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(Rostekhnadzor)**

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# **Practice and Prospects of Reviewing New NPP Units**

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## **Peculiarities of current period**

### **Social**

- Increase in demand for energy resources
- National atomic energy development programs
- Need for stronger measures on nuclear safety and security

### **Technological**

- Continuous improvement of nuclear technologies
- Development of essentially new reactor designs in the framework of Gen IV and INPRO
- Application of improved fuels

### **Demographic**

- Ageing of personnel and shortage of young specialists in nuclear industry
- Specialists leaving and nuclear knowledge is lost



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## **Current system of design review in Russia – set of participants, rules, procedures and assessment criteria**

### **Review assesses the following**

- **Nuclear and radiation safety under normal operation**
- **Nuclear and radiation safety under DBAs and BDBAs**
- **Operator's ability to ensure safe termination of unit operation**



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## **Safety review of new Gen III NPP designs**

- **VVER-1000 – 1000 MW (el) NPPs with pressurized water reactor using passive and active safety systems**
- **VVER-640 – 640 MW (el) NPPs with pressurized water reactors using passive safety systems**
- **BN-800 – 860 MW (el) NPPs with fast breeder reactor using potassium coolant**
- **KLT-40S – 70 MW (el) floating nuclear power unit**



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## **Development of regulatory documents of new basic design review system**

- **Requirements for the set and content of documents submitted for NPP site certification**
- **Requirements for the set and content of basic NPP design**
- **Proposals for basic design certification**
- **Order of licensing NPPs developed on basic design**



## **Review of some safety aspects of Gen IV reactors**

- **BREST-300 – 280 MW (el) NPP with pool type fast breeder reactor with lead coolant using uranium-plutonium nitride fuel, passive safety systems and onsite fuel cycle**
- **SVBR-75/100 – 75 MW (el) NPP with fast breeder reactor with lead-bismuth coolant**
- **GT-MHR – 280 MW (el) NPP with modular gas-cooled reactor**



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**Outcome of international safety review  
of new designs should:**

- **complement national review taking account of international practice**
- **be of exclusively recommendatory nature**
- **not restrict sovereignty of national regulator and its authorities**

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**For further development of the international NPP design certification system, it is necessary to take relevant organizational decisions under the aegis of IAEA and NEA/OECD**