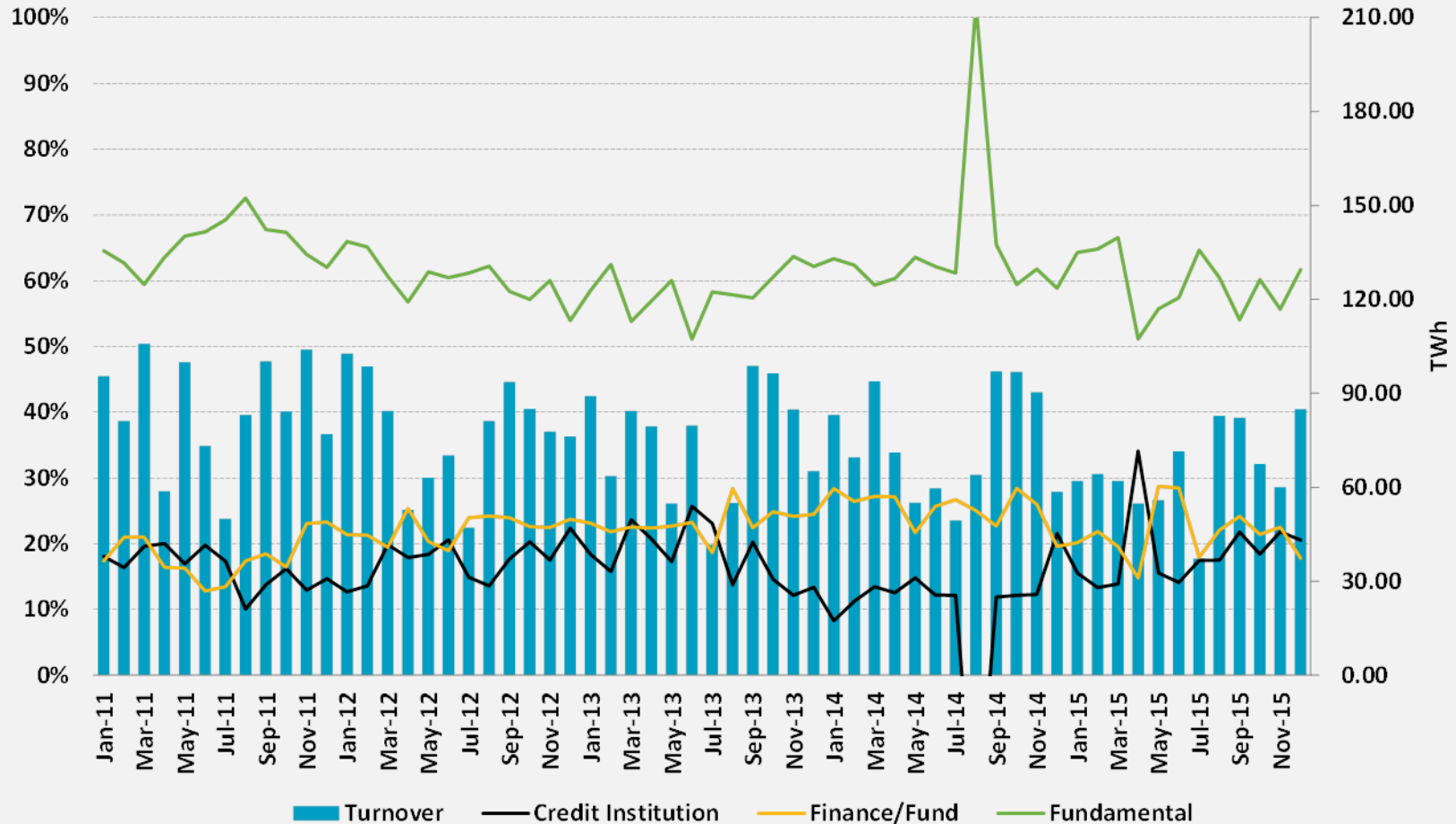
- Low prices due to oversupply
- Low volatility
- Increased regulatory requirements
- Risk of political interferences
- Funds and banks exiting
- Phase-out of non-fully-backed Bank Guarantees in march 2016

NORDIC POWER 2015 VS 2016



MARKET SHARE PER CUSTOMER CATEGORY

On Orderbook traded Market Share per Customer Category
Monthly 2011-2015

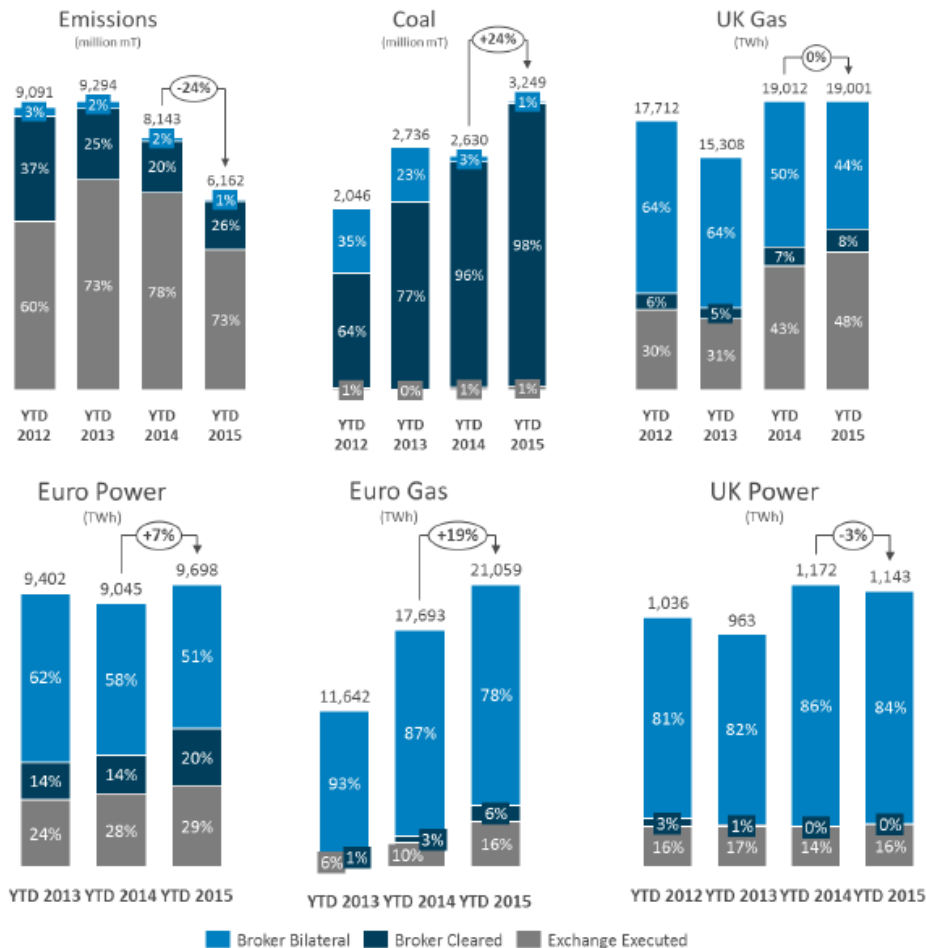


EUROPEAN ENERGY

European Energy Markets Composition: YTD Trends

Information as at: 31 December 2015

Estimates based on Trayport analysis and market research



2015 VS 2014

EURO GAS 21059 TWh

- VOLUMES + 20% YOY
- TTF VOLUMES + 24%
- MKT SHARE CLEARING + 6%

UK GAS 19001 TWh

- VOLUMES + 0% YOY
- MKT SHARE CLEARING + 6%

EURO POWER 9698 TWh

- VOLUMES + 7% YOY
- FRENCH VOLUMES + 41%
- GERMAN VOLUMES + 7%
- **NORDIC VOLUMES - 9%**
- MKT SHARE CLEARING + 12%

UK POWER 1143 TWh

- VOLUMES - 3%

NEW PRODUCTS – EUROPEAN OFFERING

POWER MARKETS (7):

- German
- French
- UK
- Dutch
- Belgium
- Spain
- Italian

GAS MARKETS (7):

- TTF (Dutch)
- NCG (German)
- Gaspool (German)
- NBP (UK)
- Peg Nord (French)
- TRS (French)
- ZEE (Belgium)

PRODUCT DESCRIPTION

- Exchange listed on Nasdaq Oslo ASA and clearing listed on Nasdaq Clearing AB - Available to all exchange and clearing members.
- Orderbook and Block Trades (Block trades are expected initially)
- Deferred Settlement (DS) futures with monthly cash settlement (no physical delivery, no cascading).
- Monthly cash settlement matches the settlement in the physical market; 20th calendar date (UK Power 10th business day).
- Reference index Power: EPEX (German, French), N2EX (UK), APX NL (Dutch), BELPEX (Belgium), OMIE (Spain), GME (Italian).
- Reference index Gas: ICIS Heren daily price assessment - Day ahead and Weekend Midpoint.

THE PURPOSE OF FINANCIAL ELECTRICITY HEDGING MARKETS



THE NORDIC MODEL – A STRONG LINK BETWEEN THE NORDIC SPOT AND FINANCIAL MARKET

Importance of the financial power market:

- Long term price signals show clearly which economic investments that makes sense and where to be located.
- Gives signals for hedging the long term power production and consumption
- Essential for electricity producers and consumersto to mitigate/optimize price risks

Lack of hedging tools may lead to no hedging or revert to more bilateral trading outside transparent and supervised venues (Nord Pool and Nasdaq) and outside CCP clearing.

- Lead to increased market concentration
 - Less competition
- Reduced efficiency will ultimately lead to higher cost for the end users.

ELECTRICITY PRICE AREA DIFFERENTIAL (EPAD)



NASDAQ EPAD PRODUCT OFFERING

EPAD:

Example: SYHEL= Helsinki ΔP = Helsinki area price - system price

Price area	Weeks	Months	Quarters	Years
Oslo, Tromsø, Copenhagen, Århus , Tallinn and Riga	N/A	2	3	3
Stockholm, Luleå, Sundsvall, Malmö, Helsinki	5	4	4	4

Market makers in the Nordic power market:

- Vattenfall: Nordic Base (full curve), Swedish EPADs and Helsinki EPAD (not weeks)
- Dong and Energi Danmark: Danish EPADS
- RWE: Nordic Base (full curve)
- Latvenergo and Lietuvos Energijos: Riga EPADs.

NORDIC POWER VOLUMES 2015

Risk Group	Type	On Orderbook (MWh)	Off Orderbook (MWh)	Total Cleared (MWh)	Part of Total Cleared
ENO Base	DSFutures	706 358 116	459 238 714	1 165 596 830	88.0%
EPAD-Helsinki	DSFutures	4 580 830	38 212 369	42 793 199	3.2%
EPAD-Stockholm	DSFutures	4 808 675	33 886 040	38 694 715	2.9%
ENO Base	Options	54 840	24 177 850	24 232 690	1.8%
ENO Base	Futures	17 185 818	2 852 414	20 038 232	1.5%
EPAD-Sundsvall	DSFutures	1 205 787	6 316 514	7 522 301	0.6%
EPAD-Århus	DSFutures	2 984 633	3 942 370	6 927 003	0.5%
EPAD-Copenhagen	DSFutures	2 271 137	3 898 938	6 170 075	0.5%
EPAD-Malmö	DSFutures	1 412 122	4 393 180	5 805 302	0.4%
EPAD-Luleå	DSFutures	1 565 596	2 697 853	4 263 449	0.3%
EPAD-Oslo	DSFutures	84 936	1 287 042	1 371 978	0.1%
EPAD-Tromsø	DSFutures	63 287	1 267 844	1 331 131	0.1%
EPAD-Riga	DSFutures	200 778	8 784	209 562	0.0%
EPAD-Helsinki	Futures	67 200		67 200	0.0%
EPAD-Stockholm	Futures	33 936	31 248	65 184	0.0%
EPAD-Tallinn	DSFutures	12 312	18 720	31 032	0.0%
EPAD-Malmö	Futures	3 360	21 000	24 360	0.0%
Other	Futures	3 600		3 600	0.0%
EPAD-Sundsvall	Futures	1 680		1 680	0.0%

EPADs represent 9% of total cleared volume in 2015.
The historical figure has been in the range of 6.5-9% (2008-2015)

CONCERNS NORDIC POWER MARKET



CONCERNS

Introducing PTRs/FTRs in the Nordic market

- may split the liquidity between FTR/PTR and EPADs.
- will definitely change trading patterns (from area to area instead of supporting the Nordic System Price)
- Will establish a monopoly for organizing auctions and a (secondary market) for FTR/PTR and this is highly questionable

HOW TO SUPPORT THE EXISTING MARKET

- Well functioning financial markets with transparency, tight spreads and high liquidity will reduce costs for all market participants..
- The use of existing products is the most cost efficient and simple way as all market participants are already using these products and have the necessary infrastructure in place.
- If an area fails to have sufficient liquidity the following opportunities may be evaluated:
 - Support to market maker function
 - Auction EPAD contracts or EPAD COMBOs
 - Auction pair of EPADS (EPAD COMBO) can give market participants a **synthetic fully firm FTR obligation**.

In the Longer perspective

- Few and homogeneous price areas leads to less market fragmentation and increased competition.
 - Reduce number of price areas
- Dynamic price areas is a challenge for hedging

Nasdaq will welcome the opportunity to discuss and evaluate mentioned solutions in order to contribute to the best solution for all parties

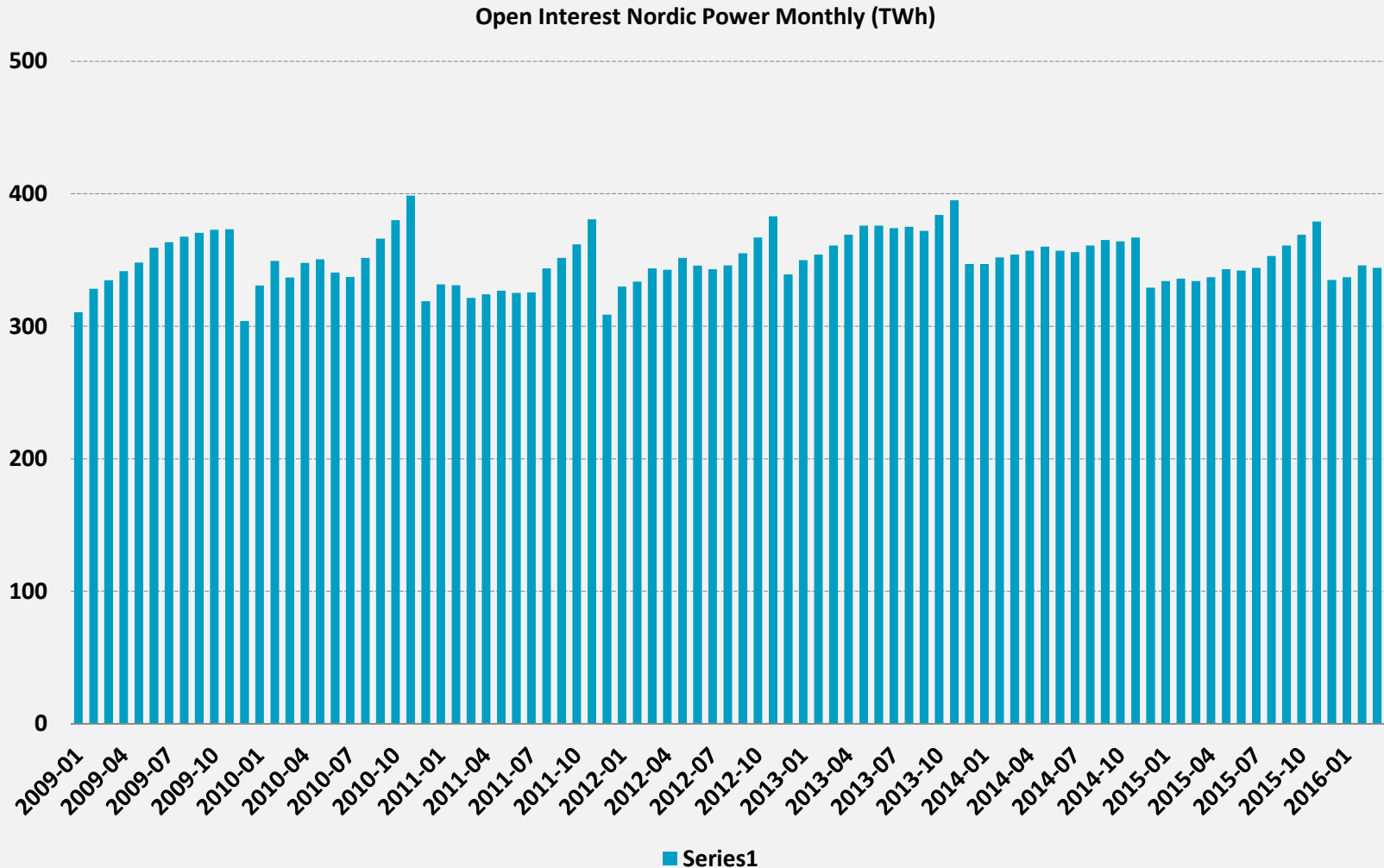
THANK YOU!



Appendix



NORDIC POWER OPEN INTEREST TWH



MARKET CONCENTRATION

Market Concentration Power 50/80%, On Orderbook traded (Number of Clients)
Yearly, 2005 - 2015

