



**Endorsed,**

**Alexandru Sandulescu  
President of the Board of Directors**

### **Note**

**regarding the approval by the Extraordinary General Shareholders Assembly of S.N. Nuclearelectrica S.A. of ceasing the works for Unit 5 as part of the investment project "Cernavoda Nuclear Power Plant 5 x 700 MW" and changing the destination and use of the existing buildings and areas related to Unit 5 for other activities of S.N. Nuclearelectrica S.A**

### **Preamble**

*The "Cernavoda Nuclear Power Plant (Cernavoda NPP)" investment project was originally scheduled in 1978 to have four nuclear power units of CANDU 6 type, each of 706.5 MWe, profile that was later extended to five units. From the beginning the works were carried out for all five units on site. In December 1989, the units had various stages of completion, with the works being more advanced on the first two units (Units 1 and 2).*

*According to the Post-Fukushima Action Plan, prepared by the National Commission for Nuclear Activities Control, whose implementation is a strong commitment of Romania to the European Union, SN Nuclearelectrica S.A. (SNN) has to identify, set up and bring into use a new location for the Emergency Control Centre on site, for fire personnel and physical protection personnel and for housing specific intervention tools and equipment.*

*Following the completion of "The feasibility study regarding the opportunity of completion of Cernavoda NPP Unit 5 in order to be used as a nuclear power unit", one of the recommendations was that the existing area and the constructions related to the unit to be used for ensuring nuclear safety and security in the operation of Units 1 and 2 and later Units 3 and 4, by changing its destination for such activities.*

### **Brief history**

The Government Decision no. 750/1990 (GD no. 750/1990) approved the technical-economic study for the "Cernavoda Nuclear Power Plant 5x700 MW" investment project and some measures of funding the works. The main characteristics of the investment, the technical and economic indicators and the provisions for developing the five (5) units were specified in the Annex to the above mentioned GD. Subsequently, the Government Decision was amended by

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GD no. 341/1993. The amendment added a new paragraph (2) to the sole article of GD no. 750/1990 which stated that preservation work for the construction and the installation of units 3-5, as well as the unused equipment and materials shall be done. In the same time, Article 2 introduced by the amendment specifies that "The Autonomous Electricity Association "Renel" (Regia Autonoma de Electricitate "Renel") was authorized to begin, in 1993, the negotiations in order to ensure the necessary funding sources for resuming the work for Unit 2, in order to meet the deadline for commissioning".

Based on GD 750/1990, the work on Unit 1 was resumed in 1992 (the degree of completion at that time was 46.1%) and the unit was completed and commissioned in December 1996. In 2003, the work for the completion of Unit 2 was resumed and it entered into operation phase in 2007. Thus, currently, Cernavoda NPP has two nuclear power units - Units 1 and 2. The installed capacity of these two units is 706.5 MW - Unit 1, respectively, 704.8 MW - Unit 2. Currently, the two units cover about 19% of Romania's energy consumption. The owner and the operator is SNN, an open stock company under the authority of the Department of Energy, which bears the status of majority shareholder on behalf of the Romanian state.

With regards to Units 3 and 4 of Cernavoda NPP, completion and commissioning are expressly mentioned in both "National Energy Strategy for 2007-2020" and "The proposal for the National Energy Strategy for the period 2011 to 2035" made by the Department of Energy of the Ministry of Economy.

### **Presentation**

Referring to the completion of Cernavoda NPP Unit 5, the National Energy Strategy in force at the current date does not provide any information regarding the completion of the unit, as it is expressly stated for completion of Units 3 and 4. The only provision referring to Unit 5 is the following: "A study on the recovery of the work performed at the unit to be developed." Therefore, the National Energy Strategy indirectly specifies the suspension of the works for this investment project. In this respect, the necessary steps were taken by SNN for the completion of the study mentioned in the National Energy Strategy, by developing in 2011 "The technical study on the suitability of continuing the work on Cernavoda NPP Unit 5 in order to use it as a nuclear power unit", which had the recommendation that "an optimal way of profitability of Unit 5 could be the use of the constructions and the existing spaces by changing the destination of the buildings which can be equipped to ensure operation of Units 1 and 2 and, later, Units 3 and 4, under the conditions required by current legislation". This study was internally approved by the Technical- Economic and Scientific Council of SNN (Consiliul Tehnico- Economic si Stiintific - CTES), which made the recommendation to develop a feasibility study on the opportunity for further work on Cernavoda NPP Unit 5. As a result, in March 2012, the "Feasibility study on the opportunity for further work on Cernavoda NPP Unit 5 to be used as a nuclear power unit" was developed. This second document takes into account the completion of Unit 5 from technical and economical point of view, in the context of current legislation. The author of the study, SITON, belonging to Autonomous Association for Nuclear Activities (Regia Autonoma pentru Activitati Nucleare), analyzed three technical solutions for further work at Cernavoda Unit 5, namely:

- 1) Completion of the works for commissioning of Unit 5, in order to achieve the initial purpose of the project (estimated cost € 2.8 billion);
- 2) Decommissioning of the existing buildings, by restoring the area related to Unit 5 and using it for placing various objects required for the operation under safety conditions of the four units (estimated cost € 43,325,340 million);
- 3) Changing of destination of the existing buildings on site by designing and adapting them to the needs of the units in operation in order to ensure their safe operation in relation to the nuclear safety and the fulfillment of all legal requirements, where that is considered to be feasible and economical (costs estimated € 28,387,309 million).

The first option mentioned above (completion of the works for commissioning of Unit 5, in order to achieve the initial purpose of the project), is not appropriate to be developed, due to the following technical and economic reasons:

- a) The water intake for the operation of Cernavoda NPP with five (5) units, about 270 m<sup>3</sup>/s, raises problems in the current flows conditions on the river branch Old Danube (Dunarea Veche), where the flow rates and water levels are low in the place of the intake from the Channel Danube Black Sea (Canalul Dunare Marea Neagra). Studies show that providing cooling water to the units cannot be fully covered by the Danube, as initially anticipated, not even after the harnessing works that are to be executed (building "the bottom threshold" at Bala). This leads to the need to redesign the system as a mixed-loop cooling system and represents a considerable additional investment cost.
- b) The degree of completeness of Unit 5 is about 2.8%. Bringing the existing structures on site to the required technical conditions requires significant additional funds;
- c) The newest national / international provisions for nuclear power plants bring new safety requirements for the operating units and for units that are under design or construction, such as new facilities on site and new activities related to the operation of the plant. The emergency control center requires a new facility and short and safe connection between its base facility and the units, in case of emergency.

The solution recommended by the study is option three (3), namely the reuse of existing buildings and space by changing the destination of the existing buildings on site by adapting them to the needs of Units 1 and 2 and, later, Units 3 and 4, in order to ensure their safe operation in relation to nuclear safety. Particularly, the recommendations made by the study refer to the use of the reactor building of Unit 5 for storage of the waste generated from maintenance and refurbishment and the use of integrated building of Unit 5 for housing the firehouse, the emergency control center on site, the storage of various mobile equipment, as well as developing an administrative area for on-site emergency personnel etc. Besides, by the "The Post-Fukushima Action Plan" prepared by the National Commission for Nuclear Activities, whose implementation is a strong commitment of Romania to the European Union, SNN must identify, set up and bring into use a new location for the Emergency Control Centre on site, for fire personnel and physical protection personnel and for housing specific intervention tools and equipment, location which, according to the above mentioned feasibility study, is identified as the area of Unit 5.

In relation to the actions that have been taken for notifying the competent authorities, SNN submitted to the Ministry of Economy the Substantiation Note for promoting a Government Decision for the removal of Cernavoda Unit 5 out of the 5 units investment project and the use of the related area for safe operation of Units 1 and 2, and later Units 3 and 4. Therefore, the Substantiation Note and the Government Decision proposal were submitted to the Ministry of Economy for consideration and approval. The following observations were made by the ministry: (i) ceasing an investment represents a decision related to the opportunity of the investment and not one with normative effects, (ii) assuming that funding of changing the destination and use of the areas and buildings is to be made from the beneficiary's own resources, i.e. SNN, the Government cannot decide in the absence of statutory bodies acts of SNN, (iii) for ceasing the works for an investment project and changing its destination, the promotion of a Memorandum can be considered, that, at the initiative of the competent authority, will mandate the representatives in the General Shareholders Assembly of the beneficiary to propose and vote on the decisions". In this respect, SNN submitted to the Department of Energy the proposed Memorandum to be signed by the Minister for Energy and then to be approved by the Prime Minister of Romania, in order to give the mandate to the state representatives in the General Shareholders Assembly to vote for changing the destination of the investment project.

## **Conclusion**

Given the above mentioned and the following:

- (i) By decision no. 40/08.10.2013, SNN's Board of Directors approved the ceasing of investment for Unit 5 and changing the destination and use of buildings and space of the unit for other activities related to the safe operation of Units 1 and 2 and later, Units 3 and 4;
- (ii) According to art. 13 paragraph 5 letter j) of the Articles of Association of SNN, the Extraordinary General Shareholders Assembly resolves any other resolution for which the approval of the Extraordinary General Shareholders Assembly is required, and in the matter of the present Note the complexity of ceasing an important investment project cannot be decided only at the level of the Board of Directors,
- (iii) On 21.11.2013, the General Shareholders Assembly postponed taking a decision with respect to the ceasing the works for Unit 5 as part of the investment project "Cernavoda Nuclear Power Plant 5 x 700 MW" and changing the destination and use of the existing buildings and areas related to Unit 5 for other activities of S.N. Nuclearelectrica S.A.,
- (iv) The SNN Board of Directors decided in its meeting on 24.01.2014, following the approval on 22.01.2014 by the Romanian Government of the Memorandum on "Ceasing the works for Unit 5 as part of the investment project "Cernavoda Nuclear Power Plant 5 x 700 MW" and changing the destination and use of the existing buildings and areas related to Unit 5 for other activities of S.N. Nuclearelectrica S.A.",

**we submit for approval to the Ordinary General Shareholders Assembly the following:**

- (i) *the approval of ceasing the works for Unit 5 as part of the investment project "Cernavoda Nuclear Power Plant 5 x 700 MW" based on the argumentation presented in this Note;*
- (ii) *the approval of changing the destination and the use of the existing buildings and areas related to Unit 5 for other activities related to the safe operation of Units 1 and 2, and, later Units 3 and 4, in order to ensure their safe operation in relation to nuclear safety.*

**Daniela Lulache**

**Chief Executive Officer**