Baltic Energy Independence Project

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Briefing title

Baltic Energy Independence Project: Synchronising the Baltic Power Systems with Continental Europe and Disconnecting them from the Power System of Russia and Belarus

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INTRODUCTION

Until February 2025 the electricity grids of Estonia, Latvia and Lithuania operated synchronously with the power system of Russia and Belarus, known as BRELL, which meant that frequency management, the system-wide task of keeping electricity production and consumption in balance, was carried out by Russia two decades after the three countries had joined the European Union (EU). The Baltic Energy Independence project ended that dependence: on 8 February 2025 the three grids were disconnected from BRELL, and the next day they began operating within the Continental Europe Synchronous Area (CESA), which serves more than 400 million consumers.

The project was carried out by the Baltic governments and their transmission system operators (TSOs), the bodies that run national high-voltage grids, together with Poland, the continental European TSOs and the European Commission. The project entailed more than 40 components that were completed around a year ahead of the original end-2025 deadline without any interruption of supply, despite the COVID-19 pandemic and Russia's war against Ukraine. This briefing draws on the application by Latvia's Ministry of Climate and Energy and on the EPSA validation visit to Latvia and thus presents the regional project with particular focus on Latvian arrangements. Notwithstanding, the project shows how a multinational programme of high political priority can be held on course over many years, brought forward despite evolving environments and risks, and supported by careful preparation of institutions and citizens for a delicate technical switchover.



Key facts

- **Project:** Baltic Energy Independence project, covering the synchronisation of the Baltic power systems with Continental Europe and their desynchronisation from the power system of Russia and Belarus.
- **Applicant:** Ministry of Climate and Energy, Latvia.
- **Country and level of government:** Latvia, national level, within a cross-border project involving the governments and TSOs of Estonia, Latvia, Lithuania and Poland, the continental European TSOs and the European Commission.
- **Duration and key dates:** launched in 2007 by the Prime Ministers of the three Baltic States; disconnection from BRELL on 8 February 2025 and synchronisation with CESA on 9 February 2025.
- **Funding:** EU support from the Connecting Europe Facility (CEF Energy), from REPowerEU support within Latvia's Recovery and Resilience Facility (RRF) plan and, in Lithuania, from the Modernisation Fund, combined with national contributions; according to the presentation, CEF covered about 75% and REPowerEU about 10%. Total investment in the energy systems of the Baltic States and Poland reached almost EUR 2 billion. A follow-up project to protect critical synchronisation infrastructure has been awarded EUR 112 million.
- **Main components:** more than 40 projects, including over 1,000 km of 330 kV transmission lines built or reconstructed, new cross-border interconnections, synchronous condensers (in Latvia at Grobiņa, Ventspils and Līksna), battery energy storage systems (in Latvia at Rezekne and Tume), new TSO IT and network control systems, changes to market arrangements, and security and public communication measures.
- **Headline results:** switchover with no disruption for consumers; autonomous frequency control by the Baltic States; external interconnector capacity of 3 GW, equal to about half of regional peak demand; EUR 1.8 billion saved by consumers in balancing capacity premiums in 2025; follow-up investment in infrastructure protection.

EPSA Category

Investing in Infrastructure, Mobility and Energy

Prize

2nd Place Winner

1. Relevance

When Estonia, Latvia and Lithuania joined the EU and the North Atlantic Treaty Organization (NATO) in 2004, they became subject to EU energy legislation while their grids remained technically part of the unified power system run by Russia. The mismatch present significant technical and legal challenges as grids management and energy stability depended on decisions taken in Russia. This exposed the Baltic grids not only to the possibility of technical failures but also the risk of serious disruption due to the scenario of 'weaponizing' energy supply for political ends. Hence, integration with continental Europe had been the declared objective since 2007 based on the joint agreement by Baltic Prime Ministers and Estlink-1, the first interconnection between the Baltic states and the rest of Europe was commissioned. Although subsequent investments, including High Voltage Direct Current (HVDC) interconnections and participation in the Nord Pool electricity market, provided foundations on which the project was built, synchronous operation with BRELL continued until 2025.

Since the mid-2010s, in line with developments in EU energy policy, the Baltic states increasingly pursued energy independence as a priority objective. This objective was further accelerated by Russia's full-scale invasion of Ukraine in 2022 which highlighted the dangers to national security in case of emergency desynchronisation. Damage to cables and pipelines in the Baltic Sea and attacks on Ukraine's energy infrastructure confirmed that energy assets had become targets. In addition to the strategic importance of the projects, the economic dimension is significant. The reliance on grid synchronisation operated by Russia incurred additional energy costs under normal conditions and specifically in case of emergencies. Hence, in 2023 onwards the Baltic States decided to move synchronisation forward from the end of 2025 to February 2025 and, accordingly, assigned priority to this project over other pending infrastructure and energy initiatives.

The project's primary objective was security, i.e. ending reliance on the Russian energy system and operational dependence on Russian frequency management. Integration with continental Europe not only addressed the security objective but also enabled the Baltic systems to operate under common and transparent European rules and to deepen market integration for the benefit of consumers. Moreover, integration and investment into key infrastructure such as new lines, substations and synchronous condensers allowed the grids of the Baltic States and Poland to carry a higher share of renewable electricity. The use synchronous condensers, which provide inertia, the resistance of a power system to sudden changes in frequency, and battery energy storage systems that help to balance the system are innovative technical solutions in the broader context of European energy policy.

The main added value of the project stems from the combination of strategic security and economic objectives as full integration with the European market would help to lower costs and meet carbon-neutrality targets. A key priority in project implementation was the continuity of service, since the grid had to leave external control without households and businesses noticing any change. The validation report places the project squarely within Category 2 as an investment in critical infrastructure and regional energy grids that turns geopolitical necessity into structural autonomy, and the evaluators judged it of the highest relevance for the Baltic States and Poland and consistent with EU objectives on energy, security, grid integration and resilience.

2. Project design and implementation

The project advanced through phases, each closed by formal decisions that committed governments and operators to the next stage: technical and economic studies from 2007 to 2018 established how stable synchronisation could be achieved, political decisions and a technical catalogue of measures followed in 2018 and 2019, and preparation and construction continued until 2025.

The main decision points were:

- **2007:** the Baltic Prime Ministers agree on the strategic objective of joining the European energy system, and Estlink-1 is commissioned.
- **2015:** the European Commission approves the synchronisation plan, including a set of electricity infrastructure reinforcement projects.
- **2018:** the Baltic States and the European Commission approve the synchronisation scenario and sign a political roadmap for synchronisation in 2025.
- **2019:** the Latvian Cabinet of Ministers decides that synchronisation will be completed by the end of 2025, with similar decisions in Estonia and Lithuania, and the Baltic and continental European TSOs sign a connection agreement.
- **2023:** following further studies, the Baltic States decide to accelerate synchronisation to February 2025.
- **2024:** the Baltic TSOs announce the termination of the BRELL agreement, starting the legally required six-month exit notice.
- **8 and 9 February 2025:** disconnection from BRELL and synchronisation with CESA.

Governance rested on cooperation agreements and financial support agreements, regular coordination meetings and a clear allocation of responsibilities among TSOs, ministries and European institutions, including the European Climate, Infrastructure and Environment Executive Agency (CINEA). Cross-border decisions were aligned in the Baltic Energy Market Interconnection Plan (BEMIP) group, chaired by the European Commission, which met every two weeks, and the Commission created a dedicated synchronisation coordinator post to close communication gaps between the parties. Funding from CEF Energy, which supports the coordination and funding of cross-border and national infrastructure, was combined with REPowerEU support, the Modernisation Fund in Lithuania and national contributions. In Latvia the work was steered by the Ministry of Climate and Energy, which compensated for limited capacity by outsourcing core administrative services and rebuilt its implementation team with new recruits after experienced staff left.

Risk management was built into the planning from the start. Feasibility and risk assessments covered geopolitical, technical, economic and regulatory risks; scenario planning, stress testing and regular impact assessments examined how the system would behave under different conditions; and contingency reserves and strict quality control for high-risk installations provided further safeguards. Work was organised around milestones, key performance indicators (KPIs) and deliverables, with systematic reporting to keep TSOs and governments aligned, and before the switchover national and regional meetings explained to all parties what would be done under each scenario.

The 2023 decision to accelerate was taken only after feasibility studies, and it required revised timetables, faster infrastructure deployment and adjusted organisational structures so that decisions could be taken more quickly, with milestones and KPIs monitored closely to correct deviations. Latvian officials told the validation team that Ukraine's rapid adjustments to its own grid served as a template, and the most intensive construction took place between 2022 and 2024, alongside measures against cyber threats and disinformation.

Alongside new lines, substations, synchronous condensers, battery storage and new TSO control and IT systems, market arrangements were reformed: trading moved from 60-minute to 15-minute intervals, the Baltic market joined the European-wide platforms MARI and PICASSO, and the TSOs built what they describe as one of Europe's most advanced wholesale market models, allowing trading up to 30 minutes before real time. The three Baltic States also agreed to share balancing reserves across borders up to a cap of 50%, against a standard baseline of 10% in EU regulation. The gas system was part of the wider preparations, with Conexus Baltic Grid, operator of the integrated Baltic gas market, acting as a flexibility provider supported by two regional liquefied natural gas (LNG) terminals and an RRF-funded expansion of underground storage.

Preparation reached well beyond the energy sector. In Latvia the Ministries of Defence and of the Interior monitored critical infrastructure round the clock before and after synchronisation, the National Guard stood ready to respond to network interference, and training exercises simulated the most critical scenarios. Municipalities and regional hospitals were involved, so that, for example, no heart surgery was scheduled during the switchover. The distribution system operators (DSOs), which run the lower-voltage networks serving 2.2 million clients, used a Power BI dashboard linked to their SCADA network control systems to simulate four separate emergency scenarios.

Communication aimed to keep the public informed without causing alarm, an aim made more pressing by a rise in disinformation. A seven-month DSO campaign before the disconnection used direct, non-alarmist messages, mass alert capacity was raised from 2,000 to 100,000 simultaneous messages, and updates went by SMS and email to 700,000 households and 27,000 businesses. Leaflets modelled on storm-preparation advice told citizens to 'charge your phone, but don't worry', municipalities kept in contact with vulnerable elderly residents, and closed groups on the Signal messaging application carried real-time information and feedback between institutions, including status updates on the day itself.

3. Outcome

The Baltic grids were disconnected from BRELL on 8 February 2025 and synchronised with CESA on 9 February at 14:05, a date the applicant now calls Baltic Energy Independence Day. The change was imperceptible to consumers, as intended, and at the control centre of AST, Latvia's transmission system operator, the validation team reviewed telemetry showing system inertia stabilising at the moment of decoupling. The Baltic States now balance production and consumption, hold reliability and stability reserves and control power flows and frequency themselves, under European rules, and post-implementation monitoring against KPIs on readiness, frequency stability, autonomy and schedule confirmed the resilience of the system.

More than 1,000 km of 330 kV transmission lines have been built or fully modernised, and external interconnector capacity has risen to 3 GW, enough to cover about half of regional peak demand. The applicant reports noticeably better network quality and much faster reactions to faults, with recent major storm-related disconnections resolved within an hour.

For consumers, the high share of EU co-financing limited the direct cost of the investment. Using TSO-owned infrastructure as a temporary backup saved consumers EUR 1.8 billion in balancing capacity premiums in 2025 alone, according to the validation report, and the TSOs reported that the new market model has stabilised the wholesale market and contributed to a slight decrease in the latest tariff period; the jury was told that synchronisation itself did not add to consumers' energy costs.

The conditions for renewable energy have changed as well. The validation report records 80% growth in total generation capacity over five years, and the applicants said that independence makes possible an eightfold increase in wind and solar capacity, which they expect to stabilise and eventually lower wholesale prices. The applicants were open about the operational demands this creates: zero or negative prices occurred in 3-4% of hours in 2025, the utilisation of controllable power plants fell from 26% to 13% as solar output expanded, producing the daily pattern known as the 'duck curve', and more private battery storage is needed, while gas-fired baseload remains necessary when solar output is low and wind parks meet organised local opposition despite compensation for residents.

Several arrangements created for the switchover have outlasted it. In Latvia some Signal groups remain in use for crisis and civil defence coordination between ministries and municipalities, and a Baltic-level group of ministry communicators continues, while public support for energy independence grew substantially over the course of the project. The Baltic States and Poland will receive EUR 112 million of EU co-financing, under a second CEF round covering 50% of costs, to protect critical synchronisation infrastructure, and at the end of

2025 the Baltic States agreed to set up a working group on the security of interconnections, particularly subsea cables and their rapid repair. In Latvia the Latvia 2050 Strategy aims to raise clean electricity production from 6 TWh to 25 TWh, bring average prices down to EUR 59/MWh and mobilise EUR 34.4 billion of investment, and it must meet a nearer deadline: by November 2028 the temporary TSO backup systems must leave the market, requiring a 70% increase in commercial flexibility and battery storage. The team shares its experience through European and international networks, seminars and exchanges.

Success factors

- Rigorous project management and committed participation by all actors, which kept the project on schedule despite the pandemic and geopolitical upheaval.
- Clear milestones and strong coordination across countries and institutions over a long implementation period, with more than 40 sub-projects managed in parallel, reflecting considerable operational capacity.
- Political drive and cross-border coordination in a technically complex and politically sensitive sector, involving multiple administrations and operators.
- Robust management in a complex environment, with strategic autonomy and network security as guiding priorities.
- Effective management of public and societal responses, including the successful steering of sensitive narratives, which the panel identified as a source of learning for public communication and awareness.
- EU co-funding that strengthened the overall value of a very large investment whose scale was justified by its strategic importance and regional benefits.
- Benefits that reach individual energy customers as well as the energy system as a whole.
- Continuity beyond completion, secured through the EU co-financed follow-up project on infrastructure protection, continued cooperation and the embedding of the project in EU frameworks.

Lessons learned and recommendations

1. **Fix long-term objectives in formal decisions at each level.** The synchronisation goal remained consistent from 2007 to 2025, even as strategic choices were renegotiated, and it was anchored successively in a Prime Ministers' agreement, a Commission-approved plan, a political roadmap, Cabinet decisions and a TSO connection agreement. Layering political, legal and operational commitments in this way protects the objective while leaving room to negotiate the details.
2. **Give cross-border work a standing forum with a neutral chair and a fixed rhythm.** Fortnightly BEMIP meetings chaired by the European Commission, together with a dedicated coordinator, gave the partners a predictable place to resolve issues before they became blockages.

3. **Agree from the outset to solve problems jointly rather than allocate blame.** The jury singled out the partners' habit of resolving difficulties together instead of attributing responsibility to individual countries, an approach that helped the partnership absorb the pandemic, the war and an accelerated timetable.
4. **Keep plans ready to be brought forward.** Existing studies, milestones and KPIs allowed the partners to assess an earlier date, revise timetables and adapt structures quickly; preparing acceleration scenarios in advance, and learning from others who have faced similar transitions, as Latvia did from Ukraine, makes such a shift less risky.
5. **Treat a high-risk technical switchover as a civil preparedness exercise.** Involving defence and interior ministries, municipalities, hospitals, DSOs and the National Guard, and rehearsing the worst plausible scenarios, meant that each institution knew its role; administrations planning similar changes can map which public services might be affected and ask them to adjust their own plans.
6. **Communicate early, calmly and through channels sized for a crisis.** A long campaign, practical advice framed as routine preparation and an alert system scaled from 2,000 to 100,000 messages helped to keep the public calm, while closed messaging groups gave officials a fast route for coordination and feedback that Latvia has since kept for crisis and civil defence work.
7. **Use EU co-financing to protect consumers and plan follow-on funding early.** A high share of EU funding limited the cost borne by consumers, and identifying needs such as infrastructure protection, flexibility and storage before completion allowed the partners to secure further co-financing promptly.
8. **Compensate for limited administrative capacity through targeted outsourcing and active staff renewal.** A ministry only a few years old delivered its share of the programme by outsourcing core administrative services and recruiting new staff when experienced members left, a practical route for small or newly created administrations.

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