

# APPENDIX A3-1

## Lithuania and Germany Case Studies

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**Shannon Technology and Energy Park**  
Environmental Impact Assessment Report

## Appendix A3-1 - Case Studies - Lithuania and Germany

Ireland's gas connectivity is currently more limited than that experienced by Lithuania prior to the development of the LNG Terminal, with multiple interconnector pipelines connecting to Latvia, Kaliningrad (Russia) and Belarus (see Figure A3-1.1 and Table A3-1).



Figure A3-1.1: Overview of the Natural Gas Transmission System in Lithuania

Table A3-1: Lithuania's Natural Gas Pipeline Network Capacities

| Interconnector                          | Import capacity          | Export capacity          | Comments  |
|---|--------------------------|--------------------------|---|
| Latvia (Kiemenai)                       | 6.0 mcm/d (65.1 GWh/d)   | 6.5 mcm/d (67.6 GWh/d)   | Interconnector gives Lithuanian companies access to the Latvian and Estonian markets, as well as to the Incukalns storage facility. |
| Belarus (Kotlovka)                      | 29.9 mcm/d (325.4 GWh/d) | Not reversible           | The biggest N-1 entry point in the region (Baltics and Finland).  |
| Russian Federation (Kaliningrad Region) | Not reversible           | 10.5 mcm/d (109.2 GWh/d) | Transit of Russian gas through Lithuania to the Kaliningrad exclave.  |

Notes: mcm/d = million cubic metres per day. GWh/d = gigawatt hours per day.

Source: International Energy Agency, 2021

In 2013, the European Commission approved aid to support the construction and operation of the LNG terminal under EU State aid rules. The Commission found that “*the measure was necessary to ensure security of gas supply in Lithuania*”.<sup>1</sup>

The successful development of the Klaipėda terminal has resulted in Lithuania being able to move to LNG as its primary source of gas rather than pipeline gas originating in the Russian Federation. Norway and the United States have been the primary countries of origin for LNG delivered at the terminal, with Egypt and Russia also supplying cargoes (Figure A3-1.2).<sup>2</sup>

The IEA in the ‘*Lithuania 2021 Energy Policy Review*’ made the following statements (IEA, 2020) (emphasis added):

*“The development of the Klaipėda LNG terminal has had a positive impact on energy security since its start of operations in 2014, by ending the reliance on a single supplier and supply route (i.e. Russian pipeline gas). Further investment in the terminal, including purchasing a floating storage and regasification unit (storage tank), will ensure its longer term contribution to regional security of supply.*

*The Klaipėda LNG terminal has been of primary importance for the gas security of the country as well as for the whole Baltic region, providing access to global LNG markets, and ending the total reliance on Russian pipeline gas that previously existed. With regasification capacity of 10.3 mcm/d, the terminal exceeds Lithuanian gas needs (6.1 mcm/d) and ensures flexibility in balancing gas supplies in a wide range of crisis scenarios in the domestic gas market. **After the terminal’s start of operations in December 2014 and following the installation of a second line of the Klaipėda-Kursenai pipeline, the infrastructure standard (N-1) in Lithuania reached well over 100%.***



Figure A3-1.2 Natural Gas Imports to Lithuania, 2000-2019 (IEA, 2021)

While the primary benefit to Lithuania and neighbouring countries who transit cargoes via Lithuania has been in the diversity and security of supply benefits, the introduction of the terminal has also served to drive down the price of gas to Lithuanian and regional gas consumers in both industry and domestic sectors (Figure A3-1.1).

<sup>1</sup> [https://ec.europa.eu/info/news/state-aid-commission-approves-additional-state-guarantee-klaipeda-lng-terminal-lithuania-2020-nov-20\\_en](https://ec.europa.eu/info/news/state-aid-commission-approves-additional-state-guarantee-klaipeda-lng-terminal-lithuania-2020-nov-20_en)

<sup>2</sup> [https://ec.europa.eu/energy/data-analysis/market-analysis\\_en?redir=1](https://ec.europa.eu/energy/data-analysis/market-analysis_en?redir=1)

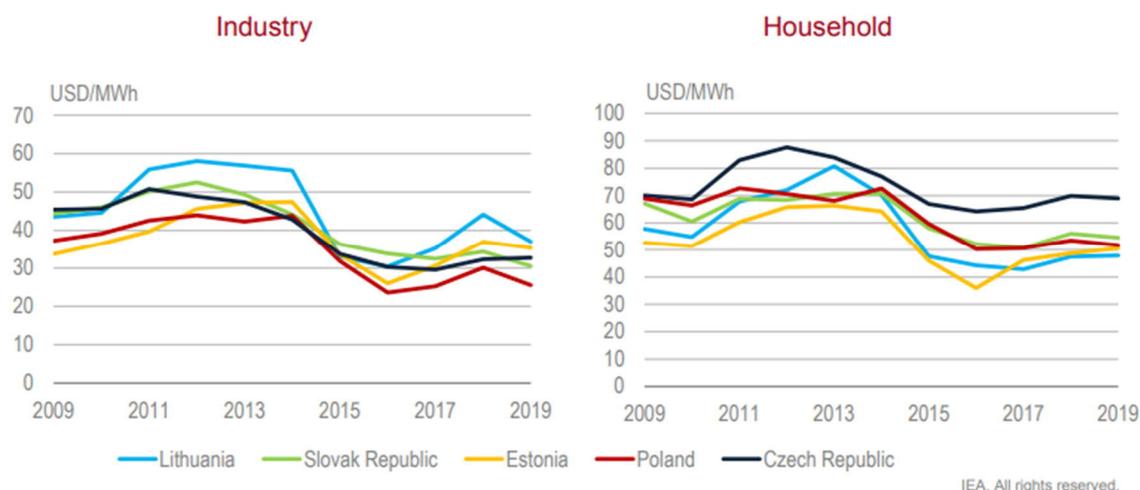


Figure A3-1.3 Natural Gas Prices in Lithuania and Selected Countries, 2009-2019 (IEA, 2020)

While the development of LNG terminals is a key way of ending the dependence of energy islands on single (or few sources), it is also seen as a key source of diversification of supply by countries that already have significant pipeline interconnection. Germany, the largest gas market in Europe, is investigating LNG as a means to diversify their gas supply.<sup>3</sup> The 2020 IEA Report on Germany states:

*“Gas supply diversification is an important component of Germany’s energy security strategy. **Though Germany has strong pipeline connectivity to several sources, Russia remains a dominant supplier.** Moreover, the completion of the Nord Stream 2 pipeline could further increase Germany’s reliance on Russian gas imports (though will mitigate the risk of potential supply disruptions on transit routes).*

***To mitigate risks associated with dominant pipeline suppliers, Germany is advancing plans to facilitate LNG imports (see above on LNG), which can play an important role in the country’s gas security strategy.** Transitioning into a gas and renewables system will lead to lower price elasticity for gas (the gas will be needed at whatever price when the wind does not blow), further reinforcing exposure to dominant pricing behaviour. Even though Russia is likely to remain the largest gas supplier to the German market, an LNG terminal could improve Germany’s negotiating leverage to secure more favourable import prices”.*

The report goes on to recommend that the government of Germany should:

- *“Strengthen capacities to diversify imports by supporting the buildout of LNG terminals, and facilitate connectivity to the natural gas supply chain.*
- *Monitor changes in natural gas-fired generation capacity to support its ability to provide complementary flexibility to variable renewables generation”.*

<sup>3</sup> [https://iea.blob.core.windows.net/assets/60434f12-7891-4469-b3e4-1e82ff898212/Germany\\_2020\\_Energy\\_Policy\\_Review.pdf](https://iea.blob.core.windows.net/assets/60434f12-7891-4469-b3e4-1e82ff898212/Germany_2020_Energy_Policy_Review.pdf)