

BN-1200M NEW GENERATION REACTOR PLANT

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ABSTRACT. The Russian Federation has set an ambitious goal to achieve a 25% increase in electricity production at nuclear power plants. This is important to implement the Russian long-term energy sector development strategy providing for low greenhouse gas emissions.

One of the projects planned for implementation is a competitive power unit with BN-1200M new generation reactor plant as part of a two-component nuclear power system with the closed nuclear fuel cycle.

Competitiveness in terms of economic indicators in relation to thermal reactors and power units of traditional power generation, safety characteristics related to Generation-IV nuclear power plants and high readiness for project implementation are based on successful long-term operation of BN-600 and BN-800 reactors as well as on the level of validity of innovative technical solutions used in BN-1200M design.

By now, the BN-1200M final design has been developed, the design competitiveness has been validated and design documentation of the power unit has been developed.

The results of R&D aimed at selecting passive emergency protection systems of the reactor core, validating neutronic characteristics and operability of the reactor core components, using passive operating principle equipment in the emergency heat removal system, ensuring natural circulation along the circuits, validating new structural materials for heat exchange equipment made it possible to increase the level of safety, reliability and efficiency in relation to previous projects and perspective energy sources.

In 2022, it was decided to build a power unit with BN-1200M reactor at the site of Beloyarsk nuclear power plant.

The presentation is dedicated to the status of BN-1200M project, the main results of its development and validation and importance of its implementation for the development of nuclear power plants.