

Ashka

Is desynchronization in 2025 still within reach?

Litherton Advertis

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What does Litgrid do?





Main challenges

- Implementing vision - smartest TSO in Europe
- Keeping daily operations stable
- Synchronization with Continental Europe



Historical Background and Drivers for Synchronisation

- Interconnection of Baltic grids with IPS/UPS is a result of historic development of Soviet grid in 1940-1990.
- With IPS/UPS, Russia maintains control over stability of Baltic States power networks and economies, which creates a major security concern.
- Baltic States have long considered moving away from IPS/UPS and synchronisation with Continental Europe Synchronous Area (CESA)
- Poland, Czech Republic, Slovakia and Hungary migrated from IPS/UPS to CESA in 1995



Key Security and Legal Concerns for Baltic States Staying with IPS/UPS





N.B.: Reinforcement of Kaliningrad and Belarus power infrastructures is underway, to be completed in 2021, making a sabotage scenario relatively painless for Russia.



Taking control in own hands after 80 years

Litgrid strategic goal for 2025.



How do we implement our goals?





Connect with Europe together with other Baltic states

Build new under sea connection Harmony Link Home grid enforcement



Is desynchronization in 2025 still within reach?

- Political decisions made
- Challenges ahead
- Possibilities not to be missed

Political Context of Baltic Synchronisation



- 1. Political Roadmap No.1, decision on scenario and timeline. June 2018.
- 2. Approval of scenario by BEMIP High-Level Group. September 2018.
- 3. Political Roadmap No.2, high-level action plan and key projects. June 2019.



https://ec.europa.eu/energy/sites/ener/fil es/political_implementation_roadmap.pdf

Political roadmap milestones



Completion of the investment request and submission of a financing proposal for the CEF call in 2020 for the Phase 2



Ensuring an adequate amount of system services (inertia) in the Baltics, including via an adequate number of synchronous condensers by 2021



Elaboration of principles of operation of the high-voltage submarine cables between the Nordic and Baltic regions



Identifying required measures, if any, to ensure the continued security of the Kaliningrad region electricity system and necessary system services, in a scenario of no cross-border transmission capacity available for trade flows after the desynchronization process



Commissioning of 400/330 kV autotransformers in Alytus by 2021



Launch of tendering and start of construction of the Harmony Link in 2021 and 2023 respectively



Implementation of a number of measures under the Connection Agreement ensuring frequency stability in Baltic States.



Synchronization in 2025



Completion of the investment request and submission of a financing proposal for the CEF call in 2020 for the Phase 2

Phase 1:

- internal three Baltic TSOs grid reinforcements,
- €323 million grant awarded.

Phase 2:

- internal Polish grid reinforcement,
- Harmony link,
- synchronous condensers,
- Batteries, frequency stability assessment system, SCADA upgrades,
- Investment request to be sent to NRAs by 31st October, amount of 1,2 billion euros.

COSTS AND BENEFITS FOR PL, LT, LV, EE AND FI [DISCOUNTED; MEUR]

| Name of the benefiting country | unit | B1 - SEW | B3 - RES integration | B5.1 - network losses | B5.2 - direct losses | B6, B7, B8 - SoS | TOTAL BENEFITS | C1 - CAPEX | C2 - OPEX | TOTAL C&B |
|--------------------------------|------|-------------|----------------------|-----------------------------|----------------------------|---------------------|-------------------|---------------|-----------|-----------|
| Finland | MEUR | 512,2 | -1,5 | -117,1 | 0,0 | 0,0 | 393,6 | 0,0 | 0,0 | 393,6 |
| Poland | MEUR | 207,6 | 358,8 | -38,9 | -66,2 | 52,5 | 513,7 | -450,2 | -31,8 | 31,7 |
| Lithuania | MEUR | 126,2 | 0,4 | -31,0 | -66,2 | 482,4 | 511,8 | -402,0 | -26,2 | 83,6 |
| Estonia | MEUR | 255,4 | -1,1 | 7,3 | 0,0 | 432,9 | 694,5 | -95,4 | -31,0 | 568,1 |
| Latvia | MEUR | 22,2 | -0,3 | -38,7 | 0,0 | 367,1 | 350,3 | -83,0 | -18,2 | 249,1 |
| TOTAL | MEUR | 1 123,6 | 356,3 | -218,4 | -132,4 | 1 334,9 | 2 463,9 | -1 030,6 | -107,3 | 1 326,1 |

POSITIVE CBA RESULTS MEANS THAT THERE IS NO NEED OF LAUNCHING CROSS BORDER COMPENSATION MECHANISM



Commissioning of 400/330 kV autotransformers in Alytus by 2021

- Three autotransformers already ordered and are in production
- Autotransformers will be used, if emergency synchronisation with CE before 2025 would be needed





- In total up to nine synchronous condensers will be ordered and installed by 2022 in Baltic States
- Synchronous condensers will serve as a measure for ensuring stable Baltic isolated mode operation
- Synchronous condensers will be instrumental to ensure 100% renewables integration in the Baltic States

Ensuring an adequate amount of system services (inertia) in the Baltics, including via an adequate number of synchronous condensers by 2021





Launch of tendering and start of construction of the Harmony Link in 2021 and 2023 respectively

- 1. Preparatory phase has already started.
- 2. CEF grant for preparatory phase awarded. September 2019.
- 3. Start of implementation phase foreseen for 2021.
- 4. If Harmony link to be 700MW, then 500MW current market NTC might increase between PL-LT;



Cooperation for Synchronization







Major infrastructure elements in Baltic States

elering Infrastructure Projects 2019-2025





TRASMISSION PROJECTS DEVELOPMENT IN LATVIA 2019-2024



LITGRID Infrastructure Projects



Regional operational agreements





Conclusions

Is desynchronization in 2025 still within reach?

- Yes, as soon as:
 - Financing ensured,
 - Infrastructure is in place,
 - Regional agreements achieved,
 - ENSTO-E requirements met,
 - Future with third countries solved.





Thank you!

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