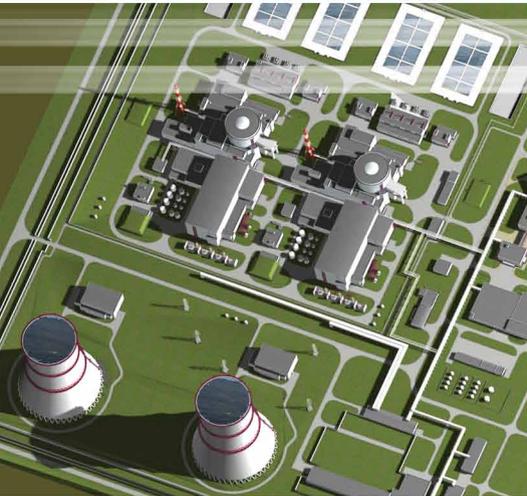




ATOMENERGOPROEKT
SAINT-PETERSBURG

A SC «ROSATOM» COMPANY



Joint Stock Company
St. Petersburg Research
and Design Institute
ATOMENERGOPROEKT
(JSC SPbAEP)

Baltic NPP project in the Kaliningrad region



The Baltic NPP will be constructed in the north-east of the Kaliningrad Region, within the Neman municipal area.

Information for the project

The Baltic NPP is constructed under the cooperation agreement between State Atomic Energy Corporation ROSATOM and the Government of the Kaliningrad region, Declaration of Investment Intensions for NPP construction, approved by State Corporation ROSATOM and accepted by Duma of the Kaliningrad region.

The decree for construction of the Baltic NPP (consisting of two Units) in the territory of the Kaliningrad region, that was signed by Chairman of the RF Government Vladimir Putin on 25 September, 2009 has become a decisive document.

New generating capacities producing cheap electric energy will give a new impulse for economy development in the Kaliningrad region, allow to eliminate the energy deficiency and dependence of energy import in future.

Besides, the Baltic NPP can become a real source for energy export from Russia to Baltic states, Poland, Sweden and Germany.

The General Designer of the Baltic NPP is engineering company JSC SPbAEP. The Tianwan NPP in China (2007) is one of the latest projects implemented by the company. Currently this NPP is one of the safest and most reliable Nuclear Power Plants in the world.

That is why the Tianwan NPP has become a prototype for LNPP-2 construction and now for Baltic NPP project.



Regulatory documents

- Agreement on Cooperation between the State Corporation ROSATOM and the Government of the Kaliningrad Region, 16.04.2008.
- Letter of Intent for investment in the construction of Power Units 1 and 2 of the Baltic Nuclear Power Plant, approved by the State Corporation ROSATOM 11.09.2008 and by Decree of the Kaliningrad Region Duma No. 380 dated 28.10.2008.
- Long-term Program of State Corporation ROSATOM approved by Decree of the Government of the Russian Federation No. 705 dated 20.09.2008.
- Decree of the Government of the Russian Federation on the Construction of the Baltic Nuclear Power Plant No. 1353-p dated 25.09.2009.
- License for location of Power Units 1 and 2 No. ГН-01-101-2289 and No. ГН-01-101-2290 dated 19.02.2010.



ПРАВИТЕЛЬСТВО РОССИЙСКОЙ ФЕДЕРАЦИИ
РАСПОРЯЖЕНИЕ

от 25 сентября 2009 г. № 1353-р
МОСКВА

1. Принять предложение Государственной корпорации по атомной энергии "Росатом", согласованное с Минэнерго России, Миномразвития России и органами государственной власти Калининградской области, о сооружении на территории Калининградской области Балтийской атомной станции общей установленной мощностью 2300 МВт (2x1150 МВт) в следующие сроки:
энергоблок № 1 - 2010 - 2016 годы;
энергоблок № 2 - 2012 - 2018 годы.
2. Принять к сведению, что реализация проекта по сооружению Балтийской атомной станции будет осуществляться с привлечением российских и иностранных инвесторов.
3. Минэнерго России и Государственной корпорации по атомной энергии "Росатом" внести в установленном порядке предложения по корректировке Генеральной схемы размещения объектов электроэнергетики до 2020 года, одобренной распоряжением Правительства Российской Федерации от 22 февраля 2008 г. № 215-р, касающиеся Балтийской атомной станции.

Председатель Правительства
Российской Федерации



В. Путин

Project participants



ROSATOM

State Atomic Energy Corporation ROSATOM

State Atomic Energy Corporation ROSATOM unites over 270 enterprises and research organizations including all civilian companies of the Russian nuclear industry, enterprises of the nuclear weapons complex and nuclear icebreaker fleet that is unique in the world.

State Atomic Energy Corporation ROSATOM is the biggest generating company in Russia that ensures more than 40% of electricity in the European part of the country. ROSATOM has a leading position in the world nuclear technologies market, ranks No. 1 by the number of simultaneously constructed nuclear power plants abroad, ranks No. 2 by the uranium reserves, ranks No. 5 by the uranium production and ranks No. 4 in the world by the nuclear power generation, provides 40% of the world uranium enrichment services and 17% of the world nuclear fuel market.

Customer:

JSC Concern ROSENERGOATOM

Established by Decree of the President of the Russian Federation No. 1055 of September 7, 1992 «On Operating Organization of Nuclear Power Plants of the Russian Federation». At present ten nuclear power plants are in operation in Russia with 32 power units, of which sixteen units have pressurized water reactors (ten VVER-1000 and six VVER-440), fifteen channel-type reactors (eleven RBMK-1000 and four EGP-6) and one fast neutron reactor.

General Designer:

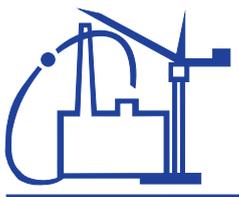
JSC SPbAEP

Established September 1, 1929. The Company has designed or taken part in designing 118 power plants, including 18 nuclear power stations, which have been put into operation in Russia and abroad. At present the Company is working on the designs of the following facilities: Power Unit 4 with reactor BN-800 of the Beloyarsk NPP, turbine hall of Power Unit 1 of the Bushehr NPP in Iran with reactor VVER-1000, Leningrad NPP Stage 2 with reactors VVER-1200 (for which project SPbAEP is both General Designer and General Contractor), Baltic NPP with reactors VVER-1200, South-West Cogeneration Plant in St. Petersburg etc. 100% of shares of JSC SPbAEP have been transferred to JSC ATOMENERGOPROM which consolidates businesses in the civilian sector of Russian nuclear industry.

Site Preparation Initial Stage Contractor

JSC NBD (affiliated company of JSC SPbAEP)

Established in 1966 as General Contractor for construction of the Leningrad NPP, the city of Sosnovy Bor, Alexandrov Institute NITI and other projects. Today JSC NBD is a construction holding which includes nine divisions and organizations. Main works performed by the holding are industrial and civil engineering, renovation of nuclear and other facilities, buildings and structures. The majority shareholder of JSC NBD is the Engineering Company SPbAEP.



Technical parameters according to the design

The Baltic NPP comprising two power units is a serial design of nuclear power plant AES-2006 based on the LNPP-2 design.

Electric output of each power unit at the Baltic NPP equipped with VVER-type reactor (water-moderated water-cooled power reactor) is determined as equal to 1194 MW, while heat output — 250 Gcal/h. Design lifetime of the Baltic NPP is 50 years. Design lifetime of the equipment is 60 years. Power Unit 1 is planned to be put in operation in 2016, while Power Unit 2 in 2018.



Main technical-and-economic design characteristics

Characteristics and units of measurement	
Installed rated power per Unit, MW (e)	1 194
Service life of Power Unit, years	50
Specific efficiency, % - gross	37.17
Specific efficiency, % - net	34.51
Auxiliary power consumption, %	7.15
Availability	0.92
Number of industrial-and-production personnel for two Units upon condition of service maintenance, men	1 147
Annual average electric power supply per Unit (NPP base-load operation without thermal power supply), mln kWh	8 517.8
Coolant flowrate through reactor, m ³ /h	86 000
Coolant temperature at the reactor inlet, °C	298.2
Coolant temperature at the reactor outlet, °C	328.9
Coolant pressure at the reactor inlet, MPa	16.2
Seismic impact:	
• on civil engineering structures of the buildings and structures, OBE/SSE, point	6/7
• on the design unchangeable part (including Reactor Plant equipment) OBE/SSE, point	7/8

Baltic NPP safety

Safety insurance

The design of Baltic NPP meets all the up-to-date international requirements for safety. Four active redundant safety trains, core-catcher, Passive systems of heat removal (from containment and steam-generators) are used in the design

- The design of the prototype NPP, LNPP-2, has undergone all state examinations and possesses licenses for the NPP location and construction.
- Technical approaches for the Baltic NPP meet the requirements of Russian guidelines, requirements of EUR, IAEA, YVL and Customer's requirements to the design AES-2006.
- Declared safety and economic characteristics are guaranteed by reference, licensability and developed construction technology.
- All the technical approaches have been tested and are being optimized in the process of design, construction and commissioning works of LNPP-2 Stage One. According to the experts, after its commissioning Baltic NPP will be one of the safest NPPs in the world. Besides, the design provides for at least 20 automated radiation monitoring posts within a radius of 13 km, and the acquired information will be available to any resident of the region.

Safety from external threats

Outside explosions



The NPP safety-related components are designed with due account for the shock wave caused by outside explosion. The pressure at shock wave front is taken equal to 30 kPa, compression stage time — 1 s.

Flight accidents



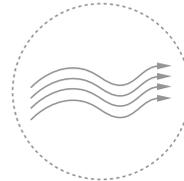
The NPP design provides a possibility of 5.7 t aircraft crash.

Snow and ice loads



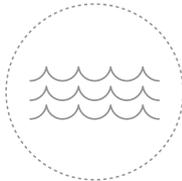
Peak (extreme) snow load according to design equals 4.1 kPa.

Hurricanes, waterspouts, tornados



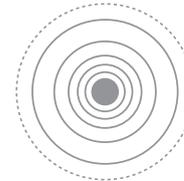
Safety related components are designed with due regard for the wind load corresponding to wind velocity 30 m/s at a height of 10 m. Design loads are those induced by the whirlwind of class 3.60 according to Fujita scale.

Flooding

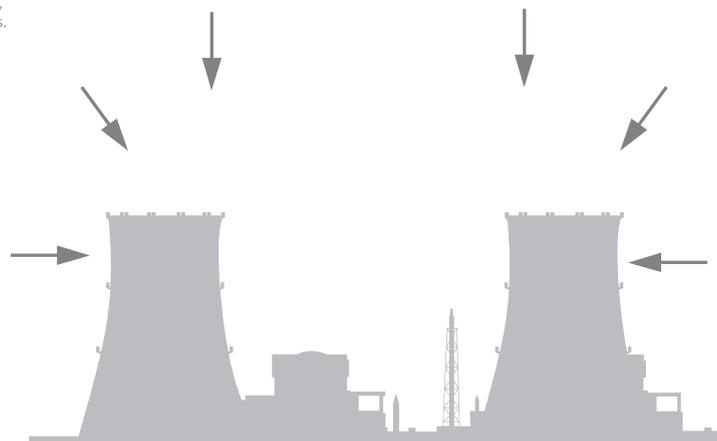


The NPP is designed with possible flooding taken into account.

Seismic loads



The NPP is designed with allowance for the earthquake which maximum horizontal acceleration at ground level equals 0.25 g.



Social responsibility

At present the Baltic NPP places orders with regional industrial plants, thus providing additional jobs. For the project implementation Kaliningrad Region building companies and local equipment suppliers are attracted. In addition to the employees involved in civil engineering works (up to 8500-9000 employees will work simultaneously at the Baltic NPP site during 'peak years'), some 1200 people of operating personnel will work at the NPP, and additional 1000 employees will be engaged for scheduled repair works.

The Baltic NPP operation will enhance living standards of the region residents. Relatively cheap power generation will limit growth of energy tariffs for the population. Extension of the station town will boost construction of new roads, hospitals, schools, athletic centers, as well as it will provide up to 10 000 new jobs in the field of trade, transport, education, medicine meant for the NPP employees service.

Consequently the town will get an opportunity to expand the scope of public order. Direct taxes will ensure additional budget revenues (up to RUB 2 bln yearly). Tax revenues to all levels of the budget during the construction period will equal about RUB 9 bln.

Due to energy rates being lower than those in the neighboring territories, infrastructure competitiveness and social attraction of the region will be ensued. Construction will also boost local building industry.



SPbAEP Today

At present the engineering company SPbAEP is the General Contractor and the General Designer of the Leningrad Nuclear Power Plant, Stage 2, reactor type VVER-1200. Power unit 4 of the Beloyarsk NPP with a BN-800 reactor, designed by the Company, is under construction in the Sverdlovsk Region. The advanced design BN-1200 is currently under development. The Company is also the General Designer of the Baltic NPP, reactor type VVER-1200, which is now under construction in the Kaliningrad Region. The latter project differs from the others in that for the first time in the history of the Russian nuclear power industry private foreign investors are invited to participate in the project. In August 2010 an official launch ceremony was held at the Bushehr NPP in Iran (reactor type VVER-1000), for which SPbAEP designed the turbine hall. For the city of St. Petersburg the Institute has designed the South-West Cogeneration Plant. Stage 1 of this facility, which is very important for the power generation sector of the region, was put into operation in December 2010. SPbAEP also participates in projects for renovation and life extension of the operating power units of the Kola, Beloyarsk, Kursk, Smolensk and Leningrad nuclear power plants as well as of some other power facilities in Russia.

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