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# EU Energy Island – Characteristics, Threats, and How to Break out of it: A Case Study of Lithuania

A case study of Lithuania as an EU energy island is conducted in the article. For this purpose, the description of an energy island in the EU as a phenomenon is set forth, and its characteristics are identified and explicated. The performed study showed that in 1990–2009 Lithuania corresponded partially and in 2010–2013 fully to the characteristics of the EU's energy island, whereas the Russian Federation, as a dominant energy supplier, abused the circumstances, executed a coercive energy policy, thus posing threats not only for energy but also for economic and national security. However, in 2015, having constructed alternative electricity and gas supply routes and established market conditions in the energy sector, Lithuania reached a turning point and pulled away from energy dependency on Russia. Lithuania is to be regarded as a good case of the EU energy island to study.

## Introduction

2015 was the crucial year for Lithuanian energy – the turning point was reached in the domain of energy security. In 2015, a liquefied natural gas terminal (LNG), "Independence", which arrived in Lithuania in autumn of 2014, started to operate in the port of Klaipėda and electricity interconnections Poland and Sweden were completed and switched on. Lithuania built up alternative routes for supplies of natural gas and electricity, eliminated energy dependence on Russia, a dominant external supplier, and resolved the problem of an EU energy island.

The turning point is a proper time to reflect, reassess Lithuania's energy security and to crystalize the measures that enabled it to break away from the EU energy island. Therefore, this article seeks to answer the following questions:

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- How can one describe the phenomenon of an EU energy island?
- What are the characteristics of an EU energy island?
- Does the status of an energy island pose a threat to security?
- How the problem of an energy island was resolved?

## 1. The Phenomenon of an Energy Island in the EU

It is hardly possible to say when the concept of an "energy island" appeared publically for the first time and who its author was. Yet, knowing that three Baltic states were among the first to whom the term "EU's energy island" was attributed, the birth of the concept may be linked with the initiative of the Baltics to flag energy isolation from the remaining part of the EU and asymmetrical reliance on the Russian Federation.

In 2006, the European Commission's Green Paper on European Strategy for Sustainable, Competitive, and Secure Energy, points out that the Baltic states, as well as Ireland and Malta, 'remain an "energy island", largely cut off from the rest of the Community.' [1]

The possible impact of "energy island" status in the case of Lithuania was perceived when the first reactor of the Ignalina nuclear power plant (hereinafter referred to as the Ignalina NPP) had already been closed, and the time when the second reactor, that is the final shut down of a whole nuclear plant, was approaching.[2] The Ignalina NPP provided approximately 70 per cent of all electricity consumed in Lithuania and played an important role in the supply of electricity throughout the whole Baltic states region. Being aware of the consequences of losing such an important source of energy, the 14th Cabinet of Ministers of the Republic of Lithuania set up the Commission, headed by former Prime Minister Aleksandras Abišala, to secure a supply of energy after 2009.[3] Negotiations on Lithuania's membership in the EU were completed in 2002, so right then the commitments were assumed to fully close the Ignalina NPP

[1] Commission of the European Communities (2006), *Green Paper. A European Strategy for Sustainable, Competitive and Secure Energy*, Brussels, 8.3.2006, COM(2006) 105 final, page 6.

[2] According the Accession Agreement of Lithuania to the EU the first reactor of the Ignalina NPP to be shut down by the end of 2004 and the second by the end of 2009.

[3] Lietuvos Respublikos Vyriausybė [Government of the Republic of Lithuania] (2008), „Sudaryta komisija energijos tiekimo saugumo po 2009 m. problemoms nagrinėti" ['Approved commission to resolve security of energy supply problems after 2009'], *Lietuvos Respublikos Vyriausybė*, https://lrv.lt/lt/naujienos/sudaryta-komisija-energijos-tiekimo-saugumo-po-2009-m-problemoms-nagrineti, 2016-08-02. (2008) (in Lithuanian). Delfi, A. Abišala vadovaus Energetinio saugumo komisijai ['A.Abišala will lead energy security Commission'], 2008 m. vasario 26 d., http://www.delfi.lt/verslas/energetika/aabisala-vadovaus-energetinio-saugumo-komisijai.d?id=16107212, 2016-08-02 (in Lithuanian).

by 2010. Therefore, the decision made to take care of energy supply security, which were made only in 2008, should be considered belated. Nonetheless, activity of the Commission led by Abišala was significant, since the phenomenon of Lithuania as an energy island was conceptualized and the issue of isolation of the Baltic states from the common EU energy market was brought to the priorities of the EU agendas.

The Lithuanian Energy Institute's study on the impact on Lithuania's economic security (2008) concludes that "Lithuania, at least until 2014, may remain an energy island, because the possibilities of building electricity interconnections between Lithuania-Poland and Lithuania-Sweden over the next six years are very limited".[4]

Assessing the activities of the 14th Government of the Republic of Lithuania, the 15th Government of the Republic of Lithuania, in its annual report, states that "the Baltic states in the EU's energy system were still like an island without electricity networks, gas pipelines and interconnections with Western Europe".[5]

In October 2008, on the eve of the European Council, the meeting of all the Baltic Sea EU Heads of State and the European Commission took place at the Permanent Representation of Lithuania to the EU in Brussels, where President of the Commission, José Manuel Barroso, acknowledged that the Baltic states, having no interconnections with the EU energy networks,[6] are even more vulnerable than any other Member State.[7] Also, Barroso declared that "energy islands" are to be connected, and announced a six-step roadmap.[8] It was during this meeting when the Baltic Energy Market Interconnection Plan (BEMIP) was first declared. Barroso, in his letter to the Prime Minister of Lithuania, Gediminas Kirkilas (2008), confirmed the European Commission's determination to connect energy islands with the EU internal market.[9]

This Barroso's initiative was endorsed by the European Council, which

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[4] Lietuvos energetikos institutas [Lithuanian Energy Institute] (2008), *VĮ „Ignalinos atominė elektrinė" eksploatavimo nutraukimo pasekmių Lietuvos ekonominiam saugumui nuo 2010 m. įvertinimo studija*, ['Study on assessment of Impact on economic security of Lithuania from 2010 after shut dawn of Ignalina Nuclear Power Plant'] Kaunas: LEI, p. 11 (in Lithuanian).

5 Lietuvos Respublikos Vyriausybė [Government of the Republic of Lithuania] (2009), *Nutarimas dėl Lietuvos Respublikos Vyriausybės 2008 metų veiklos ataskaitos pateikimo Lietuvos Respublikos Seimui* ['Decree on the annual report of 2008 for the Seimas of the Republic of Lithuania], Vilnius: 2009 m. kovo 25 d. Nr. 223, p. 4 (in Lithuanian).

[6] With the exception of Estonian-Finish power interconnection EstLink 1 (9350 MW).

[7] Barroso J.M. (2008), Measures to strengthen security of energy supply in the EU, and in particular in the Baltic area, Brussels (text publically not available).

[8] Ibidem.

[9] Europos Komisijos pirmininkas Barroso J. M. (2008), *Laiškas Lietuvos Respublikos Ministrui Pirmininkui Gediminui Kirkilui* ['Letter for the Prime Minister of the republic of Lithuania Gediminas Kirkilas'], Briuselis: 2008.10.23, Nr. D(08) 2050 (in Lithuanian, text publically not available).

concluded in October 2008 that "particular attention will be paid to interconnections and to the connection of the most isolated European countries, to the interface of European networks with supply infrastructure and to the need to diversify both sources and routes".[10] It was also stated that "the European Council supports the Commission initiative of establishing a plan of action to speed up interconnections in the Baltic Sea region".[11]

The concept of energy islands was firmly embedded in EU documents dealing with the security of energy supply.[12] In 2011, the European Council concluded that no EU Member State should remain isolated from the European gas and electricity networks after 2015.[13] This was once again confirmed in the conclusions in May 2013.[14] Such wording, on the top of the EU political agenda, appeared mostly following the initiative of the Baltic states, however, identification of the concrete objective and its reiteration proves that the phenomenon of an energy island and the need to resolve the problem were recognized by all EU Member States.

## 2. The Characteristics of an EU Energy Island and the Theoretical Basis of Research

The concept "island" stands for exclusion and isolation. In the case of an energy island, along with exclusion there comes a factor of dependence, that is, either from a single supplier or from a single type of fuel. Normally, energy islands emerge due to geographical and historical conditions.

Latvian expert Reinis Āboltinš identifies the following characteristics of energy islands: dependency on one supplier; dependency on one major energy source; dependency on one supply route; increasing consumption of energy; limited or no energy market.[15] If one is to treat these criteria as correct, however, considering that Āboltinš examined the cases of different geographical regions – the three Baltic states, Spain, and Portugal – it does not necessarily mean that all five criteria in their scope are indispensable to each separate country.

A major challenge for an energy island is energy security – that is, to

[10] European Council (2008), *Presidency Conclusions*, Brussels: 2008.10.16 (OR.fr) Vr. 14368/08, CONCL 4, p. 7.
[11] Ibidem.
[12] European Commission (2013), Energy challenges and policy. Commission contribution to the European Council of 22 May 2013, Brussels: p. 3.
[13] European Council (2011), *Conclusions on Energy*, Brussels: 2011.02.04, p. 2.
[14] European Council (2013), *Conclusions*, Brussels: 2013.05.22, Nr. EUCO 75/1/13, REV 1.
[15] Āboltinš R. (2011), Energy islands in the EU – a challenge to a common EU energy policy, Riga: 2011.

ensure a stable supply of energy sources at reasonable prices. Taking into consideration the factor of an "island", according to Āboltinš, there dominates one route of supply, one major energy source, and one supplier. Energy supply from one dominating supplier should not be a problem, provided the buyer's and the supplier's relations are based on the principles of market, transparency, and international law – thus how the partnership is built. The situation aggravates when the energy supplier starts to abuse its dominating position with a purpose to use energy dependence of an importing country not only for economic but also for other purposes such as geopolitical. Then, an energy island country is faced with threats posed to energy, economic, and national security.

Āboltinš's identified features of energy islands are to be ascribed to the category of economic and technical ones. The Latvian author's study is complemented by introducing a category of political characteristics, which would comprise the factors of abuse and threats posed.

In case of Lithuania, the Russian Federation, as a dominant energy supplier, abused its dominant position which posed threats. Economic and technical features can be explained by figures, by energy interconnections, as well as by the presence or absence of regulatory environment, but how to explain the cases of abuse and threats?

For this purpose, we shall focus on the analysis of security conducted by Barry Buzan, Ole Wæver, and Jaap de Wilde in their book *Security. A New Framework for Analysis.*[16] The authors expand a traditional notion of security analysis, arguing that security, as a separate type of policy, is applied not only to one but to various sectors (military, political, economic, environmental, and social).[17]

Considering the Buzan et al. analysis of traditional and expanded theories of security, the following three security determinants may be identified:

- International relations: Do regional and sub-regional systems exist? How is one to define their relations? Are these relations determined by amity or enmity? What is the balance of power? Does big dominates over small? What are inter-community relations in the context of threats?
- Survival: Do existential threats exist? Objective or subjective? To what sectors? Are chain reactions possible?
- Mobilization: Special endeavours and powers to resolve existential threats.

Having combined Āboltinš's and Buzan et al., works, a new EU energy island analysis model for the Baltic Sea region, and Lithuania in particular, is

[16] Buzan B., Wæver O., Wilde J. (1998), *Security. A New Framework for Analysis,* Colorado: Lynne Rienner Publishers, Inc.
[17] Ibidem. vii.

proposed, which incorporates economic, technical, and political criteria:

- dependency on one supplier;
- dependency on one major energy source;
- dependency on one supply route;
- increasing consumption of energy;
- limited or no energy market;
- international relations;
- survival;
- mobilization.

# 3. A Case Study of Lithuania as the EU Energy Island. Research Period 1990-2013

## 3.1. Dependency on One Supplier

Lithuania's Energy Independence Strategy (2012)[18] includes a chart (Figure 1) which clearly demonstrates Lithuania's dependence on one supplier – the Russian Federation.

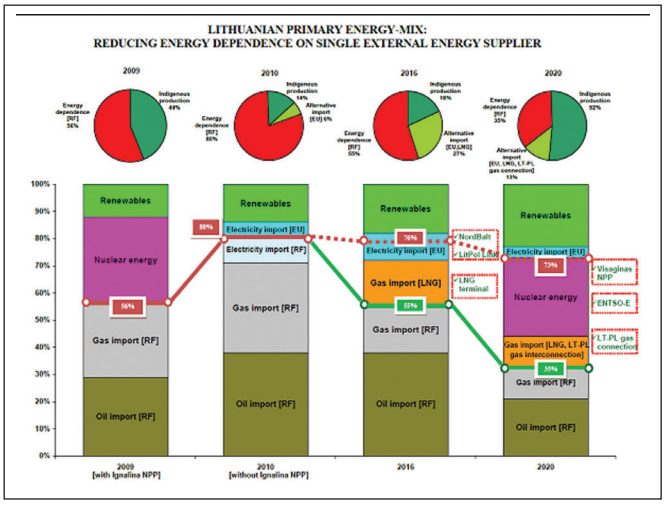


Figure 1. **Lithuania's primary energy mix: reducing energy dependence on a single external supplier**[19]

[18] Lietuvos Respublikos Seimas [Seimas of the Republic of Lithuania] (2012), Nutarimas dėl Nacionalinės energetinės nepriklausomybės strategijos patvirtinimo ['Decree on adoption of National Energy Independence Strategy'], Vilnius: 2012 06 26, Nr. XI-2133 (in Lithuanian).
[19] Ibidem.

The chart shows Lithuania's primary energy mix in 2009 and 2010, as well as the objective of how its composition should change from 2016 to 2020. A horizontal line throughout the chart displays the degree of energy dependence on the Russian Federation. In 2010, Ignalina NPP was shut down, wherefore Lithuania's energy dependence on Russia went up to 80 per cent. It is true that nuclear fuel was also imported from Russia. On the one hand, it is possible to store nuclear fuel and accumulate larger reserves, which enhances the security of the energy supply; on the other hand, this does not reduce dependence on one supplier.

From 2010, the chart line divides into two: dotted and continuous (Figure 1). The dotted line represents a reference scenario, and shows that the level of dependence on Russia would reduce slightly only because of the expansion of the renewables part. Meanwhile, the continuous line going down indicates that it would be possible to diminish energy dependence on Russia considerably by developing the projects indicated near this line: in 2016, electricity interconnections with Sweden NordBalt and Poland LitPolLink as well as an LNG terminal; in 2020, a new Nuclear Power Plant, synchronization of electricity system with ENTSO-E, and gas interconnection with Poland.

It may be concluded that in 1990-2014, Lithuania's dependency on one energy supplier, that is, the Russian Federation, was extremely high.

## 3.2. Dependency on One Major Energy Source

The same chart (Figure 1) shows the trends of Lithuania's dependence on different sources of energy. In 1990-2010, Lithuania's primary energy mix was made up of nuclear energy, gas, and oil, each being about 30 per cent, as well as 10 per cent from indigenous resources. Nuclear energy played the crucial role – that is, the Ignalina NPP produced from 60 to 88.1 per cent of the country's electric power.[20] Shutting it down was a significant loss for local Lithuanian power generation. Table 1 presents the balance of Lithuania's energy supply alongside the working Ignalina NPP and without it. After the shutting down of Ignalina NPP, local generation of electricity and its export came to a halt and was replaced by imports constituting about 65 per cent of all electricity consumption. Lithuania became one of the largest importers of electricity

[20] VĮ Ignalinos atominė elektrinė ['Ignalina Nuclear Power Plant'], http://www.iae.lt/apie-mus/istorija/?page=2, 2016-08-08 (in Lithuanian).

in the European Union.[21] Imports of coal and natural gas increased, too. What remained as local production are the renewable sources of energy.

Table 1. **The balance of Lithuania's energy supply[22]**

| | With the Ignalina NPP | | Without the Ignalina NPP | | | |
|---|---|---|---|---|---|---|
| Mtoe | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
| Production | 4,0 | 4,4 | 1,5 | 1,5 | 1,5 | 1,6 |
| Total imports* | 5,5 | 4,3 | 5,7 | 5,8 | 5,8 | 5,4 |
| Out of it | | | | | | |
| Coal | 0,2 | 0,1 | 0,2 | 0,2 | 0,2 | 0,3 |
| Oil and products | 2,9 | 2,4 | 2,7 | 2,4 | 2,4 | 2,4 |
| Gas | 2,5 | 2,1 | 2,4 | 2,7 | 2,7 | 2,2 |
| Renewable energy | - | -0,1 | -0,1 | - | - | -0,1 |
| Electricity | -0,1 | -0,2 | 0,5 | 0,5 | 0,5 | 0,6 |
| General consumption | 9,5 | 8,7 | 7 | 7,3 | 7,3 | 7 |
| Final consumption | 6,1 | 5,2 | 5,4 | 5,8 | 5,9 | 5,6 |

From 2010, oil, gas, and part of electricity were imported from Russia; however, from a strategic point of view, the security supply of natural gas was the most significant at that time. The economic blockade experienced by Lithuania in 1990 – when the Union of Soviet Socialist Republics (USSR) terminated the supply of raw materials, and of oil in particular, for a couple of months – demonstrated that although an oil refinery stopped operating, after some time oil products "found their way" to Lithuania. Hence, discontinuance of an oil supply would determine economic losses but not paralyze the country's life.

Gas crises between Russia and Ukraine in 2006 and 2009 showed that the consequences of natural gas supply cuts, especially in winter, can be way more severe. Figure 1 and Table 1 show that natural gas in 2010-2013 made up a considerable part of Lithuania's primary energy mix, the majority of Lithuania's thermal power plants of that period used gas, also the main power plant which replaced the halted Ignalina NPP[23] was gas powered. It may be concluded that until 2010, the determinant of dependence on one major source was not strong, yet after the shut down of the Ignalina NPP, Lithuania's dependence on natural gas became critical.

[21] Virbickas D. (2014), "Baltijos jūros regiono elektros sistemų ir rinkų integracija: situacija dabar ir perspektyvoje", *Lietuvos* šilumos *tiekimo asociacija*, http://www.lsta.lt/files/seminarai/140410_J.Vilemo%20konferencija/06_Virbickas_Staniulis.pdf, 2016-08-10.

[22] *Imports minus exports. Source: International Energy Agency.

[23] The 9th block of Lithuania power plant 455MW combined cycle turbine.

## 3.3. Dependency on One Supply Route

Energy supply routes of the Baltic states are determined by historical and technical circumstances, and therefore, in 1990-2013, they were still integrated into a system of the former USSR and dependent on them.

Figure 2 show that the gas transmission systems of Lithuania, Latvia, and Estonia were interconnected to Russia and Belarus only. There were no alternative gas supply routes, so the supply of natural gas was directly dependent on the Russian Federation. In the case of Lithuania, the supply of natural gas was conducted by the only pipeline through Kotlovka, while the other pipeline through Voranova, as shown in the map, did not operate. Lithuania's dependency on one major source of gas, as described in the previous chapter, was additionally determined by one supply route.


**Figure 2. Natural gas transmission system of the Baltic states in 1990-2013**

In the electricity sector, the situation was practically identical. The map in Figure 3 shows that in 1990-2013, the electricity interconnections of the Baltic states were exclusively with Russia and Belarus, with the exception of

the Estlink 1 interconnection, which started to operate between Estonia and Finland in 2006. However, due to its low capacity (350 MW), it had no major impact on the energy supply of the Baltic states, and especially for Lithuania. In addition to this, all three Baltic countries were and still are participants of the BRELL Ring[24] agreement and work synchronically with the former USSR system (IPS/UPS) (see Figure 4), whose frequency is regulated from Russia.

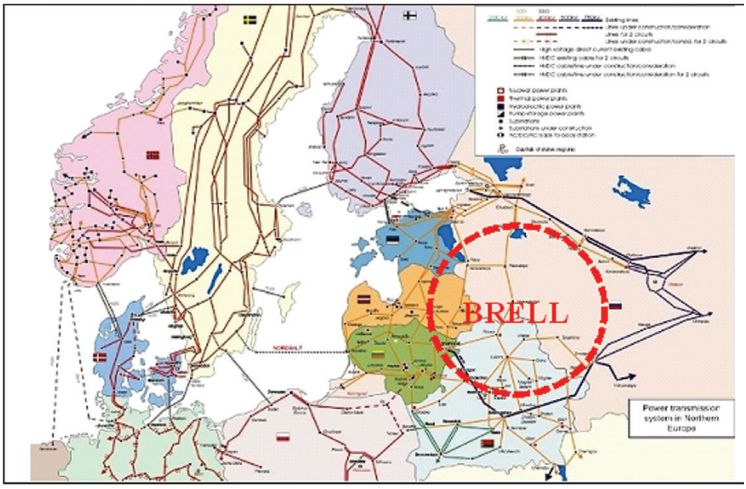


Figure 3. **Nothern Europe's eletricity transmission system in 1990-2013**[25]

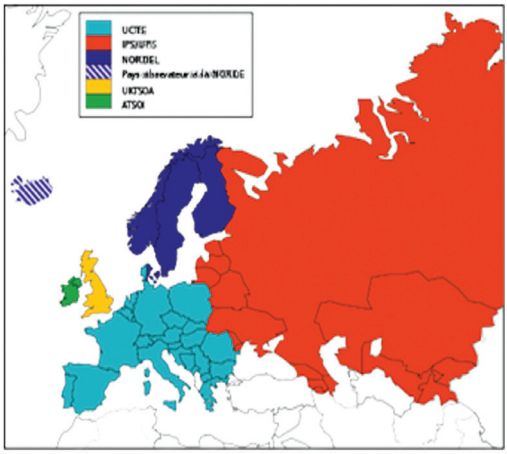


Figure 4. **Europe's synchronous power systems in 1990-2015**[26]

[24] BRELL: Belarus, Russia, Estonia, Latvia, Lithuania. Lithuania signed in 2001 m.
[25] Map: Augstsprieguma tīkls AS. Explanations by author.
[26] Belmans R., Cole S., Van Hertem D. (2015), „Techno-Economic Aspects of Power Systems", *Electrabel-GDF Suez*, http://slideplayer.com/slide/6632386/, 2016-08-05.

There is much broader variety of transportation means of oil and oil products, thus reducing a security risk of their supply. Lithuania's case in the oil sector differs from other Baltic countries since in north-western Lithuania one finds the biggest oil refinery in the region, the annual refining capacity of which is 15 million tons of crude oil. To secure exports of oil products and imports of crude oil, Būtingė oil terminal was constructed in 1999. The terminal can accommodate exports of up to 14 million tons of oil and imports up to 12 million tons per year. After the Russian Federation stopped the supply of oil via the Druzhba oil pipeline in July 2006, Būtingė oil terminal has operated in import regime and secured the supply of crude oil for the refinery.

## 3.4. Increasing Consumption of Energy

Lithuania and the EU energy consumption per capita show (Table 2) that Lithuania's total energy consumption varies with only a slight increase since 2010, yet since constituting only two thirds of the EU average, has the potential to grow. Notwithstanding the halted Ingnalina NPP and the rise in electricity costs, final electricity consumption was progressively increasing; considering that it is made up of just more than half of the EU average, it is expected to grow further. Another important indicator is that of energy consumption intensity. Over the past two decades, Lithuania's indicators have improved more than two times, but they are still far behind the EU average. Lithuania's efforts in the field of energy efficiency should slightly reduce the growth rate of energy consumption.

Table 2. **Energy consumption in the EU and Lithuania**[27]

| | With the Ignalinas NPP | | | Without the Ignalina NPP | | |
|---|---|---|---|---|---|---|
| | 1995 | 2000 | 2005 | 2010 | 2012 | 2013 |
| Total energy consumption per capita, kgoe per capita | | | | | | |
| EU-28 average | 3457 | 3541 | 3678 | 3485 | 3322 | 3277 |
| LT | 2380 | 2018 | 2622 | 2191 | 2375 | 2261 |
| Final electricity consumption per capita, kWh per capita | | | | | | |
| EU-28 average | 4674 | 2190 | 5615 | 5628 | 5511 | 5420 |
| LT | 1751 | 1771 | 2401 | 2690 | 2986 | 3028 |
| Energy intensity (all types of fuel), toe/M€ in 2010 | | | | | | |
| EU-28 average | 174 | 155 | 149 | 138 | 130 | 129 |
| LT | 597 | 389 | 330 | 242 | 230 | 210 |

27 European Commission (2015), *EU Energy in Figures*, Luxembourg: Publications Office of the European Union.

Energy consumption in Lithuania has a clear potential to grow, yet in the context of the security of energy supply, the factor of increasing energy consumption still does not play such a significant role as dependence on one major energy resource and on one supply route.

## 3.5. Limited or No Energy Market

Having withdrawn from the Union of Soviet Socialist Republics, all three Baltic states rather quickly implemented economic reforms and reforms of state regulation, yet the energy sector stagnated for the longest period. The absence of reforms may have been determined by natural monopoly in an energy market, large monopolistic energy companies, power and influence of the energy sector and the interest groups related to it.

Implementing the EU gas directive, on March 20, 2007, the Lithuanian Parliament adopted amendments to the Law on Natural Gas, stipulating that starting from July 1 of the same year, every consumer has the right to choose a gas supplier. Such consumers were free to choose. Although *de jure* the Seimas liberalized natural gas market, *de facto* it did not function yet, since all gas consumed in Lithuania was imported and sold to consumers by two suppliers only – AB Lietuvos dujos and UAB Dujotekana, for which gas supply quotas were granted by a sole external supplier, Gazprom.[28] Natural gas exchanges – Baltpool UAB and GET Baltic UAB – were established in 2012, though their activities were developing gradually. Considering these circumstances, it can be concluded that during the research period, there was no natural gas market in Lithuania.

Unlike gas, an electricity market in Lithuania was liberalized a little bit faster. Its legal framework was established in 2002, but only on January 1, 2010, did electricity market implementation principles enter into force, and five years were given for their realization.[29] Lithuanian power exchange UAB Baltpool was established at the end of 2009. Later, in 2012, its trade was transferred to the Nordic power market operator Nord Pool Spot.[30] Creation of a real, functioning power market required time. Therefore, it can be concluded that during the research period, the Lithuanian electricity market was limited.

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[28] Valstybinė kainų ir energetikos kontrolės komisija ['State prices and energy control commission'] (2014), *Gamtinių dujų rinkos liberalizacija* ['Liberalization of natural gas market'], http://www.vkekk.lt/Puslapiai/bendra/vartotojams/gamtiniu-duju-rinkos-liberalizacija.aspx, 2016-08-10 (in Lithuanian).

[29] From 01.01.2010, consumers with the capacities installed of 400kW and more, from 01.01.2011 – 100 kW, from 01.01.2012 – 30 kW, from 01.01.2013 – all legal entities, from 01.01.2015 – all household consumers.

[30] www.nordpoolspot.com

## 3.6. International Relations

The analysis of economic and technical criteria presented a clear and unequivocal view of Lithuania's energy dependence on the Russian Federation. Carrying out a case study of Lithuania, the subjects of analysing international relations are also clear – Lithuania and the Russian Federation.

In the case of Lithuania as an EU energy island, the relations between Lithuania and Russia are conditioned by historical circumstances. Lithuania's occupation and annexation executed by the Soviet Army in 1940 and continuous Soviet aggression against the Republic of Lithuania from 1940-1990 is to be considered as the main factor.[31] In 1990, the Lithuanian people stood apart from the Union of Soviet Socialist Republics, announcing that it was restoring an independent state, and paving the way for Euro-Atlantic integration. In 1990, a 74-day economic blockade of Lithuania, and the January 13, 1991 attempt of the Soviet Armed Forces to commit a coup d'état in Lithuania, show that the leaders of the Soviet Union did not accept the Lithuanian people's choice and tried to use force to return Lithuania to the USSR. In 2005, President Vladimir Putin, speaking in the Russian parliament, called the breakup of the USSR "the greatest geopolitical catastrophe".[32] As such, Russia's stance is not only inimical but also as posing a constant threat. The balance of power in favour of the Russian Federation, and Lithuania's energy dependency, created preconditions for Russia to dominate. On the one hand, membership of Lithuania and other Baltic states into the European Union and NATO strengthened the security of smaller countries, but on the other hand, it predetermined that the state border along the Baltic states with Russian federation would become a common border between different geopolitical regions.

## 3.7. Survival

Are threats posed by Russia of an existential nature as regards Lithuania? Are they real, or just imaginary?

To answer these questions, we refer to the study on Russian leverage on

[31] Žalimas D. (2010), „1940 metų SSRS veiksmų prieš Lietuvos Respubliką teisinė kvalifikacija: agresija, okupacija ar aneksija?" ['Legal qualification of USSR actions of 1940 against Lithuania: aggression, accupation or anection?'], *Bernardinai*, http://www.bernardinai.lt/straipsnis/2010-06-16-dainius-zalimas-1940-metu-ssrs-veiksmu-pries-lietuvos-respublika-teisine-kvalifikacija-agresija-okupacija-ar-aneksija/46412, 2016-08-11 (in Lithuanian).

[32] Eckel M. (2005), „Putin calls the Soviet collapse a "geopolitical catastrophe," *Associated Press*, http://www.sandiegouniontribune.com/uniontrib/20050426/news_1n26russia.html, 2016-08-11.

the CIS and Baltic states, conducted by experts Jakob Hendenskog and Robert Larsson at the Swedish Defence Research Agency. Investigating Russia's coercive energy policy, the experts found that in 1991-2006, Lithuania was subject to such a policy 17 times, Georgia – 12, Belarus – 8, Ukraine – 5, Moldova – 3, Estonia and Latvia – 2 times each, and Armenia – 1.[33] Types of Russia's coercive energy policies were the following: supply cuts – 38 cases, coercive price policy – 11, sabotage – 4, threats without taking actions – 2 cases,[34] and finally, the agents of Russia's coercive energy policy were: Gazprom – 16, Transneft/ Lukoil – 12, Itera – 9, and other – 14.[35] The experts conclude that Russia's usage of the energy lever as a means of influence has changed in style over time. During the 1990s, a higher degree of coercion was visible, while trends suggested that the lever during the last couple of years has changed toward a more sophisticated approach, increasingly utilized in the grey zone between politics and economics. Russia's overarching energy politics perspective is guided by its strategic ambitions and geopolitical orientations".[36]

In 2006, Russia terminated oil supply to Lithuania through the Druzhba pipeline. An eerie coincidence is that it was in 2006 when the Russian government stopped the activities of the Yukos oil company and the Polish PKN Orlen became one of the major owners of the Lithuanian oil refinery. The Russian Federation ignored many requests of the Lithuanian government and EU leaders to restore oil supply via the Druzhba pipeline and financial support proposed by the company. Oil transportation through the Druzhba pipeline has not been re-established, and crude oil from Russia to the Lithuania oil refinery is supplied by ships in the Baltic Sea, which is more expensive and poses environmental risks.

Figure 5 presents a chart of Europe's dependence on Russian gas (2014). Lithuania is displayed on a vertical axis at 100 per cent. That means that Lithuania's dependence on Russian gas is 100 per cent, while the ability to cope with disruption of natural gas supply is equal to zero. After having closed the Ignalina NPP, natural gas became the one major energy source of Lithuania, therefore the risks of cutting off the supply of natural gas are to be considered as critical and even of existential importance.

[33] Hendenskog J.,Larsson R. (2007), *Russian Leverage on the CIS and Baltic states*, Stockholm: FOI, p. 50.
[34] Ibidem, p. 46.
[35] Ibidem, p. 53.
[36] Ibidem, p. 59.

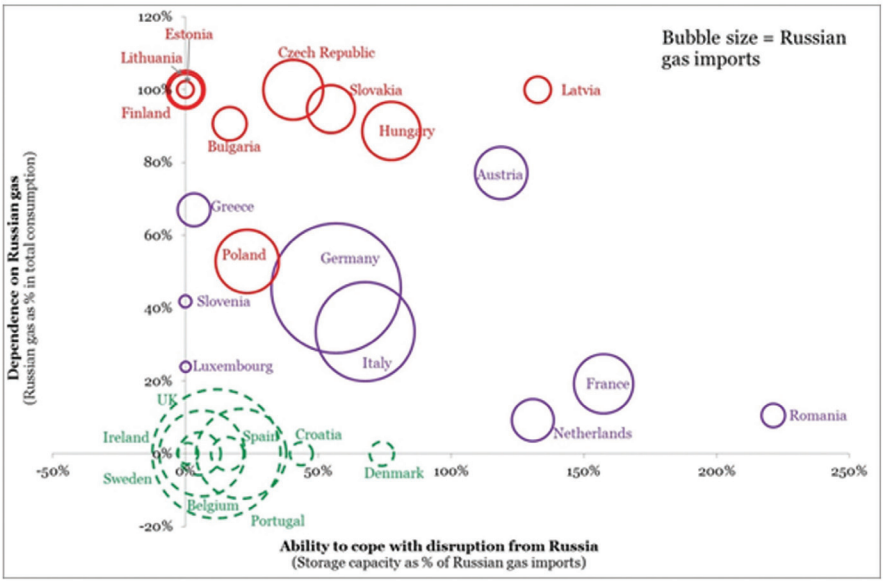


Figure 5. **Europe's dependence on Russian gas in 2014**[37]

The Centre for Strategic Studies carried an economic security study in which it is stated that:

> the energy sector differs from other state sectors in the existence of the vast potential of a "threshold effect".[38] This "threshold effect" points to the state cross-sectorial vulnerability – the more separate state sectors are integrated (interdependent), the more serious damage for the state may cause cut of supply of energy sources. Hence interruption of supply of energy sources will have negative effect not only for energy sector but to a lesser or greater extent for other state sectors too. In this regard, energy security is directly interrelated with military, political, economic, ecological, communicative/informative, and other sectors of state security. Thus threats posed to the energy security will embrace other state security levels.[39] Taking into consideration the potential of threats to the energy sector to spread, it can be said that economic and national security can be ensured only after having ensured the energy security.[40]

[37] European Council of Foreign Relations (2014), *Europe's vulnerability on Russian gas*, http://www.ecfr.eu/article/commentary_europes_vulnerability_on_russian_gas, 2016-08-11.

[38] "Threshold effect" – an economic characteristic describing linkage of one economic sector with other economic sectors. Energy sector's threshold effect is presented as chrestomatic example of big threshold effect. Instabilities or obstacles in energy sector causes instabilities in other sectors, because of very close relations of energy sector with other state sectors. For example, increase in energy prices causes a symmetric increase of prices in other sectors, i.e. transport services and others.

[39] Strateginių studijų centras ['Centre of Strategic Studies'], Valstybės ekonominio saugumo sistema – tarptautinė praktika bei jos taikymas Lietuvoje ['State economic security system – international practice and its application in Lithuania'], Vilnius 2009, p. 123 (in Lithuanian).

[40] Ibidem, p. 124.

On January 1, 2006, Russia cut off natural gas supplies to Ukraine. It was winter, so the consequences were serious not only for Ukraine but also for those countries dependent on the transit of gas through Ukraine – that is, Slovakia, Hungary, Romania, and partially Poland. The countries of Western Europe were faced with major consequences and Russia was under threat of income losses and of possible sanctions. In order to solve the issue of transit of natural gas to Western Europe, the Russian Federation decided to "bypass" Central and Eastern Europe and initiated two new projects: NordStream 1 and 2 in the north, through the Baltic Sea, and South Stream or Turk Stream in the south, through the Black Sea. In this way, Russia will guarantee not only a smooth supply of natural gas to Western Europe and revenues to the budget, but it will also create the possibility of disrupting the supply of gas to Central and Eastern Europe, including the Baltic countries and Lithuania. There would be considerable room for abuse, manipulation, and implementation of Russia's favourite policy "divide and rule".

Hendenskog and Larsson identified Gazprom and Transneft/Lukoil as agents of Russia's coercive policy.[41] In the case of Lithuania, in 2004-2014, Gazprom was one of AB Lietuvos dujos shareholders: E.ON Ruhrgas Int GmbH – 38,9%, Gazprom – 37,1%, the Republic of Lithuania – 17,7%, others – 6,3%. Respectively, German and Russian companies each had two representatives in the Board of AB Lietuvos dujos, while Lithuania had one. All activities were hereupon integrated in this company: supply, transmission, and distribution. Hence the Board of AB Lietuvos dujos took decisions upon gas prices, development of transmission and distribution systems, and others. Participation of Gazprom's representatives in the management of AB Lietuvos dujos created a vertically integrated monopoly: Valerij Golubev[42] at the same time was a Deputy Chairman of Gazprom's Management Committee and a member of the Board of AB Lietuvos dujos and its chairman. Monopoly worked as follows: Golubev, as member or chairman of the Board of AB Lietuvos dujos, was approving the gas price offered by Golubev as Deputy Chairman of Gazprom's Management Committee or, in other words, Golubev was buying gas from himself. As a result, the gas price of Gazprom for AB Lietuvos dujos was one of the highest in Europe.[43] AB Lietuvos dujos managed gas pipelines (transmission and distribution systems) too, therefore the Board of the company decided upon the development of a transmission system and upon the building of international

[41] Hendenskog J., Larsson R. (2007), *Russian Leverage on the CIS and Baltic states*, Stokholmas: FOI, p. 53.
[42] OAO Gazprom, http://www.gazprom.com/about/management/board/golubev/, 2016-08-12.
[43] Godzimirski J., Vilpišauskas R., Švedas R. (2015), Energy Security in the Baltic Sea Region: regional coordination and management of interdependencies, Vilnius: Vilniaus universiteto leidykla, p. 30.

interconnections, for example, with Poland. However, the question is whether Gazprom represented by Golubev needed alternative routes of gas supply in Lithuania? The answer is no. Monopoly supplier is interested in having an isolated market with no competition. The fact that Golubev worked at the KGB of the Soviet Union[44] points to his relationship with the Kremlin, and presupposes that along with economic, geopolitical goals were pursued by Gazprom, too. At that time, Gazprom was a supplier of natural gas to E.ON Rurhgas Int GmbH, therefore Gazprom was in a dominant position as regards German shareholders and representatives of the latter German company and the Board of AB Lietuvos dujos were not at all interested to come into conflict with the representatives of Gazprom because of the interests of small Lithuania.

U.S. analyst Zeyno Baran points out that "energy dependence also increases Moscow's political and economic influence over importing countries.[45] Moscow is still not shy about using energy infrastructure, created in the USSR, as a powerful instrument of control. Russia used this leverage for two related objectives – that is, to raise revenues and to suppress democratization and economic liberalization".[46] Energy security is directly interlinked with economic and national security.

Speaking of Lithuania's dependence on the supply of natural gas as a major energy resource by using only one route, it is worthwhile mentioning the Kaliningrad factor. Kaliningrad is a territory of the Russian Federation; it is geographically detached from the rest of the country, located on the Baltic Sea coast and encircled by Poland and Lithuania. For this reason, energy supply to Kaliningrad is carried out in transit through Belarus and Lithuania (see Figure 2 and Figure 3). Natural gas is used in Kaliningrad to generate heat and electricity. So, Kaliningrad is also in some sort of an energy island directly dependent on transit through Belarus and Lithuania. In this regard, one could argue that Kaliningrad is a serious leverage point for Lithuania in the negotiations with the Russian Federation on natural gas supply. It is true that Lithuania has a real possibility to regulate, or if it wishes, to stop the supply of natural gas to the geographically separated territory of the Russian Federation. It would, however, be destructive, create a conflict, and is certainly not the way to go for the twenty-first century international community.

[44] OAO Gazprom, http://www.gazprom.com/about/management/board/golubev/ 2016-08-12.
[45] Baran Z. (2007), „Central and Eastern Europe: Assessing the Democratic Transition", *Committee of Foreign Affairs, House of Representatives*, Washington: US Government Printing Office, Nr. 110-102.
[46] Ibidem.

## 3.8. Mobilization

According to Buzan et al., mobilization is the particular endeavours or authority used to deal with existential threats. In the Lithuanian case, it was the Commission established by the Government of the Republic of Lithuania in February 2008 with the purpose to ensure the security of energy supply after 2009, i.e. final shut down of Ignalina NPP, which was headed by former Prime Minister of the Republic of Lithuania Abišala.[47] During the research period, it was the only commission of such kind, and therefore it should be regarded as an exceptional effort with the authorities. In January 2009, the Ministry of Energy (separating energy functions from the Ministry of Economy) was established in Lithuania, thus indicating that the energy sector is of high importance, and in 2012, the National Energy Independence Strategy of the Republic of Lithuania was approved.[48] At the EU level, by the end of 2008, the European Commission initiated the Baltic Energy Market Interconnection Plan. This was the first, and unprecedented, EU regional energy policy initiative where one of its main objectives was to eliminate the energy isolation of the Baltic countries. The facts mentioned point to clear mobilization of the efforts across Lithuania and the EU.

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Summarizing the analysis of the Lithuanian case based on the characteristics of the EU energy island the following conclusion may be drawn: over the research period of 1990-2013, there was a timeframe of 1990-2009, when dependence on one major energy source and on one route of supply was not strong and that of 2010–2013, when after the final closure of the Ignalina NPP, Lithuania's case complied with all the afore-mentioned economic, technical, and political criteria of an energy island.

[47] Lietuvos Respublikos Vyriausybė [Government of the Republic of Lithuania] (2008), „Sudaryta komisija energijos tiekimo saugumo po 2009 m. problemoms nagrinėti" ['Approved commission to resolve security of energy supply problems after 2009'], Lietuvos Respublikos Vyriausybė, https://lrv.lt/lt/naujienos/sudaryta-komisija-energijos-tiekimo-saugumo-po-2009-m-problemoms-nagrineti, 2016-08-02. (2008) (in Lithuanian). Delfi, A. Abišala vadovaus Energetinio saugumo komisijai ['A.Abišala will lead energy security Commission'], 2008 m. vasario 26 d., http://www.delfi.lt/verslas/energetika/aabisala-vadovaus-energetinio-saugumo-komisijai.d?id=16107212, 2016-08-02 (in Lithuanian).

[48] Lietuvos Respublikos Seimas [Seimas of the Republic of Lithuania] (2012), Nutarimas dėl Nacionalinės energetinės nepriklausomybės strategijos patvirtinimo ['Decree on adoption of National Energy Independence Strategy'], Vilnius: 2012 06 26, Nr. XI-2133 (in Lithuanian).

## 4. How to Break out from an Energy Island?

In 2010, Lithuania became an energy island, and in 2015 managed to free itself from it. How did it manage to do so? The following main factors may be identified, which enabled a break out:

- political will;
- creation of alternative supply routes of natural gas and electricity;
- establishment of gas and electricity markets;
- employment of legal measures;
- use of indigenous resources;
- regional cooperation.

### 4.1. Political will

In 1990, Lithuania restored independence. The young democracy still underwent internal political struggles. After fifty years of occupation and demanded obedience, a number of Lithuanian politicians and state officials inertly and psychologically could not oppose the main successor state to the Soviet Union, that is, Russia, especially after the 1992 elections to the Seimas of the Republic of Lithuania – when the Democratic Labour Party (founded on December 8, 1990, on the basis of the Communist Party of Lithuania) won a parliamentary majority. It was hard to find a political consensus on the issues of state governance. Unlike any other, in the energy sector Russia's influence was still very strong, financial interests were dominating. Therefore some big mistakes were made. Gazprom's influence in the management of the strategically important AB Lietuvos dujos and a vertical monopoly was created by Lithuania itself, having sold 37% of the shares to a Russian gas giant in 2004. The key argument for this decision was to ensure the security of supply of natural gas to Lithuania, yet the half-century entrenched relationship with the capital of the Soviet Union did play its role, too. An analogous situation could be observed in Latvia and Estonia: Gazprom became one of the biggest shareholders in major gas companies of other Baltic states, and this proves Russia's considerable influence still prevailing at that time.

However, the crisis of an energy island and its attendant threats forced mobilization. In 2012, Lithuania approved the National Energy Independence

rategy,[49] where it was stipulated that "the highest priority is to ensure Lithuania's energy independence by the year 2020, ensuring free choice of energy resources and their ways of supply".[50] Energy independence means the ability to choose freely. The strategy also identified the main measures[51] enabling Lithuania to achieve the key objective of Lithuania's energy independence, that is, "to move to an absolutely different geopolitical environment with different values, based on market and competition".[52]

Mobilization of political will was not an easy and consistent process. A majority of the measures identified were successfully implemented, however, a part of them are still being realized. The future of a new nuclear power plant project became uncertain, because it has been politicized[53] – the project has become a tool of internal political struggles and a hostage of fictitious competition created by Russia with the start of two new nuclear power plants in Kaliningrad and Belarus. According to energy expert Alhaji, "nothing hurts energy security more than politicizing it".[54]

## 4.2. Alternative Routes of Energy Supply

Alternative supply routes seem to be the first thought which come into one's mind when thinking of breaking out from an energy island.

Figure 2 shows the natural gas sector in Lithuania and other Baltic states in 1990-2013, while Figure 6 – how it changed in 2014-2015. At the end of 2014, the LNG terminal, with a capacity of 4 billion $m^3$ per year, started to operate in Klaipėda. By 2015, Lithuanian gas transmission system capacities were enhanced considerably, ensuring transportation of all gas from the

[49] Lietuvos Respublikos Seimas [Seimas of the Republic of Lithuania] (2012), Nutarimas dėl Nacionalinės energetinės nepriklausomybės strategijos patvirtinimo ['Decree on adoption of National Energy Independence Strategy'], Vilnius: 2012 06 26, Nr. XI-2133 (in Lithuanian).

[50] Ibidem, para 27 (in Lithuanian).

[51] Ibidem, para 33 (in Lithuanian): "1) ['In natural gas sector: insuring alternative sources and ways of supply (LNG) and security of supply (enhancement of internal transmission system)']; 2) ['in electricity sector: creation of competitive internal power generation capacities (regional NPP in Visaginas), power interconnections with Sweden (NordBalt) and with Poland (LitPolLink 1 and LitPolLink 2), functioning regional power marker, sybchronization with ENTSO-E power networks of continental Europe and increasing energy production from renewables, based on the economic and technical benefit analysis']; 3) ['creation of market relations in energy sector: restructuring of energy sector (electricity, gas, heat) according the provisions of the third EU energy package'].

[52] Ibidem, para 33.

[53] Švedas, R., Vilpišauskas R. (2015), „Kodėl Visagino atominės elektrinės projektas patyrė politinę nesėkmę?", Nakrošis V., Barcevičius E., Vilpišauskas R., red., *Kada reformos virsta pokyčiais?*, Vilnius: Vilniaus universiteto leidykla.

[54] Alhaji A. F., „What Is Energy Security?", *Energy Politics*, Issue IV, 2008, p. 68.

LNG terminal, thus satisfying more than 80 per cent of the Baltic states gas demand.[55] All this made an end for Gazprom's monopoly and prevented any threats of cut-offs by bypassing the Baltic states across the Baltic Sea via the Nord Stream pipeline. The LNG terminal "Independence" has played a crucial and symbolic role of liberation and became of regional importance. The Gas Interconnection Poland-Lithuania, the GIPL Project (2,4 billion m³ per year with a possibility to increase up to 4,1 billion m³ per year), to come into operation in 2022, will create one more alternative supply route, connecting the Baltic and Central European gas systems, and expanding the possibilities of using the LNG terminal. By 2021, Lithuanian-Latvian gas interconnection capacities will be increased and by 2020 Estonian-Finish gas interconnection Balticconnector (2 billion m³ per year) is to be built.


Figure 6. **The Baltic states' natural gas transmission system in 2014–2015**

[55] Bilys S. (2015), *Baltijos dujų rinka: liberalizacija ir integracija* ['Baltic gas market: liberalization and integration'], http://www.lsta.lt/files/seminarai/Mokslo%20Akadenijos%20seminarai/2015-06-25/2015_06_25_AG_Seminaras_Energetikos_Strategija.pdf, 2016-08-15 (in Lithuanian).

Figure 7 shows the development of the electricity interconnections of Lithuania and other Baltic states. First, alongside the operating Estlink 1 electricity interconnection, Estlink 2 (650 MW), between Estonia and Finland, was built in 2014. Later, in 2015, two more international interconnections started to operate: Swedish-Lithuanian NordBalt (700 MW) and LitPolLink (500 MW first stage) between Lithuania and Poland. New electricity interconnections linking the Baltic states to Finland, Sweden, and Poland created a major change on the geoenergy map of the Baltic Sea region, eliminating dependence of Lithuania, Latvia, and Estonia on one supplier. It is true that the BRELL agreement is still in force, therefore a strategic objective of the Baltic states is to synchronize their own power systems with the ENTSO-E Continental Europe power system. The third electricity interconnection (500/600 MW), between Latvia and Estonia, is to be built by 2020, which will increase transmission capacities, resolve the issue of a "bottleneck" between Latvia and Estonia, and further consolidate a common electricity market of the Baltic states.

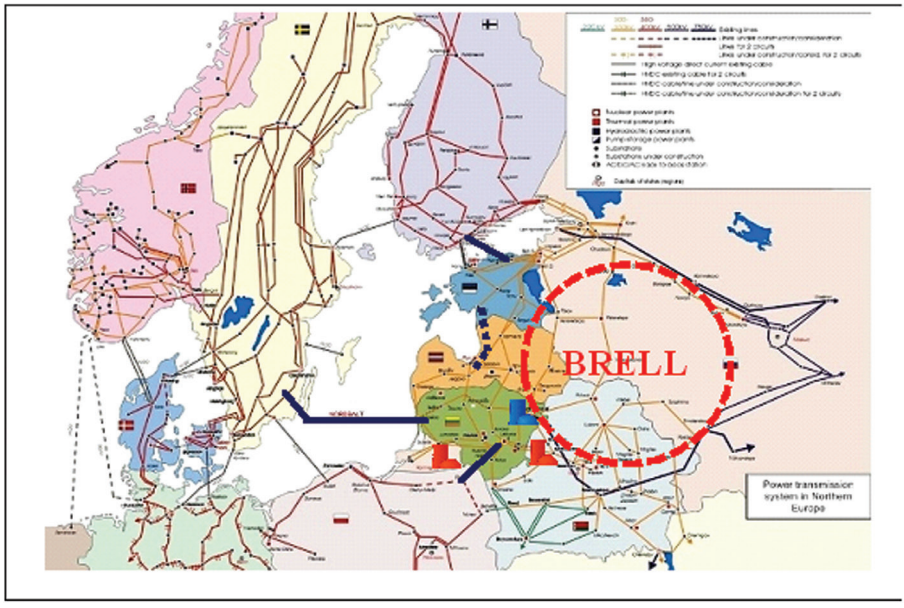


Figure 7. **Northern Europe's electricity transmission system in 2014–2015**[56]

[56] Map: Augstsprieguma tīkls AS. Explanations by author.

## 4.3. Gas and Electricity Markets

In the previous chapters it was mentioned[57] that notwithstanding the established legal framework, the gas market in Lithuania and other Baltic states did not work. The main reasons were absence of alternative routes of energy supply, as well as the dominance of Gazprom's vertical monopoly. The same year of 2014, when the LNG terminal "Independence" began to work in Klaipėda, Lithuania fully implemented the European Union's Third Energy Package. This fact is of crucial importance in the legal and symbolic sense. Being small, dependent, and vulnerable, Lithuania is the first state of the former USSR to break the vertical monopoly of the gas giant Gazprom controlled by the Russian authorities (see Table 3).

Table 3. **Implementation of the European Union's Third Energy Package in the gas sector**

| | | |
|---|---|---|
| | AB Lietuvos dujos (supply-transmission-distribution) | |
| 2012 | E.ON Ruhrgas Int GmbH<br>OAO Gazprom<br>Ministry of Energy<br>Others | 38,9%<br>37,1%<br>17,7%<br>6,3% |
| The EU's III Energy Package | 2012-05-31 AB Lietuvos dujos submitted a separation plan.<br>2013-08-01 AB Amber Grid started to function.<br>2014-10-31 A separation plan was implemented. | |
| 2014 | **Implemented** | |
| | AB Lietuvos dujų tiekimas (supply) | |
| | AB Lietuvos energija | 100% |
| | AB Amber Grid (transmission) | |
| | EPSO-G<br>Others | 96,98%<br>3,42% |
| | AB Lietuvos dujos (distribution) | |
| | AB Lietuvos energija<br>Others | 96,6%<br>3,4% |

Since 2015, there have been two routes of natural gas supply to Lithuania: gas transmission pipelines from Russia through Belarus, and through the LNG terminal in the port of Klaipėda. There are also two gas exchanges in Lithuania: GET Baltic and Baltpool, while Gazprom is participating in a transparent competitive market along with other suppliers. The price of natural gas for Lithuania diminished significantly (see Figure 8).

[57] Please see chapter: „Limited or no energy market".

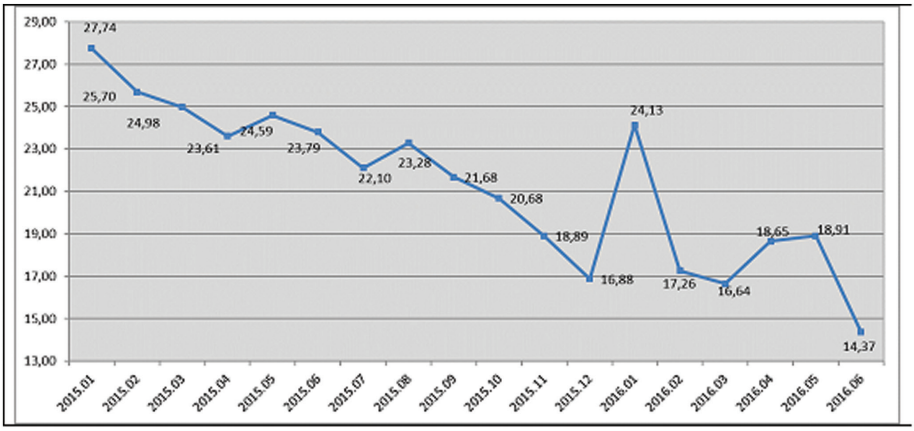


Figure 8. **NPECC: The weighted average import price for natural gas entering Lithuania's natural gas supply market, EUR/MWh**

In the electricity sector, all the necessary legal framework was already adopted, a power exchange was established, all preparatory work for integration into the Nordic countries' power exchange were completed – electricity interconnections were what was missing.[58] Therefore, from 2015 – when electricity interconnections with Sweden (NodBalt) and Poland (LitPolLink) were built – the practical and qualitative status of the Lithuanian power market has changed – it became a full-fledged participant of the Nordic countries' power market Nord Pool.[59]

## 4.4. Legal Measures

Notwithstanding that legal disputes are complex, costly, and time-consuming, defending national interests by legal measures is to be considered an important political factor. Appeals to international arbitration or other dispute settlement institutions demonstrate a struggle and non-conciliation, irrespective of how the legal dispute ends. Not questioning the activities of an energy supplier abusing its dominant position indicates the existence not only of energy or economic, but also of political, dominance.

On October 3, 2012, Lithuania filed a lawsuit against Gazprom at the Stockholm Arbitration. The Lithuanian side argued that "according to the public conditions of privatization and privatization agreement of AB Lietuvos dujos of 2004, Gazprom undertook the commitment to supply natural gas to

[58] Ibidem.
[59] www.nordpoolspot.com

Lithuania at fair prices as well as according to gas price formula fixed in a gas supply contract between AB Lietuvos dujos and Gazprom".[60] However, "in the period of 2004-2012, Gazprom's price for natural gas steadily increased due to the changes in the gas price formula, which were made in violation of the privatization agreement," thus resulting in a payment in excess 1.44 billion EUR (5 billion Litas) for gas supplied by Gazprom.[61] The arbitration decision of June 22, 2016 states that Gazprom, supplying gas to Lithuania and managing AB Lietuvos dujos shares, had a conflict of interest.[62] "Because of a complex process of proof and big amount of data, the arbitration did not commit itself to identifying the damage inflicted upon Lithuania. The arbitration drew attention to the fact that the term a "fair price" is too abstract to assess a possible adverse effect".[63] Lithuania's lawsuit against Gazprom was not granted, and the arbitration fees were shared equally between the two sides.[64] According to Energy Minister of the Republic of Lithuania Rokas Masiulis, "the Arbitration ended a long and difficult struggle with the Russian giant. The conclusions confirmed that we were heading in the right direction: Gazprom had a conflict of interest, which remained no longer after we had implemented the EU's Third Energy Package. Furthermore, we had already achieved a victory before the Arbitration ended. The first milestones were reached exactly at that time when our state started legal proceedings against Gazprom and built a LNG terminal: Gazprom was forced to reduce the price for natural gas, thus making consumers save more than EUR 100 million per year".[65]

On January 25, 2011, Lithuania appealed to the European Commission, arguing that Gazprom abused its dominant position, and requesting that the European Commission prevent it.[66]

On August 31, 2012, the European Commission commenced a legal proceeding against Gazprom on a possible abuse of the dominant position in the market and on April 22, 2015, the European Commission presented an of-

[60] Lietuvos Respublikos Energetikos ministerija [Ministry of Energy of the Republic of Lithuania] (2012), http://enmin.lrv.lt/lt/naujienos/lietuva-inicijuoja-ieskini-pries-gazprom-stokholmo-arbitraze, 2016-08-20 (in Lithuanian).

[61] Ibidem.

[62] Lietuvos Respublikos Energetikos ministerija [Ministry of Energy of the Republic of Lithuania] (2016), http://enmin.lrv.lt/lt/naujienos/arbitrazas-padejo-taska-lietuvos-gince-su-gazprom, 2016-08-20 (in Lithuanian).

[63] Ibidem.

[64] Ibidem.

[65] Ibidem.

[66] Lietuvos Respublikos Energetikos ministerija [Ministry of Energy of the Republic of Lithuania] (2012), http://enmin.lrv.lt/lt/naujienos/lietuvos-nuolat-kelti-klausimai-del-gazprom-virto-ek-tyrimu, 2016-08-20 (in Lithuanian).

ficial statement of objections to Gazprom.[67] In the preliminary conclusions of the statement it is noted that "Gazprom is a dominant gas supplier in a number of Central and Eastern European countries, and that Gazprom is hindering competition in the gas supply markets in eight Member States: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, and Slovakia".[68] According to the Commission, Gazprom implemented an overall abusive strategy in these gas supply markets and in particular by: 1) imposing territorial constrains; 2) implementing an unfair pricing policy; and 3) making gas supplies to Bulgaria and Poland conditional on obtaining unrelated commitments from wholesalers concerning gas transport infrastructure.[69]

According to former Energy Minister of Lithuania Arvydas Sekmokas, the constant raising by Lithuania of questions regarding Gazprom's unfair activities undoubtedly stipulated the decision of the European Commission to initiate an investigation.[70] In Brussels, unlike in Stockholm, Lithuania is not alone to defend its interests.

## 4.5. Indigenous Resources

Local and renewable energy sources, energy efficiency, and savings can significantly contribute to ensuring the security of the energy supply, though a proper legal framework, investments, and time are needed.

The year 2015 was of great importance to Lithuania, not only in the sphere of alternative energy supply routes but also in that of renewable energy sources. According to the EU directives, Lithuania has committed that renewable resources will make up 23 per cent of the primary energy mix by 2020, however, in 2015, this indicator constituted 25 per cent.[71] Biofuel played a pivotal role in that domain, having crossed the threshold of 50 per cent in the Lithuanian heating systems in 2015, and hence diminishing the part of natural gas from 63 per cent in 2013 to 48 per cent in 2015. So, 2015 is the year of a turning point in competition of biofuel with natural gas in the heating sector. By 2021, biofuel in centralized district heating should reach the level of 70 per cent.[72]

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[67] European Commission (2015), http://europa.eu/rapid/press-release_IP-15-4828_lt.htm, 2016-08-20.
[68] Ibidem.
[69] Ibidem.
[70] Lietuvos Respublikos Energetikos ministerija [Ministry of Energy of the Republic of Lithuania] (2012), http://enmin.lrv.lt/lt/naujienos/lietuvos-nuolat-kelti-klausimai-del-gazprom-virto-ek-tyrimu, 2016-08-20 (in Lithuanian).
[71] Masiulis R., Lietuvos Respublikos energetikos ministras ['Energy Minister of the Republic of Lithuania'] (2016), *Lietuvos energetikos konferencija* ['Lithuanian Energy Conference'], Vilnius.
[72] Ibidem.

Unfortunately, Lithuania has no good news on energy efficiency and saving. Lithuania's energy intensity is still 1.66 times larger than the EU average, which Lithuania is expected to reach by 2030.[73]

Lithuania does not hold fossil fuels, yet new technologies have expanded its possibilities in this sphere, too. "Referring to the preliminary results of the U.S. Energy Information Administration, the resources of shale gas found in Lithuania can reach 481 billion $m^3$, from which one could derive technically about 25 per cent, that is more than 100 billion $m^3$. Such amount of gas would satisfy Lithuanian needs for 30 to 40 years, according to the present level of gas consumption. According to the data of Lithuanian geologists, resources of shale gas in Western Lithuania amounts to 585 billion $m^3$ from which one could technically obtain from 10 to 15 per cent (60–90 billion $m^3$)".[74] In June 2012 an open international tender was announced for search and extraction of shale gas. U.S. Chevron Corporation won it.[75] Lithuania, however, did not start to extract shale gas, because the local community was against it and the central government did not manage to establish a dialogue to find mutual understanding. Also, the Lithuanian legal framework on this topic was still not well developed. The topic of shale gas was politicized, and in 2013, Chevron Corporation announced they were leaving the tender. The process of shale gas extraction was terminated.

## 4.6. Regional Cooperation

Seeking to break away from an energy island, regional cooperation is of crucial importance since there is a need to build alternative electricity and gas interconnections, to integrate into other markets, to adopt best practices, and so forth. In the case of Lithuania and other Baltic states, regional cooperation partners were the Baltic Sea region countries, with a political and legal foundation – the Baltic Energy Market Interconnection Plan.[76]

In October 2008, after President of the European Commission J. M. Barroso acknowledged that the Baltic states, having no energy intercon-

[73] Ibidem.

[74] Lietuvos Respublikos Energetikos ministerija [Ministry of Energy of the Republic of Lithuania] (2012), *Paskelbtas tarptautinis konkursas skalūnų dujų paieškoms ir gavybai Lietuvos teritorijoje*, http://enmin.lrv.lt/lt/naujienos/paskelbtas-tarptautinis-konkursas-skalunu-duju-paieskoms-ir-gavybai-lietuvos-teritorijoje, 2016-08-20 (in Lithuanian).

[75] Šilutės-Tauragės plotui Lietuvoje ['Šilutės-Tauragės territory in Lithuania'].

[76] European Commission, https://ec.europa.eu/energy/en/topics/infrastructure/baltic-energy-market-interconnection-plan, 2016-08-20.

nections, were isolated and vulnerable, and identified the objective of the BEMIP Action Plan,[77] a high-level working group, consisting of the representatives of all EU Baltic Sea region member states, was set up to draft this plan. In eight months, the BEMIP was prepared, and on June 17, 2009, it was signed by the President of the European Commission and the heads of state of the EU Baltic Sea countries. The BEMIP included two documents: 1) the Action Plan and 2) the Memorandum of Understanding. In the first document, working methods were agreed upon; specific measures and actions as to how common electricity and gas markets should be established; medium to long-term projects of electricity generation as well as electricity and gas interconnections, etc. Energy projects were listed in tables, indicating their titles, implementation calendar, planned budget, related projects, and responsible institutions or companies.[78] The second document, which endorsed the Action Plan, was granted political support by the signatures of the heads of state and President of the European Commission.[79]

It should be noted that a document of such complexity was prepared by eight Member States of the Baltic Sea region and the European Commission within eight months. No less surprising that it was implemented keeping the same fast pace. Monitoring of the BEMIP Action plan implementation was conducted by the same high-level working group of the EU Member States of the Baltic Sea region and the European Commission, progress reports were prepared annually.[80] Norway also participated in this process as an observer.

The table below provides the chronological list of implemented projects and works completed with regard to Lithuania and other Baltic states.

[77] Barroso J.M. (2008), Measures to strengthen security of energy supply in the EU, and in particular in the Baltic area. Briuselis: (text publically not available).

[78] European Commission (2009), *Baltic Energy Market Interconnection Plan*, https://ec.europa.eu/energy/sites/ener/files/documents/2009_11_25_hlg_report_170609_0.pdf, 2016-08-20.

[79] European Commission (2009), *Memorandum of Understanding on the Baltic Energy Market Interconnection Plan*, https://ec.europa.eu/energy/sites/ener/files/documents/2009_bemip_mou_signed.pdf, 2016-08-20.

[80] European Commission, https://ec.europa.eu/energy/en/topics/infrastructure/baltic-energy-market-interconnection-plan, 2016-08-20.

Table 4. **The BEMIP implementation**[81]

| 1990-1991 | Estonia | Latvia | Lithuania |
|---|---|---|---|
| 1991-2008 | An isolated EU energy island.<br>The only energy interconnection between Finland and Estonia Estlink 1 (350MW, 2007). | | |
| 2009 | Signing the Baltic Energy Market Interconnection Plan | | |
| 2010-2015 | Creation of a common electricity market and integration into Nord Pool Spot market.<br>Completion of electricity interconnections:<br>Estlink 2 (Estonia-Finland, 650 MW, 2014);<br>NordBalt (Lithuania-Sweden, 700 MW, 2015);<br>Part I of LitPolLink (Lithuania-Poland, 500 MW, 2015).<br>Estonia/Latvia/Lithuania: implementation of the EU 3 Energy Package in the electricity sector.<br>Lithuania: implementation of the EU 3 Energy Package in the gas sector.<br>Enhancement of the internal electricity and gas systems. | | |
| 2015-2020 | Part II of LitPolLink (Lithuania-Poland, 500 MW).<br>Creation of a common gas market.<br>Estonia/Latvia: implementation of the EU 3 Energy Package in the gas sector.<br>Lithuania-Poland gas interconnection GIPL (2022)<br>Further enhancement of the internal electricity and gas systems.<br>Synchronization of electricity systems with continental Europe's networks (UCTE). | | |
| 2015 | The Memorandum of Understanding on the Reinforced BEMIP. | | |
| | Agreement on the extension of the scopet and preparation of a new Action Plan. | | |

The list of works completed is outstanding, therefore it may be concluded that regional cooperation facilitates the process of reaching consensus, accelerates the implementation of projects, and helps to grant funding.

On June 8, 2015, the Memorandum of Understanding on the Reinforced BEMIP was signed.[82]

It may be concluded that the Baltic Energy Market Interconnection Plan, to be considered as the most effective European regional energy integra-

[81] Godzimirski J., Vilpišauskas R., Švedas R. (2015), Energy Security in the Baltic Sea Region: regional coordination and management of interdependencies, Vilnius: Vilniaus universiteto leidykla, p. 65.
[82] European Commission (2015), *Memorandum of Understanding on the Reinforced Baltic Energy Market Interconnection Plan*, https://ec.europa.eu/energy/sites/ener/files/documents/ROMANAD_2016.02.08_11.32.52_5C4N2560_1.pdf, 2016-08-20.
European Commission (2015), *Baltic Energy Market Interconnection Plan*, https://ec.europa.eu/energy/sites/ener/files/documents/BEMIP_Action_Plan_2015.pdf, 2016-08-20.

tion plan, played a crucial role in eliminating the energy isolation of Lithuania and the Baltic states.

## Conclusions

EU territories isolated from the rest of the EU energy systems normally are considered as EU energy islands. Being on an energy island poses additional threats, therefore, there is an aim to eliminate them across the EU.

An energy island can be described by economic, technical, and political criteria. Relevance of these criteria depends on historical and geographical conditions, and must be examined on a case-by-case basis.

Having conducted a case study of Lithuania as an EU energy island, it became clear that in 1990-2009, Lithuania corresponded to all criteria, except one, which, as the Ignalina NPP was still in operation until 2010, is dependence on one major energy source. However, in 2010-2013, Lithuania, corresponded to all economic, technical, and political characteristics, that is it was on an EU energy island with all attendant threats and possible impacts. Lithuania depended upon one energy supplier – the Russian Federation, and upon one major energy source – natural gas, supplied through the only pipeline across Belarus. Energy consumption in Lithuania had a potential to increase, while the energy market was still only *de jure* and did not work *de facto*. Lithuania's relations with an energy supplier, the Russian Federation, were tense, based on enmity; the balance of power was clearly on the Russian side. Clear sub-regional systems were formed in the region. The energy importer depended upon the energy supplier, while the latter dominated and abused its advantageous position. The threats posed were real. The Russian Federation carried out a policy of coercion in the energy sector, hence creating objective threats not only to energy security, but also to economic and national security. Such threats are to be identified as critical and even existential because they are pursuing geopolitical aims, suppressing democratization, and economic liberalization. All these mobilized endeavours, undertaken by Lithuania and the European Union, which enabled Lithuania to break out from an energy island. Notwithstanding, Russia, by implementing the projects of the Astravets nuclear power plant in Belarus and the Baltic nuclear power plant in Kaliningrad (the Russian Federation), still seeks to retain and create new instruments of domination in the region.

The year 2015 is to be regarded as a turning point in the termination of energy isolation and breaking away from an energy island. Attaining this, Lithuania demonstrated its political will, raising the issue of energy security high

on the national and EU political agendas, furthermore, Lithuania managed to build alternative electricity and natural gas supply routes which enabled the functionality of a real energy market. Regional cooperation was a milestone in this process. Its energy interests in Lithuania defended by all possible legal measures, too. Also, Lithuania sought to ensure the security of energy supply by utilizing indigenous and renewable energy sources at full strength, where, in 2015, for the first time, the share of biofuel in the heating sector had exceeded the share of natural gas.

Developed EU energy island study model, embracing economic, technical, and political criteria, is to be regarded as appropriate to conduct energy island case studies.

In 2010-2013 Lithuania constituted a classic case of an energy island. Also, Lithuania, like other Baltic states, created a precedent of breaking out from an energy island and created a good practice both to study and to follow.

*Vilnius, January 2017*