



## **Current status and plans for development of NPP with BREST reactors**

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### **Order of Minister for Atomic Energy, dated 17.07.98**

On development of detailed design documentation for the nuclear power plant with a pilot demonstration fast reactor with lead coolant of 300 MW(e) output (BREST-OD-300) and on-site fuel cycle at Beloyarsk NPP site, and commencement of R&D activities to justify the design.

The purpose of the work is to demonstrate feasibility of designing NPP such as to meet the following main requirements:

- avoidance of severe accidents at the reactor facility and nuclear fuel cycle facilities associated with radiological hazard for public;
- radiation-equivalent disposal of radwaste and their temporary storage in the region;
- technological support of non-proliferation regime;
- competitiveness.

The following enterprises and organizations are involved in the project:

NIKIET, GNTs RF FEI, GNTs RF VNIINM, AEP St.Petersburg affiliate, GSPI, GNTs RF NIAR, NIKIET SF (Sverdlovsk branch), Hidropress, TsKBM, Hidromash, Rosenergoatomproekt, VNIPIET, TsVTT, ITsP, NIKIMT, VTI, TsNIIKM «PROMETHEY», OKSAT.

### **MATERIALS ALREADY DEVELOPED**

Justification of capital investments in NPP construction;

Justification of capital investments in construction of on-site fuel cycle facilities

- Master plan;
- Technological solutions;
- Main building;
- Turbine hall and secondary circuit;

- Civil engineering design;
- Construction arrangement draft;
- Preliminary safety analysis report;
- Assessment of the ecological impact

The following basic technologies were developed:

- FA shearing;
- Fuel regeneration;
- Fuel element fabrication;
- FA fabrication.

Detailed design documentation for the following components and equipment of BREST-OD-300:

- Reactor facility;
- Steam generator;
- Pump;
- Floors;
- Reactor vault;
- Refueling machine;
- Reactor facility systems as follows:
  - coolant technologies;
  - gas system;
  - coolant purification of impurities;
  - heatup of lead and filling the reactor facility with lead coolant;
  - reactor overpressure protection.

#### Feasibility study for BREST-1200

##### Examinations

##### Experimental activities

##### Main stages of the activities:

- RF Government decree on construction, 2000;
- Experimental activities, 1998-2006;
- Designing activities, 1998-2001;
- Examination performing, licensing and beginning of construction, 2002;
- Commissioning, 2007.