

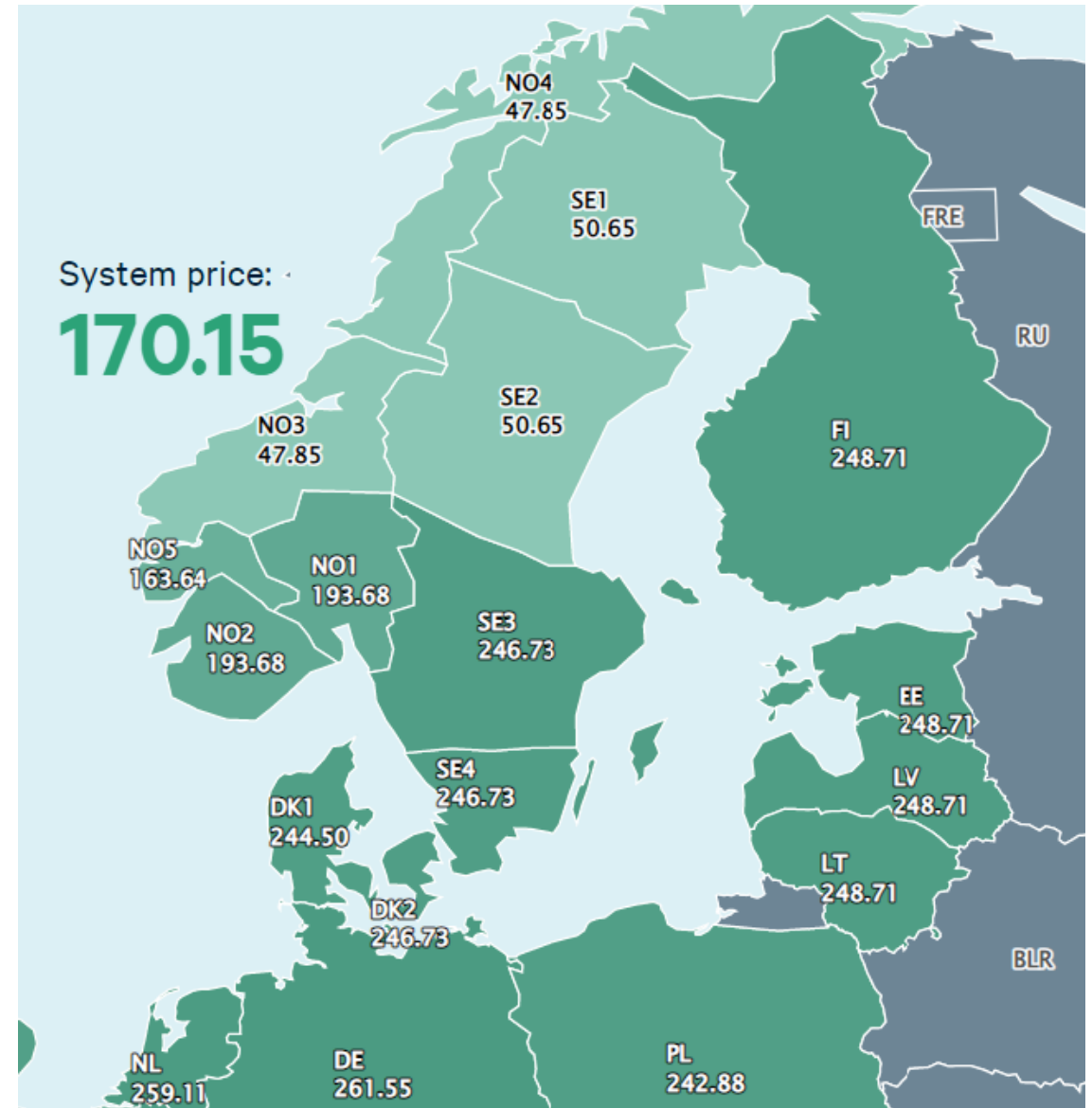


Nasdaq Commodities Power market design

December 2022

Nordic Power market

- The Nordic electricity market design is different than the rest of Europe and consist of 12 bidding zones (price areas).
- The Nordic System Price is a reference for the virtual Nordic bidding zone. The system price is an unconstrained market reference price for the Nordic region. It is calculated without any congestion restrictions by setting capacities to infinity.
- The physical deliveries are settled against the price for each of the 12 area prices. The current market situation is large deviation and low correlation between (Electricity Price Area Differential) EPADs vs System.
- In order to hedge the full price risk a consumer or producer must use both the relevant EPAD + System = actual Area price in the physical market.



Hedging has become increasingly important but challenging

Market design

- High volatility in both System and Areas (EPADs)
- Large price differences between northern Norway/Sweden and South
- 12 price areas / EPAD (NO 5, SE 4, DK 2, FIN 1)

Financial regulation

- Increased burden and costs to operate in regulated markets
 - MiFID: Increased burden
 - EMIR: Cost of collateral



Consequences

- System price not functional as proxy for physical area hedging
- Low correlation between System and EPADs
- Low liquidity and competition in smaller areas
- High margins on both System and EPADs = reduced risk handling
- Premium to enter a position due to low liquidity
- Increased bilateral trend or reduced hedging (margin costs and liquidity risk outweighs counterparty risk)
- Dysfunctional End user markets (lack of competition on fixed price contracts)
- Without a liquid and transparent hedging market, the Green transition will be challenging.

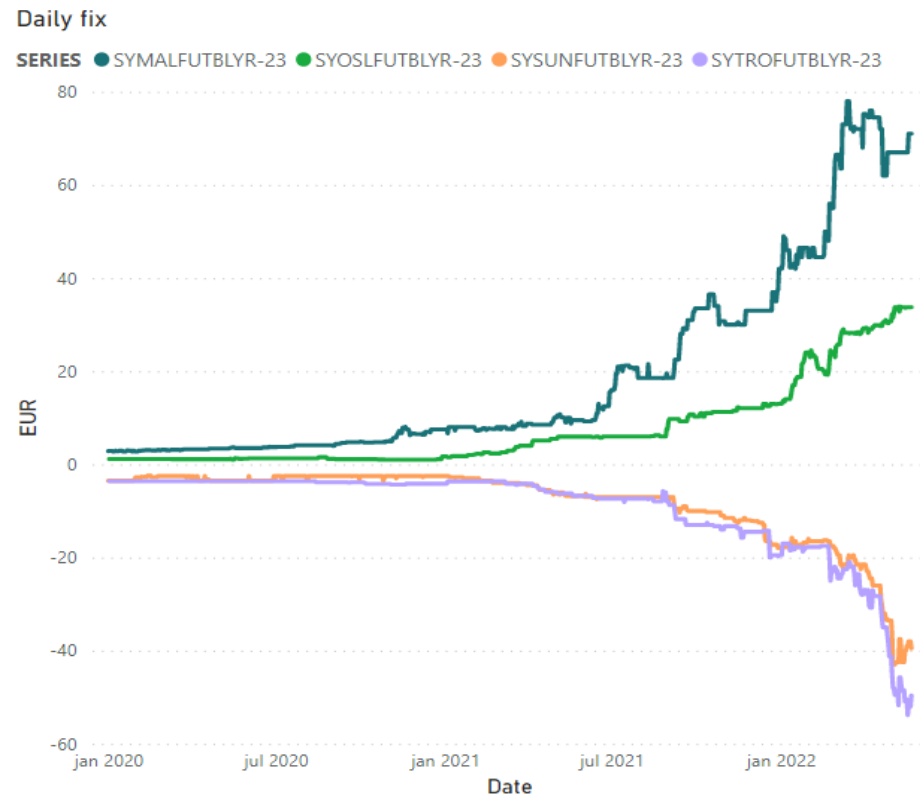


Conclusion:

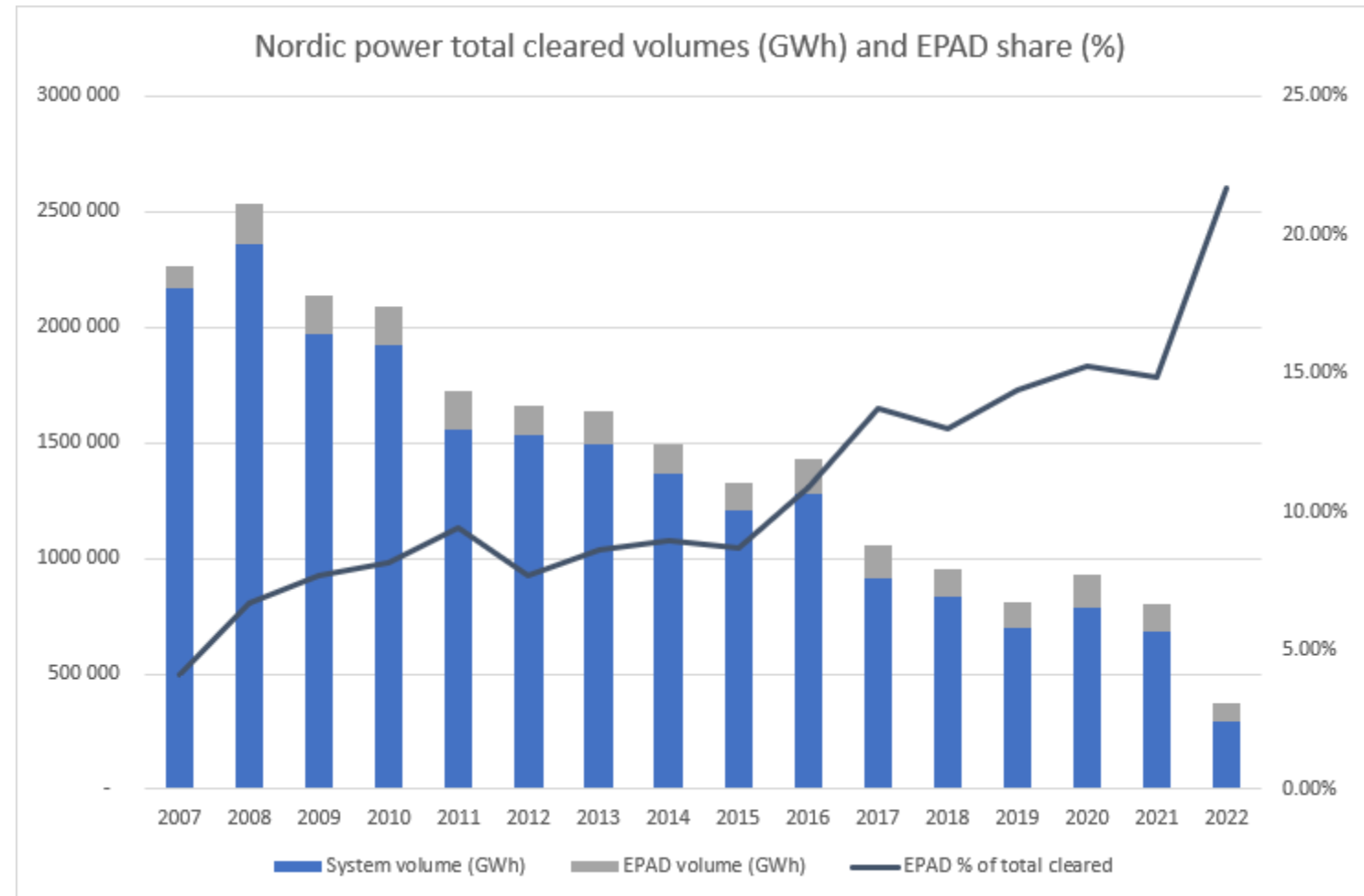
- Energy regulators need to include hedging markets needs in market design
- Financial regulation has pushed Nordic Power bilateral – The opposite of its intention
- Energy and Financial Regulators need to cooperate on market design to secure a liquid, competitive and transparent Nordic power market

Market design has large impact on liquidity

- Dysfunction in Nordic System Price



- Blow to liquidity



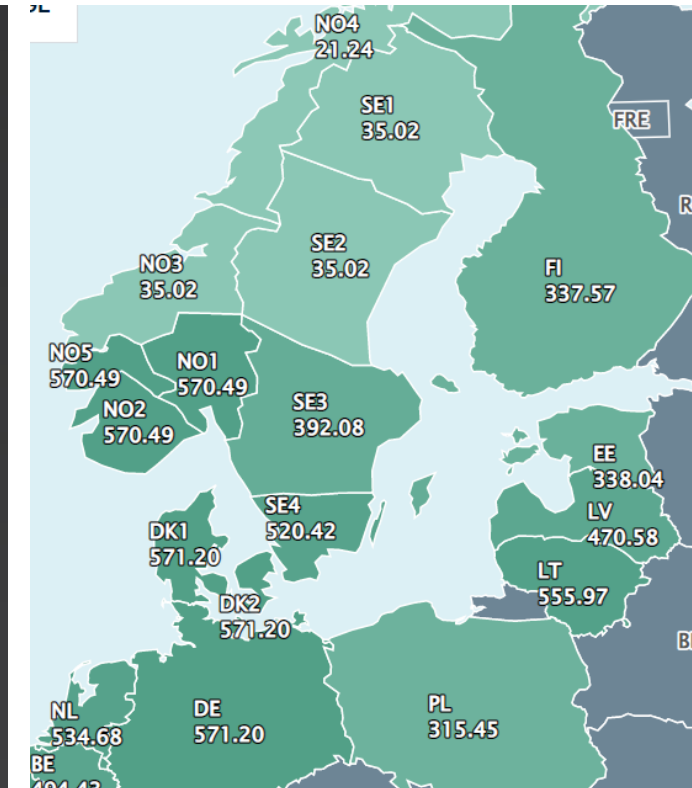
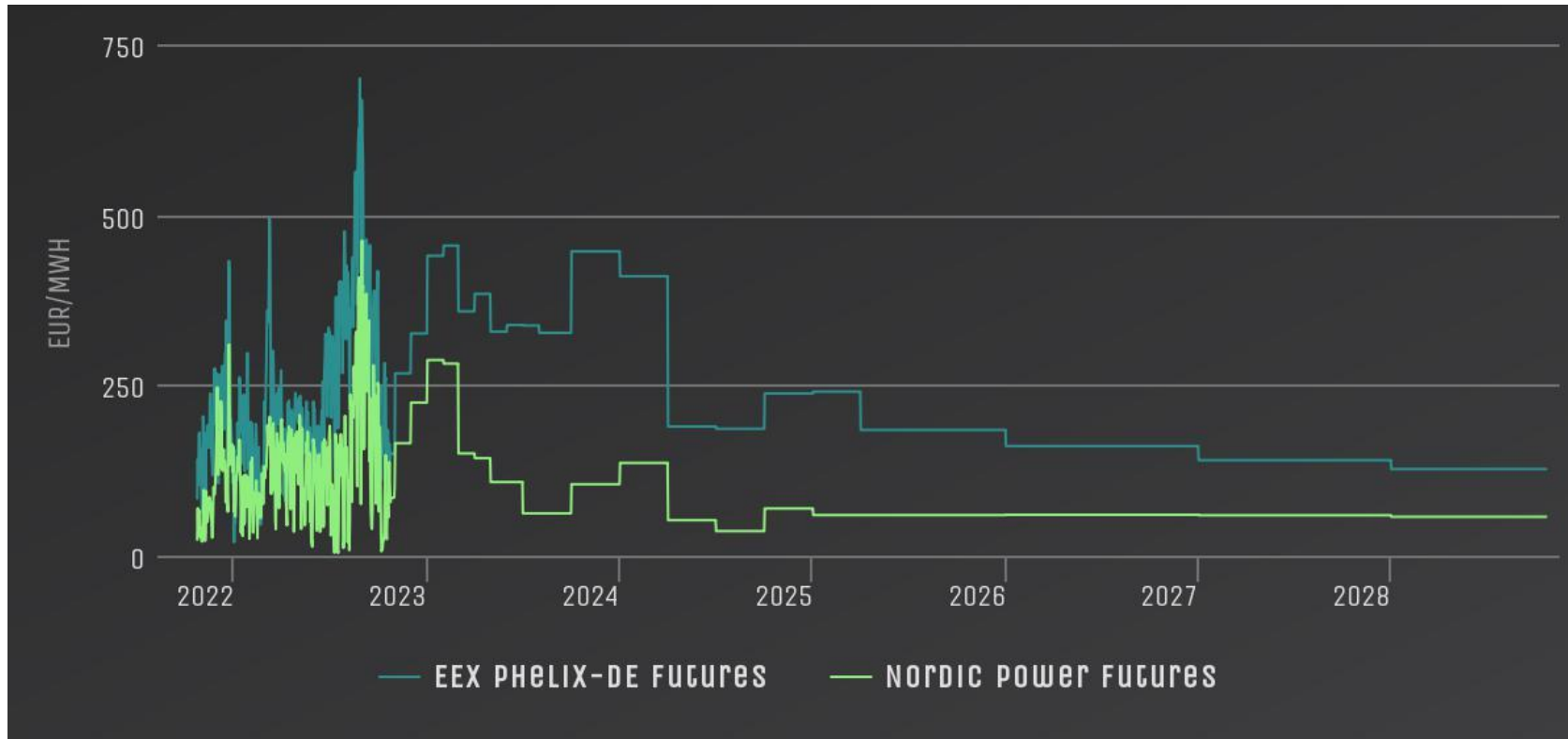
Financial markets are a fundamental part of the solution

We continue our efforts to improve market design and improve hedging opportunities.

Nasdaq's position paper from January is more relevant than ever.

All energy consumers including households and producers need efficient hedging tools for risk handling.

This is critical for investments needed to become independent from Russian fuels and Europe's efforts to meet its net zero target.



Measures to improve liquidity and hedging opportunities

- Reduce number of price areas in the Nordic region
- Take measures to reduce price differences between price areas - counter trading until sufficient transmission capacity is in place
- FCA regulation: TSOs can support existing market to strengthen liquidity
 - Auction EPADs
 - Market Making
- Bank guarantees: Reintroduction of non fully backed Bank Guarantees. Likely to be implemented as a permanent solution

