Lithuania’s Energy Sector Development Trends

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Systematic Diversification of Energy Portfolio

Energy portfolio mix

- Local production
- EU/Global markets
- Russian imports

1998
- 100% Bio and other (renewables)
- 90% Electricity
- 80% Gas import
- 70% Oil

2010
- 100% Bio and other (renewables)
- 90% Electricity import
- 80% Gas import
- 70% Oil

2015
- 100% Bio and other (renewables)
- 90% Electricity import
- 80% LNG
- 70% Gas import

Key highlights
- 1998
  - Butinge Oil Import Terminal (1999)
  - Closing of Druzhba oil pipeline (2006)
- 2010
  - Closing of Ignalina Nuclear Power Plant (2009)
  - Start of 3rd Energy Package implementation (2011)
- 2015
  - Klaipeda LNG terminal (2014)
  - NordBalt (2015)
  - LitPol Link (2015)
Būtingė Oil Import Terminal

- 1995 start of construction
- 1999 operational
- CAPEX over 300 mln. USD
- Import capacity 8 mln. tonnes/annum
- 2006 Druzhba pipeline “closed for renovation”
Nordbalt and LitPol Link – Access to new Markets

NordBalt (2015)

**Goal:** to connect the three Baltic states with the Scandinavian market.
- One of the longest underwater electricity cables in the world – more than 450 km
- Capacity – 700 MW
- Voltage – 300 kV
- CAPEX – over 552 mln. EUR (LT share – 215 mln. EUR, SE – 337 mln. EUR; EU financial support – 131 mln. EUR; +44 mln. EUR – to LV)

LitPolLink (2015)

**Goal:** to connect the three Baltic states to European Union energy market and energy system.
- Total length – 160 km
- Capacity (2015) – 500 MW
- Capacity (2020) – 1000 MW
- Voltage – 400 kV
- CAPEX – over 234 mln. EUR (LT share 2015 – 109 mln. EUR, EU financial support for the LT first stage – 4,4 mln. EUR)
Synchronization with Continental European Network

Goal: Baltic electricity markets integrated with European Continental Network on synchronous operations

- Technically feasible
- No major legal obstacles
- Intensive CAPEX
- EU support needed
Visaginas Nuclear Power Plant

Visaginas NPP rationale

- Diversification of region’s energy mix and market competitiveness
- Remove dependence on Russian electricity supply
- “Green Agenda” and region’s environmental goals

Project progress

- Strategic Investor selected (Hitachi)
- Pre-development works completed (incl. site evaluation, EIA, spatial planning)
- Economic competitiveness of the project improved (Japanese export credit agencies proposals)
- Resolution of outstanding issues in progress (BCM Senior Officials Committee, investors joint meetings agreed)

Visaginas NPP capacity: 1 350 MW, 10.5 TW/y
Total price of the project, EUR: ~ 5 billion (Lithuanian share, EUR ~ 1.9 billion)
Estimated service life: 60 years
Renewable Energy Sources: Today and Tomorrow

**Directive 2009/28/EC on the promotion of the use of energy from renewable sources**

- **23%**
  - The share of energy from renewable sources in gross final consumption of energy in 2020


- **10%**
  - The share of energy from renewable sources in all modes of transport

- **60%**
  - The share of energy from renewable sources in district heating

- **20%**
  - The share of electricity generated from renewable sources
Completion of all currently planned projects by the end of 2020 would allow reaching the capacity level of 2500 MW and surpass the basic demand (1900 MW) in winter.
### Developing a Regional Gas Market

#### Key Developments:

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2011</td>
<td>Start of 3rd Energy Package Implementation (unbundling)</td>
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<td>2011</td>
<td>Start of Klaipeda LNG terminal</td>
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<td>2011</td>
<td>Start of strengthening of internal connections</td>
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<td>2014</td>
<td>Completed implementation of the 3rd Energy Package Implementation</td>
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<tr>
<td>2014</td>
<td>Completed implementation of the Klaipeda LNG terminal</td>
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<td>2019</td>
<td>Commissioning of the GIPL</td>
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#### Infrastructure:
- **Third Party Access infrastructure**
- **Infrastructure influenced by Gazprom**
- **GIPL (Gas interconnection Poland Lithuania)**
- **Expected gas flows from Klaipeda LNG terminal**
Klaipėda-Kiemenai gas pipeline

- Diversify gas supply sources and routes in the Baltic Region;
- Access to the global LNG market via LNG terminal in Klaipeda for all Baltic States;
- Create conditions for full exploitation of the capacity of the LNG terminal in Klaipeda;
- Security and reliability of gas supplies.

Length: ~110 km, diameter: Ø800 mm
Maximum operating pressure: 5.4 MPa.
Project costs: 64 mln. EUR (EU support – 27,6 mln. EUR)
Commissioning: 2015 Q4
Gas Interconnection Poland-Lithuania

**GIPL (2019)**

- Diversification of gas supply sources, routes and counterparts;
- Contribution to the completion of the internal EU energy market;
- Potential to supply gas to Ukraine when interconnection PL-UA is in place.

Length: 534 km (177 km in Lithuania, 357 km in Poland)
GIPL capacity: 2,4 BCM/y (bi-directional gas flow)
Commissioning: 2019
Estimated project costs – 558 mln. EUR (EU financial support – 306 mln. EUR)
LNG Terminal in Klaipeda – Game Changer in Gas Sector

FSRU Independence
Arrived on the 27th of October 2014

Commissioning cargo
Delivered 28th of October 2014

Commercial operations
First commercial send-out from 1st of January 2015

First commercial cargo
Delivered 23rd of December 2014

FSRU Independence
Arrived on the 27th of October 2014
FSRU Independence coming into the Port Gate in Klaipeda
LNG Terminal in Klaipeda – Game Changer in Gas Sector

Markets accessible starting the 1st of January, 2015
Markets accessible after regional interconnections are finished
Markets accessible after on-shore LNG reloading station is finished

LNG terminals (5.000-30.000m3) in development
Results: Gas Price is Going Down

Gas price in Lithuania
(EUR/MWh)

Lithuania signs LNG import deal with Norway’s Statoil

Gas consumption in Lithuania
(billion, Nm3)

Forecast

Ministry of Energy of the Republic of Lithuania
Gazprom’s policy backfires:

- Europe lost trust in Gazprom
- Majority of the CEE states are seeking alternatives
- Encouraged active EU support to commercially non-viable projects
- Encouraged EU to begin establishing Energy Union
- Gazprom is forced to reconsider strategy (but it is too late)
And as a result:

- Russian gas exports to the EU in total dropped by almost ~14%
- Russian gas exports through Nord Stream dropped by more than ~50%
- Russian gas exports to Ukraine dropped by ~44%
- Russia was forced to back away from South Stream project
- Gazprom is fighting multiple antitrust cases
Conclusions: Principles of Successful Energy Policy

- State as a “driving hand” in the energy sector
- Proactive approach to energy affairs
- Strong energy policy, strong nation
Ministry of Energy of the Republic of Lithuania

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