

CHALLENGE OF SAFE NPP OPERATION AND CONSTRUCTION IN AN ECONOMY IN TRANSITION

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SUMMARY

The paper presents "Nuclearelectrica", a company set up in 1998, in the restructuring process of RENEL-the previous vertically integrated electricity corporation in Romania. "Nuclearelectrica" operates Unit 1 of Cernavoda NPP, manages the completion work of Unit 2 on the same site, produces the nuclear fuel for the plant. The construction history and the main technical features of Cernavoda units are reminded (CANDU reactor, built in co-operation with AECL-Canada, gross capacity of 706,5 MW, Unit 1 in service since December 1996 etc).

The main performance indicators for the first 5 years of commercial operation are presented. The paper illustrates "Nuclearelectrica" approach for the reduction of the generation cost, consisting mainly in: the improvement of the planned outages planning and preparation – which allow to take advantage of the on-load refueling, specific for CANDU reactors –, the reduction of the extent of unplanned outages, by improving the maintenance activities and optimizing the spares inventory, organizational restructuring.

The organizational framework for the construction of Unit 2, which by now is 48% completed, is described in the paper. The Romanian Government intends, also, to arrange the completion of Unit 3 and 4 at Cernavoda, on the basis of BOT-type contract.

For the spent fuel management, the efforts are now focussed on the construction of the first modules of the intermediate dry storage at Cernavoda, with a design solution used at Canadian NPPs.

"Nuclearelectrica" encounters some difficulties related to the general status of the Romanian economy, like: incomplete collection of the invoiced sums for the sold electricity, unsure support from domestic potential contractors, which are changing their profile of activity, drain of specialists to other companies or other countries. However, these circumstances did not affect the safe and reliable operation of the plant.

At the same time, on the country-wide energy market, nuclear energy is very competitive. A comparison of the regulated prices for the electricity produced in the nuclear plant, thermal and hydro power plants is presented, proving the economic advantage of the nuclear energy in Romania.

Key words : Cernavoda NPP, CANDU reactor, performance indicators, on-load refueling, availability, generation cost, planned/unplanned outages, nuclear fuel, construction work, BOT contract, intermediate dry storage, Romanian economy, domestic contractors, competitiveness, regulated electricity prices