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Nordic Energy Research Seminar

Public support for the energy transition in a new geopolitical era

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Drivers of the energy transition

Sustainability

Energy security

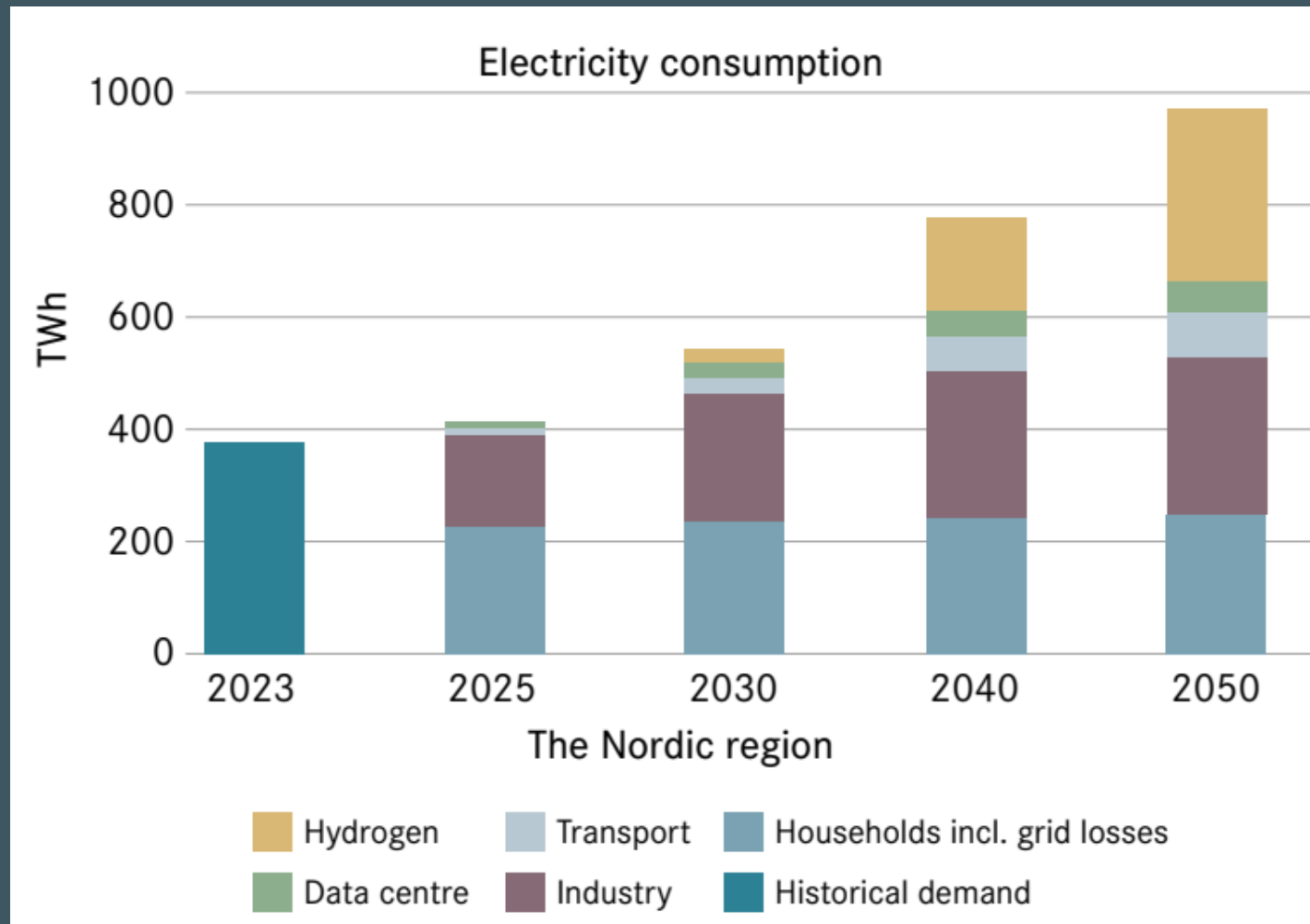
Competitiveness

Energy transition = electrification

- Electrify everything you can – directly or indirectly
- Electrification = (Imported) fossil fuels are replaced by clean, domestic energy sources
- Nordic electricity consumption to double by 2040



Societies become even more reliant on secure, competitive and reliable power system

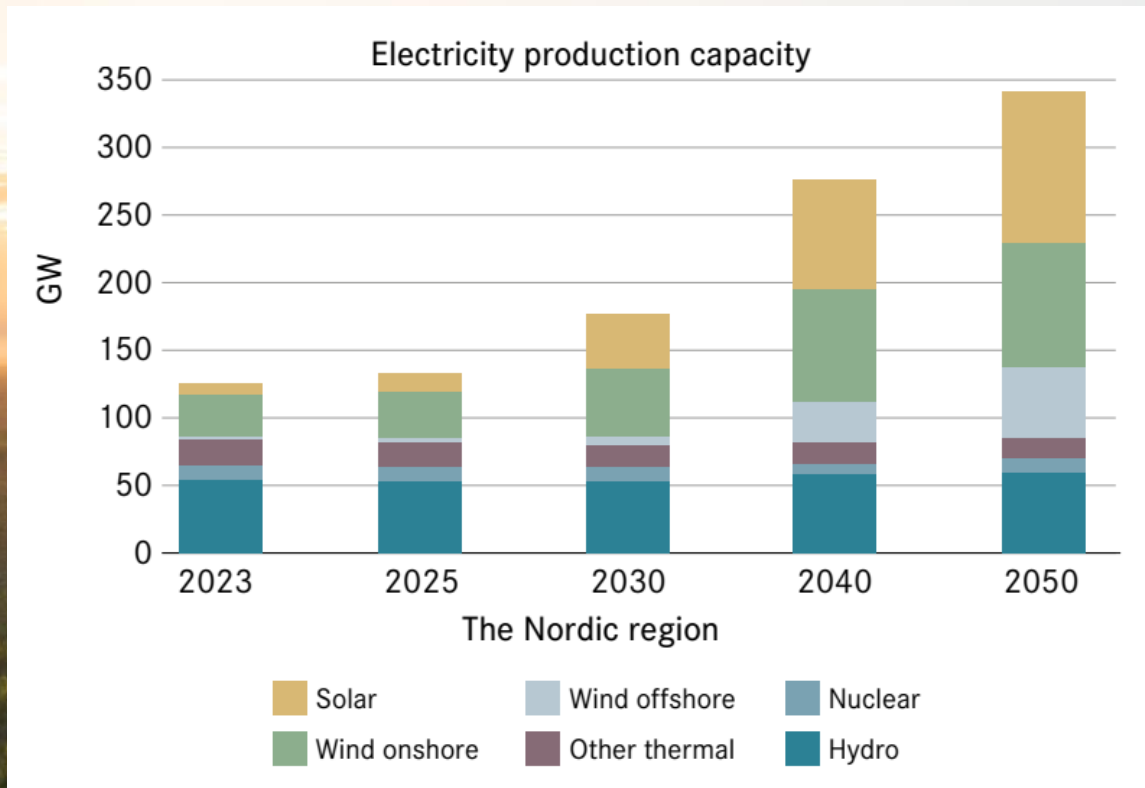


Source: Nordic Grid Development Perspective 2025
https://www.fingrid.fi/globalassets/dokumentit/fi/ajankohtaista-tapahtumat/ngdp25_final.pdf

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Wind and solar will cover most of the new demand

Competitive, scalable, but variable & weather dependant. How to utilize variable production?

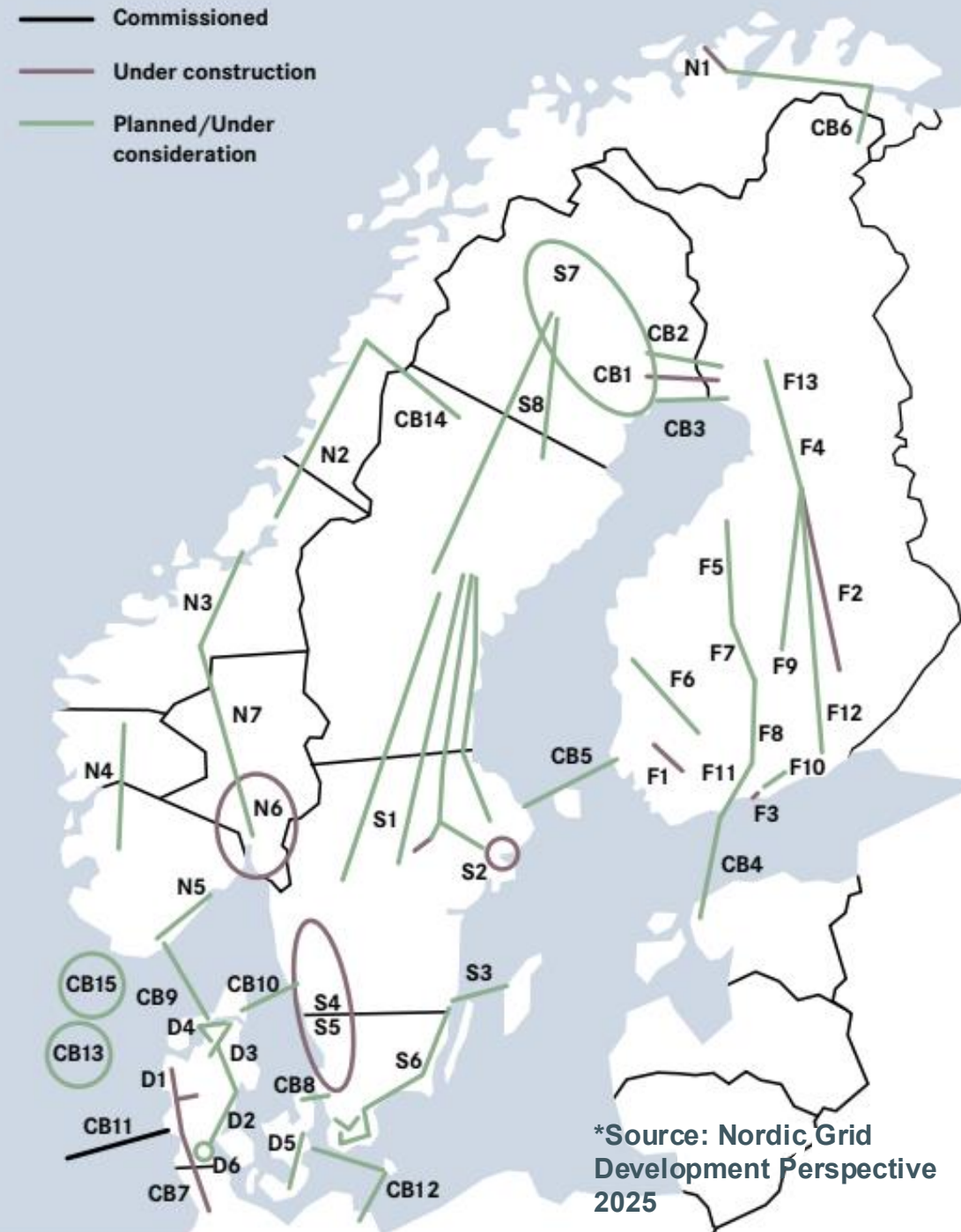


Energy transition requires a strong grid

- Record high grid investments in the Nordic countries. Nordic transmission system operator's estimated investments are more than 30 billion euro* by mid 2030's.
 - Internal grid, interconnectors, IT-systems, system stability, etc.
 - Aurora line, new Finland-Sweden interconnector, a great example of Nordic cooperation
- At the same time: Efficient utilization of the grid: flow-based, non-firm grid connections, dynamic line rating, etc.



Energy transition is not possible without grid and public support for the grid investments



Case Finland: Energy transition success story – foundation for the public support also in the future

	2019	2024	Change
Electricity production CO ₂ -emissions (gCO ₂ /kWh)	83	24	↓
Total power production (TWh)	66	80	↗
Wind power (TWh)	6	20	↑
Solar power (TWh)	0.1	1.2	↑
Nuclear power (TWh)	23	31	↗
Power generation based on fossil fuels (TWh)	12	4	↓
Net imports (TWh)	20	3	↓
Wholesale price (EUR/MWh)	44	46	→
European ranking based on wholesale price*	#13	#3	↑

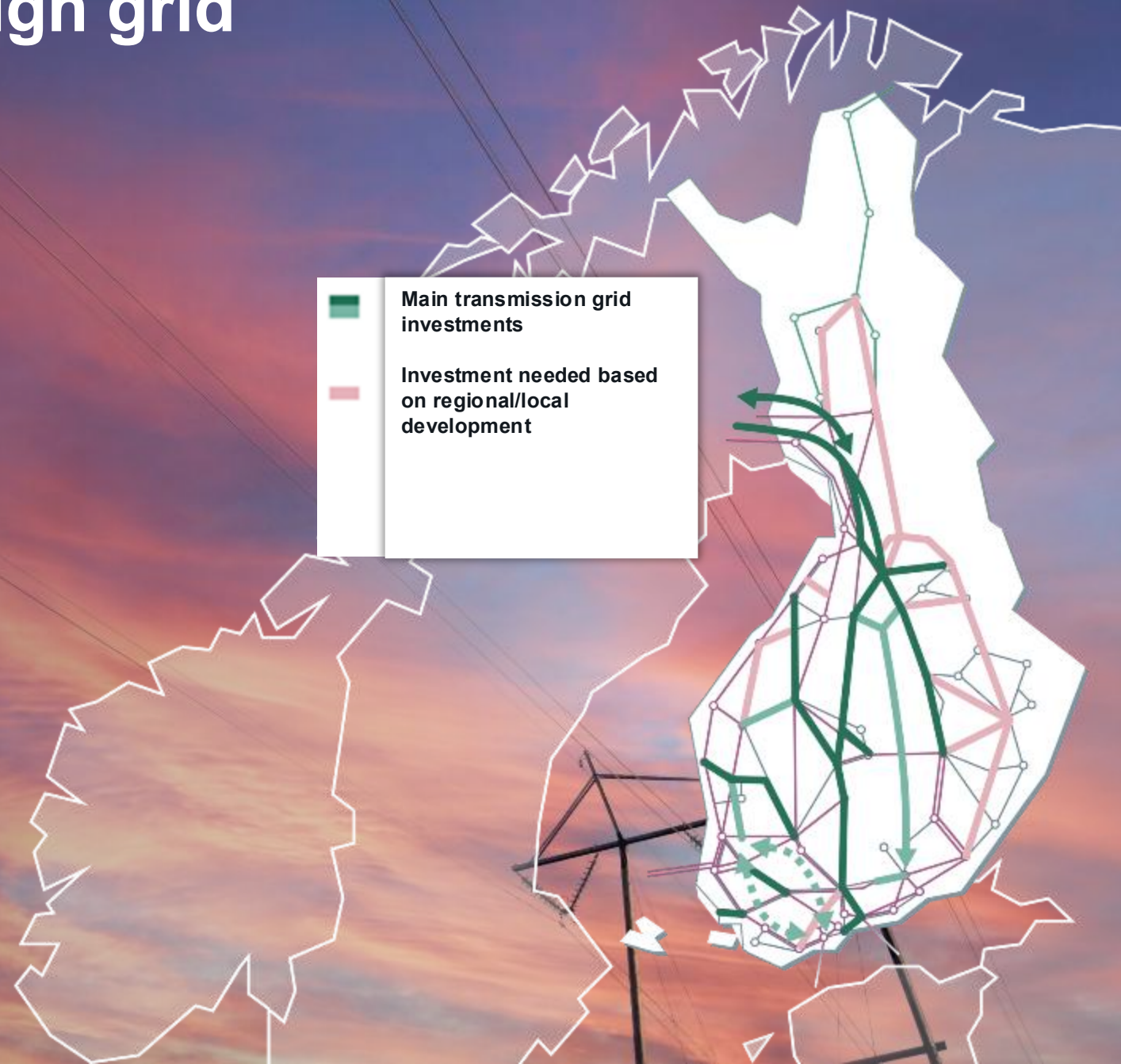
- **Broader and cleaner production portfolio**
- **Greater domestic electricity production**
- **Russian imports replaced (electricity and gas)**
- **Wholesale electricity price at the same level as in 2019 and among the cheapest in Europe (in many other European countries the price has doubled)**

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Data source: Energiateollisuus, Tilastokeskus.

Case Finland: Record high grid investments

- Fingrid is building new grid more than ever. 2025-2028 2.0 billion euros and by 2035 up to 5.2 billion euro.
- The need for grid reinforcement from North to South and from Westcoast to South is evident. Both new power lines and compensation investments are needed
- Interconnector projects: Aurora line 2, Fenno-Skan 3, Estlink 3
- However there's a lot of uncertainty in individual customer investments – Challenge for the grid planning and grid investments. How to tackle the uncertainty and maintain flexibility?
- Importance of grid is well recognized – Strong grid is seen as a competitiveness factor on regional and local level



Case Finland - Success factors

- Large country – few people 😊
- Renewable energy investments benefit the local community – Power plant's property tax stays in the municipality
- Close cooperation with the landowners during the planning. Expropriation compensation recently increased by +25%
- Stable energy policy and market oriented approach – market drives the investments and selects the winners
 - Electrification of heating and battery investments are great examples – markets work!



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Case Finland - Challenges

- Permitting has been a success factor, but in the recent years more and more delays in the permitting
- Higher volumes – higher impact – more resistance – good cooperation and adaptability in planning phase is a must!
- Public discussion around data center investments: Are we ready for growth and new power intensive industrial investments?

More challenges... Estlink 2



Eagle S

inkkuri nostettiin loppiaisena ylös
tammikuuta 2025 lähettämä kuva

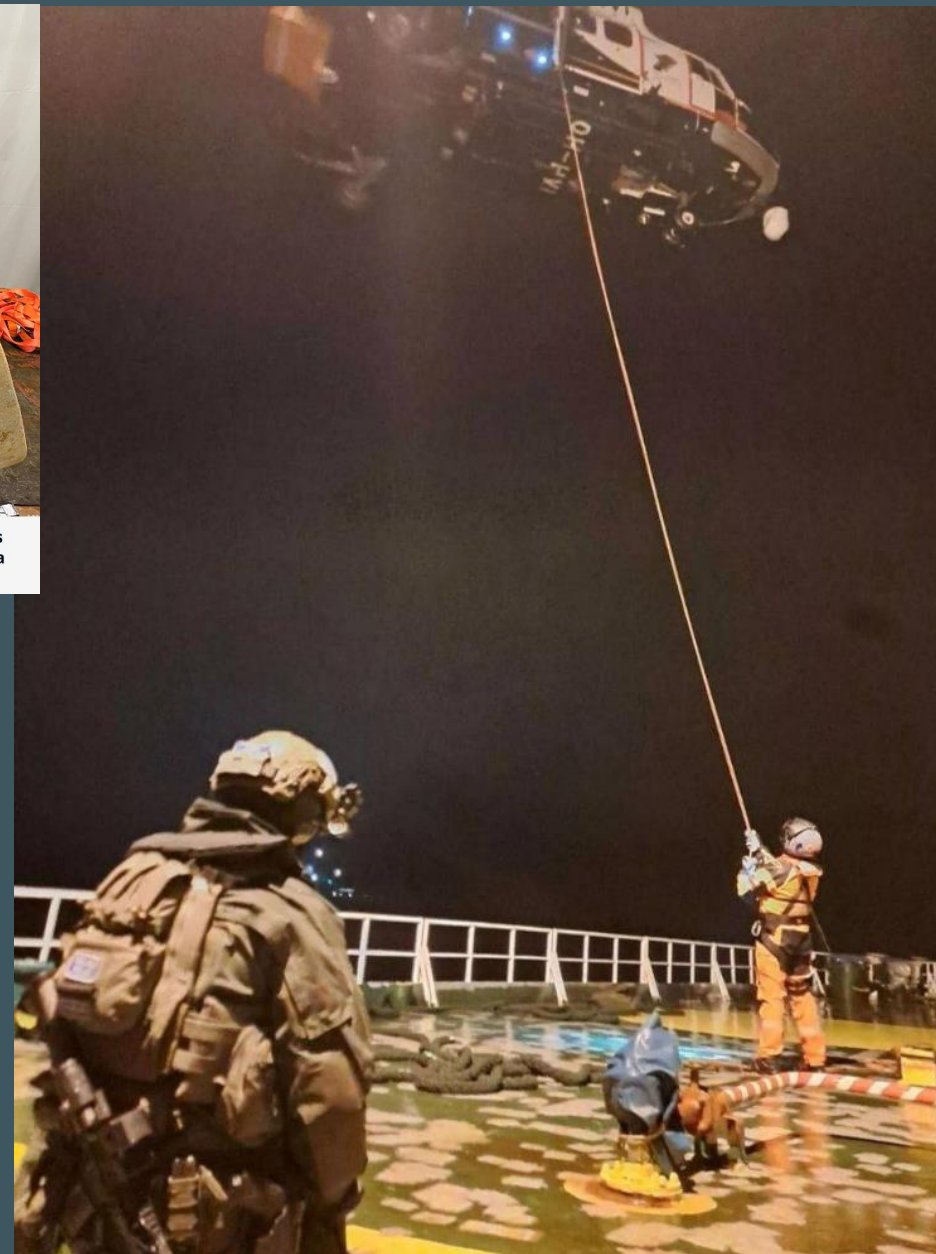
Crime & Piracy

Fingrid requests seizure of tanker Eagle S over cable damage



Eagle S Finland Police

Reuters



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Summary

- To maintain existing and to enable further growth of industrial production in the Nordics and the EU requires a significant amount of green power
- Nordic countries have probably the best prerequisites in the world to success in the energy transition
- Interconnected Nordic grid is a foundation for the transition and for the future success story
- Transition is faster and less costly if do it together!



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