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Use of reactors with fast resonance neutron spectrum cooled by water of supercritical pressure for nuclear stations of low power

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As a result of research for about 10 years in the FSUE SSC RF - IPPE, OKB Hydropress, Kurchatov Institute, NIKIET with water cooled reactors with SCP with thermal and fast neutron spectra. Since 2006 JSC SSC RF-IPPE and OKB Hydropress are working together to conceptual design WWER-SKD-SKP single-loop NPP with coolant with fast-resonance neutron spectrum capacity of Ne=1700 MW. This reactor has been acknowledged as the prospect of WWER technology with the ability of a transition to the use of MOX-based (U-Pu-Th) fuel and the closed fuel cycle. State Corporation "Rosatom" recognized this trend as an innovative system and signed an agreement on Russia's participation in the GIF towards SCWR. There is a possibility of using reactors VVER-SKD with a quickly-resonant spectrum of neutrons capacity from 0, 3 to 30 MBt for nuclear stations of low power is considered. Results of neutron-physical calculations of fuel cycles with MOX-fuel from oxide uranium and plutonium with possible duration of campaign from 2 till 20 years are presented. Preliminary results of calculations weight-dimensional characteristics in comparison with others offered NPS the specified appointment are resulted. The received results can be used at a substantiation and development of the concept of the developed reactors cooled by water at supercritical parameters, the big capacity for the future atomic.

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