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NATURAL GAS TRANSMISSION SYSTEM OPERATOR'S TEN-YEAR NETWORK DEVELOPMENT PLAN

(2017–2026)

Vilnius, 2017

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INTRODUCTION

Amber Grid AB (hereinafter referred to as the 'Company') is Lithuania's natural gas transmission system operator responsible for the safe operation and development of the system. In order to ensure the reliability of natural gas supply to customers in Lithuania (uninterrupted supply and sufficient capacity of the system), it is important to develop the gas transmission system in an efficient manner aiming at its smooth integration into the Pan-European Natural Gas Transmission System and enabling the diversification of the gas supply sources. To this end, the Parliament of the Republic of Lithuania has identified, in the National Energy Independence Strategy, the priority projects required to be implemented in the gas sector in order to diversify Lithuania's gas supply sources and to interconnect the gas transmission system with that of the European Union (EU). Having regard to the national strategic documents, the Company's strategy and environmental protection policy, the needs of domestic natural gas users, and the objectives of securing the gas supply reliability and efficient functioning of the gas transmission system, the Company prepared the Natural Gas Transmission System Operator's Ten-Year (2017–2026) Network Development Plan (hereinafter referred to as the 'Plan'). The Plan is based on the long-term objectives specified in the National Energy Independence Strategy and other legal provisions defining the operating principles for the transmission system operators and the gas sector.

The gas transmission system consists of gas transmission pipelines, gas compressor stations, gas metering and regulation stations (M&R Stations), gas metering stations (GMS), gas pipeline anti-corrosion protection equipment, remote data transmission and communication systems and other facilities attributed to the transmission system. Lithuania's gas transmission system is connected with the infrastructure of the Klaipėda liquefied natural gas terminal (LNGT) and the gas transmission systems of the Kaliningrad Region of Russian Federation, Belarus and Latvia. Gas is supplied to the Lithuania's transmission system from Russia (a gas pipeline from Belarus via Kotlovka GMS) and through the Klaipėda LNGT; another gas supply route is the gas transmission pipeline from Latvia.

In 2017–2026, as Lithuania will continue diversification of the gas supply sources, increasing the gas supply reliability, and integrating the gas transmission systems of the Baltic Region into the common gas system of the EU, the following investment projects are planned:

- constructing a gas transmission pipeline interconnection between the Lithuanian and Polish gas transmission systems;
- carrying out a joint project of Lithuania's and Latvia's natural gas transmission system operators aimed at increasing the capacity of the natural gas interconnection between the two states.

These projects will be relevant to processes of formation of the regional gas market in the East Baltic Region and will enable the gas transmission to the gas market participants in other countries of the region.

In 2016, a gas transmission pipeline branch to the Tauragė M&R station was constructed, allowing a connection to the gas distribution system. After the distribution system

operator constructed the distribution pipeline networks from the M&R station, Tauragė district was connected to the natural gas system.

A project on the construction of the main gas pipeline section between Kaunas–Šakiai and Kaunas M&R station is planned to be implemented after 2020. The aim of the project is to ensure a reliable and secure transmission of gas in the territory of Lithuania as in the event of an accident or a disruption in the natural gas transportation for another reason in the only main gas pipeline string at Kaunas city, the gas supply would be interrupted for a large number of users in Lithuania and Kaliningrad Region.

A number of other transmission system rehabilitation and modernisation projects, co-financed by the EU Structural Funds, are planned for 2017–2026:

- Installation of pig launching and receiving stations and implementation of operational control in the gas transmission system in 2015–2018 (the gas pipelines put into operation in 1964–1997);
- Installation of pig launching and receiving stations and implementation of operational control in the gas transmission system in 2018-2021 (Phase 2) (the gas pipelines put into operation in 1962–2006);
- Implementation of a system of remote process control and gathering of meter data in the gas transmission system in 2017-2019 (new system);
- Valve units‘ replacement and connection to SCADA remote control system in 2018–2022 (the gas pipelines were put into operation in 1962–1998);
- Reconstruction of individual sections of transmission gas pipeline Vilnius–Panevėžys–Riga in 2017–2019 (the gas pipeline put into operation in 1980);
- Modernisation of Panevėžys gas compressor station in 2016–2018 (the station put into operation in 1974);
- Modernisation of Jonava M&R station in 2015–2018 (the station put into operation in 1977);
- Modernisation of Alytus M&R station in 2015–2018 m. (the station put into operation in 1972).

1. SOURCES OF NATURAL GAS SUPPLY AND DEMAND FOR GAS TRANSMISSION SERVICES

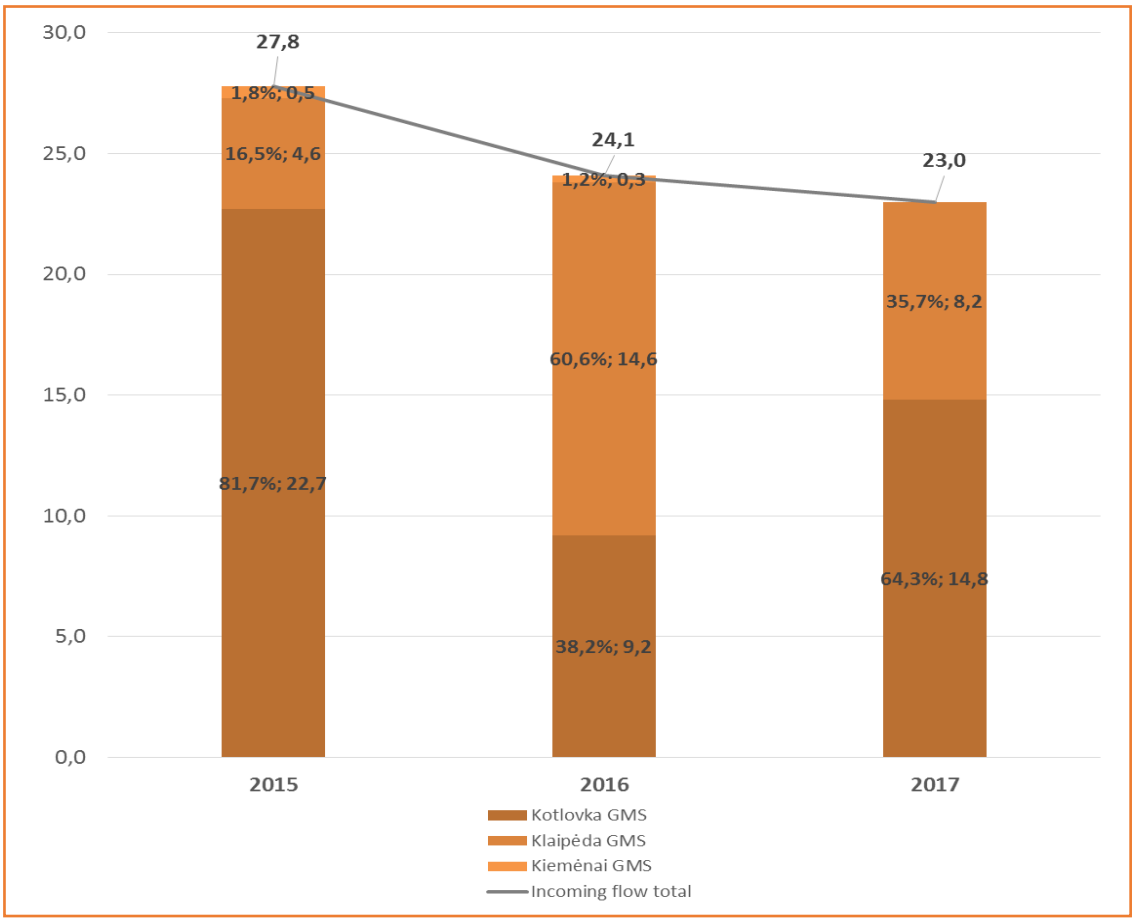
Planning of the transmission system‘s development is based on projections of gas consumption, cross-border gas flows and consumption capacities. The gas transportation projections for 2017-2026 have been prepared relying on the information on estimated gas transportation volumes provided by existing system users and cross-border gas flows forecasts.

1.1. Supply Sources (Incoming Flows)

Until 2015, Lithuania received gas mainly from a single source in Russia, via a gas pipeline in Belarus and Kotlovka GMS; in some cases, gas was supplied from Latvia via Kiemėnų GMS. After Klaipėda gas terminal was put into operation in 2015, gas is supplied to Lithuania from two main sources: via Klaipėda gas terminal and from Russia via Kotlovka GMS. If necessary, a third supply source - Latvia via Kiemėnų GMS may be used. It is planned that starting from 2022 when the Lithuanian-Polish gas interconnection will be completed the gas will also be supplied from Poland.

In 2015, over 80 % of the gas quantity intended for Lithuania and other Baltic States (22.9 TWh out of 27.8 TWh including gas transported by transit) entered through Kotlovka GMS, whereas in 2016 over 60 % of the gas quantity (14.6 TWh out of 24.1 TWh) arrived through Klaipėda LNG terminal. It is estimated that the terminal will meet nearly 50% of the gas demand in 2017. Both in 2017 and in the future the distribution of gas by entry points will depend on competition in the gas market.

Figure 1. Natural gas supply sources according to entry points, 2015–2017, % and TWh/year.



1.2. Domestic Demand

Amber Grid AB consults both existing and potential transmission system users, suppliers and state institutions (the stakeholders) in order to ensure that the planning of the gas quantities required for Lithuania‘s domestic needs is as accurate as possible. The system users were asked to provide estimations of gas quantities and capacities meeting their need for the next decade.

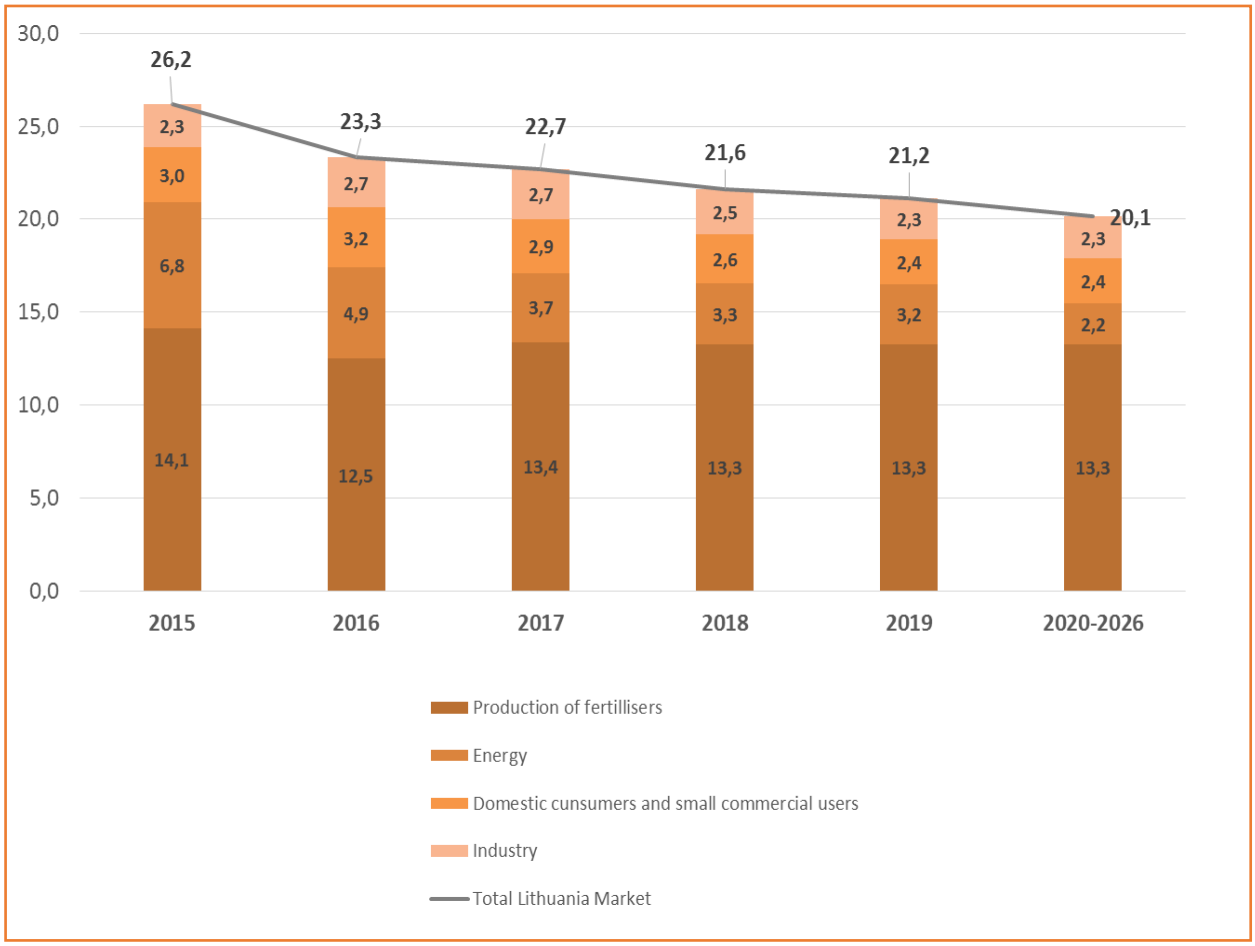
The consumption capacity of Lithuania‘s transmission system users declared/determined for 2017 (the required maximum daily gas amount to meet the maximum demand for the gas) is 182 GWh per day.

In recent years, the volumes of gas transported through the Company‘s transmission system for the domestic market needs have been decreasing: from 26.2 TWh in 2015 to 23.3 TWh in 2016. Based on the data provided by the system users, the estimate for 2017 is approx. 22.7 TWH, and a decrease to 21.1 TWh in 2019 is projected. Considering the effects of the projects on co-generation facilities operating on biofuel and incinerated municipal waste to be implemented in Vilnius and Kaunas central heat supply systems operated by Lietuvos Energija Group, the annual indicator for 2020 could be approx. 20.1 TWh.

The considerable decrease in the demand for gas in the Lithuanian energy sector is projected due to the increasing efficiency of thermal energy production methods and the use of alternative fuels (biomass, solar, wind and geothermal energy). Alternative technologies (generation from renewable energy sources) are also promoted by both EU and national strategy documents, which provide for a growing share of alternative energy sources in the energy balance; the share of fossil fuels is decreasing accordingly.

The demand for ordered long-term transmission system capacities in Lithuania for 2017 is 85.4 GWh per day. It is estimated that demand for capacities will remain on a similar level in the nearest future, and upon completion of construction of the above-mentioned co-generation plants operating on biofuel and municipal waste it would be approx. 76 GWh per day starting from 2020.

Figure 2. Natural gas transmission volumes by sectors in Lithuania, 2015–2026, TWh per year.



1.3. Cross-Border Gas Flows

In recent years, there has been an increase in the quantities of gas transmitted to the Kaliningrad Region of the Russian Federation: 21.6 TWh of Gas was transported in transit in 2014, 21.8 TWh in 2015, and 23.5 TWh in 2016. It is estimated that, using the available capacities, in the future the volumes will vary between 22 and 26 TWh depending on the demand in Kaliningrad Region (mainly for the production of electricity).

Due to the construction of Klaipėda LNG terminal, in 2015 transmission of gas to other Baltic States through Lithuania was started. In 2015, the transmission volume to Latvia‘s system totalled 1 TWh; in 2016, 0.5 TWh of gas was transmitted to customers/suppliers in other Baltic States through Kiemėnai cross-border exit point. It is estimated that the cross-border gas transmission flows will grow upon opening of the Latvian gas market from 3 April 2017 and due to application of various market integration measures by the Baltic transmission system operators, subsequent formation of the gas market zone of the Baltic States and implementation of regional common—interest infrastructure projects.

The intensity of transporting additional gas flows in the Lithuanian transmission system depends on the conditions in the regional natural gas markets, application of the integration measures and the use of the infrastructure of regional significance (Inčukalns underground gas storage facility and Klaipėda LNG terminal). The size of the gas flows will determine the efficiency of the use of the transmission system and the average gas transmission prices. According to Amber Grid AB‘s estimations, if, upon formation of the Baltic States‘ gas market area in 2020, the cross-border gas flows from Klaipėda LNG terminal to Latvia and Estonia account for approx. 10% of the Latvian and Estonian gas markets, the annual cross-border transportation volume would be approx. 1.6 TWh. A certain gas flow would arise also due to the existence of the interconnection with Finland, which is to be completed by 2020. If at least 5% of the demand of the Finnish gas market is met through Klaipėda LNG terminal, the gas flow through Lithuania would increase by 1.2 TWh. The construction of the Gas Interconnection Poland-Lithuania (GIPL) would create gas flows from Poland through Lithuania to other countries of the Eastern Baltic Region. If their share of the national gas demand would be similar to that of imports from the LNG terminal, the rate of utilisation of Lithuania‘s transmission system would increase by additional 2.8 TWh per year. If Klaipėda LNG terminal is also used for imports for the needs of Poland and other Central and Eastern European counties (e. g. using 10% of GIPL’s capacities on average), the gas flows from the terminal toward Poland would amount to 2.2 TWh per year.

2. EXISTING GAS TRANSMISSION SYSTEM

2.1. Lithuania's Gas Transmission System

Lithuania's gas transmission system is connected with the transmission systems of the Kaliningrad Region of Russian Federation, Belarus and Latvia and with the LNG terminal in Klaipėda.

The total length of the pipelines of the transmission system in the territory of Lithuania is over 2,100 km. In order to secure a smooth operation of the transmission system and to facilitate the supply of natural gas to the distribution systems, 67 M&R stations and 1 GMS have been constructed. The interconnections of Lithuania's transmission system with the gas transmission systems of neighbouring countries are equipped with two GMS located in Lithuania's territory, both owned by the Company. The Company also operates Panevėžys and Jauniūnai gas compressor stations, which, together with agreements concluded with the operators of neighbouring systems, ensure the required gas pressure parameters throughout the system.

Technical capacities of the gas pipeline interconnections with the gas transmission systems of the neighbouring countries and the LNG terminal:

- at entry point Kotlovka GMS – 325.4 GWh per day;
- at entry point Klaipėda GMS (at the point of the transmission system's connection to the LNG terminal's system) – 122.4 GWh per day;
- at entry point Kiemėnai GMS to Lithuania – 65.1 GWh per day;
- at exit point Kiemėnai GMS from Lithuania – 67.6 GWh per day;
- at exit point Šakiai GMS – 109.2 GWh per day.

The existing transmission system capacities at points of interconnection with the Lithuania's distribution systems and the directly-connected system users/customers are sufficient to secure the needs of the Lithuanian customers.

Figure 4. Lithuania‘s natural gas transmission system in 2017.

2.2. Gas Infrastructure of the East Baltic Region

The Company is taking an active part in the process of formation of the gas market of the East Baltic region which is aimed at reducing the cross-border barriers for the functioning of gas markets, promoting competition on and liquidity of the gas market, and increasing the efficiency of the use of gas infrastructure.

The main infrastructure projects implemented in the Baltic region that are on the second list of the EU projects of common-interest:

- Gas Interconnection Poland - Lithuania (GIPL);
- Increasing the capacity of the gas interconnection Latvia – Lithuania;
- Modernisation of Inčukalns underground gas storage facility (Latvia);
- Increasing the capacity of the gas interconnection Estonia – Latvia;
- Gas Interconnection Estonia – Finland (*Balticconnector*).

Figure 5. Gas Infrastructure of the Baltic Region, 2017–2026

3. TRANSMISSION SYSTEM'S DEVELOPMENT IN 2017–2026

A number of investment projects on the development of the transmission system are planned for the period 2017 – 2026. The projects are aimed at diversification of the gas supply sources in Lithuania and other Baltic countries and at enhancing the security and reliability of the gas supply.

The investments are stated in the Plan in current prices excluding value added tax (VAT).

3.1. Projects of Common Interest

New gas transmission infrastructure and capacity increase projects by the Company, namely, the Gas Interconnection Poland-Lithuania (under implementation) and the project on the Enhancement of the gas interconnection Latvia – Lithuania (planned) have been included in the Second List of the EU Projects of Common Interest published on 18 November 2015, the Ten-Year Network Development Plan (TYNDP) of the European Network of Transmission System Operators for Gas (ENTSOG) published in 2017, the Baltic Energy Market Interconnection Plan (BEMIP) for 2017-2026 of the Baltic region's transmission system operators, and the National Plan on the Implementation of Priority Projects on Electricity and Natural Gas Transmission Infrastructure approved by a resolution of the Government of the Republic of Lithuania.

3.1.1. Gas Interconnection Poland–Lithuania (GIPL)/TRA-N-341[1]

The European Commission has recognised the GIPL project as a highly significant infrastructure project contributing to the security of gas supply and the EU energy security. Amber Grid AB is implementing this project jointly with GAZ-SYSTEM S.A., the Polish gas transmission system operator.

Objectives of the project:

- integrate the gas markets of the Baltic States and Finland into the EU common market in gas;
- diversify the gas supply sources; and
- increase the security of gas supply.

The preparatory works for the GIPL project were started in 2009. An analysis of the GIPL business environment was made in 2011 and a GIPL feasibility study was completed in 2013. Procedures of the project's environmental impact assessment were carried out for Lithuania's territory in 2013-2015. By its resolution of 5 November 2014, the Government of the Republic of Lithuania recognised the GIPL project's part in Lithuania's territory as an economic project of national significance.

In April 2016, a public procurement for the construction works and supply of pipes for the GIPL project's part in Lithuania was announced. However, it transpired in September that the pipeline route in Poland has to be changed for technical reasons (see Figure 6) resulting in

[1] Number assigned by ENTSOG to the GIPL project's part in Lithuania.

the extension of the time limit for completion. Therefore, a decision was taken to terminate the procurement procedure. On 26 September 2016, the Government passed Resolution No 944 on the extension of the time limit for the implementation of the GIPL project's part in the Republic of Lithuania until 31 December 2021.

By 27 September 2016, all requisite documents permitting construction of the project in Lithuania's territory were obtained.

Figure 6. Route of the Gas Interconnection Poland - Lithuania (GIPL).

The estimated route of the gas pipeline extends from Hołowczyce compressor station (Poland) until Jauniūnai compressor station (Lithuania) (see Figure 6). The estimated total length of the gas pipeline is approx. 501 km (including 336 km in the territory of Poland and 165 km in the territory of Lithuania). In addition, renovation of Hołowczyce compressor station and building a new Gustorzyn compressor station is planned in Poland (approx. 16 MW would be intended for GIPL purposes). A gas pressure regulation and metering station is planned to be constructed in the territory of Lithuania.

The following technical parameters of the GIPL project's part in Lithuania are planned:

- gas pipeline length ~165 km;

- gas pipeline diameter 700 mm;
- maximum design pressure 5.4 MPa.

The GIPL project should be commissioned in 2021. The completion of the project will mean the establishment of capacities enabling the transportation to the Baltic States of approx. 27 TWh of gas per year. The annual reverse flow to Poland could reach 22 TWh if the existing infrastructure is used to full extent.

In the future, GIPL capacities can be increased as necessary so that up to 46 TWh of gas can be transported to the Baltic States (and Finland) every year upon construction of new or enlargement of the existing compressor stations in Lithuania and Poland.

Securing of funding:

1) EU financial assistance was received in 2011-2013 for the GIPL business environment analysis, feasibility study and the environmental impact assessment (EIA) under Trans-European Networks for Energy (TEN-E) programme. These funds accounted for 50% of eligible expenditure;
2) In May 2015, the Company, GAZ-SYSTEM S.A. (the Polish gas transmission system operator) and the EU Innovation and Networks Executing Agency (INEA) concluded an agreement on the EU financial assistance for the GIPL preparatory works until the issue of construction permits (amended on 9 January 2017). EUR 10.6 million were allotted under this agreement under the Connecting Europe Facility (CEF). Maximum (50%) EU assistance intensity was assigned to the preparatory works: Amber Grid AB received EUR 2.5 million and GAZ-SYSTEM S.A. received EUR 8.1 million;
3) In October 2015 Amber Grid AB, GAZ-SYSTEM S.A. and INEA concluded an agreement on CEF financial assistance for GIPL project (amended on 9 January 2017) under which Amber Grid AB was allotted up to EUR 58 million and GAZ-SYSTEM S.A. up to EUR 208 million of EU assistance funds;
4) In addition to the EU financial assistance, the GIPL project‘s construction works will be financed by Lithuania, Latvia and Estonia, paying part of the GIPL infrastructure costs in the territory of Poland according to ACER‘s cross-border cost allocation decision of 11 August 2014. According to the said decision, on completion of the project Amber Grid AB will have to pay GAZ-SYSTEM S.A. a compensation of up to EUR 54.9 million. Under the above-mentioned agreement on CEF assistance, the compensation payable by Amber Grid AB will be covered by CEF funds up to 50 % (up to EUR 27.5 million).

Table 1. Estimated annual GIPL project‘s funding requirement in the territory of Lithuania (EUR million):

By 2017	2017	2018	2019	2020	2021	Total
6.3	0.3	22.0	47.0	39.0	21.2	135.8

3.1.2. Enhancement of the Latvian-Lithuanian Interconnection /TRA-N-382[2]

The objective of the project is to increase the capacity of the Latvian-Lithuanian gas interconnection (the maximum expected increase is to 125 GWh per day), enhance the security and reliability of the natural gas supply, utilise the infrastructure more efficiently, and improve the integration of the Baltic gas markets and the functioning of the common market. Conditions for using Inčukalns underground gas storage facility in Latvia will be improved as well.

Figure 7. Increasing the capacity of the Latvian-Lithuanian gas interconnection

The implementation of the project will lead to the enlargement of the gas transmission infrastructure in the territories of both Latvia and Lithuania: capacities of Kiemėnai GMS will be increased in Lithuania and the required gas pipeline section will be built in Latvia. The project is jointly implemented by Conexus Baltic Grid AS, the operator of the Latvian gas transmission system and of Inčukalns underground gas storage facility, and Amber Grid AB.

[2] Number assigned by ENTSOG.

A feasibility study into the increase in the capacity of the Latvian-Lithuanian gas interconnection is planned for 2018. The results of the study will determine the scope and the timeframe of implementation of the project.

The estimated investment requirement for the implementation of the project in the territory of Lithuania is EUR 2.9 million. It is expected that the project will be commissioned in 2020.

Table 2. Estimated investment requirement for the implementation of the Latvian-Lithuanian gas interconnection project in the territory of Lithuania (EUR m):

2017	2018	2019	2020	Total
		1.6	1.3	2.9

3.2. Development Projects Aimed at Ensuring System's Reliability

Apart from the common-interest projects, implementation of other projects required for continuous operation of the transmission system and connection of other gas systems.

3.2.1. Connection by Second Line of the Vilnius–Kaunas Gas Transmission Pipeline and the Kaunas–Šakiai Gas Transmission Pipeline

The transmission gas pipeline that is used for the supply of gas to customers in South-West Lithuania (Marijampolė, Vilkaviškis, Kazlų Rūda, Šakiai, Jurbarkas and Kėdainiai counties) and the Kaliningrad Region of the Russian Federation, and which could also be used (in a certain gas flow scenario) for the supply of gas to Vilnius and Kaunas counties from the LNG terminal, is a double-line pipeline in the sections between Vilnius and Kaunas M&R station 1 and between Kaunas M&R station 2 and Kaliningrad Region. However, it is a single-string pipeline at Kaunas (between Kaunas GDS 1 and GDS 2). In case of an emergency or impossibility of supplying gas over the single-line section for other reasons, the supply of gas would be interrupted for a large number of consumers in Lithuania and Kaliningrad Region.

The main purpose of this project is to ensure a reliable and efficient gas transmission in the territory of Lithuania. The gas supply would be ensured in both directions:

- from the west – to customers in East Lithuania, with the operation of Klaipėda LNG terminal;
- to the west (if needed) – to customers in South West and West Lithuania and meeting the needs of transmission to Kaliningrad, with the transportation of gas from Byelorussia via Kotlovka GMS.

On completion of the construction, the main gas pipeline in South West Lithuania would be a double-line throughout its length.

The length of the pipeline to be constructed is 11.6 km and the diameter is 500 mm. Implementation of the project is planned after 2020 having regard to the system's user needs and opportunities to contribute to the project's funding. A technical design has been prepared,

agreements with land owners have been signed, and a construction permit has been obtained. The estimated value of the investment is EUR 6.7 million.

The project has been included in the National Plan on the Implementation of Priority Projects on Electricity and Natural Gas Transmission Infrastructure.

3.3. Reconstruction and Modernisation of the Gas Transmission System

The Company has adopted and is implementing a strategy for the security of transmission gas pipelines (the 'Strategy'). It sets out both continued and new measures in the area of reconstruction and modernisation of the linear parts of the gas pipelines, M&R stations and compressor stations. The Company implements measures to enhance information security in lines with the statutory requirements for physical and information security at enterprises having strategic or high significance for national security.

Part of the transmission system's reconstruction projects are eligible for co-financing from the EU assistance funds.

On 22 July 2014 the Government of the Republic of Lithuania adopted the National Plan on the Implementation of Electricity and Gas Transmission Infrastructure Projects which also includes projects on modernisation of the existing transmission infrastructure. The plan was adopted as part of implementation of the National Energy Independence Strategy and the National Progress Programme. The table below presents information on investments planned during next 5 years.

Table 3. Funds requirement for the reconstruction and modernization of the transmission system (EUR million):

Item No	Description	By 2017*	2017	2018	2019	2020	2021	2022-2026	Total	Total excl. investments prior to 2017
1	Reconstruction of the linear part of gas transmission pipelines	2.2	3.5	10.2	10.5	9.8	6.8	Funds require-ment to be updated	43.0	**40.8**
2	Reconstruction of M&R stations	0.2	2.0	2.1	0.2	0.3	1.8		6.6	**6.4**
3	Reconstruction and modernisation of compressor stations	1.9	1.4	2.7	1.2	0.4	0.2		7.8	**5.9**
4	Reconstruction and	0.6	1.9	2.1	1.4	1.0	0.9		7.9	**7.3**

	modernisation of other facilities of Transmission system (corrosion protection, measuring devices, telemetry)									
	Investments total	4.9	8.8	17.1	13.3	11.5	9.7		65.3	**60.4**

- Share of investments in continued projects made before 2017.

3.3.1. Reconstruction of the Linear Part of the Gas Transmission Pipelines

One of the key measures identified in the Strategy is the inner diagnostics of gas pipelines by means of special devices (i.e. intelligent pigging). For this purpose, pig launching and receiving stations will be installed and linear closing valves, pipe parts and branch units will be replaced in the gas pipelines.

The total length of gas pipelines in operation is 2115 km (2 km were added in 2016 upon building a branch to Tauragė M&R Station) including 1670 km where inner diagnostics can be used (approx. 79% of all gas pipelines):

- 667 km of gas pipelines have already been adapted and checked;
- 539 km of gas pipelines have already been adapted (pig launching and receiving stations have been installed) and are undergoing checks;
- 464 km of gas pipelines are planned to be adapted to inner diagnostics (on completion of investment projects, the length of the adapted pipelines will increase by 165 km compared to the length stated in the previous Development Plan).

The aim is to complete the adaptation of all suitable gas pipelines to inner diagnostics by 2025.

In 2017–2018, pig launching and receiving stations are planned to be installed on the gas pipeline branches to Jonava M&R Station (DN350, DN500), Girininkai M&R Station, Palanga M&R Station, N. Akmenė M&R Station and the second line of Panevėžys–Šiauliai pipeline (DN1000); closing valves will be replaced in these sections.

In 2019–2021, pig launching and receiving stations are planned to be installed on the transmissnio gas pipelines Panevėžys–Šiauliai (DN350), Panevėžys–Šiauliai second line and Šiauliai-Kuršėnai second line (DN500), Ivacevičiai–Vilnius–Riga gas pipeline‘s connection with gas pipeline Vilnius–Kaunas (DN700), Vilnius–Kaunas (DN350), and in the branches to Vandžiogala M&R Station, Kėdainiai M&R Station and Biržai M&R Station. In addition, movable pig launching and receiving stations will be installed on the gas pipeline Ivacevičiai–Vilnius–Riga (DN500) (section Panevėžys–Kiemėnai the length of which is approx. 50 km).

Works of connecting closing valves to the remote control system will be continued. It is estimated that in 2022 approx. 50% of the main closing valves will be controlled remotely, ensuring the target level of the transmission gas pipelines' operational control.

Reconstruction of sections of Vilnius–Panevėžys–Riga gas pipeline (renovation of a 14 km long section) is one of the most important projects on the reconstruction of the gas pipelines' linear part and on increasing the security of supply to be implemented in 2017-2019.

Upon establishing the actual technical condition of gas pipelines, the project's cost and benefit analysis is made, renovation options are examined, and most cost-efficient solution is selected prior to deciding on the renovation of the linear part.

3.3.2. Reconstruction of M&R Stations

The Company operates 67 M&R Stations and 3 GMS. In 2017, two M&R stations will be dismantled and the flows will be directed through other stations for network optimisation purposes.

Reconstruction of Jonava and Alytus M&R Stations is planned in 2016–2018. Relevant designing works were performed in 2016.

The M&R Stations renovation planning process involves an assessment of current and future gas flows after which equipment of optimum capacity is selected in order to use the funds allotted for renovation in a most cots-efficient way. Considering the present trends in and future prospects of gas consumption in Jonava and Alytus towns, the summary capacity of the pressure reduction lines in the Jonava M&R Station upon modernisation will be approx. 14% lower, and that of Alytus M&R Station will be 75% lower.

In 2019–2022, reconstruction of Šiauliai, Telšiai M&R Stations and Mažeikiai GMS is planned.

These solutions ensure proper functioning of the gas infrastructure and lead to optimisation of its maintenance costs.

3.3.3. Reconstruction and Modernisation of Compressor Stations

Three compressor units with the total capacity of 34.5 MW are installed in Jauniūnai compressor station built in 2010.

At Panevėžys compressor station, 7 reciprocating compressor units operate since 1974. Their overall capacity is 7.7 MW. The station's process equipment is being gradually modernised.

By 2018, modernisation of the automated control of Panevėžys compressor station will be completed. Additional combustion chambers will be installed and air supply systems will be upgraded in other three compressors as well. Replacement of filters is planned for 2020-2021.

All these measures will increase the security of operation of Panevėžys compressor station; gas consumption for fuel and gas emissions to the atmosphere will be cut 8 to 10 %.

ANNEX 1.

Investments under the Plan (EUR m)

Item No		By 2017*	2017	2018	2019	2020	2021	2022-2026	Total	Total excl. investments prior to 2017
	Projects of common interest:									
1	Gas Interconnection Poland–Lithuania	6.3	0.3	22.0	47.0	39.0	21,2		**135.8**	**129.5**
2	Enhancement of Latvia-Lithuania gas interconnection				1.6	1.3			**2.9**	**2.9**
	Other transmission system's projects:									
3	Connection by second line of the Vilnius–Kaunas gas transmission pipeline and the Kaunas–Šakiai gas transmission pipeline	0.55						Data will be provided later	**0.55**	**0.0**
4	Reconstruction & modernisation of the Gas Transmission System	4.9	8.8	17.1	13.3	11.5	9.7	Funds requirement to be updated	**65.3**	**60.4**
	Investments total:	**11.75**	**9.1**	**39.1**	**61.9**	**51.8**	**30,9**		**204.55**	**192.8**

* Share of continued investments under the Plan made by 2017.

ANNEX 2.

Lithuania's Gas Transmission System Including Gas Transmission System Development Projects Planned for Implementation by 2026