



*Translation from Romanian*

**Endorsed,  
Board of Directors' Chairman  
Iulian-Robert TUDORACHE**

#### **NOTE**

**Concerning the submission to the approval of the General Meeting of Shareholders of S.N. Nuclearelectrica S.A. (SNN) of (i) the "Long-term Development Strategy of the Intermediary Repository for dried Spent Fuel (DICA) and Authorization with a view of extending the life of Units 1 and 2, harmonized with the observations of CNCAN and the Ministry of Environment and Climate Change" revised and (ii) modifying the DICA investment project**

#### **1. General Issues. Short History**

The commissioning of the Nuclear Power Plant at CNE Cernavodă - Unit 1 in 1996 and Unit 2 in 2007 - determined the need for the Intermediary Repository for Spent Fuel (DICA) to be developed and put into operation according to the normative acts issued by the National Commission for Control of Nuclear Activities (CNCAN), the IAEA recommendations and the international practices regarding the spent fuel for the intermediate storage of irradiated spent fuel in the reactor after its temporary storage (for 6 years) in the Spent Fuel Tank (BCU).

Internationally, in Vienna in September 1997, the "Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management" was adopted. It was later ratified by Romania by Decree no. 192/1999. According to the Convention, "the spent fuel generated by the nuclear power plants will be stored for a limited period in dry intermediate repositories".

Nationally, Law no. 111/1996 on the safe conduct, regulation, authorization and control of nuclear activities - republished, establishes the framework for safety, regulation, authorization and control of nuclear activities, and by Order no. 844/2004 of the National Agency for Radioactive Waste the medium and long-term national strategy on

the management of spent nuclear fuel and radioactive waste, including the final storage and decommissioning of nuclear and radiological equipment was approved. Thus, the authorization holders (SNN) must be held responsible for the management of the radioactive waste generated by their own activity and develop a program for preparing the decommissioning of their own nuclear installation and submit it to CNCAN for approval. Besides, CNCAN, by Order no. 400/2005, set up the rules for the surface storage of solid radioactive waste. Regarding the legal obligations of SNN, according to the provisions of article 24 of GO no. 11/2003 on the safe management of radioactive waste, with the amendments and completions brought by Law no. 378/2013, **"Nuclear permit holders are responsible for the decommissioning of nuclear and/or radiological equipment and facilities and for the management of radioactive waste resulting from the operation of nuclear and radiological installations and their decommissioning until final disposal"**.

The requirements of the Maintenance and Operation Authorizations of Units 1 and 2 at CNE Cernavodă granted by CNCAN, respectively the Authorizations of SNN CNE Cernavodă U1 - 01/2013 and U2 - 2/2013, stipulate, at article 39, the fact that "the radioactive waste will be managed according to the provisions of the regulations in force and CNCAN requirements" and at article 41, the commitment that "Cernavodă NPP will develop and submit to CNCAN, by June 30, 2013, the strategy regarding the location and authorization program of DICA".

At present, 8 MACSTOR 200 storage modules are built on the DICA site, 7 of which are fully occupied and sealed by the IAEA, and module 8 is populated at a rate of 25%, and at the end of the spent fuel transfer campaign in 2017 a 100% occupancy rate shall be reached.

By the General Meeting of Shareholders' (GMS) Decision no. 1/30.01.2000 the "Feasibility Study for the development of the investment objective Intermediary Repository for Spent Fuel (DICA) at Cernavodă NPP", aiming at the construction of 27 MACSTOR 200 modules, with a total investment value of **RON 181,766,200 thousand** staggered until 2040. In 2001, RAAN-CITON made an update of the document "Feasibility Study for DICA" as a result of the international tender for the purchase of services and goods for DICA which provided for the construction of 27 200 MACSTOR modules, for the storage of the spent fuel generated by the two units, a working cycle, resulting in a total investment value of **RON 232,745,829 thousand** (\$ 84,634,847), staggered until 2033. At the time of the "Management Plan of SNN ", elaborated by the Board of Directors (CA SNN) and approved by the General Meeting of Shareholders by Decision no.19/24.07.2013, the investment project DICA was provided with the amount of EUR 52 million, the equivalent of **RON 232,745,829 thousand**, the value of the

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investment according to the update of the Feasibility Study for DICA in 2001. In 2013, in order to meet the requirement of article 41 of the Maintenance and Operation Authorizations of Units 1 and 2, mentioned above, the document "Long Term Development Strategy of the Intermediary Repository for dried Spent Fuel (DICA) and Authorization with a view of extending the life of Units 1 and 2" - "DICA Strategy". Following the elaboration of the above-mentioned document, the need to review the DICA Strategy to meet intermediate storage requirements for spent fuel from Units 1 and 2 as well as Units 3 and 4 was identified following the request of the Ministry of Environment and Climate Change (MMSC) to approach in a unitary view, under the issue in question, the entire Cernavodă site for the entire life expectancy of the operational life of the units. Therefore, in October 2014, Revision 3 of the "Long Term Development Strategy of the Intermediary Repository for dried Spent Fuel (DICA) and Authorization with a view of extending the life of Units 1 and 2 harmonized with CNCAN and MMSC observations" ("Revised DICA Strategy").

The revised DICA Strategy issued in 2014, which provided for the transition to the MACSTOR 400 modules starting with Module 8 and increasing the total number of modules corresponding to the additional storage space requirement, received the CTES approval no. 26/29.10.2014. Subsequently, it was endorsed by BoD of SNN and approved by the Ordinary General Meeting of Shareholders by Decision no. 5/18.07.2016. At the same time, the Extraordinary General Meeting of the Shareholders by Decision no. 6/18.07.2016 approved the revised DICA Investment Project based on the "Feasibility Study Update for DICA rev. 1 ", with an approved investment value of **RON 604,567.54 thousand**. The DICA strategy approved by the shareholders in 2016 implied the continuation of the construction of the two MACSTOR 200 modules (8 and 9) in order to provide the time required for the MACSTOR 400 project authorization, following that the DICA project would continue the building of MACSTOR 400 modules starting with module 10.

## **2. The Current Situation**

The DICA Strategy approved by the Ordinary General Meeting of Shareholders Decision no. 5/18.07.2016 provides that modules 8 and 9 will be MACSTOR 200 and that, starting with Module 10, the MACSTOR 400 will be implemented. SNN implemented the approved shareholders' strategy and contracted the construction of MACSTOR 200 and MACSTOR 400 modules. On 30.03.2016, SNN submitted the necessary documentation to obtain the environmental agreement at the Ministry of Environment, Water and Forestry for the transition from MACSTOR 200 to MACSTOR 400. In the procedure for obtaining the Environmental Agreement for the extension of the site and the use of the DICA modules Type MACSTOR 400, additional requirements have been formulated by

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the Ministry of Environment as a result of the demands expressed by the Danube Delta Biosphere Administration, by which the impact study will be supplemented with additional assessments regarding the impact of radioactive emissions dispersions on the Danube Delta, during the normal operation, as well as if an accident happens. After the studies are prepared, the public debate will follow, both nationally and internationally, as the DICA MACSTOR 400 project, from the environmental assessment point of view, falls into the category of projects with cross-border impact. Therefore, a period of at least 2 years is foreseen until the issuance of the Environmental Agreement (2019).

Under these circumstances, the only possible option at this time in the context of the additional requirements formulated by the Ministry of Environment, Water and Forestry is the continuation of the MACSTOR 200 modules building, and the modules 10 and 11 will also be MACSTOR 200 type. The contracting of the execution works for Modules 10 and 11 is not possible, as the long-term development strategy of DICA, in the form approved by the SNN shareholders, specifies that these modules (10 and 11) will be MACSTOR 400 type.

In this situation, it has become necessary to update the long-term development strategy of DICA, approved by the shareholders (Annex 1).

Compared to the previously approved revision, the main changes of the Strategy aim to:

- Considering the scenario of extending the operation over 210,000 hours of operation at rated power (as a maximum, it will be considered about 235,000 hours of operation at rated power) and the refurbishment of the units. Consideration will also be given to the availability of the land necessary for the storage of the resulting fuel from Units 3 and 4; this scenario will only be implemented in the event that the shareholders approve the extension of the lifetime for the two units;
- Specifying that modules 10 and 11 will be MACSTOR 200;
- Providing the possibility of continuing to build MACSTOR 200 modules, if the environmental agreement is not obtained by 2020, and after such agreement is obtained the MACSTOR 400 modules will be built;
- Analysing the efficiency of using the space available for DICA placement, if modules 10 and 11 and possibly the following one, depending on the time of issuance of the Environmental Agreement, will be MACSTOR 200.

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Amendment of the proposed strategy leads to the addition of the necessary number of modules to ensure the storage capacity required in the new hypotheses above-mentioned with a number of two small modules (M200) and one large (M400). Regarding the costs associated with this Strategy amendment, we appreciate that, despite the addition of the number of modules, it does not involve increases in the value already approved for the investment project, namely RON 604,567.54 thousand, given that, when contracting the execution, the offered values were constantly below the estimated ones.

### **3. Proposals**

In view of the above, and taking into account the fact that:

- (i) By the General Meeting of Shareholders' (GMS) Decision no. 1/30.01.2000 the "Feasibility Study for the development of the investment objective Intermediary Repository for Spent Fuel (DICA) at Cernavodă NPP", the investment project on the MACSTOR 200 solution respectively, was approved;
- (ii) According to the provisions of article 13 paragraph 2 letter h) in the Articles of Incorporation of SNN, the approval of the company's strategy and development policies rests with the Ordinary General Meeting of Shareholders;
- (iii) According to the provisions of article 13 paragraph 4 letter a) and the Appendix to the Articles of Incorporation of SNN, the Extraordinary General Meeting of Shareholders is competent to decide on the investment projects exceeding the amount of EUR 50,000,000;
- (iv) The "Long Term Development Strategy of the Intermediary Repository for dried Spent Fuel (DICA) and Authorization with a view of extending the life of Units 1 and 2, harmonized with the observations of CNCAN and the Ministry of Environment and Climate Change" implies the strategic approach that SNN will have in connection with the fulfilment of its national and international legal obligations and the conditions imposed by the National Commission for Nuclear Activities Control (CNCAN) in the Authorization for the operation of the plant, regarding the obligation to ensure the appropriate capacities and conditions for dry storage of spent fuel in DICA;
- (v) By the Extraordinary General Meeting of Shareholders of SNN no. 6/18.07.2016 the updated DICA Investment Project, based on the update of the DICA Feasibility Study Revision 1, was approved;

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(vi) By the Ordinary General Meeting of Shareholders of SNN No. 5/18.07.2016, the "Long Term Development Strategy of the Intermediary Repository for dried Spent Fuel (DICA) and Authorization with a view of extending the life of Units 1 and 2, harmonized with the observations of CNCAN and the Ministry of Environment and Climate Change, revision 3" was approved;

(vii) By decision of the BoD No. 129 dated 24.08.2017, for the approval of the Extraordinary/Ordinary General Meeting of Shareholders of SNN: (i) the "Long-term Development Strategy of the Intermediary Repository for dried Spent Fuel (DICA) and Authorization with a view of extending the life of Units 1 and 2, harmonized with the observations of CNCAN and the Ministry of Environment and Climate Change", revised and (ii) the amendment of the DICA investment project, as documented in the strategy under section (i), with the approved investment value of RON 604,567.54 thousand were approved.

We submit the "Long-term Development Strategy of the Intermediary Repository for dried Spent Fuel (DICA) and Authorization with a view of extending the life of Units 1 and 2, harmonized with the observations of CNCAN and the Ministry of Environment and Climate Change", revised, to the approval of the Ordinary General Meeting of Shareholders of SNN.

We submit the amendment of DICA investment project as documented in the "Long-term Development Strategy of the Intermediary Repository for dried Spent Fuel (DICA) and Authorization with a view of extending the life of Units 1 and 2, harmonized with the observations of CNCAN and the Ministry of Environment and Climate Change", revised - by preserving the approved value of the investment namely RON 604,567.54 thousand - to the approval of the Extraordinary General Meeting of Shareholders.

**Daniela LULACHE**  
**CEO**

**Mihai DARIE**  
**CFO**