“Interconnectivity: Update on the status and foreseeable development in regional electricity interconnections”

Republic of Belarus

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INOGATE Regional Seminar on Security of Supply and Interconnectivity
Brussels, Belgium, 10th December 2015
- **Installed capacity of the Belarus energy system:**

  Total: 10 035 MW
  
  SPA "Belenergo":
  41 TPPs of capacity 9 298.2 MW
  and: 23 HPPs of capacity 26.3 MW
  1 wind farm of capacity 1.5 MW
  206 unit-plants of consumers, capacity 709 MW

- **Length of power lines, total:**
  
  overhead 35-750 kV power lines 35.677 K km
  overhead 0.4-10 kV power lines 203.238 K km
  cable power lines 36.055 K km
### KEY PERFORMANCE INDICATORS of the SPA «BELENERGO»

<table>
<thead>
<tr>
<th></th>
<th>2013 (actual)</th>
<th>2014 (actual)</th>
<th>2015 (actual)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Generation of electricity by power plants of the SPA “Belenergo” (B kWh)</strong></td>
<td>28.515</td>
<td>31.602</td>
<td>31.873</td>
</tr>
<tr>
<td><strong>Heat generation (M Gcal)</strong></td>
<td>35.989</td>
<td>34.376</td>
<td>34.253</td>
</tr>
<tr>
<td><strong>Electricity import (B kWh)</strong></td>
<td>6.716</td>
<td>3.826</td>
<td>2.803</td>
</tr>
<tr>
<td><strong>Electricity export (M kWh)</strong></td>
<td>346,010</td>
<td>508,246</td>
<td>0</td>
</tr>
<tr>
<td><strong>Electricity consumption (brutto, mln. kWh)</strong></td>
<td>37,694</td>
<td>38,035</td>
<td>38,537</td>
</tr>
</tbody>
</table>
Existing electricity interconnections

Условные обозначения:

- Электростанция
- Атомная станция

110 кВ
220 кВ
330 кВ
750 кВ

ПС 110 кВ
ПС 220 кВ
ПС 330 кВ
ПС 750 кВ

Литва
Витебск
Белоруссия
Украина
Польша
Люкомская ГРЭС
(2889,5 МВт)
Гомельская ТЭЦ-2
(544 МВт)
Чернобыльская АЭС

Гродненская ТЭЦ-2
(302 МВт)
Брест-1
Брест-2
Березовская ГРЭС
(1385 МВт)
Мозырская ТЭЦ
(195 МВт)
Светлогорская ТЭЦ
(155 МВт)
Бобруйская ТЭЦ-2
(180 МВт)
Могилевская ТЭЦ-2
(345 МВт)
Новополоцкая ТЭЦ
(505 МВт)
2. Through capacity of the power networks of the energy systems of the Republic of Belarus with neighbouring countries

- **1400 МВт** – export, **2200 МВт** - import
- **1000 МВт** – export, **1200-1400 МВт** - import
- **140 МВт** (export)
- **900 МВт** – export, **900 МВт** - import
Enhancing electricity connections between Belarus and Poland by power lines and back-to-back stations construction

Royal Energy Systems

ВЛ общ=98,8 км

ВПТ Гродно Южная

Беларуская АЭС Барановичи-330

ГРЭС-15 Брест-2

ОЭС Беларуси

110 кВ

220 кВ

330 кВ

400 кВ
Enhancing electricity connections between Belarus and Poland by construction of a 400 kV power line Ross – Narev with back-to-back station will allow to:

Increase the through capacity of Belarus – Poland section by about 7 times.

Establish technical possibility for electricity export/import to/from Belarus/Poland of 5 B kWh annually.

Modernise and develop the interface with minimum costs and within a short period and considering a possibility of usage of 220 kV Ross – Bielostok power line.
Volume of power network construction and capital investments under project of 400 kV lower line Ross – Narev with a back-to-back station

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td><strong>In the Republic of Belarus</strong></td>
<td></td>
</tr>
<tr>
<td>Volume of electricity network construction 330-400 kV(km)</td>
<td>37.5</td>
</tr>
<tr>
<td>Capital investments (USD M)</td>
<td>165</td>
</tr>
<tr>
<td><strong>In Poland</strong></td>
<td></td>
</tr>
<tr>
<td>Volume of electricity network construction, 400 kV (km)</td>
<td>80</td>
</tr>
<tr>
<td>Capital Investments (USD M)</td>
<td>40</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
<tr>
<td>Volume of electricity network construction, 330-400 kV (km)</td>
<td>117.5</td>
</tr>
<tr>
<td>Project implementation Costs (USD M)</td>
<td>205</td>
</tr>
</tbody>
</table>
Prospective sources of project financing

Internal funds of the Stakeholders

Credits by the commercial banks

Resources of International organisations
Key challenges/obstacles related with investments

Political environment

Lack of guaranteed volumes of electricity purchase/sale

To implement the project at the initial stage the stakeholders have to:

• Conduct a joint analysis of technical decisions in terms of compliance with national and EU

• Develop the justification of investments for representing its outcomes to the authorities
Prospective scheme of the UES of Belarus for 2020
Indicative values of through capacities for 2020

- **1700 МВт** from **Литва** to **Беларусь**
- **1600 МВт** from **Беларусь** to **Украина**
- **1100 МВт** from **Россия** to **Беларусь**
- **900 МВт** from **Украина** to **Беларусь**
- **900 МВт** from **Польша** to **Беларусь**
Belarus - Lithuania

LATVIA

LITHUANIA

RUSSIA

BELARUS

POLAND

UKRAINE
THANK YOU!

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INOGATE Technical Secretariat and Integrated Programme in support of the Baku Initiative and the Eastern Partnership energy objectives