The first NPP construction in Russia with the potential participation of foreign partners: Private/foreign investors can acquire up to 49%.

The BNPP will be located in the Kaliningrad region of Russia in proximity to the Baltic Sea countries.

2 x 1,150 MW VVER-1200 units (AES-2006 series).

Commissioning dates:
- Unit 1 – 2016
- Unit 2 – 2018

Service life of main equipment – 60 years.

Capacity factor – 0.9

Budgeted CAPEX – €6.7bn
Current Status of the Baltic NPP Project

- Government Resolutions №1353-p (25 Sept 2009) and №169-p (20 February 2010) approved the location of construction site of the Baltic NPP in the Neman municipal district of the Kaliningrad Region
- Site license was issued in February 2010
- Independent state expert reviews completed
- Construction license to be obtained by the end of 2011
- Issuance of detailed design documentation
- Site preparation works are ongoing
- Preparation of the Contract for construction of the main period
- Preparation of tender documentation for supply of equipment, selection of main subcontractors
- Preparation of Bankable Feasibility Study (Phase 1 completed, Phase 2 to start in December 2011).
Activities of preliminary stage of construction in Y2011

- Site leveling and completion of soil removal works
- Construction and rehabilitation motor-roads and railway link.
- Designing of housing for the workforce.
- Construction of concrete batch plant.
- Construction of steel reinforcement plant.
- Construction of water intake and removal facilities.
- Construction of the temporary electricity supply networks, including 110/10 kV substation.
- Development of the pit of the main buildings of Unit 1.
- Arrangement of drainage systems, concrete basement and waterproofing.
Baltic NPP safety Containment – protection from external events

**Seismic loads**
NPP is developed with stability to earthquake

**Wind loads**
Whirlwind and tornado protection

**Snow and ice load**
Extreme snow and ice protection

**Aircraft**
Protection from the fall of an aircraft

**External explosion**
NPP components responsible for the safety are developed with ensuring the security of percussion coursed by the external explosion.
## Safety aspects: protection against external impacts

<table>
<thead>
<tr>
<th>External impact</th>
<th>Protection level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hurricanes &amp; tornadoes</td>
<td>• The BNPP is designed to sustain a maximum wind velocity of 56 m/s&lt;br&gt;• The hurricanes and tornadoes of such magnitude occur once every 10,000 years&lt;br&gt;• The probability of such winds in the Kaliningrad region is close to zero</td>
</tr>
<tr>
<td>Seismic activity</td>
<td>• The BNPP is designed to sustain a seismic activity of level 7 (SSE) by MSK-64 scale&lt;br&gt;• The maximum earthquake level ever registered in the Kaliningrad region is 5</td>
</tr>
<tr>
<td>Flooding &amp; tsunami</td>
<td>• The BNPP is designed to sustain a flooding with the recurrence interval of &gt; 0.01%&lt;br&gt;• The Baltic Sea cannot generate tsunamis of destructive nature sufficient to damage the BNPP&lt;br&gt;• Even if tsunamis occur in the Baltic Sea, the BNPP is located far enough from the sea to be damaged by them</td>
</tr>
<tr>
<td>Airplane crash</td>
<td>• The BNPP is designed to sustain a direct crash of an airplane weighing 5.7 tons and moving at a velocity of 100 m/s</td>
</tr>
<tr>
<td>Shock wave</td>
<td>• The BNPP is designed to sustain a maximum front pressure of 10 kPa</td>
</tr>
</tbody>
</table>

Designed with substantial safety margin, the Baltic NPP shall be able to sustain all external natural impacts potentially possible in the Kaliningrad Region.
Present Scheme of the Main Grid of Power Ring BRELL
1. Lithuania – Sweden (NordBalt) HVDC cable line 700 MW
2. Estonia – Finland (EstLink-2) HVDC cable line 650 MW
3. Alitus (Lithuania) – Elk (Poland) (LitPolLink), HVDC OHL 1000 MW
4. Ross (Belorussia) – Narev (Poland), HVDC OHL 600 MW
The prospective of Kaliningrad power system development

Available power and scenarios of Kaliningrad power system electric power consumption development

Supply of Kaliningrad Region consumers

Available power
- Optimistic scenario
- Basic scenario
- Market scenario

BNPP-1
BNPP-2
CHPP-2

MW

Years


300 MW
2000 MW
Export

300 MW

2020
### Power balance in the Baltic Sea Region for Y2020

#### «Scenario A»

<table>
<thead>
<tr>
<th>Region</th>
<th>NGC</th>
<th>RAC</th>
<th>Load</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO – Norway</td>
<td>31,9 GW</td>
<td>26,3 GW</td>
<td>22,6 GW</td>
<td>3,7 GW</td>
</tr>
<tr>
<td>SE – Sweden</td>
<td>39,2 GW</td>
<td>28,2 GW</td>
<td>28,6 GW</td>
<td>0,4 GW</td>
</tr>
<tr>
<td>DK – Denmark</td>
<td>12,9 GW</td>
<td>6,1 GW</td>
<td>6,7 GW</td>
<td>0,6 GW</td>
</tr>
<tr>
<td>DE – Germany</td>
<td>176,2 GW</td>
<td>83,2 GW</td>
<td>80,6 GW</td>
<td>2,6 GW</td>
</tr>
</tbody>
</table>

**Total capacity deficit in the region, GW**

**Scenario A**

16,0 GW

**Scenario B**

1,2 GW

#### «Scenario B»

<table>
<thead>
<tr>
<th>Region</th>
<th>NGC</th>
<th>RAC</th>
<th>Load</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO – Norway</td>
<td>23,3 GW</td>
<td>16,6 GW</td>
<td>16,8 GW</td>
<td>0,2 GW</td>
</tr>
<tr>
<td>SE – Sweden</td>
<td>3,1 GW</td>
<td>2,0 GW</td>
<td>2,0 GW</td>
<td>0,0 GW</td>
</tr>
<tr>
<td>DK – Denmark</td>
<td>4,0 GW</td>
<td>2,3 GW</td>
<td>1,6 GW</td>
<td>0,7 GW</td>
</tr>
<tr>
<td>DE – Germany</td>
<td>6,5 GW</td>
<td>5,2 GW</td>
<td>3,8 GW</td>
<td>1,4 GW</td>
</tr>
<tr>
<td>PL – Poland</td>
<td>44,0 GW</td>
<td>30,5 GW</td>
<td>30,7 GW</td>
<td>-0,2 GW</td>
</tr>
</tbody>
</table>

**Total capacity deficit in the region, GW**

**Scenario A**

18,7 GW

**Scenario B**

11,9 GW

---

*Region with deficit in power*

NGC – Network generating capacity of power stations of the power system;
RAC – Reliable available capacity of power stations of the power system;
Load – maximum over year power load of power system (19:00, working day January);
Balance = RAC – Load.

Source: ENTSO-E: Scenario Outlook & Adequacy Forecast 2011-2025
The structure of electric power consumption by sectors:

- Households and non-industrial consumers: 65.6%
- Industrial consumers: 33.3%
- Other: 1.1%

Potential Partners in Electricity Exchanges

Kaliningrad Region

The structure of electric power consumption by sectors:

- Households and non-industrial consumers: 61.9%
- Industrial consumers: 34.4%
- Other: 3.7%

Germany

The structure of electric power consumption by consumers sections:

- Households and non-industrial consumers: 48.8%
- Industrial consumers: 48.2%
- Other: 3.2%

Lithuania

The structure of electric power consumption by sectors:

- Households and non-industrial consumers: 66.7%
- Industrial consumers: 33.3%
- Other: 1.1%
The following interconnections are going to be constructed/reinforced:

1. **Kaliningrad – Poland interconnection**
   The project is being developed through the joint working group between PSE Operator, PGE, FGC UES and INTER RAO UES.

2. **Kaliningrad – Germany interconnection** via submarine HVDC cable laid in parallel with Nord Stream gas pipeline route. The possibility of project implementation is currently being studied.

3. **Kaliningrad – Lithuania interconnection reinforcement**. The project is currently being studied.
Baltic NPP - Kaliningrad Region Power System
Construction of links:
- OH 330 kV Sovetsk – Bitenai – Yurbarkas;
- OH 330 kV Sovetsk – Kruonio HAPP.
- Construction of new 330 kV OHLs Baltic NPP - Sovetsk.

Kaliningrad Region Power System – Lithuania
- Strengthening of connection Kaliningrad – Lithuania:
  - Upgrade on the territory of Lithuania: OHL 330 kV Sovetsk – Baltic NPP – Bitenai – Klaipeda and OHL 330 kV Sovetsk – Baltic NPP – Kruonio HAPP;
  - Construction of new 330 kV OHLs Sovetsk – Klaipeda and Baltic NPP – Yurbarkas.

Kaliningrad Region Power System – Poland and Germany
- Construction of SS DC Mamonovo;
- Construction of two OHLs 330 kV Baltic NPP – SS Mamonovo;
- Construction of OHLs 330 kV Tsentralnaya – SS Mamonovo;
- Construction of HV line 400 kV to Poland;
- HVDC cable routing on the seabed of the Baltic Sea to Germany.
Trading Opportunities and Cooperation with EU
Quantities of Electric Power:

- from 01 Jan 2017 to 31 Dec 2017 – 3.7 TWh
- from 01 Jan 2018 to 31 Dec 2018 – 7.4 TWh
- from 01 Jan 2019 to 31 Dec 2019 – 10.4 TWh
- from 01 Jan 2020 to 31 Dec 2036 – 13.4 TWh.

Supply on terms “DAF State Border of the Russian Federation”

Long-term agreements for supply of electricity (PPAs)

INTER RAO UES and ROSENERGOATOM signed the Agency Agreement, in accordance with which INTER RAO acts as the Operator of export deliveries of electric power generated by the Baltic NPP
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<tbody>
<tr>
<td>Unit 1 construction</td>
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<td>Commissioning unit 1</td>
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<td>Unit 2 construction</td>
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<td>Commissioning unit 2</td>
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<td>Design and construction of power lines and substations</td>
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<td>Negotiation and execution of agreements with investors – NPP</td>
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<tr>
<td>Bankable feasibility study Baltic NPP</td>
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<td>Feasibility study Grid</td>
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<td>Trade negotiations</td>
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<tr>
<td>Power purchase agreements (PPA)</td>
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</tbody>
</table>
1. Development of feasibility study for X-border grid facilities construction (Kaliningrad Region - Germany; Kaliningrad Region – Poland):
   • Organization of an open tender for development of the Feasibility Study of an investment project of construction of X-border grid facilities to deliver electric power from the Kaliningrad Region to the European energy markets.
   • Development of basic technical solutions of export grid facilities by a consortium of leading Scandinavian consultants (in the area of modeling and engineering of HVDC lines - Gothia Power, Estralinps, in the area of market analysis - Sweco AB).
   • Approval of basic technical solutions by the partners and authorities of Russia, Poland, Germany.
   • Finalization of feasibility study for X-border grid facilities – Q1 of 2012.

2. The application to ENTSO-E on submission of the Project of grid facilities’ construction between the Kaliningrad Region and the European countries into the “Ten-year Network Development Plan” (TYNDP) 2012
   • Application documents were compiled and approved by the Ministry of Energy of Russia (July 2011).
   • Application Form was submitted by the System Operator of Russian IPS (System Operator, JSC) to the ENTSO-E Secretariat (September 2011)
   • Announcement of the official results of the feasibility study development for X-border grid facilities construction to provide electricity output from the Kaliningrad Region to the European energy markets (March 2012).
• To facilitate the process of cooperation between Russian organizations of electric power sector with various structures of the European Union (European Commission, ENTSO-E, Eurelectric and other) INTER RAO UES is open for a dialogue within the framework of EU-Russia Energy Dialogue and other platforms of cooperation.

• It is preferable that European Commission, Directorate General for Energy appoint the dedicated expert(s) responsible for coordination of work with INTER RAO UES, Rosatom, System Operator UES, Federal Grid Company and other infrastructural bodies of electric power sector of the Russian Federation.

• INTER RAO UES propose that one of the meetings of EU-Russia Energy Dialogue groups (sub-groups) during 2012 be held in Kaliningrad.