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NUCLEAR SOURCES OF HEAT SUPPLY IN THE FUEL MIX OF RUSSIA

The authors analyze the role of self-contained heat sources in the process of replacement of organic fuel by nuclear fuel. The authors also consider alternative sources of heat supply and practical implementation of systems of nuclear heat supply.

The authors argue that various technologies require a wide range of steam capacities (0.1...10 MPA) and that the distribution of its quantity is uneven: up to 60 % of steam consumed at the pressure of 0.8...1.4 MPa and up to 25 % — t the pressure of 0.5...0.8 MPa.

The authors address one of major challenges of the energy consumption market — reduction of the share of fossil fuels in the fuel and energy mix of Russia. Fossil fuels may be replaced by the nuclear power if atomic sources are used not only in the production of electricity and heat supplies for end users, but also as sources of thermal power for industrial purposes.

Generation of heat for industrial purposes is more complicated, particularly when steam is required as a heat carrier. One of solutions under consideration is the use of high-temperature water to extract steam for heating purposes.

Key words: nuclear power sector, heat supply systems, thermal power, steam, pressure.

References

1. Nemchinova A.S., Peysakhovich V.Ya. Osnovnye zakonomernosti formirovaniya rezhimov teplopotrebleniya promyshlennykh predpriyatiy [Basic Patterns of Heat Consumption Modes of Industrial Enterprises]. *Promyshlennaya teploenergetika* [Industrial heat and Power Engineering]. 1998, no. 11, pp. 44—48.

2. Dement'ev B.A. *Yadernye energeticheskie reaktory* [Nuclear Power Reactors]. Moscow, 1984, 280 p.

3. Yablokov A.V. *Za i protiv yadernoy energetiki* [Nuclear Power Engineering: Pros and Cons]. Moscow, Media-PRESS Publ., 2011, 248 p.

4. Grigor'ev V.A., Zorin V.M., editors. *Teplovye i atomnye elektricheskie stantsii* [Thermal and Nuclear Power Plants]. Moscow, Energoizdat Publ., 1989, 608 p.

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