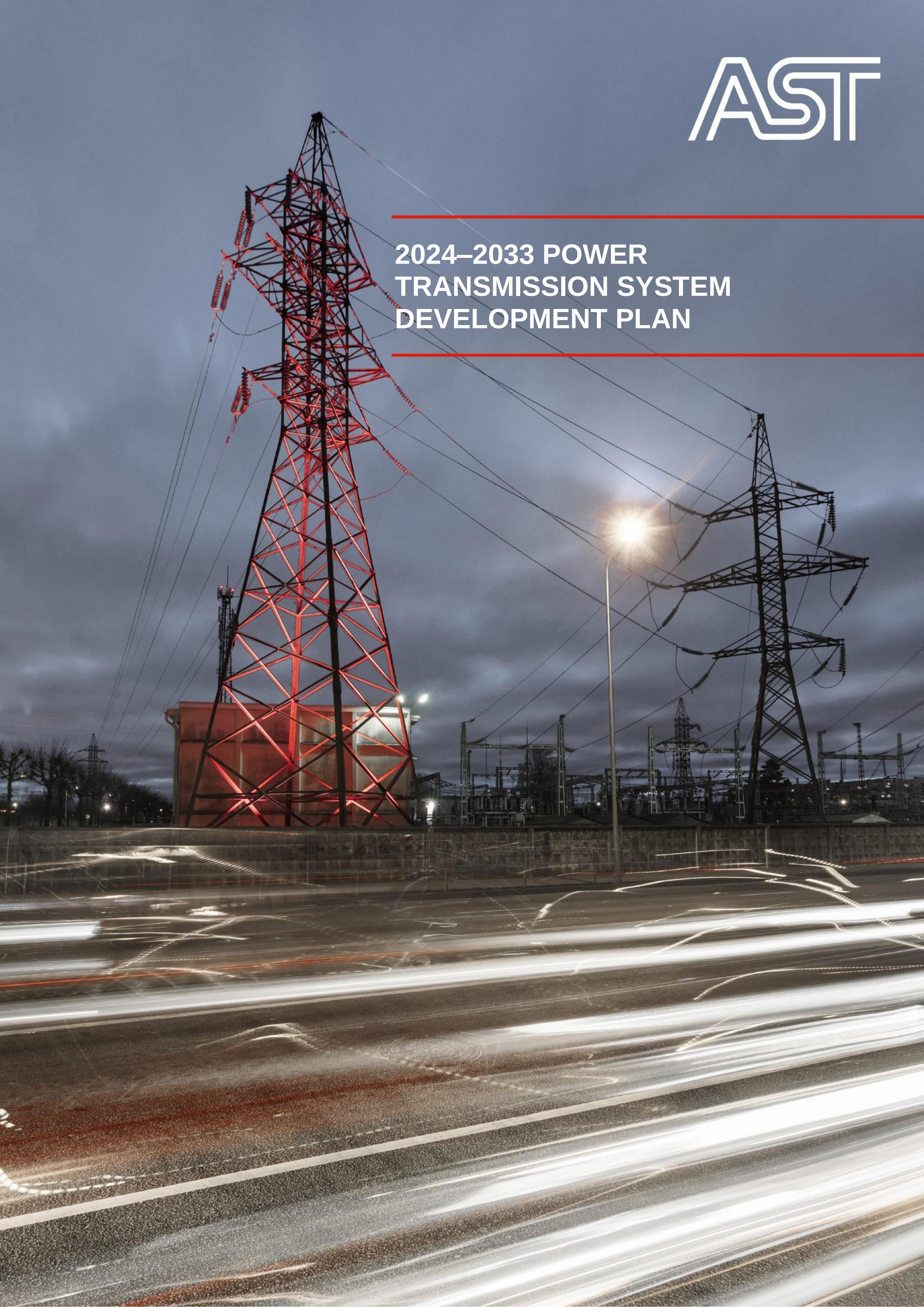


2024–2033 POWER TRANSMISSION SYSTEM DEVELOPMENT PLAN

CONTENTS

1. SUMMARY

The power transmission system development plan is a planning document prepared by the transmission system operator determining the financial investments that the transmission system operator's facilities need over the next 10 years.

The development of the transmission system development plan focused on the achievement of the following AST strategic goals:

- Desynchronisation of the Baltic power systems from the BRELL circuit and their synchronisation with the continental European systems, including the integration of innovative inertia equipment and energy storage systems;
- Maintaining and development of the capacity of the power transmission system, ensuring efficient and high-quality power transmission services at the lowest possible fees;
- Work towards the digitisation and green transformation of the power system, including the integration of new renewable energy producers into the power transmission system.

2024–2033 POWER TRANSMISSION SYSTEM DEVELOPMENT PLAN INCLUDES

330 kV

- Complete reconstruction of **50 km** of existing 330 kV transmission
- **3 330 kV substation expansions**
- **3 synchronous compensators**
- **2 battery energy storage systems installed**
- **7 330 kV autotransformers replacements**
- **712 330 kV transmission line pylons replacements**

110 kV

- **24 110 kV substations rebuilt**
- **48 110 kV transformers replaced**
- **1824 110 kV transmission line pylons replaced**

and other technical activities.

In addition to the above, AST has outlined the trends for connecting renewables power plants to the power transmission grid and the future prospects for the development of the Baltic Sea region's offshore power transmission infrastructure and AST's potential role in it.

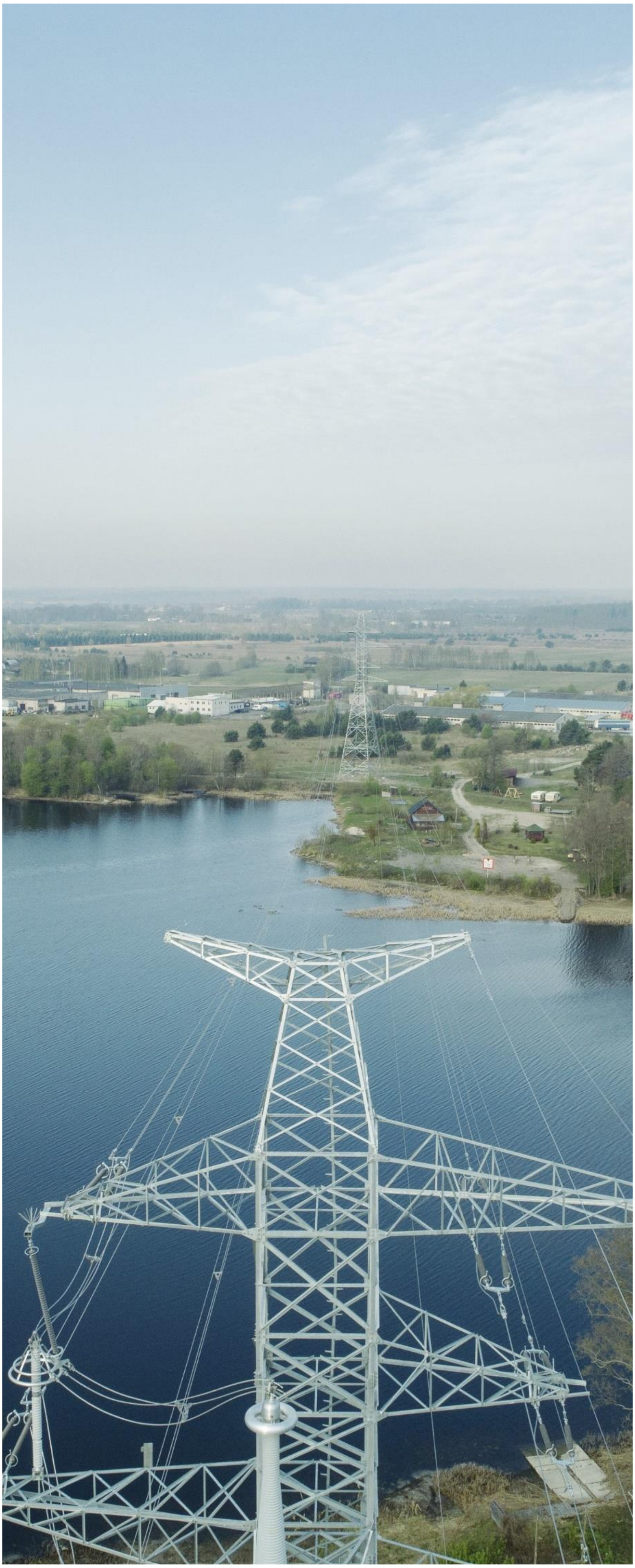
PLAN KEY INDICATORS

	2024–2033, in millions of euros
European co-financing	135.77 (CEF + RRF)
Overload fee income	29.11
AST FUNDING	341.90
CONNECTION FEE	3.06
TOTAL	**509.84**

Given the amount of co-financing raised, the only impact on the transmission fee is expected to come from the implementation of the synchronisation projects (12%), while the implementation of the other projects will have no impact on the transmission fee.

2. GROUNDS FOR PREPARING THE PLAN

The 10-year development plan for the Latvian power transmission system was developed in accordance with the 'Regulations on the development plan for the power transmission system' approved by Public Utilities Commission Council Decision No. 1/28 of 23 November 2011.



3. POWER TRANSMISSION SYSTEM DESCRIPTION

Number of substations, transformers, and automatic transformers, as well as installed capacity in 2023:

Table 1

Highest voltage (kV)	Number of substations	Number of transformers and automatic transformers (pcs)	Capacity installed (MVA)
330 kV	17	26	3800
110 kV	124	245	5113.5
TOTAL	**140**	**271**	**8913.5**

Length of transmission lines (line length in a circuit) in 2023:

Table 2

Highest voltage (kV)	Overhead and cable PTL (km)
330 kV	1742.13
of which cable lines	22.37
110 kV	3812.09
of which cable lines	83.75
TOTAL	**5554.22**

4. FORECAST FOR THE DEVELOPMENT OF GENERATION SOURCES AND POWER TRANSMISSION SYSTEM BALANCE

During development of the plan, AS Augstsprieguma tīkls in accordance with paragraph 3 of the ‘Regulation Regarding the Electricity Transmission System Development Plan’ adopted by the Board of the PUC (23 November 2011) has considered the findings and information, including the development of generating sources and the capacity adequacy forecasts of the electricity transmission system, which are included in the annual assessment report of the transmission system operator for 2022, which is prepared by the transmission system operator in accordance with the Cabinet Regulation (hereinafter – CR) No. 322 ‘Regulations Regarding the Annual Assessment Report of a Transmission System Operator’.

5. TRANSMISSION SYSTEM INFRASTRUCTURE NEEDED TO INCREASE INTERCONNECTION CAPACITY AND SYSTEM RELIABILITY

5.1. PROJECTS INTENDED FOR IMPLEMENTATION AND PLANNED FOR THE NEXT 3 YEARS

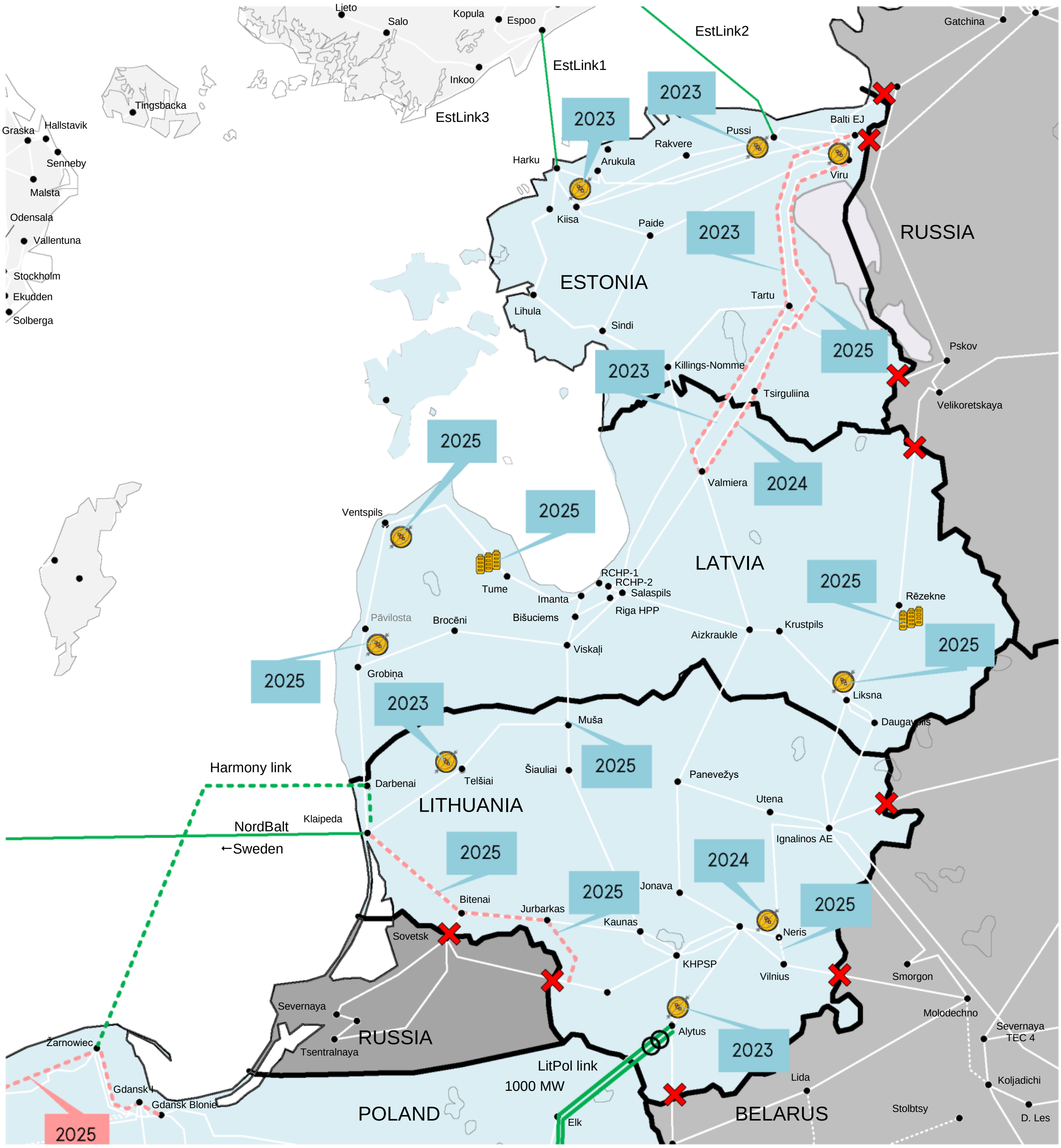
5.1.1. BALTIC POWER SYSTEM SYNCHRONISATION PROJECT

Since 2007, when the prime ministers of the Baltic states signed a memorandum of understanding and instructed the Baltic TSOs to explore the possibility of connecting to the European power networks, the Baltic TSOs have been pursuing the synchronisation (connection) with continental Europe and desynchronisation (disconnection) from the single power system in Russia. Several studies have been carried out to ascertain the feasibility of the project.

The synchronisation project is one of the projects strategically important to Europe, receiving political support on 28 June 2018 with the signing of a political roadmap between the European Commission, the Baltic states, and Poland, which confirmed the synchronisation scenario between Poland and Lithuania, with AC and DC interconnections. On 27 May 2019, the agreement for the connection of the Baltic states to the Continental Europe synchronous electric power network operation zone and its annex regarding the overall technical measures to be implemented for beginning synchronous operation took effect.

The list of technical measures to be implemented by the Baltic states by 2025 includes the construction or reconstruction of the necessary infrastructure, as well as measures to provide the necessary inertia and frequency adjustment. The Baltic states are to synchronise with continental Europe by the end of 2025 at the latest, while desynchronising from Russia's single power system.

The synchronisation project is divided into two stages and included in all European and national development documents, i.e., the European 10-year development plan and the list of projects of common interest.



BALTIC SYNCHRONISATION PROJECT STAGE 1

Stage 1 includes the strengthening of the Baltic power grid and the installation of equipment that will handle some of the required inertia and frequency adjustment and control. On 19 March 2019, a grant agreement was signed between the Baltic TSOs and the European Innovation and Networks Executive Agency on the conditions for using 75% of the co-financing for the implementation of Stage 1 of the Baltic synchronisation project provided through the Connecting Europe Facility (CEF).

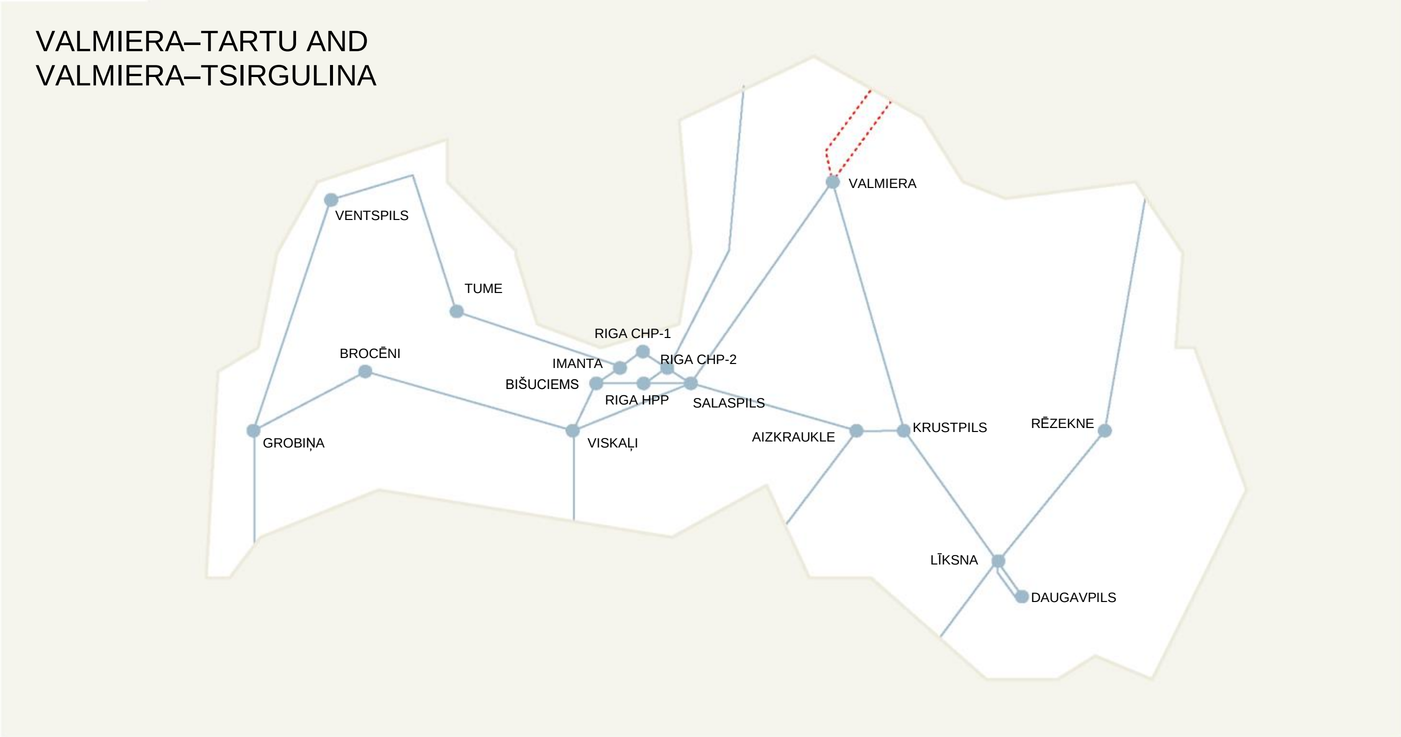
In Latvia, Stage 1 of the synchronisation project includes the reconstruction of two current Estonian–Latvian interconnections between Valmiera and Tartu and between Valmiera and Tsirgulina, as well as the installation of equipment that will enable inertia and frequency adjustment, as well as control and monitoring within the system.

RECONSTRUCTION OF THE EXISTING VALMIERA (LV)–TARTU (EE) AND VALMIERA (LV)–TSIRGULINA (EE) 330 KV INTERCONNECTIONS

The two Valmiera (LV)–Tartu (EE) and Valmiera (LV)–Tsirgulina (EE) 330 kV lines (Figure 2) were built in the 1960's and 70's and no longer meet modern requirements, such as in terms of differences in their capacity in winter and summer, which obstructs the optimal and efficient operation of the power market. These lines will be replaced by new ones, with increased capacity to provide a higher total north-south throughput capacity in the Baltic region, to increase the capacity of the Latvian and Baltic power transmission systems and thus the reliability of power supply for the future synchronisation of the Baltic states with the power transmission grids of continental Europe and their desynchronising from the single power system of Russia.

The Estonian TSO, Elering, will also reconstruct transmission lines connecting the Narva power plants as part of Stage 1 of the synchronisation project. In order to avoid any reduction of transmission capacity for the power market, the Latvian and Estonian TSOs are rebuilding the existing lines following the outage schedule AST and Elering agreed upon in 2018.

Figure 2



INCREASING THE CAPACITY OF THE 330 KV VALMIERA (LV)–TARTU (EE) TRANSMISSION LINE BETWEEN LATVIA AND ESTONIA

The Valmiera (LV)–Tartu (EE) 330 kV power transmission line was built and put into operation in 1971. Its length in Latvia is 48.42 km. The project involves the replacement of the line's wires, insulation, overhead line accessories, and pylons to accommodate the increased line capacity. The project began in 2020 with the announcement of a procurement, and in July 2021, a contract was signed with Empower and Leonhard Weiss for the implementation of the project. The construction began in June 2022 and was completed in both Latvia and Estonia by May 2023. The line went live in May 2023 and its official commissioning in Latvia is scheduled for the end of 2023.

INCREASING THE CAPACITY OF THE 330 KV VALMIERA (LV)–TSIRGULINA (EE) TRANSMISSION LINE BETWEEN LATVIA AND ESTONIA

The 330 kV Valmiera (LV)–Tsirgulina (EE) power transmission line was built in 1960. Its length in Latvia is 48.47 km. The project involves the replacement of the line's wires, insulation, overhead line accessories, and pylons to accommodate the increased line capacity. The project began in 2020 with the announcement of a procurement, and in July 2021, a contract was signed with Empower and Leonhard Weiss for the implementation of the project. The development of the design for the line has been completed and its construction began once the Valmiera (LV)–Tartu (EE) 330 kV transmission line went live. The project is expected to be commissioned at the end of 2024. Both the projects are included on the list of projects of common interest, in the 'Integration and synchronisation of the Baltic states' electricity system with the European networks' cluster, approved by a European Commission and Parliament Regulation. On 5 March 2018, Valmiera Regional Environmental Administration of the State Environmental Service decided not to impose the environmental impact requirements for the two lines, and issued technical specifications that the project implementers must comply with as part of the project. In 2020, both the projects underwent public consultations in the affected municipalities in Latvia.

EQUIPMENT NEEDED FOR THE SECURE AND STABLE SYNCHRONISATION OF THE BALTIC STATES

The key tasks in preparing for the synchronisation include the primary frequency adjustment in the Latvian power system, improvements in the frequency adjustment system and, if necessary, its modernisation in line with the requirements of the continental European power system, as the frequency adjustment has so far been provided through the single power system of Russia. In addition, the supervision, control, and telecontrol systems of the power network need to be developed and upgraded, with the installation of phasor measurement units (PMU) and wide-area monitoring systems (WAMS) at all important sites. In addition, remote control systems (RCS) and remote terminal units (RTU) must be installed in important power plants and substations in Latvia. These projects must be implemented by no later than 2025, when the Baltic states' power systems are to be synchronised with continental Europe and desynchronised from the single power system of Russia.

In addition to the frequency adjustment activities and in order to ensure the stable operation of the power system in synchronisation mode, the TSOs of the Baltic states must provide a total of 17,100 MWs of inertia 24 hours a day, with Latvia providing a proportional share of 5700 MWs of inertia. To enable the provision of these services, Stage 1 of the Baltic synchronisation project includes the installation of one stationary synchronous compensator in Latvia.

Together with the other Baltic TSOs, AS 'Augstsprieguma tīkls' will implement a frequency stability assessment system (FSAS). To this end, a cooperation agreement and technical specifications were signed by the Baltic TSOs in 2022 and the procurement for the project began in early 2023. The project must be implemented by the end of 2025.

PROJECT BENEFITS:

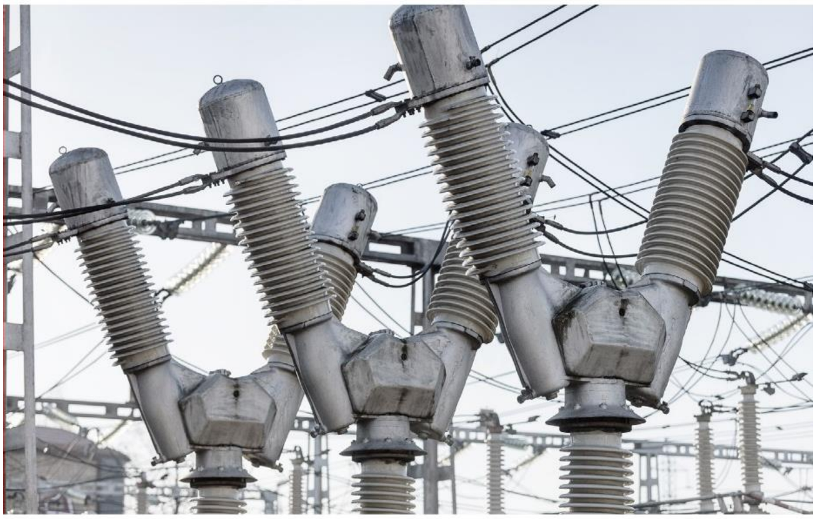
For the Stage 1 synchronisation projects, a cost-benefit analysis of the projects was prepared and submitted to the Baltic states' regulatory authorities in 2018.

FUNDING

The projects are to be implemented with EU co-financing covering 75% of eligible costs and accumulated overload fee income. Taking into account the previous decisions of the Public Utilities Commission Council and in accordance with the provisions of Article 16 of Regulation (EC) No. 714/2009 of the European Parliament and of the Council on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No. 1228/2003, the accumulated overload fee income will be allocated to the project.

In accordance with Section 7 of the Capital Cost Accounting and Calculation Methodology approved by Public Utilities Commission Council Decision No. 1/12 of 29 August 2022, the part of the value of fixed assets funded with the financial support of the European Union and through the accrued overload fee income is not to be included in the calculation of power transmission system service tariffs. In view of the above, the approximate percentage breakdown of the eligible costs for each project in May 2023 is as follows: 75% is financed by the CEF structural fund and 25% by AS 'Augstsprieguma tīkls', including accumulated overload fee income. The percentage of funding may change with changes in the total actual cost of the project.

5.1.2. BALTIC SYNCHRONISATION PROJECT STAGE 2



Stage 2 of the Baltic synchronisation project is a continuation of the first stage, and includes the construction of an additional DC interconnection between Poland and Lithuania (Harmony link), including the necessary strengthening of the transmission infrastructure in Lithuania and Poland for the reliable operation of this interconnection, the installation of equipment to provide the remaining part of inertia, and the installation of frequency adjustment infrastructure, including the setup of a battery energy storage system (BESS), upgrades in the international fiscal metering system, emergency automation and system protection, and SCADA system upgrade projects. Stage 2 of the Baltic Synchronisation Project is divided into two rounds. Round 1 of the Stage 2 synchronisation projects, i.e., Harmony link with converter stations, 6 synchronous compensators in the Baltic states and the modernisation of the Polish internal grid, were allocated 75% European co-financing in 2020 (up to EUR 55 million in Latvia), and on 14 December 2020, a grant agreement was signed by the TSOs of the Baltic states and Poland and the European Innovation and Network Executive Agency. Round 2 of Stage 2 of the synchronisation project received European co-financing covering 75% of the planned project costs in January 2022 (up to EUR 37.1 million for projects in Latvia), and a grant agreement was signed with the European Climate, Infrastructure and Environment Executive Agency on 3 June 2022.

The list of Stage 2 Round 2 projects in Latvia includes the battery energy storage system (BESS), upgrades in the international fiscal metering system, emergency automation and system protection, and SCADA/LFC upgrades. On 24 September 2021, the Latvian Cabinet of Ministers adopted Order No. 674 ‘To permit Joint-Stock Company “Augstsprieguma tīkls” to buy, develop, manage, and operate electric power storage facilities’. In January 2022, EU CEF co-funding of 30 million euros was granted to BESS. However, after the 2022 energy crisis and the significant increase in the market price of materials, the costs of BESS which were planned in 2019, with the preparation of all the necessary documents for European and Latvian institutions, are expected to increase significantly. Consequently, AST plans to raise RePowerEU funding to cover the potential increase in BESS costs compared to what was originally planned, although the provision of the remaining funding could have an impact on the amount of projects planned in the TSO’s 2024–2033 development plan in the coming years. AST plans to install energy storage batteries with a total capacity of 80 MW/160 MWh, split into two 60 MW/120 MWh and a 20 MW/40 MWh BESS for reliability reasons. AST plans to cover the costs not covered by the European Structural Funds from retained profits and by borrowing on the financial market. The implementation of the projects of Stage 2 of the synchronisation project is scheduled to finish by the end of 2025. In 2022, 5 synchronisation surveys took place, which the Baltic TSOs had to conduct according to the technical catalogue issued by continental Europe’s TSOs.

The surveys were carried out by a consortium of European TSOs and it is planned that, based on these studies, the European TSO consortium will issue recommendations for creating or improving failure prevention, system automation, and frequency stability and power frequency control measures in the Baltic states.

INSTALLING BESS IN THE TSO NETWORK

In 2019, AS ‘Augstsprieguma tīkls’ signed an ‘Agreement on the conditions of the future interconnection of the power system of the Baltic states and power system of continental Europe’. The annexes to this agreement set the technical requirements to be met by the Baltic TSOs before and after the start of the synchronisation process. These requirements are associated with changes in the settings of the transmission system, investments in infrastructure development and the duty of the TSOs to maintain a certain amount of frequency containment and frequency restoration reserves and system inertia. In order to calculate the amount of frequency containment and restoration reserves required and to identify the sources of their coverage, the Baltic TSOs carried out a balancing capacity reserve market study, which concluded that the Estonian, Latvian, and Lithuanian power systems were unable to provide the required FCR (Frequency Containment Reserve), aFRR (Automatic Frequency Restoration Reserve), and downstream mFRR (Manual Frequency Restoration Reserve) reserves on their own, being only able to provide upstream mFRR.

Additional generators are needed to maintain FCR, aFRR, and mFRR, but no single power system can keep all the required reserves. Consequently, one must consider purchasing alternatives to these reserves on the power market or to install equipment capable of providing frequency stability services. An assessment of different sources of balancing capacity reserves and their availability revealed that the most efficient and cheapest solution for providing balancing capacity reserves is to install energy storage batteries in the power transmission system. According to the calculations of AS ‘Augstsprieguma tīkls’, one must install energy storage batteries with a total capacity of 80 MW (160 MWh) to provide all the balancing capacity reserves necessary. This amount would make it possible to achieve the European strategic objective of synchronising the Baltic power systems with continental Europe and to prevent the risks of reserves being unavailable on the power market or being available at an excessive price once the synchronisation begins. On 24 September 2021, the Latvian Cabinet of Ministers adopted Order No. 674 ‘To permit Joint-Stock Company “Augstsprieguma tīkls” to buy, develop, manage, and operate electric power storage facilities’. Amendments to the Electricity Market Law were drafted and submitted to clearly define the conditions for the use of BESS and to confirm the status of the Cabinet of Ministers’ permit issued to AST for the purchase, installation, and operation of BESS.

The draft amendments to the Electricity Market Law (No. 226/Lp) were examined at the 14 June 2023 meeting of the Parliamentary Committee on Economy, Agrarian, Environmental, and Regional Policy, and a decision was made to submit the amendments for a third reading by the Parliament.

In addition, amendments to Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU were also submitted, making it possible for the Baltic states to deviate from Article 54(2) of the Directive, with the goal of making it clear that, during the transitional period, the acquisition, installation, and operation of Baltic TSO BESS would not require authorisation by the regulatory authority and that it would be allowed to use TSO BESS for participation in the energy market. The European Council reached a general agreement on the amendments to the Directive and trilogues (conceptual negotiations between the European Parliament, the Council, and the Commission) will follow.

A tender was launched for the construction and installation of BESS at the 60 MW/120 MWh Rēzekne and 20 MW/40 MWh Tume substations.

PROJECT BENEFITS:

All of the above projects are part of Stage 2 of the synchronisation project, which the Baltic and Polish TSOs have committed to implement by the end of 2025. For the Stage 2 synchronisation projects, a cost-benefit analysis was prepared and submitted to the Baltic states' regulatory authorities in 2019.

5.1.3. 330 KV POWER LINE RENOVATION

In addition to the above projects, the development plan includes the necessary renovation of the 330 kV transmission lines, specifically lines No. 312 Aizkraukle–Krustpils and No. 322 Viskaļi–Brocēni.

FUNDING

All the synchronisation Stage 2 projects are to be implemented with EU CEF co-financing covering 75% of eligible costs (not including BESS) and accumulated overload fee income. Taking into account the previous decisions of the Public Utilities Commission Council and in accordance with the provisions of Article 16 of Regulation (EC) No. 714/2009 of the European Parliament and of the Council on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No. 1228/2003, the accumulated overload fee income will be allocated to the project. In accordance with Section 7 of the Capital Cost Accounting and Calculation Methodology approved by Public Utilities Commission Council Decision No. 1/12 of 29 August 2022, the part of the value of fixed assets funded with the financial support of the European Union and through the accrued overload fee income is not to be included in the calculation of power transmission system service tariffs. In view of the above, the approximate percentage breakdown of the eligible costs for each project in May 2023 is as follows: 51% is financed by the CEF structural fund and 49% by AS 'Augstsprieguma tīkls', including accumulated overload fee income. The percentage of funding may change with changes in the total actual cost of the project, or if the EU co-financing as part of the RePowerEU programme is awarded to BESS.

5.2. OTHER 330/110 KV SYSTEM 10-YEAR DEVELOPMENT PROJECTS

5.2.1. RENOVATION OF 330 KV TRANSMISSION SYSTEM AND ITS FACILITIES

In addition to the above projects, the development plan includes the necessary renovation of the 330 kV transmission lines, specifically lines No. 322 Viskaļi–Brocēni, No. 311 Krustpils–Līksna, No. 313 Līksna–Daugavpils, No. 323 Brocēni-Grobiņa, and others.

- A total of **712 pylons** and **7 autotransformers** are to be replaced at 330 kV power transmission lines and 330 kV substations over these 10 years.

5.2.2. RENOVATION OF 110 KV TRANSMISSION SYSTEM AND ITS FACILITIES

In order to prevent a significant acceleration in the obsolescence of the transmission network, and to thus ensure the stable operation of the transmission system and uninterrupted supply of the required amount of power to the users connected to it, the transmission system operator will plan the reconstruction of 110 kV substations and distribution facilities, 110 kV transmission lines, as well as the replacement of 110 kV transformers and other projects aimed at maintaining the operability of the power transmission system.

The financial investments are planned such that, in the long run, the transmission equipment ages as slowly as possible, meaning that the number of items of equipment over the critical age does not increase.

To enable this, the power transmission system development plan foresees:

- the reconstruction of **24 substations** (twenty-four 110 kV substations);
- the replacement of **48 transformers**;
- the replacement of **1980 110 kV line pylons**.

KULDĪGA DIGITAL SUBSTATION

In line with technological innovations, the Kuldīga substation will be rebuilt as a digital substation. This means that the connections between different devices will mainly be through fibre optic cables, instead of copper cables. Furthermore, a number of pieces of equipment in this substation will be equipped with monitoring systems enabling the real-time monitoring of the technical condition of this equipment, thus preventing defects leading to failures.

ENVIRONMENTALLY FRIENDLY EQUIPMENT

A rising number of high-voltage equipment manufacturers are offering equipment that is more environmentally friendly. These are devices that do not use SF6 gas for insulation, and instead have eco-friendly insulating gas or biodegradable insulating oil.

The Carnikava substation will be the first substation to have such equipment (110 kV circuit breakers and instrument transformers) installed during its reconstruction.

LOSS REDUCTION

The plan provides for the installation of new transformers with lower losses, in accordance with COMMISSION REGULATION (EU) No. 548/2014.

Before a final decision on investing in infrastructure projects, AS ‘Augstsprieguma tīkls’ will take appropriate actions to verify the relevance of the project from the viewpoint of the buyer of the infrastructure, in order to prevent the construction of infrastructure that would not actually be loaded.

5.2.3. INVESTMENTS IN INFORMATION TECHNOLOGY

AST continuously develops its IT infrastructure by adding and implementing new equipment and solutions to increase computing capacity and data storage, and to ensure the availability of the data transmission network, enabling IT services to operate simultaneously via two data centres (primary and secondary), guaranteeing the reliability of AST’s services. New equipment needs to be rotated every 5–8 years (depending on the type of equipment and the intensity of its use), which requires periodic investments to keep the IT infrastructure running at the level required at the time. Over time, additional requirements arise in the fields of safety and business process improvements, and in the company’s business functions, which are implemented based on AST’s IT infrastructure. The efforts aimed at strengthening AST’s cybersecurity include implementing and improving IT security solutions, providing multiple layers of protection and increasing the competence of the company’s employees in the field of cyber hygiene.

Extensive development and expansion of business information systems is also underway, automating data analysis capabilities, implementing process-orientated solutions for operations and development, balancing and regulation services, and providing essential support to the synchronisation process.

These activities take place as part of AST’s digital transformation process, simultaneously improving business information systems and the company’s internal processes, and building the digital skills of its employees, thus making the company more efficient and open to innovation and new technologies.

5.2.4. CONSTRUCTION OF AS AUGSTSPRIEGUMA TĪKLS SUPERVISORY CONTROL AND DATA CENTRE, REBUILDING OF THE PRODUCTION FACILITY GROUNDS AND BUILDING COMPOUND AT DĀRZCIEMA IELA 86, RIGA

In order to enable the sustainable development of the transmission system, the 10-year transmission system development plan includes the construction of a supervisory control and data centre, rebuilding of the production facility grounds and building compound for AS 'Augstsprieguma tīkls' at Dārzciema iela 86 in Riga.

The construction of the supervisory control and data centre is critical for a number of reasons:

- The supervisory control and data centre is part of critical Class C infrastructure, which may not be set up in unsuitable premises due to the risks involved;
- to ensure synchronous operation with the continental European grid in the first few years, it is necessary to relocate critical Class C infrastructure by building and equipping a supervisory control and data centre;
- The existing supervisory control centre equipment needs to be upgraded/replaced as it does not provide the on-duty supervisory control operator with the features that modern equipment could provide for better power system management and support of market operations;
- The data centre is needed to accommodate servers, communication, storage, and security equipment for SCADA and other critical IT systems to ensure the uninterrupted operation of critical infrastructure.

The main reasons for the critical need to rebuild the AS 'Augstsprieguma tīkls' production facility grounds and building compound at Dārzciema iela 86 are:

- all the outdoor utility lines in the area of Dārzciema iela 86 need to be rebuilt due to them having worn out completely, which results in regular breakdowns;
- to ensure the safe movement of rapid-response and utility vehicles in the critical infrastructure area, it is necessary to construct an additional drive-in on the grounds at Dārzciema iela 86,
- the number of production and utility buildings (material storage, vehicle parking, equipment repair premises, etc.) needs to be optimised by demolishing unnecessary buildings/building volumes and carrying out the necessary rebuilding;
- the energy performance of the buildings at the facility needs to be increased. The control room, data centre, and office building are designed as a near-zero-energy building. Solar panels are also to be installed to partially cover own power consumption, while the heat generated by the data centre is to be partially used for heating.

Based on an assessment of all the conditions, AS 'Augstsprieguma tīkls' has decided to implement the project in an efficient and gradual manner. This means that the continued functioning of the facility is to be ensured throughout the entire duration of the reconstruction (Stages 1 and 2 of the construction are to take place from 2023 until the end of the first quarter of 2026, and Stage 3 will take place until mid-2027).

The project will be implemented in two stages. The first stage will cover the development of the construction design, while the second stage will be the construction.

The design stage takes place from early 2021 to mid-2023. The developed construction designs were also submitted for review to the Public Utilities Commission, which issued its approval to proceed with the project in January 2023.

In addition, AS 'Augstsprieguma tīkls' has signed an agreement with the Ministry of Economy on the raising of funds via the Recovery and Resilience Mechanism, which will cover up to EUR 38.1 million of the project's costs.

On 10 March 2023, AS 'Augstsprieguma tīkls' initiated the procurement for the construction, which will begin once the procurement is over. Stages 1 and 2 are to be completed between 2023 and the end of the first quarter of 2026. Stage 3 is expected to be completed in mid-2027.

FUNDING

The planned financial investment amount for the construction of the supervisory control and data centre and the rebuilding of the production facility grounds and building compound is EUR 46 million, and for the information system infrastructure and the digitisation of grid management, EUR 11.1 million. The project is of strategic importance for the reliability of power supply, because it will also provide the main planning and control functions of the power transmission system after the Baltic states synchronise with continental Europe in 2025: it will include the implementation of new information systems (important from the viewpoint of the continuity and reliability of IT functions), because there will be the construction of new supervisory control and data centres, as well as the renovation and expansion of the ICT infrastructure, with improvements in the overall level of cybersecurity at the company. Thus, co-financing from the Recovery and Resilience Fund (RRF) with a total amount of EUR 38.1 million will be provided, EUR 27 million of which is intended for the construction of the supervisory control and data centre and the rebuilding of the production facility grounds and building compound, while EUR 11.1 million is for information system infrastructure and the digitisation of network management. The remaining amount is to be covered by AS 'Augstsprieguma tīkls'.

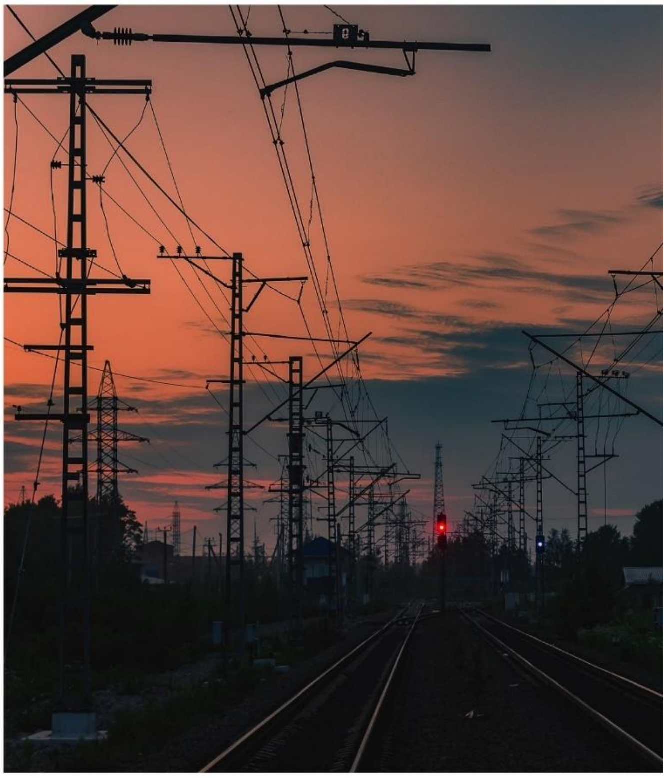
5.3. PROCESSES AFFECTING OR LIKELY TO AFFECT THE IMPLEMENTATION OF THE PROJECTS INCLUDED IN THE DEVELOPMENT PLAN

5.3.1. RAIL BALTICA PROJECT

Rail Baltica is a railway project aimed at integrating the Baltic states into the European rail network, covering four EU countries (Poland, Lithuania, Latvia, and Estonia) and indirectly, Finland, extending the route with the Tallinn-Helsinki connection. The second stage of the project (Rail Baltica II) involves the construction of a new European standard gauge (1435 mm) railway line in the Baltic states, connecting the cities of Tallinn, Riga, Kaunas, and Warsaw with fast and environmentally friendly rail transport. In May 2016, the State Environmental Monitoring Bureau issued a statement on the environmental impact assessment report prepared by SIA 'Estonian, Latvian & Lithuanian Environment' and RB Latvija partnership for the construction of the Rail Baltica European standard gauge public railway infrastructure line. By 2028, three traction power substations are planned to be built in Latvia and connected to the power transmission system with the construction of new connections. A new 110 kV power transmission line of about 47 kilometres is to connect the Salacgrīva traction substation. In addition to the connection activities, the railway will intersect transmission lines in at least 35 locations. Most of the intersection will require rebuilding of the power lines (e.g., changing the dimensions of the lines, converting from overhead to cable, relocating the power line, etc.).

Given the importance of the Rail Baltica project, AST understands that its successful progress will be one of Latvia's priorities, and significant resources available to AST will have to be assigned to supporting it, which without additional improvements in AST's internal resources, may affect AST's ability to carry out all the planned development projects within the time specified in the plan.

Aware of this risk, AST actively monitors the situation and makes decisions on the actions necessary in the provisioning of resources.



5.3.2. EUROPEAN UNION CO-FINANCING

According to Article 3(4) of Regulation (EU) No. 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No. 1364/2006/EC and amending Regulations (EC) No. 713/2009, (EC) No. 714/2009 and (EC) No. 715/2009, the Commission, exercising its powers, ensures that a list of projects of common interest (PCI) is prepared every two years. On 19 November 2021, by delegated Decision No. C(2021) 8409, the European Commission approved the fifth list of projects of shared European interest, which includes the synchronisation projects to be implemented in Latvia. On 30 April 2021, the Ministry of Finance submitted Latvia's Recovery and Resilience Fund Plan (RRFP) for review by the European Commission (EC), and on 22 June 2021, the EC approved the RRFP.

Following a review of the plan by the Economic and Financial Affairs Council, the RRFP was approved on 13 July 2021. AST included in the plan and approved projects totalling EUR 38.1 million for the development of IT solutions for improving transmission system security, building the necessary information systems infrastructure, and pursuing the digitisation of network management, as well as projects for building Latvia's main supervisory control and data centre, including the development of an IT infrastructure solution. In March 2023, an agreement was signed with the Ministry of Economics covering the conditions for implementing projects with RRF funding.

5.3.3. LARGE-SCALE IMPLEMENTATION OF NEW CONNECTIONS

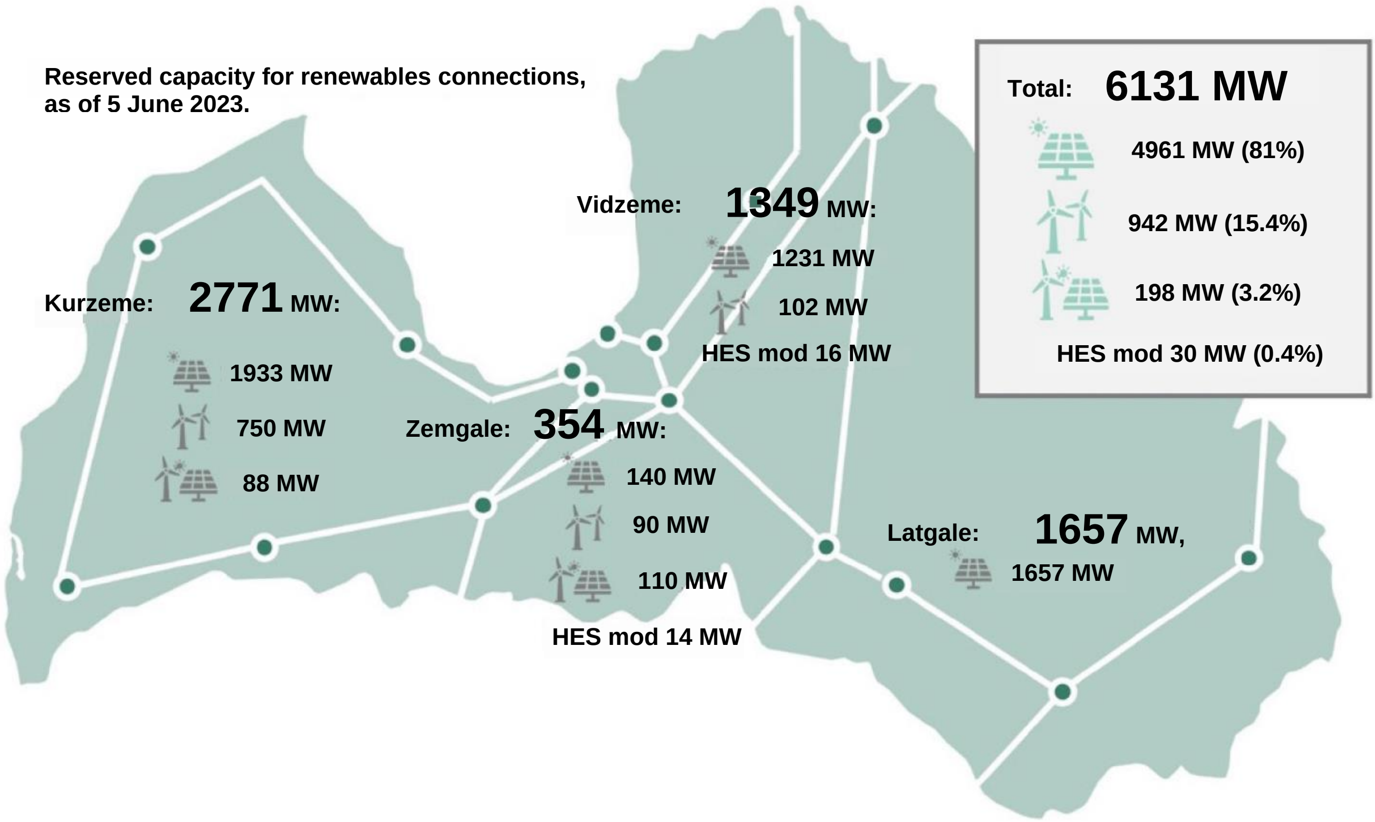
The development of renewable energy power plants is an important contribution to achieving Latvia's energy and climate goals. AS 'Augstsprieguma tīkls' contributes to this by ensuring that such power plants are connected to the power transmission system.

In order for AS 'Augstsprieguma tīkls' to comply with the legal requirements and the obligations it undertook when issuing technical specifications to the power producer, it is necessary to reserve the capacity for which the technical specifications were issued from the moment the technical specifications were issued. AST issued technical specifications for new connections with wind and solar power plants with a total capacity of 6131 MW before 5 June 2023, and this is the amount of capacity currently reserved.

Meanwhile, the capacity reservation fee has been paid or connection contracts have been signed for 3805 MW, including 2683 MW (70.5%) for solar power plants, 942 MW (25%) for wind power plants and 180 MW (4.5%) hybrid wind and solar power plants.

To connect this capacity, one must carry out 33 new connection projects, involving the construction of 8 new 330 kV substations, 21 new 110 kV substations, and the rebuilding of 3 existing 110 kV substations over a 3-year period. Construction has started on 3 new connection projects, while requests for new connections continue to be received and technical specifications continue to be issued. The total amount of connection requests (capacity reserved with technical specifications issued plus capacity indicated in new applications for which technical specifications are being prepared) as of 5 June 2023 is 7568 MW, including 6331 MW (83.7%) for solar power plants, 942 MW (12.4%) for wind power plants, 265 MW (3.5%) for hybrid wind and solar power plants, and 30 MW (0.4%) for capacity expansion projects in the Daugava HPP cascade hydro sets.

Given this situation, AS 'Augstsprieguma tīkls' sees 2 risks:



1) **Negative impact on the implementation of the AS 'Augstsprieguma tīkls' Development Plan:** the large number of connection projects to be implemented at the same time runs the risk that the companies may not have sufficient resources to implement both the Development Plan and the large-scale installation of the new connections. This in turn can make the implementation of the Development Plan projects more costly and time-consuming. AS 'Augstsprieguma tīkls' will face the challenge of implementing these projects with the resources it has, and will plan to raise additional resources if necessary.
2) **Too high a share of solar power plants (70.5 to 83.7% of the total renewables connections requested) is not optimal from the point of view of system balancing and optimum grid use.**

An optimum renewables generation portfolio would be one with which the generation of electricity is as even across the year as possible. This is shown in the following figures simulating two scenarios for the production of solar and wind power across a year at different shares of installed capacity:

a) assuming that the total renewables capacity is 3805 MW: the amount for which the capacity reservation fee has been paid until 05.06.2023;
b) assuming a total renewables amount of 7568 M, i.e., total renewables connections requested as of 05.06.2023.

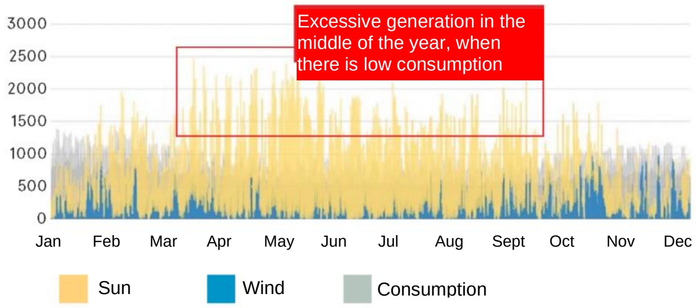
AS 'Augstsprieguma tīkls' plans to provide a more in-depth analysis of its preferred renewables generation portfolio in its annual TSO report, but the initial conclusions are as follows:

- if one or the other type of generation predominates the mix, it impairs the system's ability to provide power when the climatic conditions change unexpectedly. For example with an 80% solar and 20% wind mix, generation drops off rapidly in stormy weather, causing unwanted grid fluctuations;

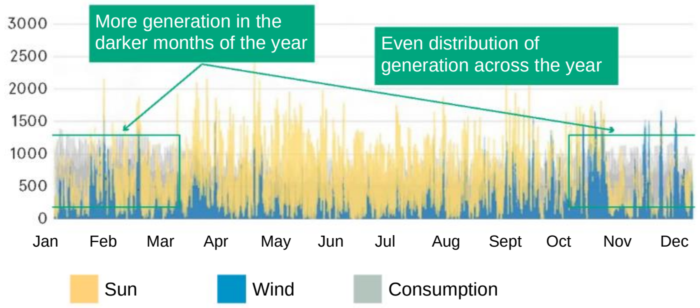
- uneven distribution of generation types leads to the inefficient use of grid capacity. For example, if the grid is fed primarily by solar, then it will only be used efficiently at peak times, when the sun is shining. At other times, the grid will be underused. This conclusion applies to the grid as a whole and to its individual elements, such as 330/110 kV transmission lines;
- uneven distribution is more likely to result in overproduction, with quantities that exceed consumption in Latvian and could be exported to neighbouring countries (EE, LT, SE), but there is no guarantee that the same or similar situation would not occur in the neighbouring countries at the given hours, and in such a case, restrictions would have to be placed on the power producers;
- the most even split between solar and wind generation, regardless of the total installed capacity, is 50%/50%, with a fluctuation of 1–3% variations in favour of one or the other depending on the expected solar and wind generation profile. This distribution would make the most efficient use of grid capacity;
- During the dark months of the year, gas plants will have to be operated regardless of the amount of solar and wind connected, especially with low HPP yield.

SOLAR AND WIND GENERATION SIMULATION ACROSS A YEAR

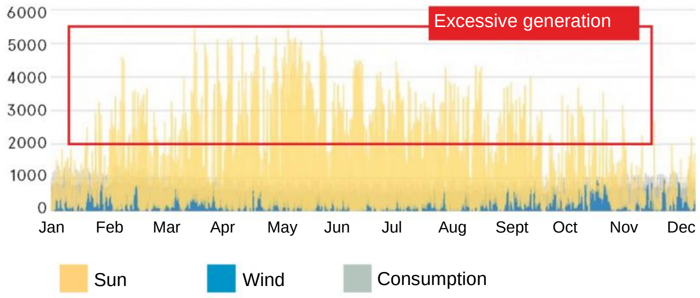
Renewables — 3805 MW:
70.5% solar and 29.5% wind



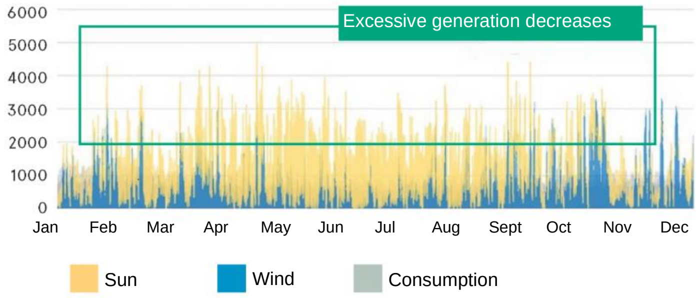
Renewables — 3805 MW:
50% solar and 50% wind



Renewables amount — 7538 MW:
85.6% solar and 14.4% wind



Renewables amount — 7538 MW:
50% solar and 50% wind



So, while requests for solar connections predominate at the moment, in the future we will have to look for ways to stimulate a better balance of the share of solar and wind in the overall renewables portfolio. At the same time, various hybrid projects should be encouraged, combining solar and wind power plants, power storage, P2X plants.

This will result in a better optimised generation portfolio and the development of technologies that could be used for balancing the system and providing capacity reserves.

#	Producer	Connection point	Approximate connection costs*, million euros	Reserved capacity, MW	Region	Type of power plant
1	Laflora Energy, SIA	110 kV grid connection (Stage 1)	4.8	90	Zemgale	Wind power plant
2	Rapsoil, SIA	Connection to the 110 kV system	4.07**	60	Kurzeme	Wind power plant
3	AB Wind, SIA	Connection to the 110 kV system	3.2	58.8	Kurzeme	Wind power plant
4	ENERGO WIND, SIA	Connection to the 330 kV system	7.8	93.5	Kurzeme	Wind power plant
5	WPR2, SIA	Connection to the 110 kV system	3.2	102	Vidzeme	Wind power plant
6	BRVE, SIA	Connection to the 110 kV system	3.2	70	Kurzeme	Hybrid power plant (wind and solar)
7	Envirsus, SIA	Connection to the 110 kV system	3.2	290	Kurzeme	Wind power plant
8	Birznieki Industrial Solutions, SIA	Connection to the 110 kV system	2.48**	60	Vidzeme	Solar power plant
9	Ventspils Wind, SIA	Connection to the 110 kV system	3.2	66	Kurzeme	Wind power plant
10	SP Venta, SIA	Connection to the 110 kV system	3.2	70	Zemgale	Solar power plant
11	SP Venta, SIA	Connection to the 110 kV system	3.2	70	Zemgale	Solar power plant
12	DSE Aizpute Solar, SIA	Connection to the 330 kV system	7.8	199.8	Kurzeme	Solar power plant
13	Rēzekne PV, SIA	Connection to the 110 kV system	3.2	50	Latgale	Solar power plant
14	Greenpower, SIA (Enercom Plus, SIA)	Connection to the 110 kV system	0	18.25	Kurzeme	Hybrid power plant (wind and solar)
15	SP Venta, SIA	Connection to the 110 kV system	3.2	81.2	Kurzeme	Solar power plant
16	Baltic Biorefinery Group, SIA	Connection to the 110 kV system	0.79**	100	Latgale	Solar power plant
17	DSE Lazas Solar, SIA	Connection to the 330 kV system	7.8	274.95	Kurzeme	Solar power plant
18	Alsun Energy, SIA	Connection to the 110 kV system	0.8	6	Kurzeme	Solar power plant
19	4 WIND, SIA	Connection to the 110 kV system	3.2	23.2	Kurzeme	Wind power plant
20	STELO ORIENTA, SIA	Connection to the 110 kV system	0.8	110	Kurzeme	Solar power plant
21	Sunly Land Solar 1, SIA	Connection to the 110 kV system	3.2	40	Vidzeme	Solar power plant
22	Sunly Land Solar 3, SIA	Connection to the 330 kV system	7.8	280	Vidzeme	Solar power plant
23	SPVKurzeme, SIA	Connection to the 110 kV system	3.2	110	Latgale	Solar power plant
24	Max Solar, SIA	Connection to the 110 kV system	3.2	60	Vidzeme	Solar power plant
25	Baltazar, SIA	Connection to the 110 kV system	0.8	46	Kurzeme	Solar power plant
26	Vestman Zemes Fonds, SIA	Connection to the 330 kV system	7.8	200	Kurzeme	Solar power plant
27	Sunly Land Solar 2, SIA	Connection to the 330 kV system	7.8	200	Kurzeme	Solar power plant
28	Jaukta jauda, SIA	Connection to the 110 kV system	3.2	59.99	Vidzeme	Solar power plant
29	Pienava Wind, SIA	Connection to the 330 kV system	7.8	158.4	Kurzeme	Wind power plant
30	CVE, SIA	Connection to the 330 kV system	7.8	200	Vidzeme	Hybrid power plant (wind and solar)
31	SCHWENK Latvija, SIA	Connection to the 110 kV system	0.25	5	Kurzeme	Solar power plant
32	Laflora Energy, SIA	110 kV grid connection (Stage 2)	20	110	Zemgale	Hybrid power plant (wind and solar)
33	PurpleGreen Energy B, SIA	Connection to the 330 kV system	7.8	400	Latgale	Solar power plant
34	Sunly Land Solar 4, SIA	Connection to the 110 kV system	3.2	30	Vidzeme	Solar power plant
35	SIA IGN RES DEV2, SIA	Connection to the 330 kV	7.8	222	Kurzeme	Solar power plant

		system				
36	Purplegreen SolWin, SIA	Connection to the 330 kV system	7.8	400	Latgale	Solar power plant
37	Purplegreen SolWin 1, SIA	Connection to the 110 kV system	3.2	200	Latgale	Solar power plant
38	ib vogt Latvia alfa, SIA	Connection to the 110 kV system	0.8	91.75	Latgale	Solar power plant
39	Virga Tero, SIA	Connection to the 330 kV system	7.8	250	Latgale	Solar power plant
40	Latvenergo, AS	Connection to the 110 kV system	0	16	Vidzeme	Hydroelectric power plant
41	Latvenergo, AS	Connection to the 110 kV system	0	14.1	Zemgale	Hydroelectric power plant
42	Utilitas Wind, SIA	Connection to the 330 kV system	7.8	259	Kurzeme	Solar power plant
43	Utilitas Wind, SIA	Connection to the 330 kV system	7.8	249	Kurzeme	Solar power plant
44	Utilitas Wind, SIA	Connection to the 330 kV system	7.8	180	Vidzeme	Solar power plant
45	Utilitas Wind, SIA	Connection to the 330 kV system	7.8	221	Vidzeme	Solar power plant
46	SOL 4, SIA	Connection to the 110 kV system	3.2	50	Zemgale	Solar power plant
47	VSCH, SIA	Connection to the 110 kV system	0.8	70	Kurzeme	Solar power plant
48	TCK, SIA	Connection to the 110 kV system	0.8	63	Kurzeme	Solar power plant
49	Winergy, SIA	Connection to the 110 kV system	0	30.2	Kurzeme	Wind power plant
			Total	**6109.14**		

#	User	Connection point	Approximate connection costs*, million euros	Reserved capacity, MW	Region	Note
1	Sadales tīkls, AS	Connection to the 110 kV system	0.06	6.3	Kurzeme	User
2	Sadales tīkls, AS	Connection to the 110 kV system	0.910	6.3	Kurzeme	User
3	‘Gaujas koks’, SIA	Connection to the 110 kV system	3.2	10	Zemgale	User
4	‘Gaujas koks’, SIA	Connection to the 110 kV system	1.6	10	Vidzeme	User
5	RB Rail, AS	Connection to the 110 kV system	22.2	30	Vidzeme	User
6	RB Rail, AS	Connection to the 110 kV system	3.2	30	Vidzeme	User
7	RB Rail, AS	Connection to the 110 kV system	3.2	40	Zemgale	User
9	Sadales tīkls, AS	Connection to the 110 kV system	0	32	Vidzeme	User
10	Sadales tīkls, AS	Connection to the 110 kV system	2.2	25	Vidzeme	User
11	Valmieras stikla šķiedra, AS	Connection to the 110 kV system	1.2	32	Vidzeme	User
12	Sadales tīkls, AS	Connection to the 110 kV system	3.2	16	Vidzeme	User
13	Sadales tīkls, AS	Connection to the 110 kV system	3.2	16	Vidzeme	User
14	Sadales tīkls, AS	Connection to the 110 kV system	3.2	16	Kurzeme	User
15	Sadales tīkls, AS	Connection to the 110 kV system	3.2	16	Vidzeme	User
16	Sadales tīkls, AS	Connection to the 110 kV system	0.45	32	Zemgale	User
17	Sadales tīkls, AS	Connection to the 110 kV system	0.45	25	Vidzeme	User
18	Sadales tīkls, AS	Connection to the 110 kV system	0.45	40	Vidzeme	User
19	Sadales tīkls, AS	Connection to the 110 kV system	0.45	32	Zemgale	User
20	Birznieki Industrial Solutions, SIA	Connection to the 110 kV system	2.48**	60	Vidzeme	User
21	VK Terminal Services, SIA	Connection to the 110 kV system	3.2	65	Kurzeme	User
22	Sadales tīkls, AS	Connection to the 110 kV system	0.175	25	Zemgale	User
23	Sadales tīkls, AS	Connection to the 110 kV system	0.25	16	Vidzeme	User
			Total	**580.60**		

Notes for the table of producers and consumers:

* Approximate average cost of a connection (building a substation or connection), not including the construction or rebuilding of the power line to the substation

** The costs specified in the connection contract

*** More details on the status and location of these projects can be found on the capacity map and in the status section of the AS ‘Augstsprieguma tīkls’ website:

https://www.ast.lv/lv/content/pieslegumi-parvades-sistemai

https://www.ast.lv/lv/content/pieslegumu-ierikosanas-un-atlautas-slodzes-izmainu-statuss

**** Updated with a list of these projects at the Regulator’s request (data as of 11.09.2023)

5.3.4. WAR IN UKRAINE

The current geopolitical situation caused by the war in Ukraine and international sanctions against Russia and Belarus led to significant changes in the construction market in 2022, with changes in suppliers and supply chains for materials leading to higher costs and delays in the delivery of materials and equipment, as well as changes in the conditions for deliveries and construction work (e.g., advance payments required for equipment and materials). This situation has still not fully normalised, and there is a risk that a number of projects could become more expensive, completed late, or postponed. To reduce the likelihood of this risk, contracts for the completion of work and the delivery of equipment must follow the rules of indexing the contract price or its constituent components, and include other mechanisms to stabilise the contract price.

5.4. PROJECTS FOR THE FUTURE DEVELOPMENT OF THE POWER TRANSMISSION SYSTEM

5.4.1. OFFSHORE WIND FARMS

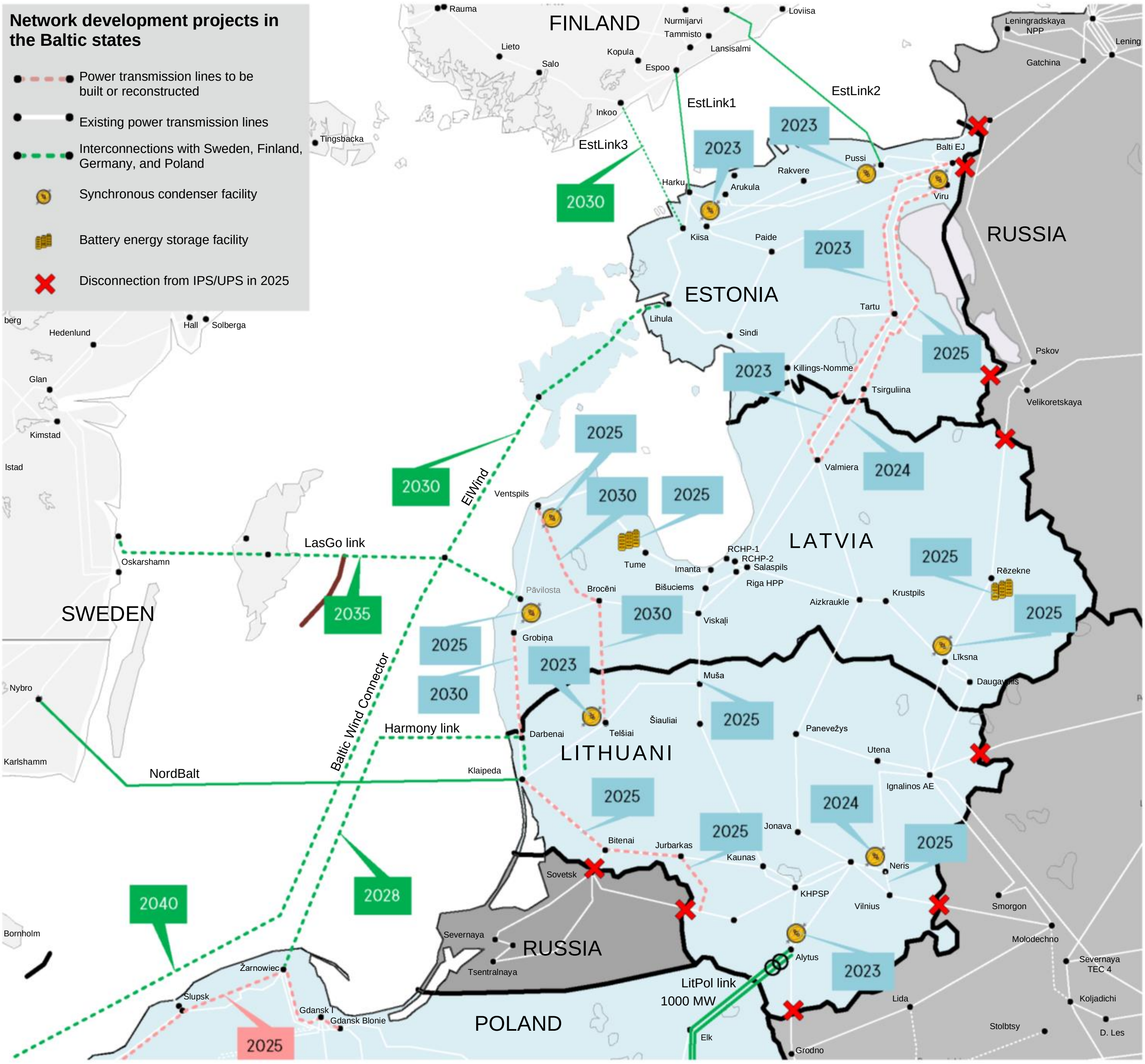
In addition to the large number of requests for onshore grid connections from renewables power producers, a large-scale near-future expansion of renewables capacity is also expected in the Baltic Sea: both out in the sea, which has the biggest offshore wind potential, and in the Gulf of Riga. In 2019, the Latvian Ministry of Environmental Protection and Regional Development of Latvia ('MEPRD') approved the Marine Spatial Planning 2030 ('MSP') development document (https://geolatvija.en/geo/mapviewer?licenceId=Free-290), which defines the sites for offshore wind farms. The development of the second version of the Latvian Marine Spatial Planning began in 2023. AS 'Augstsprieguma tīkls' participates in the MSP work groups, contributing in what pertains to the development of the power transmission network.

MSP clearly shows that the offshore wind potential in Latvia and the whole Baltic Sea region is very large (up to 15 GW of installed capacity), and in order to feed the power generated by the offshore wind farms into the power grid, it is critical that the Latvian power transmission infrastructure, both onshore and offshore, is developed as well, by building new or upgrading existing interconnections with neighbouring countries and by implementing ambitious offshore wind infrastructure projects throughout the Baltic Sea region. As offshore wind farms expand, TSOs will also have to develop their onshore power transmission networks in order to connect the offshore wind turbines.

5.4.2. DEVELOPMENT OF THE POWER TRANSMISSION INFRASTRUCTURE IN THE BALTIC SEA REGION

The Baltic Sea region's power transmission system operators ('TSOs'), including AST, continue their work on the Baltic Offshore Grid Initiative ('BOGI'), promoting the development of offshore wind farms, reduction of CO_2 emissions and the creation of an environmentally friendly energy system.

The BOGI initiative is supported by the European power transmission system operators working in the Baltic Sea region, which have signed a memorandum of understanding to confirm this: Fingrid in Finland, Svenska Kraftnät in Sweden, Energinet in Denmark, 50 Hertz in Germany, Elering in Estonia,



AS ‘Augstsprieguma tīkls’ in Latvia, and Litgrid AB in Lithuania. Meanwhile, Statnett in Norway has expressed its willingness to participate in the project as an observer.

The BOGI initiative aims to develop uniform planning principles for the Baltic Sea power grid, and to conduct studies that will form a vision for the single Baltic Sea grid and enable it to be included in the European 10-year power transmission network development plan, as well as other European and national planning and development documents.

The cooperation between the TSOs of the Baltic Sea region began following the declaration signed on 30 September 2020 by the EU members states in the Baltic Sea region, requiring the parties to jointly plan offshore areas where offshore wind farms could be located, enabling the wind energy potential to be fully used. European development documents note that the Baltic Sea region has significant potential for achieving green energy policy objectives. According to a Baltic Energy Market and Infrastructure Plan (BEMIP) study, the Baltic Sea wind potential exceeds 90 GW of installed capacity (including 15 GW in Latvia’s territorial waters), and the total annual power production could be as high as 325 TWh.

A BOGI map is currently in development. The result of this work will be a long-term vision for the development of a power transmission network in the Baltic Sea, showing potential offshore wind farm projects and a branched grid infrastructure to connect them. This vision is expected to be completed by January 2024. The vision can be implemented starting with individual projects, which would gradually be linked into a singled network. These individual projects can range from hybrid projects to offshore wind farms that are initially planned to be radially connected to the onshore power transmission grid, but could also be connected to a transmission grid in the Baltic Sea in the future.

The BOGI vision is to initially include the following projects, the development of which is in Latvia’s interest: Latvia–Sweden interconnection (LaSGo project), 4. Estonia–Latvia interconnection (ELWIND project), Baltics–Germany interconnection (BalticWind Connector project). More detailed technical and economic solutions for the projects are yet to be developed, and it is important to take into account the fact that they are part of the overall vision of BOGI. The technical solutions must, therefore, be such that they can be effectively connected to other future projects in the single Baltic Sea network.

5.4.3. ELWIND PROJECT

One of the possible offshore wind park development projects is ELWIND, a joint Latvian-Estonian international offshore wind park project, to be implemented with the support of the Latvian and Estonian ministries in charge of the energy sector. In accordance with the objectives of the 2021–2030 Latvian National Energy and Climate Plan (NECP 2030), it is planned that the offshore wind farm project will be completed by 2030, working towards the European goal of achieving 50% of renewables in the overall end consumption of energy and a 65% reduction in Latvia's GHG total emissions compared to the 1990 level. On 18 September 2020, the Latvian Ministry of Economics and the Estonian Ministries of Economics and Communications, which are in charge of the energy sector in their respective countries, signed a memorandum of understanding (MoU) for the development of an Estonia–Latvia offshore wind farm project, to produce energy from renewable sources through the construction of offshore wind farms identified in the marine spatial planning. Because the project is to be implemented in two countries, it will qualify for regional-interest status and will also be eligible for European co-financing through CEF structural funds. In late 2020, the Ministry of Economics, in close cooperation with the Estonian Ministries of Economics and Communications, the Estonian Environmental Investment Centre and the Investment and Development Agency of Latvia, as well as experts from the power transmission system operators AS 'Augstsprieguma tīkls' (Latvia) and AS Elering (Estonia), started intensive, productive, and inclusive work on the implementation of ELWIND. The Investment and Development Agency of Latvia (IDAL) was assigned to implement the project in Latvia, while in Estonia, this task was given to the Estonian Environmental Investment Centre (EIC). The Latvian Ministry of Economics and the Estonian Ministries of Economics and Communications support this project at the national level. AS 'Augstsprieguma tīkls' is currently involved in the ELWIND project insofar as it pertains to planning the development of the transmission network and to identifying matters related to the development of the offshore power transmission network that should be addressed in national legislation. In 2022, an offshore wind farm site in each country was selected for the ELWIND project, and the corresponding technical and legal issues will have to be sorted out in the near future.

In 2021, AST in conjunction with Elering investigated the potential project locations for building connections to the onshore grid. In August 2022, the Cabinet of Ministers approved a report setting the conditions for the implementation of the project in Latvia, including the fact that the project is to be implemented as a hybrid project, i.e., building an offshore wind farm, an offshore interconnection linking Latvian and Estonian wind farms, and connections to the onshore grid. In 2023, IDAL and EIC began work on the environmental impact assessment of the joint ELWIND project (assessing the sites and power networks in Latvia and Estonia) and submitted an application to CEF for renewables co-financing to perform an EIA procedure in the wind farms and the network infrastructure in the two countries. CEF is expected to make its co-funding decision in mid-2023, when it will also be clarified which surveys will be carried out with the support of its co-financing. The wind farm is expected to be auctioned to a potential investor in 2026, and the project itself, together with the transmission infrastructure, is expected to be completed by 2030. The MoU signed by the ministries of the two countries referred to the project as having an installed capacity of up to 500 MW in each country, but with the rapid developments in technology and business models, the project is expected to have a higher installed capacity, with up to 1 GW in each country.

In order to connect such offshore wind farm capacities to the 330 kV transmission grid in Kurzeme, the ELWIND project needs to be implemented as a hybrid system, with the necessary implementation of the offshore interconnection and the following improvements in the Latvian power transmission grid:

- Strengthening of the Latvia–Lithuania Grobiņa–Darbenai 330 kV interconnection, increasing the throughput capacity of the existing interconnection.
- Strengthening of the Latvia–Lithuania interconnection with the construction of a new 330 kV Ventspils–Brocēni line and a new 330 kV Brocēni–Varduva Latvia–Lithuania interconnection.

These improvements in the grid will provide the grid capacity needed for the ELWIND project as well as for other offshore and onshore wind farm projects.

In order to be eligible for future co-financing through European structural funds, the ELWIND project has been included on the European list of priority renewables projects, approved in 2022. From the point of view of the infrastructure development for the ELWIND project, the Estonia-Latvia hybrid interconnection combined with the above improvements was included in the ENTSO-E Ten-Year Network Development Plan for 2022 (ENTSO-E TYNDP-2022) on 15 October 2021, becoming a candidate for inclusion in the sixth European list of projects of common interest (PCI) that would make it eligible for future European co-financing under the CEF structural funds. The PCI list is expected to be approved and published at the end of 2023.

The network infrastructure needed for the ELWIND project fits into the vision of a single Baltic Sea power grid, with the possibility of extending this infrastructure to Sweden and Germany. The planned ELWIND offshore substation has the potential to become a node for ELWIND, the Latvia–Sweden LaSGo interconnection, and the Baltics–Germany interconnection in the future. To realise this potential, the transmission network planning for the ELWIND project must take into account the possible expansions, both in the choice of cable parameters and in the engineering design of the offshore substation.

5.4.4. LATVIA–SWEDEN INTERCONNECTION

The Latvia–Sweden high-voltage power interconnection is an important power transmission infrastructure project not only for Latvia and Sweden but also for the entire Baltic Sea region, especially in the context of synchronising the Baltic states with the power system of continental Europe and increasing the share of renewables. Given the expected rise in power consumption, the development of the power market, and the achievement of the n-1 safety criteria, it will be necessary in the long run to strengthen the transmission network and build new interconnections between the countries of the Baltic Sea region. Currently, Latvia's development documents refer to the project as the LaSGo (Latvia–Sweden–Gotland) link, in line with its geographical location.

AST is currently working with the Ministry of Climate and Energy on the development of a vision for the project and is engaged in talks with Sweden at the government and TSO level. In previous discussions on the future of the project between the Latvian and Swedish TSOs, the Swedish TSO, Svenska Kraftnat (SvK) pointed out that it saw the benefits of such a project, provided that it enabled the connection of the offshore wind farms being built off the island of Gotland. At this point, SvK plans including a radial connection between the offshore wind farm near Gotland and the onshore grid in Sweden in its development plans, with the note that this connection could be expanded with a hybrid offshore transmission interconnection between Latvia and Sweden. On the Latvian side, the interconnection could be connected to an offshore substation, to be built as part of the ELWIND project, thus naturally fitting into the vision of the single Baltic Sea power grid.

Recognising the importance of the project and the need to take the first steps in time, AS 'Augstsprieguma tīkls' plans to launch 3 studies for the LaSGo project in 2023, researching the dynamic stability, technical feasibility, and cost-benefit analysis.

Through an intergovernmental agreement on the project with Sweden, it will be possible to raise European co-financing for surveys and construction as part of the further development of the project, and, in order to become eligible for CEF co-financing in the future, the project needs to be included in European development documents, i.e., the Ten-Year Network Development Plan (TYNDP) and then the list of projects of common interest (PCI).

5.4.5. BALTICS–GERMANY INTERCONNECTION

In May 2023, given the rapid growth of renewables in the Baltic states and the need to export this energy to countries with power shortages, the Baltic TSOs (Elering from Estonia, AST from Latvia, and Litgrid from Lithuania) signed a multilateral letter of intent with the German TSO 50Hertz, with the goal of establishing a power transmission interconnection between the Baltic states and Germany through the Baltic Sea, in order to strengthen cooperation and take common steps towards energy independence. The project is called the Baltic WindConnector. The Baltic WindConnector will consist of a 750 km power transmission cable in the Baltic Sea running from Germany to Estonia, enabling the future connection of high-capacity offshore wind farms, with the Baltic states becoming exporters of green power to Europe's power market.

At the moment, the development of the project is only at the conceptual stage with the parties sharing their opinions, and the letter of intent is the first step towards building this interconnection: it is initially planned to carry out a feasibility analysis of the possible development of this project.

If the Baltic WindConnector line is built, connecting Estonia to Germany, it could become an important piece of transmission infrastructure for the whole Baltic Sea region in the context of the already mentioned Baltic Sea Region Offshore Infrastructure Initiative and the synchronising of the Baltic states with the power system of continental Europe, where the synchronous link for the Baltic states will be created through the Poland-Lithuania high-voltage alternating-current (HVAC) interconnection, with additional trading capacities possibly being provided through high-voltage direct-current (HVDC) interconnections with continental Europe, i.e., including Poland and Germany. The ELWIND project, with its connection to the onshore grid in Saaremaa, Estonia, and further to an offshore substation in Latvia, can be the first practical step in the construction of the Baltic WindConnector line and must be taken into account in the planning of the grid infrastructure for the ELWIND project.

The development of the Baltic-German interconnection could be important in the context of the rising share of renewables in the entire Baltic Sea region, taking into account electrification, the expansion of the power market, as well as the achievement of n-1 reliability criteria in all the operating modes of the system. In the long run, it will be necessary to strengthen the transmission network and develop new interconnections between the countries of the Baltic Sea region to contribute to accomplishing the EU's common goals for a single and integrated electric power system.

5.4.6. PRELIMINARY COSTS OF LATVIAN POWER TRANSMISSION GRID DEVELOPMENT PROJECTS

Given the current market situation for such projects, the potential project costs are also difficult to predict. The table below shows very early estimates, as well as the estimates for the project preparation stages (feasibility studies), which may change significantly in the future.

These costs are subject to change, given the market findings and technical solutions used in specific projects, ensuring that these projects fit the vision of the development of the single Baltic Sea power transmission network.

Given the significant costs involved, one of the biggest challenges associated with the offshore projects will be to raise the financing for building the transmission network infrastructure, while aiming to minimise its impact on the transmission services fees.

Project name	Planned construction costs, MEUR*	Preparation stage costs, MEUR*	Comment
Construction of ELWIND project offshore infrastructure, including the EE-LV interconnection and offshore substations	1200	10	Preliminary and environmental impact assessment (EIA) studies are planned for the preparation phase
Reconstruction of the 330 kV Latvia–Lithuania Grobiņa–Darbenai interconnection in Latvia	40	2	
Construction of the 330 kV Ventspils–Brocēni line	70	0.5	EIA studies are planned for the preparatory phase
Construction of the 330 kV Latvia–Lithuania Brocēni–Vardruva interconnection in Latvia	25	1	EIA studies are planned for the preparatory phase
Construction of the LaSGo project in Latvia	700		The preparation stage is to include preliminary studies

* The costs are based on the current market situation, characterised by significant cost increases following the outbreak of hostilities in Ukraine.

6. IMPACT ON THE TRANSMISSION SYSTEM SYSTEM TARIFF

To ensure the sustainable development of the transmission system, the development plan includes financial investments in the renovation of the existing transmission system and in the development of the transmission system through the construction of new transmission assets. When assessing the impact of the investments included in the development plan on the fee, it can be concluded that the investments in the transmission system necessary to reverse the trend of the obsolescence of the transmission network to ensure the stable operation of the transmission system (renovation of 110 kV substations and distribution facilities, 110 kV transmission lines, replacement of 110 kV transformers, and other projects aimed at preserving the functional capacity of the transmission system) are financed through the depreciation of the transmission system's assets and have no impact on the power transmission system service tariff.

The investments planned as part of the European 10-year development plan are closely linked to improving Latvia's energy security by integrating it into the EU power market and are of strategic importance on a national level, and for the Baltic Sea region as a whole. To minimise the impact of these projects on transmission system fees, the projects are co-financed by the European Union and through accumulated overload fee income. The Public Utilities Commission has set a maximum allowable influence of the ongoing projects included in the development plan and co-financed by the EU on transmission system fees.

Using the available financial resources and sources of project financing in an efficient way, AS 'Augstsprieguma tīkls' makes every effort to ensure that these projects have the least possible impact on its transmission system service tariffs.

As a result of AST's activities, 75% of the funding needed to implement projects to synchronise with continental Europe is covered by EU co-financing and overload fee income, thus reducing the projects' impact on power transmission system service tariffs. AS 'Augstsprieguma tīkls' expects that the impact on the unit price of transmission after the implementation of these projects will be lower than that set by the Public Utilities Commission. A comparison between the maximum possible impact on the unit price of transmission as determined by the Public Utilities Commission and the predictions of AS 'Augstsprieguma tīkls' is shown in Table 3.

The other projects mentioned in the plan are financed through fixed asset depreciation fees and have no impact on transmission system fees. The estimates are made in accordance with the methodology for the calculation of power transmission system service tariffs in effect at the time of drafting the development plan and in accordance with Public Utilities Commission Council Decision No. 178 'On the rate of return on capital for preparing draft fees for power transmission system and power distribution system services' of 22 August 2022.

The priority of AS 'Augstsprieguma tīkls' is to provide high-quality and reliable power transmission services at the lowest possible fees. In addition to the above measures, AS 'Augstsprieguma tīkls' is continuously working on optimising the operating costs it has direct control over and on improving the efficiency of its processes.

Change in units transmitted (EUR/MWh) compared to the current fee

Table 3

No.	Project name	PUC threshold, %	AST estimate after project completion, %
1	Stage 1 of the synchronisation project	3.0	0.6
2	Stage 2 of the synchronisation project	-*	11.4

* PUC Decision No. 47 of 7 May 2020 'On the allocation of investment costs for the common interest project "Stage 2 of the Integration and synchronisation of the Baltic power transmission system with European systems"' sets no fee impact threshold for this project and provides for the inclusion of the share of costs borne by AST in the power transmission system service tariff, without limiting the amount of fee changes.

7. ANNEXES

STAGE 1 Transmission system operator's part of the plan included in the Community Plan for 2024–2033 (without VAT)

2. Transmission system operator's part of the plan not included in the Community Plan for 2024–2033 (without VAT)

3. Financial investment in transmission infrastructure in 2024–2033 (without VAT)

Person authorised to represent the system operator:

/signature/
Board member

Arnis Daugulis

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Annex 1

Transmission system operator’s part of the plan included in the Community Plan for 2024–2033 (without VAT)																		
No.	Project and facilities within its scope	Project implementation benefits	For joint projects, specify the other legal entities involved in the financing of the project and the percentage share of their financial contribution	Technical description of the project facilities (substation voltages, line lengths, technology used (AC, DC), etc.)	Commissioning date (for reconstructions)	Total financial investments (million EUR)	Total project duration (from_ to_)	Breakdown of financial contributions in each of the next 10 years (million EUR)										
								2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
STAGE 1 Stage 1 of the synchronisation project																		
1.1	Tartu (EE)–Valmiera (LV) 330 kV interconnection capacity increase Tsirgulina (EE)–Valmiera (LV) 330 kV interconnection capacity increase Procurement and installation of system synchronisation and inertia equipment	Increasing of transmission network capacity, improving the security of power supply in the Baltic region.	none	The project involves the rebuilding of some 48 km of existing 330 kV transmission lines to increase the capacity of the Baltic corridor. The Baltic corridor is a project that increases throughput capacity within the Baltic states. The project involves the procurement and installation of equipment necessary to maintain frequency and inertia, including the construction of new connections for this equipment.	2025	73.73	2020–2025	30.56	1.53								
2. Stage 2 of the synchronisation project																		
2.1	Procurement and installation of system synchronisation and inertia equipment. Upgrading of fiscal metering devices, supervisory control systems, and emergency automation.	Transmission grid stability and reliability in synchronous grid operation with continental Europe	none	The project involves the procurement and installation of equipment necessary to maintain frequency and inertia, including that of power batteries and the construction of new connections for this equipment. There are also plans to upgrade fiscal metering devices, supervisory control systems, and emergency automation.	2025	183.03	2021–2025	108.86	47.88								
						188.84	**Total**	**139.43**	**49.41**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Notes:

STAGE 1 For interconnections, the plan only indicates the project parameters and the financial investments necessary for the implementation of the project within the territory of Latvia.

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Board member Arnis Daugulis ______________________________

Annex 2

Transmission system operator's part of the plan not included in the Community Plan for 2024–2033 (without VAT)												
No.	Name	Total financial investments (million EUR)	Breakdown of financial contributions in each of the next 10 years (million EUR)									
			2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
1	Substations	93.13	16.37	11.24	6.25	4.52	8.95	11.92	10.17	9.45	8.62	5.65
2	Replacement of transformers and automatic transformers	49.82	0.15	3.09	7.37	4.85	5.68	3.87	5.69	5.32	7.11	6.69
3	Cable lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Overhead lines	84.32	9.08	6.53	6.09	7.76	6.53	6.60	8.40	9.00	12.13	12.23
5	Other activities	58.29	5.07	8.26	8.04	8.24	4.61	5.76	5.07	5.19	4.02	4.02
6	**Total**	**285.56**	**30.67**	**29.11**	**27.75**	**25.38**	**25.77**	**28.14**	**29.32**	**28.96**	**31.87**	**28.58**

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Financial investment in transmission infrastructure in 2024–2033 (without VAT)

No.	Project and facilities within its scope	Project implementation benefits	For joint projects, specify the other legal entities involved in the financing of the project and the percentage share of their financial contribution	Project facility location	Technical description of the project facilities (substation voltages, line lengths, technology used (AC, DC), etc.)	Commissioning date (for reconstructions)	Source of financial investments	Total financial investments (million EUR)	Total project duration (from_ to_)	Breakdown of financial contributions and work schedule in each of the next 10 years (million EUR)									
										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
1	**Stage 1 of the synchronisation project** **Expansion of the capacity of Tartu (EE)–Valmiera (LV), Tsirgulina (EE)–Valmiera (LV) interconnections** **Procurement and installation of system synchronisation and inertia equipment**	Increasing of transmission network capacity, improving the security of power supply in the Baltic region. Transmission grid stability and reliability in synchronous grid operation with continental Europe	none	Latvia	The project involves the rebuilding of some 48 km of existing 330 kV transmission lines to increase the capacity of the Baltic corridor. The Baltic corridor is a project that increases throughput capacity within the Baltic states. The project involves the procurement and installation of equipment necessary to maintain frequency and inertia, including the construction of new connections for this equipment.	1971 1960	AST funding 25% / EU funding 75%	73.73	2020–2025	30.56	1.53								
									Work as part of the project:	Reconstruction of the Tsirgulina (EE)–Valmiera (LV) 330 kV power transmission line. Delivery and installation of inertia and frequency adjustment equipment. Set-up of equipment, inspections, commissioning Modernisation of control systems.	Modernisation of control systems.								
2	**Stage 2 of the synchronisation project** **Procurement and installation of system synchronisation and inertia equipment.** **Upgrading of fiscal metering devices, supervisory control systems, and emergency automation.**	Transmission grid stability and reliability in synchronous grid operation with continental Europe	none	Latvia	The project involves the procurement and installation of equipment necessary to maintain frequency and inertia, including that of power batteries and the construction of new connections for this equipment. There are also plans to upgrade fiscal metering devices, supervisory control systems, and emergency automation.		AST funding 49% / EU funding 51%	183.03	2021–2025	108.86	47.88								
									Work as part of the project:	Construction. Delivery and installation of inertia and frequency adjustment equipment. Upgrading of fiscal metering devices, supervisory control systems, and emergency automation.	Construction. Delivery and installation of inertia and frequency adjustment equipment. Set-up of equipment, inspections, commissioning Upgrading of supervisory control systems and emergency automation.								
									European TYNDP 2020 projects total:	**139.43**	**49.41**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
3	**Transmission line rebuild at Andrejsala Substation 1**	Construction of the substation at a new site, at the request of the owner of the land. Infrastructure improvements in accordance with the approved detailed planning	none	Riga, Latvia		1970	Funding by SIA 'Jaunrīgas attīstības uzņēmums'	0.70	2025–2026		0.35	0.35							
									Work as part of the project:		Transmission network cable reconstruction	Transmission network cable reconstruction							
4	**Construction of a new 'Ziemeļu forti' substation for the connection of the SIA Rapsoil wind power plant**	Installation of new connection	none	Latvia, Liepāja	Construction of a new 110 kV substation with an H-shaped circuit.		Funding by SIA Rapsoil	4.07	2023–2025	1.59	0.15								
									Work as part of the project:	4 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	Improvements of grounds, finalisation of work, inspections, commissioning								
5	**Construction of a new 110 kV connection at Krustpils substation for the connection of the SIA Baltic Biorefinery Group solar power plant**	Installation of new connection	none	Latvia, Krustpils	Construction of a new 110 kV connection at the Krustpils substation.		SIA Baltic Biorefinery Group	0.79	2023–2025	0.08	0.01								
									Work as part of the project:	110 kV connection construction	Improvements of grounds, finalisation of work, inspections, commissioning								
6	**Construction of a new Jaunolaine substation for the connection of the SIA Birznieki Industrial Solution solar power plant**	Installation of new connection	none	Latvia, Jaunolaine	Construction of a new 110 kV substation with an H-shaped circuit.		SIA Birznieki Industrial Solution	2.48	2023–2024	0.43									
									Work as part of the project:	Improvements of grounds, finalisation of work, inspections, commissioning									
7	**110/20 kV switchgear partial rebuild in 110 kV Tēraudlietuve substation**	Improvements in transmission system reliability	none	Latvia, Zīlāni	Partial reconstruction of the Tēraudlietuve substation and 110 kV lines to connect the new 'Gaujas koks' substation to the system	1986	AST funding	0.51	2022–2024	0.46									
									Work as part of the project:	Improvements of grounds, finalisation of work, inspections, commissioning									
8	**110/20 kV switchgear partial rebuild in 110 kV Zaļā birze substation**	Improvements in transmission system reliability	none	Latvia, Liepāja	Partial reconstruction of the 'Zaļā birze' substation and 110 kV lines to connect the new 'Ziemeļu forti' substation to the system	1983	AST funding	0.95	2023–2025	0.85	0.10								
									Work as part of the project:	Rebuilding of substation and 110 kV transmission line	Improvements of grounds, finalisation of work, inspections, commissioning								
9	**330/110/20 kV switchgear rebuild and replacement of transformers at 110 kV Krustpils substation**	Improvements in transmission system reliability	none	Latvia, Krustpils	Construction of a two-bar circuit in the 110 kV switchgear, installing 12 110 kV sockets and replacing the transformers	1959 (with replacement of some 110 kV equipment in 1985)	AST funding	3.95	2021–2025	0.96	0.32								

No.	Project and facilities within its scope	Project implementation benefits	For joint projects, specify the other legal entities involved in the financing of the project and the percentage share of their financial contribution	Project facility location	Technical description of the project facilities (substation voltages, line lengths, technology used (AC, DC), etc.)	Commissioning date (for reconstructions)	Source of financial investments	Total financial investments (million EUR)	Total project duration (from_ to_)	Breakdown of financial contributions and work schedule in each of the next 10 years (million EUR)									
										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
									Work as part of the project:	3 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	Improvements of grounds, finalisation of work, inspections, commissioning								
10	**110/10/6 kV switchgear rebuild in 110 kV Vairogs substation**	Improvements in transmission system reliability	none	Riga, Latvia	Construction of a two-bar circuit in the 110 kV switchgear (GIS design), installing 6 110 kV sockets.	1963	AST funding	4.48	2021–2025	1.91	0.53								
									Work as part of the project:	Installation of GIS equipment and other construction	Improvements of grounds, finalisation of work, inspections, commissioning								
11	**110/20 kV switchgear rebuild and replacement of transformers in 110 kV Lode substation**	Improvements in transmission system reliability	none	Latvia, Liepa	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1962	AST funding	2.81	2022–2025	2.00	0.01								
									Work as part of the project:	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs; installation of one transformer	Improvements of grounds, finalisation of work, inspections, commissioning								
12	**110/20/6 kV substations Džūkste 110 kV substation rebuild**	Improvements in transmission system reliability	none	Latvia, Džūkste	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1976	AST funding	1.90	2022–2025	0.96	0.24								
									Work as part of the project:	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	Improvements of grounds, finalisation of work, inspections, commissioning								
13	**110 kV RPA and SCS replacement in 110/20 kV Ropaži substation**	Improvements in transmission system reliability	none	Latvia, Garkalne	Replacement of the relay protection and automation system and the supervisory control system, for 7 110 kV connections	1997	AST funding	0.40	2022–2024	0.22									
									Work as part of the project:	Replacement of RPA and SCS equipment									
14	**110 kV RPA and SCS replacement in 110/20/6 kV Sloka substation**	Improvements in transmission system reliability	none	Latvia, Sloka	Replacement of the relay protection and automation system and the supervisory control system, for 6 110 kV connections	1997	AST funding	0.18	2022–2024	0.09									
									Work as part of the project:	Replacement of RPA and SCS equipment									
15	**110 kV RPA and SCS replacement in 110/20 kV Ieriķi substation**	Improvements in transmission system reliability	none	Latvia, Ieriķi	Replacement of the relay protection and automation system and the supervisory control system, for 6 110 kV connections	1998	AST funding	0.21	2022–2024	0.06									
									Work as part of the project:	Replacement of RPA and SCS equipment									
16	**110 kV RPA and SCS replacement in 110/20 kV Bauska substation**	Improvements in transmission system reliability	none	Latvia, Bauska	Replacement of the relay protection and automation system and the supervisory control system, for 4 110 kV connections	1999	AST funding	0.45	2023–2024	0.38									
									Work as part of the project:	Replacement of RPA and SCS equipment									
17	**110/20/10 kV switchgear rebuild in 110 kV Ogre substation**	Improvements in transmission system reliability	none	Latvia, Ogre	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1968	AST funding	2.18	2020–2025	0.96	0.65								
									Work as part of the project:	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs; installation of one transformer	Improvements of grounds, finalisation of work, inspections, commissioning								
18	**110/20 kV switchgear rebuild in 110 kV Carnikava substation**	Improvements in transmission system reliability	none	Latvia, Carnikava	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1981	AST funding* * Recovery Fund financing requested	2.80	2022–2025	1.46	1.20								
									Work as part of the project:	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning								
19	**110/20 kV switchgear rebuild and replacement of transformers in 110 kV Kuldīga substation**	Improvements in transmission system reliability	none	Latvia, Kuldīga	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1959	AST funding* * Recovery Fund financing requested	5.81	2022–2026	3.12	2.39	0.23							
									Work as part of the project:	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs; installation of one transformer	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs; installation of one transformer.	Improvements of grounds, finalisation of work, inspections, commissioning							
20	**110 kV RPA and SCS replacement in 110/10 kV Grīziņkalns substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 6 110 kV connections	1999	AST funding	0.52	2023–2025	0.23	0.23								
									Work as part of the project:	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment								
21	**110 kV RPA and SCS replacement in 110/20/10 kV Dzintari substation**	Improvements in transmission system reliability	none	Latvia, Jūrmala	Replacement of the relay protection and automation system and the supervisory control system, for 3 110 kV connections	1999	AST funding	0.40	2023–2025	0.12	0.24								
									Work as part of the project:	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment								
22	**110 kV RPA and SCS replacement in 110/10 kV Venta substation**	Improvements in transmission system reliability	none	Latvia, Ventspils	Replacement of the relay protection and automation system and the supervisory control system, for 6 110 kV connections	1999	AST funding	0.52	2023–2025	0.23	0.23								
									Work as part of the project:	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment								
23	**110/20 kV switchgear rebuild and replacement of both transformers in 110 kV Līvāni substation**	Improvements in transmission system reliability	none	Latvia, Līvāni	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets and installing a power switch for each connection, replacing both the transformers	1982	AST funding	4.29	2024–2027	0.03	0.12	2.09	2.05						
									Work as part of the project:	Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning						
24	**110/10 kV switchgear rebuild and replacement of transformers in 110 kV Andrejsala substation**	Improvements in transmission system reliability	none	Riga, Latvia	Construction of a two-bar circuit in the 110 kV switchgear (GIS design), installing 5 110 kV sockets and replacement of both transformers	1970	AST funding	7.30	2024–2026	0.16	4.23	2.91							

No.	Project and facilities within its scope	Project implementation benefits	For joint projects, specify the other legal entities involved in the financing of the project and the percentage share of their financial contribution	Project facility location	Technical description of the project facilities (substation voltages, line lengths, technology used (AC, DC), etc.)	Commissioning date (for reconstructions)	Source of financial investments	Total financial investments (million EUR)	Total project duration (from_ to_)	Breakdown of financial contributions and work schedule in each of the next 10 years (million EUR)									
										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
									Work as part of the project:	Engineering design development	Construction of a GIS building and other infrastructure	Improvement of grounds, finalisation of work, installation of equipment inspections, commissioning							
25	**110 kV RPA and SCS replacement in 110/20 kV Tukums substation**	Improvements in transmission system reliability	none	Latvia, Tukums	Replacement of the relay protection and automation system and the supervisory control system, for 6 110 kV connections	1998	AST funding	0.54	2024–2026	0.06	0.24	0.25							
									Work as part of the project:	Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment							
26	**110/10 kV switchgear rebuild in 110 kV Latgale substation**	Improvements in transmission system reliability	none	Latvia, Latgale	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1973	AST funding	3.01	2026–2029			0.03	0.17	1.61	1.20				
									Work as part of the project:			Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning				
27	**110 kV switchgear rebuild in 110/20 kV Špoģi substation**	Improvements in transmission system reliability	none	Latvia, Špoģi	Construction of an incomplete H-shaped circuit in the 110 kV substation, building 3 110 kV sockets, installing a power switch for each connection	1988	AST funding	1.97	2026–2029			0.03	0.17	0.98	0.79				
									Work as part of the project:			Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	1 pc. Rebuilding of 110 kV connections using outdoor switchgear designs				
28	**110 kV RPA and SCS replacement in 110/10 kV Hanza substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 9 110 kV connections	2000	AST funding	0.78	2026–2028			0.08	0.35	0.35					
									Work as part of the project:			Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment					
29	**110 kV RPA and SCS replacement in 110/20/6 kV Jēkabpils substation**	Improvements in transmission system reliability	none	Latvia, Jēkabpils	Replacement of the relay protection and automation system and the supervisory control system, for 6 110 kV connections	2000	AST funding	0.54	2026–2028			0.06	0.24	0.25					
									Work as part of the project:			Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment					
30	**110 kV RPA and SCS replacement in 110/10 kV Ventamonjaks substation**	Improvements in transmission system reliability	none	Latvia, Ventspils	Replacement of the relay protection and automation system and the supervisory control system, for 6 110 kV connections	2000	AST funding	0.54	2026–2028			0.06	0.24	0.25					
									Work as part of the project:			Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment					
31	**110 kV RPA and SCS replacement in 110/10 kV Purvciems substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 5 110 kV connections	2000	AST funding	0.45	2026–2029			0.05	0.24	0.16					
									Work as part of the project:			Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment					
32	**Replacement of RPA and SCS at 330/110/10 kV TEC-1 substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 13 110 kV connections	2000	AST funding	1.11	2025–2028			0.09	0.35	0.35	0.32				
									Work as part of the project:			Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment				
33	**110/10 kV switchgear rebuild in 110 kV Torņakalns substation**	Improvements in transmission system reliability	none	Riga, Latvia	Construction of a two-bar circuit in the 110 kV switchgear, installing 6 110 kV sockets, installing a power switch for each connection.	1980	AST funding	4.00	2027–2030				0.20	1.58	1.80	0.42			
									Work as part of the project:				Engineering design development	3 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	3 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	Improvements of grounds, finalisation of work, inspections, commissioning			
34	**110 kV switchgear rebuild in 110/20 kV Priekule substation**	Improvements in transmission system reliability	none	Latvia, Priekule	Construction of a two-bar circuit in the 110 kV switchgear, installing 6 new 110 kV sockets	1975	AST funding	3.79	2026–2030			0.05	0.20	1.58	1.58	0.38			
									Work as part of the project:			Preliminary design development	Engineering design development	3 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	3 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	Improvements of grounds, finalisation of work, inspections, commissioning			
35	**110/20/6 kV switchgear rebuild in 110 kV Iecava substation**	Improvements in transmission system reliability	none	Latvia, Iecava	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1969	AST funding	2.56	2027–2030				0.03	0.17	1.34	1.02			
									Work as part of the project:				Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning			
36	**Replacement of the 330 kV RPA and SCS at the 330/110 kV Brocēni substation**	Improvements in transmission system reliability	none	Latvia, Brocēni	Replacement of the relay protection and automation system and the supervisory control system, for 5 330 kV connections	2002	AST funding	0.55	2027–2029				0.05	0.30	0.20				
					Work as part of the project:								Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment				
37	**RPA and SCS replacement in 110 kV Limbaži substation**	Improvements in transmission system reliability	none	Latvia, Limbaži	Replacement of the relay protection and automation system and the supervisory control system, for 5 110 kV connections	2002	AST funding	0.45	2027–2029				0.05	0.24	0.16				
					Work as part of the project:								Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment				
38	**Replacement of the 330 kV RPA and SCS at the 330/110/20/10 kV Bišuciems substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 6 330 kV connections	2002	AST funding	0.66	2027–2029				0.06	0.30	0.30				
									Work as part of the project:				Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment				
39	**110 kV RPA and SCS replacement in 110 kV Liepāja substation**	Improvements in transmission system reliability	none	Latvia, Liepāja	Replacement of the relay protection and automation system and the supervisory control system, for 8 110 kV connections	2001	AST funding	0.72	2027–2029				0.07	0.33	0.33				
									Work as part of the project:				Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment				
40	**110/20 kV Sigulda substation 110 kV switchgear rebuild**	Improvements in transmission system reliability	none	Latvia, Sigulda	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1974	AST funding	2.56	2027–2030				0.03	0.17	1.34	1.02			
									Work as part of the project:				Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning			

No.	Project and facilities within its scope	Project implementation benefits	For joint projects, specify the other legal entities involved in the financing of the project and the percentage share of their financial contribution	Project facility location	Technical description of the project facilities (substation voltages, line lengths, technology used (AC, DC), etc.)	Commissioning date (for reconstructions)	Source of financial investments	Total financial investments (million EUR)	Total project duration (from_ to_)	Breakdown of financial contributions and work schedule in each of the next 10 years (million EUR)									
										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
41	**110 kV switchgear rebuild in the 110/20 kV Lauma substation**	Improvements in transmission system reliability	none	Latvia, Liepāja	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1971	AST funding	2.56	2027–2030				0.03	0.17	1.34	1.02			
									Work as part of the project:				Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning			
42	**Replacement of 110 kV RPA and SCS at the 330/110/20/10 kV Bišuciems substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 11 110 kV connections	2003	AST funding	0.99	2028–2031					0.08	0.33	0.33	0.25		
									Work as part of the project:					Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment		
43	**Replacement of the 110 kV RPA and SCS at the 330/110 kV Brocēni substation**	Improvements in transmission system reliability	none	Latvia, Brocēni	Replacement of the relay protection and automation system and the supervisory control system, for 9 110 kV connections	2003	AST funding	0.81	2029–2032						0.07	0.25	0.25	0.24	
									Work as part of the project:						Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment	
44	**110/20 kV Ludza substation 110 kV switchgear rebuild**	Improvements in transmission system reliability	none	Latvia, Ludza	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1963	AST funding	2.56	2028–2031					0.03	0.17	1.34	1.02		
									Work as part of the project:					Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning		
45	**110/20 kV switchgear rebuild in 110 kV Eleja substation**	Improvements in transmission system reliability	none	Latvia, Eleja	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1980	AST funding	2.56	2028–2031					0.03	0.17	1.34	1.02		
									Work as part of the project:					Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning		
46	**110 kV switchgear rebuild in 110/20 kV Rūjiena substation**	Improvements in transmission system reliability	none	Latvia, Rūjiena	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1978	AST funding	2.56	2028–2031					0.03	0.17	1.34	1.02		
									Work as part of the project:					Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning		
47	**Replacement of the 330 kV RPA and SCS at the 330/110 kV Līksna substation**	Improvements in transmission system reliability	none	Latvia, Līksna	Replacement of the relay protection and automation system and the supervisory control system, for 6 330 kV connections	2004	AST funding	0.66	2029–2031						0.06	0.30	0.30		
									Work as part of the project:						Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment		
48	**Replacement of the 330 kV RPA and SCS at the 330/110 kV Grobiņa substation**	Improvements in transmission system reliability	none	Latvia, Grobiņa	Replacement of the relay protection and automation system and the supervisory control system, for 5 330 kV connections	2004	AST funding	0.55	2029–2031						0.05	0.30	0.20		
									Work as part of the project:						Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment		
49	**110 kV Vecmīlgrāvis substation 110 kV RPA and SCS replacement**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 5 110 kV connections	2004	AST funding	0.45	2029–2031						0.05	0.24	0.16		
									Work as part of the project:						Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment		
50	**110 kV RPA and SCS replacement in 110 kV Mārupe substation**	Improvements in transmission system reliability	none	Latvia, Mārupe	Replacement of the relay protection and automation system and the supervisory control system, for 9 110 kV connections	2004	AST funding	0.81	2029–2032						0.07	0.25	0.25	0.24	
									Work as part of the project:						Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment	
51	**110/20 kV Krāslava substation 110 kV switchgear rebuild**	Improvements in transmission system reliability	none	Latvia, Krāslava	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1977	AST funding	2.56	2029–2032						0.03	0.17	1.34	1.02	
									Work as part of the project:						Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning	
52	**110/20 kV switchgear rebuild in 110 kV Salaspils substation**	Improvements in transmission system reliability	none	Latvia, Salaspils	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1979	AST funding	2.56	2029–2032						0.03	0.17	1.34	1.02	
									Work as part of the project:						Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning	
53	**110 kV switchgear rebuild in 110/20 kV Preiļi substation**	Improvements in transmission system reliability	none	Latvia, Preiļi	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1978	AST funding	2.56	2029–2032						0.03	0.17	1.34	1.02	
									Work as part of the project:						Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning	
54	**110 kV RPA and SCS replacement in 110 kV Daugava substation**	Improvements in transmission system reliability	none	Latvia, Aizkraukle	Replacement of the relay protection and automation system and the supervisory control system, for 5 110 kV connections	2005	AST funding	0.45	2030–2032							0.05	0.24	0.16	
									Work as part of the project:							Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment	
55	**Replacement of the 330 kV RPA and SCS at the 330/110 kV Rēzekne substation**	Improvements in transmission system reliability	none	Latvia, Rēzekne	Replacement of the relay protection and automation system and the supervisory control system, for 5 330 kV connections	2005	AST funding	0.64	2031–2033								0.05	0.30	0.20
									Work as part of the project:								Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment
56	**110 kV Rēzekne substation 110 kV RPA and SCS replacement**	Improvements in transmission system reliability	none	Latvia, Rēzekne	Replacement of the relay protection and automation system and the supervisory control system, for 7 110 kV connections	2005	AST funding	0.57	2031–2033								0.06	0.32	0.25

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										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Work as part of the project:																Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment
57	**110/20 kV switchgear rebuild in 110 kV Stelpe substation**	Improvements in transmission system reliability	none	Latvia, Stelpe	Construction of a two-bar circuit in the 110 kV switchgear, installing 5 110 kV sockets, installing a power switch for each connection.	1982	AST funding	2.84	2030–2033							0.03	0.17	1.32	1.32
	Work as part of the project:															Preliminary design development	Engineering design development	3 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	3 pcs Rebuilding of 110 kV connections using outdoor switchgear designs
58	**110/20 kV switchgear rebuild in 110 kV Dobele substation**	Improvements in transmission system reliability	none	Latvia, Dobele	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1974	AST funding	2.56	2030–2033							0.03	0.17	1.34	1.02
	Work as part of the project:															Preliminary design development	Engineering design development	2 pcs Rebuilding of 110 kV connections using outdoor switchgear designs	2 pcs Rebuilding of 110 kV connections. Improvements of grounds, finalisation of work, inspections, commissioning
59	**110 kV switchgear rebuild in 110/20 kV Barkava substation**	Improvements in transmission system reliability	none	Latvia, Barkava	Construction of a semi-H-shaped circuit in the 110 kV substation, building 2 110 kV sockets, installing a power switch for each connection	1978	AST funding	1.15	2032–2034									0.03	0.08
	Work as part of the project:																	Preliminary design development	Engineering design development
60	**110 kV switchgear rebuild in 110/20 kV Ērgļi substation**	Improvements in transmission system reliability	none	Latvia, Ērgļi	Construction of a semi-H-shaped circuit in the 110 kV substation, building 2 110 kV sockets, installing a power switch for each connection	1967	AST funding	1.15	2032–2034									0.03	0.08
	Work as part of the project:																	Preliminary design development	Engineering design development
61	**110 kV RPA and SCS replacement in 110 kV Grobiņa substation**	Improvements in transmission system reliability	none	Latvia, Grobiņa	Replacement of the relay protection and automation system and the supervisory control system, for 15 110 kV connections	2006	AST funding	1.33	2031–2034								0.10	0.41	0.41
	Work as part of the project:																Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment
62	**110 kV RPA and SCS replacement in 110 kV Ķegums-1 substation**	Improvements in transmission system reliability	none	Latvia, Ķegums	Replacement of the relay protection and automation system and the supervisory control system, for 10 110 kV connections	2006	AST funding	0.90	2031–2033								0.08	0.42	0.41
	Work as part of the project:																Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment
63	**110 kV Madona substation 110 kV RPA and SCS replacement**	Improvements in transmission system reliability	none	Latvia, Madona	Replacement of the relay protection and automation system and the supervisory control system, for 5 110 kV connections	2006	AST funding	0.45	2031–2033								0.05	0.24	0.16
	Work as part of the project:																Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment
64	**110 kV RPA and SCS replacement in 110 kV Sarkandaugava substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 4 110 kV connections	2006	AST funding	0.36	2031–2033								0.05	0.16	0.16
	Work as part of the project:																Engineering design development	Replacement of RPA and SCS equipment	Replacement of RPA and SCS equipment
65	**110/20 kV switchgear rebuild in 110 kV Kārsava substation**	Improvements in transmission system reliability	none	Latvia, Kārsava	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1977	AST funding	2.00	2032–2034									0.03	0.17
	Work as part of the project:																	Preliminary design development	Engineering design development
66	**110 kV RPA and SCS replacement in 110 kV Zunda substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of the relay protection and automation system and the supervisory control system, for 5 110 kV connections	2007	AST funding	0.28	2032–2034									0.05	0.24
	Work as part of the project:																	Engineering design development	Replacement of RPA and SCS equipment
67	**Replacement of the 110 kV RPA and SCS at the 330/110 kV TEC-2 substation**	Improvements in transmission system reliability	none	Latvia, Acone	Replacement of the relay protection and automation system and the supervisory control system, for 14 110 kV connections	2008	AST funding	0.79	2032–2035									0.10	0.24
	Work as part of the project:																	Engineering design development	Replacement of RPA and SCS equipment
68	**Replacement of the 330 kV RPA and SCS at the 330/110 kV Aizkraukle substation**	Improvements in transmission system reliability	none	Latvia, Aizkraukle	Replacement of the relay protection and automation system and the supervisory control system, for 11 330 kV connections	2008	AST funding	1.24	2032–2035									0.08	0.24
	Work as part of the project:																	Engineering design development	Replacement of RPA and SCS equipment
69	**110/10 kV switchgear rebuild in 110 kV Iļģuciems substation**	Improvements in transmission system reliability	none	Riga, Latvia	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1961	AST funding	2.56	2032–2035									0.03	0.17
	Work as part of the project:																	Preliminary design development	Engineering design development
70	**110 kV switchgear rebuild in 110/20 kV Ķekava substation**	Improvements in transmission system reliability	none	Latvia, Ķekava	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1967	AST funding	2.56	2032–2035									0.03	0.17
	Work as part of the project:																	Preliminary design development	Engineering design development
71	**110/20 kV switchgear rebuild in 110 kV Ezerkrasts substation**	Improvements in transmission system reliability	none	Latvia, Liepāja	Construction of an H-shaped circuit in the 110 kV substation, building 4 110 kV sockets, installing a power switch for each connection	1979	AST funding	2.56	2032–2034									0.03	0.17
	Work as part of the project:																	Preliminary design development	Engineering design development
72	**Replacement of RPA and SCS at TEC-2 Substation 8**	Improvements in transmission system reliability	none	Latvia, Acone	Replacement of the relay protection and automation system and the supervisory control system, for 7 330 kV connections	2008	AST funding	0.88	2033–2035										0.06
	Work as part of the project:																		Engineering design development
73	**Replacement of RPA and SCS at Brocēni 110 Substation 53**	Improvements in transmission system reliability	none	Latvia, Brocēni	Replacement of the relay protection and automation system and the supervisory control system, for 6 110 kV connections	2002	AST funding	0.54	2033–2035										0.06
	Work as part of the project:																		Engineering design development
74	**Replacement of RPA and SCS at Cēsis Substation 76**	Improvements in transmission system reliability	none	Latvia, Cēsis	Replacement of the relay protection and automation system and the supervisory control system, for 5 110 kV connections	2008	AST funding	0.53	2033–2035										0.05
	Work as part of the project:																		Engineering design development
	Total substation rebuilds									16.37	11.24	6.25	4.52	8.95	11.92	10.17	9.45	8.62	5.65
75	**Replacement of automatic transformer AT No. 2 at TEC-1 substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of 125 MVA automatic transformer AT No. 2 with an automatic transformer of the same capacity	1964	AST funding	3.30	2024–2026			3.30							

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										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Work as part of the project:											Engineering design development and replacement of AT No. 2							
76	**Replacement of automatic transformer AT No. 2 at Imanta substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of 125 MVA automatic transformer AT No. 2 with an automatic transformer of the same capacity	1971	AST funding	3.30	2024–2026			3.30							
	Work as part of the project:											Engineering design development and replacement of AT No. 2							
77	**Replacement of automatic transformer AT No. 1 at Valmiera substation**	Improvements in transmission system reliability	none	Latvia, Valmiera	Replacement of 125 MVA automatic transformer AT No. 1 with a 200 MVA automatic transformer	1968	AST funding	3.50	2024–2026				3.50						
	Work as part of the project:												Engineering design development and replacement of AT No. 1						
78	**Replacement of automatic transformer AT No. 2 at Brocēni substation**	Improvements in transmission system reliability	none	Latvia, Brocēni	Replacement of 125 MVA automatic transformer AT No. 2 with an automatic transformer of the same capacity	1970	AST funding	3.00	2024–2026					3.00					
	Work as part of the project:													Engineering design development and replacement of AT No. 2					
79	**Replacement of automatic transformer AT No. 1 at Grobiņa substation**	Improvements in transmission system reliability	none	Latvia, Grobiņa	Replacement of 125 MVA automatic transformer AT No. 1 with an automatic transformer of the same capacity.	1971	AST funding	3.00	2029						3.00				
	Work as part of the project:														Engineering design development and replacement of AT No. 1				
80	**Replacement of automatic transformer AT No. 1 at Viskaļi substation**	Improvements in transmission system reliability	none	Latvia, Viskaļi	Replacement of 200 MVA automatic transformer AT No. 1 with an automatic transformer of the same capacity.	1984	AST funding	3.50	2032									3.50	
	Work as part of the project:																	Engineering design development and replacement of AT No. 1	
81	**Replacement of automatic transformer AT No. 2 at Grobiņa substation**	Improvements in transmission system reliability	none	Latvia, Grobiņa	Replacement of 125 MVA automatic transformer AT No. 1 with an automatic transformer of the same capacity.	1971	AST funding	3.00	2033										3.00
	Work as part of the project:																		Engineering design development and replacement of AT No. 1
								Total transformer replacements:		0.00	0.00	6.60	3.50	3.00	3.00	0.00	0.00	3.50	3.00
82	**Replacement of 110 kV transformer T No. 2 at Alūksne substation**	Improvements in transmission system reliability	none	Latvia, Alūksne	Replacement of a 10 MVA transformer with a transformer of the same capacity	1978	AST funding	0.56	2025		0.56								
	Work as part of the project:										Transformer replacement								
83	**Replacement of 110 kV transformer T No. 2 at Bauska substation**	Improvements in transmission system reliability	none	Latvia, Bauska	Replacement of a 16 MVA transformer with a transformer of the same capacity	1975	AST funding	0.69	2025		0.69								
	Work as part of the project:										Transformer replacement								
84	**Replacement of 110 kV transformer T No. 2 at RAF substation with improvements in fiscal metering**	Improvements in transmission system reliability	none	Latvia, Jelgava	Replacement of a 25 MVA transformer with a transformer of the same capacity and fiscal metering for both transformers	1978	AST funding	0.97	2024–2025	0.152	0.97								
	Work as part of the project:									Construction design development	Transformer replacement and improvements in fiscal metering								
85	**Replacement of 110 kV transformer T No. 2 at Gajoks substation**	Improvements in transmission system reliability	none	Latvia, Daugavpils	Replacement of a 25 MVA transformer with a transformer of the same capacity	1979	AST funding	0.87	2025		0.87								
	Work as part of the project:										Transformer replacement								
86	**Replacement of 110 kV transformer T No. 2 at Miezīte substation**	Improvements in transmission system reliability	none	Latvia, Miezīte	Replacement of a 16 MVA transformer with a transformer of the same capacity	1983	AST funding	0.77	2026			0.77							
	Work as part of the project:											Transformer replacement							
87	**Replacement of 110 kV transformer T No. 1 at Birži substation with improvements in fiscal metering**	Improvements in transmission system reliability	none	Latvia, Birži	Replacement of a 10 MVA transformer with a transformer of the same capacity	1980	AST funding	0.66	2027				0.66						
	Work as part of the project:												Transformer replacement and improvements in fiscal metering						
88	**Replacement of 110 kV transformer T No. 1 at Bolderāja I substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of a 16 MVA transformer with a transformer of the same capacity	1981	AST funding	0.69	2027				0.69						
	Work as part of the project:												Transformer replacement						
89	**Replacement of 110 kV transformer T No. 1 at Gulbene substation**	Improvements in transmission system reliability	none	Latvia, Gulbene	Replacement of a 16 MVA transformer with a transformer of the same capacity	1982	AST funding	0.77	2028					0.77					
	Work as part of the project:													Transformer replacement					
90	**Replacement of 110 kV transformer T No. 2 at Rēzekne substation with improvements in fiscal metering**	Improvements in transmission system reliability	none	Latvia, Rēzekne	Replacement of a 25 MVA transformer with a transformer of the same capacity	1976	AST funding	0.97	2028					0.97					
	Work as part of the project:													Transformer replacement and improvements in fiscal metering					
91	**Replacement of 110 kV transformer T No. 1 at Iļģuciems substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of a 40 MVA transformer with a transformer of the same capacity	1976	AST funding	0.94	2028					0.94					
	Work as part of the project:													Transformer replacement					
92	**Replacement of 110 kV transformer T No. 3 at Valmiera substation**	Improvements in transmission system reliability	none	Latvia, Valmiera	Replacement of a 25 MVA transformer with a transformer of the same capacity	1978	AST funding	0.87	2029						0.87				
	Work as part of the project:														Transformer replacement				
93	**Replacement of 110 kV transformer T No. 1 at TEC-2 substation**	Improvements in transmission system reliability	none	Latvia, Acone	Replacement of a 25 MVA transformer with a transformer of the same capacity	1970	AST funding	0.87	2030							0.87			

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										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
									Work as part of the project:							Transformer replacement			
94	**Replacement of 110 kV transformer T No. 1 at Zaļā birze substation**	Improvements in transmission system reliability	none	Latvia, Liepāja	Replacement of a 16 MVA transformer with a transformer of the same capacity	1983	AST funding	0.77	2030							0.77			
									Work as part of the project:							Transformer replacement			
95	**Replacement of 110 kV transformer T No. 1 at Aizkraukle substation**	Improvements in transmission system reliability	none	Latvia, Aizkraukle	Replacement of a 16 MVA transformer with a transformer of the same capacity	1983	AST funding	0.77	2030							0.77			
									Work as part of the project:							Transformer replacement			
96	**Replacement of 110 kV transformer T No. 2 at Ludza substation**	Improvements in transmission system reliability	none	Latvia, Ludza	Replacement of a 10 MVA transformer with a transformer of the same capacity	1977	AST funding	0.49	2030							0.49			
									Work as part of the project:							Transformer replacement			
97	**Replacement of 110 kV transformer T No. 2 at Ventspils substation**	Improvements in transmission system reliability	none	Latvia, Ventspils	Replacement of a 25 MVA transformer with a transformer of the same capacity	1978	AST funding	0.87	2030							0.87			
									Work as part of the project:							Transformer replacement			
98	**Replacement of 110 kV transformer T No. 1 at RAF substation**	Improvements in transmission system reliability	none	Latvia, Jelgava	Replacement of a 25 MVA transformer with a transformer of the same capacity	1978	AST funding	0.87	2030							0.87			
									Work as part of the project:							Transformer replacement			
99	**Replacement of 110 kV transformer T No. 2 at Rūjiena substation**	Improvements in transmission system reliability	none	Latvia, Rūjiena	Replacement of a 10 MVA transformer with a transformer of the same capacity	1978	AST funding	0.49	2030							0.49			
									Work as part of the project:							Transformer replacement			
100	**Replacement of 110 kV transformer T No. 1 at Eleja substation**	Improvements in transmission system reliability	none	Latvia, Eleja	Replacement of a 10 MVA transformer with a transformer of the same capacity	1980	AST funding	0.56	2030							0.56			
									Work as part of the project:							Transformer replacement			
101	**Replacement of 110 kV transformer T No. 1 at Ludza substation**	Improvements in transmission system reliability	none	Latvia, Ludza	Replacement of a 10 MVA transformer with a transformer of the same capacity	1977	AST funding	0.49	2031								0.49		
									Work as part of the project:								Transformer replacement		
102	**Replacement of 110 kV transformer T No. 1 at Rēzekne substation**	Improvements in transmission system reliability	none	Latvia, Rēzekne	Replacement of a 25 MVA transformer with a transformer of the same capacity	1978	AST funding	0.87	2031								0.87		
									Work as part of the project:								Transformer replacement		
103	**Replacement of 110 kV transformer T No. 1 at Jaunpiebalga substation**	Improvements in transmission system reliability	none	Latvia, Jaunpiebalga	Replacement of a 10 MVA transformer with a transformer of the same capacity	1979	AST funding	0.56	2031								0.56		
									Work as part of the project:								Transformer replacement		
104	**Replacement of 110 kV transformer T No. 1 at Salaspils substation**	Improvements in transmission system reliability	none	Latvia, Salaspils	Replacement of a 25 MVA transformer with a transformer of the same capacity	1991	AST funding	0.72	2031								0.72		
									Work as part of the project:								Transformer replacement		
105	**Replacement of 110 kV transformer T No. 1 at Rūjiena substation**	Improvements in transmission system reliability	none	Latvia, Rūjiena	Replacement of a 10 MVA transformer with a transformer of the same capacity	1978	AST funding	0.49	2031								0.49		
									Work as part of the project:								Transformer replacement		
106	**Replacement of 110 kV transformer T No. 1 at Grīziņkalns substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of a 40 MVA transformer with a transformer of the same capacity	1985	AST funding	0.94	2031								0.94		
									Work as part of the project:								Transformer replacement		
107	**Replacement of 110 kV transformer T No. 1 at Skulte substation**	Improvements in transmission system reliability	none	Latvia, Skulte	Replacement of a 10 MVA transformer with a transformer of the same capacity	1978	AST funding	0.56	2031								0.56		
									Work as part of the project:								Transformer replacement		
108	**Replacement of 110 kV transformer T No. 1 at Ropaži substation**	Improvements in transmission system reliability	none	Latvia, Garkalne	Replacement of a 16 MVA transformer with a transformer of the same capacity	1979	AST funding	0.69	2031								0.69		
									Work as part of the project:								Transformer replacement		
109	**Replacement of 110 kV transformer T No. 1 at Stelpe substation**	Improvements in transmission system reliability	none	Latvia, Stelpe	Replacement of a 10 MVA transformer with a transformer of the same capacity and improvements in fiscal metering	1982	AST funding	0.66	2032									0.66	
									Work as part of the project:									Transformer replacement and improvements in fiscal metering	
110	**Replacement of 110 kV transformer T No. 2 at Dobele substation**	Improvements in transmission system reliability	none	Latvia, Dobele	Replacement of a 16 MVA transformer with a transformer of the same capacity	1977	AST funding	0.70	2032									0.70	
									Work as part of the project:									Transformer replacement	
111	**Replacement of 110 kV transformer T No. 2 at Ropaži substation**	Improvements in transmission system reliability	none	Latvia, Garkalne	Replacement of a 16 MVA transformer with a transformer of the same capacity	1979	AST funding	0.69	2032									0.69	
									Work as part of the project:									Transformer replacement	
112	**Replacement of 110 kV transformer T No. 1 at Salamandra substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of a 25 MVA transformer with a transformer of the same capacity	1979	AST funding	0.87	2032									0.87	
									Work as part of the project:									Transformer replacement	
113	**Replacement of 110 kV transformer T No. 2 at Grobiņa substation**	Improvements in transmission system reliability	none	Latvia, Grobiņa	Replacement of a 16 MVA transformer with a transformer of the same capacity	1973	AST funding	0.69	2032									0.69	
									Work as part of the project:									Transformer replacement	
114	**Replacement of 110 kV transformer T No. 2 at Grīziņkalns substation**	Improvements in transmission system reliability	none	Riga, Latvia	Replacement of a 40 MVA transformer with a transformer of the same capacity	1986	AST funding	0.87	2033										0.87
									Work as part of the project:										Transformer replacement
115	**Replacement of 110 kV transformer T No. 1 at Smiltene substation**	Improvements in transmission system reliability	none	Latvia, Smiltene	Replacement of a 16 MVA transformer with a transformer of the same capacity	1980	AST funding	0.83	2033										0.83
									Work as part of the project:										Transformer replacement

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										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
116	**Replacement of 110 kV transformer T No. 1 at Ventspils substation**	Improvements in transmission system reliability	none	Latvia, Ventspils	Replacement of a 25 MVA transformer with a transformer of the same capacity	1980	AST funding	0.87	2033										0.87
									Work as part of the project:										Transformer replacement
117	**Replacement of 110 kV transformer T No. 1 at Pļaviņas substation**	Improvements in transmission system reliability	none	Latvia, Pļaviņas	Replacement of a 10 MVA transformer with a transformer of the same capacity	1979	AST funding	0.56	2033										0.56
									Work as part of the project:										Transformer replacement
118	**Replacement of 110 kV transformer T No. 1 at Limbaži substation**	Improvements in transmission system reliability	none	Latvia, Limbaži	Replacement of a 10 MVA transformer with a transformer of the same capacity	1983	AST funding	0.56	2033										0.56
									Work as part of the project:										Transformer replacement
									Total transformers	0.15	3.09	0.77	1.35	2.68	0.87	5.69	5.32	3.61	3.69
	110 kV substations partial rebuilds, with the rebuilding of medium-voltage switchgear	Improvements in transmission system reliability	none	Latvia	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	-	AST funding	2.72	2024–2033	0.38	0.15	0.15	0.15	0.12	0.35	0.35	0.36	0.36	0.36
119									Work as part of the project:	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.	Rebuilding of RPA devices at transformer connections, transformer busbar jumpers, fiscal metering devices, supervisory control systems, etc.
	Increasing of permitted load for users	Increasing of permitted load for users	Proportional to the permitted load	Latvia	Replacement of transformers installed in substations, and associated modifications, rebuilding of substations or transmission line capacity upgrades	-	AST funding	0.00	2024–2033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
							Connection fee	0.10	2024–2033	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120									Work as part of the project:	Changes in the technical parameters of Krustpils substation, Krāslava substation, and Ieriķi substation	none	none	none	none	none	none	none	none	none
	330 kV transmission line rebuild	Maintaining of transmission system capacity	none	Latvia	Replacement of pylons, wires, reinforcement, screen wire, etc.	-	AST funding	38.71	2024–2033	5.05	3.90	3.90	3.71	3.25	3.35	3.50	4.00	4.05	4.00
121									Work as part of the project:	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.
	110 kV transmission line rebuild	Maintaining of transmission system capacity	none	Latvia	Replacement of pylons, wires, reinforcement, screen wire, etc.	-	AST funding	45.61	2024–2033	4.03	2.63	2.19	4.05	3.28	3.25	4.90	5.00	8.08	8.23
122									Work as part of the project:	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.	Replacement of pylons, wires, reinforcement, screen wire, etc.
	Replacement of electrical equipment, installation of individual items of equipment in substations	Maintaining of transmission system capacity	none	Latvia	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	-	AST funding	3.66	2024–2033	0.45	0.41	0.54	0.38	0.30	0.30	0.38	0.30	0.30	0.30
123									Work as part of the project:	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.	Repairs to and replacement of obsolete electrical equipment, upgrades in the security and fire safety systems, etc.
	Production buildings and structures	Maintaining of transmission system capacity	none	Latvia	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	-	AST funding	2.42	2024–2033	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
									Work as part of the project:	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.
124	**Construction of AS 'Augstsprieguma tīkls' supervisory control and data centre, rebuilding of the production facility grounds and building compound at Dārzciema iela 86, Riga**	Maintaining of transmission system capacity	none	Latvia	Renovation of roofing in industrial buildings and structures, replacement of windows and doors, thermal insulating of buildings to improve energy performance, replacement of substation fences.	-	AST funding	19.00	2020–2027	4.03	4.80	6.15	3.10						
							Recovery Fund (RRF) financing	27.00	2022–2026	8.37	10.00	6.85							
									Work as part of the project:	Construction of a supervisory control and data centre, rebuilding of the production facility grounds and building compound at Dārzciema iela 86, Riga	Construction of a supervisory control and data centre, rebuilding of the production facility grounds and building compound at Dārzciema iela 86, Riga	Construction of a supervisory control and data centre, rebuilding of the production facility grounds and building compound at Dārzciema iela 86, Riga	Rebuilding of the production facility grounds and building compound, improvement of grounds, finalisation of the work at Dārzciema iela 86, Riga Commissioning.						
125	**Investments in information technology**	Maintaining of transmission system capacity	none	Latvia	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	-	AST funding	34.38	2024–2033	2.08	3.16	1.32	4.38	3.96	4.87	4.10	4.29	3.12	3.115
							Recovery Fund (RRF) financing	10.98	2022–2026	6.38	0.36	0.42							
126									Work as part of the project:	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.	Purchase and installation of new IT equipment. Updating and purchase of software for IT equipment. Expansion of data centre and server infrastructure.
							Total for 10 years, pos. 1–2.	188.84	Total, pos. 1–2.	139.43	49.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
							Total for 10 years, pos. 3–126 (without connection fee, with RRF)	317.94	Total, pos. 3–126 (without connection fee)	45.41	39.47	35.03	25.38	25.77	28.14	29.32	28.96	31.87	28.58

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										2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
							Total connection fee for 10 years	3.06	Total connection fee, pos.	2.21	0.51	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
							10 years' total:	509.84	Grand total:	187.05	89.39	35.38	25.38	25.77	28.14	29.32	28.96	31.87	28.58

Notes:

STAGE 1 Only the connection fee sites (i.e., the sites whose installation is financed by the party requesting the connection, in accordance with the regulations of the Public Utilities Commission) for which a connection contract has been concluded between the system operator and the system user/producer are included in the plan. The total cost of these facilities is not shown in the total cost, except for where the project also involves investments by the system operator (positions 3, 4, 5, 6, and 120).

Person authorised to represent the transmission system operator:

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Board member Arnis Daugulis ___________________________________