

Inside Information

Dukovany has obtained the state-of-the-art fuel from TVEL

The first delivery of the state-of-the-art nuclear fuel from the Russian company TVEL has arrived at the Dukovany nuclear power plant. The new generation of the fuel intended for the reactors of the VVER-440 type, involving a slightly enhanced enrichment, allows more economic operation of all the four units.

At the end of May 2008 the first delivery of the new generation fuel reached the Dukovany NPP. In years to come it will facilitate a further increase in economic efficiency of power generation in all the units of this nuclear power plant. The average enrichment in the operational fuel assemblies will increase from 4.25 percent to 4.38 percent ²³⁵U. Usage of this new fuel will result in better balancing of the output in the reactor core, which is one of the preconditions for the permit to increase the reactor output by up to 5 %. The new fuel enables extension of its operating time in the reactor up to 6 years. The operation at a higher output level is subject to consent of the State Office for Nuclear Safety.

The TVEL technicians have prepared the fuel in long-term cooperation with the Czech experts on the basis of a contract between TVEL and ČEZ. Optimization of the structure of fuel assemblies has improved their thermal-hydraulic properties. The heating capacity of the reactor core will increase by even five percent, depending on the kind of operation with the new fuel. Thus the fuel may contribute to an increase in the output of the whole plant and in the volume of the generated power to be delivered to the electrical network.

Dukovany have been supplied with the fuel from TVEL since the very beginning of the operation in 1985. This year the switch-over from a three-year fuel cycle to a five-year cycle has been completed in all the four Dukovany units. As the result, the requirements for replacement of the used fuel with the new one and the requirements for storage of the used fuel in containers have become reduced. The improvements of the fuel for Dukovany attained up to now have resulted in the costs savings exceeding 8 billion CZK.

In last three years low-pressure parts of turbines of the Dukovany NPP were replaced for new and more modern ones from Škoda Power, which led to the increase in the output of each unit from 440 MW to 460 MW without the necessity to increase the reactor output. Next year modernization of further parts of the technological equipment will continue. The objective is to increase the output of each unit up to 500 MW by 2012.