

**INVESTMENT STRATEGY OF NUCLEARELECTRICA S.A. NATIONAL
COMPANY FOR THE PERIOD JULY 1, 2020 - JULY 1, 2025**



NUCLEARELECTRICA S.A. National Company
May 8, 2020

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1. INTRODUCTION. CONTEXT

This Investment Strategy of Nuclearelectrica S.A. National Company for the period July 1, 2020 - July 1, 2025 (hereinafter referred to as the "Strategy") was developed according to the requirements of Order of the Minister of Economy, Energy and Business Environment no. 893/16.04.2020, being structured on the component that falls under the duties and powers of the Board of Directors and the executive management - Major Investment Objectives, and on the component that derives from the development requirements of the Romanian electricity sector - Project for the Refurbishment of Unit 1 of Cernavodă NPP and the Project for Units 3 and 4 of Cernavodă NPP.

When elaborating the Strategy, the specific nature and the uniqueness of the company's main scope of business - the production of electric and thermal energy by nuclear processes - within the national economic framework, were taken into account, considering with priority the principles of nuclear safety, which prevail.

Furthermore, the geopolitical and market realities in which the company operates were taken into consideration, including the vulnerabilities related to the availability of labor.

Regarding the development requirements of the Romanian electricity sector, the following are two relevant documents:

- The Draft of the Romanian Energy Strategy for the period 2019-2030 and Outlook to 2050 proposes concrete targets, sets clear directions and defines the milestones through which Romania will maintain its position as energy producer in the region, and as an active and important player in managing stress situations at regional level. The development of the energy sector is directly proportional to the implementation of strategic investment projects of national interest, the completion of the Project for Units 3 and 4 Cernavodă NPP being a priority. The refurbishment of Unit 1 of Cernavodă NPP is a component of the energy strategy project. Furthermore, the draft of the energy strategy substantiates Romania's position in relation to the reform proposals for the European energy market, and an important place is intended for the analysis of the European context and policies for the creation of the Energy Union that we will be part of, with its regular update to take into account the changes taking place at local, regional, European and global level, and the actual implementation of the Energy Strategy being correlated with the national and international context, both evolving in a dynamic interdependence.
- The Integrated National Energy and Climate Change Plan 2021-2030 (INECCP), a document in public consultation in the context of the initiation of the classification phase to decide whether the INECCP shall be subject to the environmental assessment procedure, sets out the development of a support mechanism such as Contracts for Difference (CfD) to stimulate investment, in order to facilitate the development of new low-carbon power generation capacities (e.g.: nuclear, RES etc.), thus ensuring the diversification of energy sources and the flexibility of the national system. The implementation of a CfD mechanism for low-carbon technologies requires the existence of a complementary legislative and regulatory framework detailing the elements of implementation.

2. RELEVANT ELEMENTS OF THE MANAGEMENT PLAN. ANNUAL INVESTMENT PROGRAMS.

The objectives proposed by the approved Management Plan are correlated with the expectations of the Company's shareholders and aim for the following elements, having direct relevance for the investment strategy of SNN:

- ✓ Establishing the actions required in order to implement the long-term strategy for the development of the Intermediate Spent Fuel Storage Facility (DICA) and authorization for the extension of the lifetime of Units 1 and 2 harmonized with CNCAN's observations, and those of the Ministry of Environment and Climate Change, respectively, revised, approved by the shareholders of SNN through OGMS Resolution no. 8/28.09.2017;
- ✓ Performing the activities necessary for the preparation of Unit 1 at Cernavoda NPP for the extension of the life cycle in view of the refurbishment, as well as, without limitation, the establishment of organizational and logistical measures, elaboration of supporting documents necessary for the preparation of the Feasibility Study, including the elaboration and submission thereof for approval by the shareholders in 2021;
- ✓ Ensuring the conditions for continuing and completing the negotiations on the Investment Documents regarding the development, construction, operation and decommissioning of Units 3 and 4 of Cernavoda NPP;

In relation to the elements presented above, the general objectives of S.N. Nuclearelectrica S.A. having a correspondent in the investment plan include:

- ✓ Fulfillment of the major investment objectives and implementation of investment plans approved by the budget;
- ✓ Implementation of the projects for modernizing, integrating and securing the informational flow and the IT infrastructure (hardware and software) within SNN;

One of the **specific performance indicators** approved by Resolution no. 3/10.04.2019 of the Ordinary General Meeting of the Shareholders of SNN is represented by a **degree of achievement of the investment budget of at least 60%**.

The total value of the investment program of SNN for 2020, approved by Resolution no. 3/03.05.2020 of the Ordinary General Meeting of the Shareholders of SNN, as part of the Revenues and Expenses Budget ("BVC") of SNN for 2020 is RON 309,544 thousand (without the component allocated to the reimbursement of instalments related to investment credits).

Annual Investment Programs

SNN is structuring its investment development program on objectives defined in relation to the needs of the production branches (Cernavoda NPP and Pitesti NFF), so as to achieve a high level of utilization of the production capacity (EAF Energy Availability Factor) in compliance with the nuclear safety norms

and the long-term maintenance of the level of excellence in the operation of the plant. At the same time, the goal of the development program is to cover the necessity to upgrade/refurbish certain systems, for both economic reasons (specific consumption reductions, improvement of certain parameters related to served processes, with a positive impact on efficiency), and legal ones – the need to implement upgrades associated with nuclear safety, environment protection and labor security, representing imperative requirements from the regulatory authorities in the field.

The annual investment and facility programs are sized in terms of value based on a series of considerations, with investment projects answering the requirements of nuclear safety and/or requirements of authorization being a priority, of which we mention: ongoing contractual commitments, estimates regarding the contracting perspectives related to the investment objectives to be made in the following year, including amounts allocated to investment projects for which the fulfillment of certain requirements outside the control of SNN is anticipated (e.g.: prior approvals of regulatory authorities, legal deadlines regarding the completion of public tender procedures, including appeals, obtaining the necessary approvals from SNN corporate bodies etc.), in order to allow the implementation of these projects by falling within the approved budget values. Depending on the manner of implementing investments, reallocations can be made between various investment projects, by complying with the total investment expenses approved and respectively the existing financing sources. Also, during the year there can be new necessities for investment expenses, unforeseen, which can be financed within the limit of the existing financing sources.

SNN's investment projects have a multi-year term, with the new investments having a low share in the annual investment program because, if they were launched in one budget year, the following year they will be included in the annual program, annex to the BVC, under the chapter ongoing investments.

The share of investment categories (new investments, ongoing investments, modernizations and facilities) in the total annual programs approved for 2019 and 2020 is presented in the table below:

	Investment Category	Investment Program 2019	Investment Program 2020
1	Ongoing investments	36.82%	28.42%
2	New investments	0.16%	5.12%
3	Investments made at the existing tangible assets (upgrades)	35.34%	43.80%
4	Facilities	27.67%	22.66%
	Total	100%	100%

3. MAIN MILESTONES OF THE INVESTMENT STRATEGY 2020 - 2025

The main milestones of the Investment Strategy of Nuclearelectrica S.A. National Company for the period July 1, 2020 - July 1, 2025 (hereinafter referred to as the "Strategy") take into consideration the component Major Investment Objectives, which falls under the duties and powers of the Board of Directors and the executive management, and on the component Major Strategic Objectives, respectively, that derives from the development requirements of the Romanian electricity sector - Project for the Refurbishment of Unit 1 of Cernavodă NPP and the Project for Units 3 and 4 of Cernavodă NPP - and the development/implementation of which depends on the adoption of certain decision by the Romanian authorities, including a set of support measures; state guarantees for loans, contracts for difference etc.

3.1. MAJOR INVESTMENT OBJECTIVES

(1) Investments and capital repairs made on Unit 1 and Unit 2, respectively, during planned outages

A significant component of the annual investment and facility programs of SNN (modernization section) is represented by inspections and capital repairs performed at Unit 1 and Unit 2, respectively, during the planned outages.

The sequence for the planned outages of the Cernavodă NPP Units for the period 2020-2025 is as follows:

- 2020: Planned Outage of Unit 1 (U1OP20);
- 2021: Planned Outage of Unit 2 (U2OP21);
- 2022: Planned Outage of Unit 1 (U1OP22);
- 2023: Planned Outage of Unit 2 (U2OP23);
- 2024: Planned Outage of Unit 1 (U1OP24);
- 2025: Planned Outage of Unit 2 (U1OP25).

It is important to note that the list of technical projects/project changes related to the activities to be performed during the planned outage of Unit 2 will be finalized in December 2020.

During the planned outages, 3 major categories of activities are considered:

1. Corrective activities - activities that have a significant impact on nuclear safety or production, resulting from periodic project assessments and/or from internal or external operating experience. These represent potential vulnerabilities and addressing them ensures the safe and efficient operation of the plant.

2. Major preventive activities - mandatory inspection activities arising from the applicable requirements of authorization and standards, as well as from the strategies developed in order to ensure the performance of systems, structures and components preventing the degradation of main project parameters and the failure of important plant equipment.

3. Improvements - activities resulting from the engineering monitoring of structures, systems and components and/or from the industry experience as technically and economically justified opportunities to obtain superior performances in relation to the initial project of the plant.

(2) Production of Cobalt-60 at Cernavoda NPP

Brief Description. Cobalt-60 is a gamma radioactive isotope that is efficiently obtained in nuclear reactors by irradiating bars containing Co-59. This radioactive isotope is widely used in medicine to treat cancer, sterilize a diverse range of medical instruments, pharmaceuticals, cosmetics and food. There are also other applications of Co-60 for the treatment of certain plastics or sewage waste.

The production of Co-60 in the reactors of Cernavoda NPP may represent, in addition to a business opportunity, an opportunity to bring added value to the image of the Romanian nuclear industry, and implicitly, it may contribute to the increase of the degree of acceptance on behalf of the population regarding the production of electricity in nuclear power plants. Moreover, SNN has the potential to become a major player in ensuring the supply of Co-60 within the European Union, thus bringing additional arguments in the process of supporting the refurbishment project of Unit 1 before the European institutions.

Implementation Strategy. Estimated timeline, estimated costs and sources of funding envisaged:

- Phase 1: preliminary studies and pre-feasibility study: 2020. Estimated cost CAD 250,000 - the study is funded and contracted by the project partner - Nordion Inc. Canada. In phase 1, a cost estimate for the subsequent phases will be made. Therefore, the estimated costs indicated below are provided before Phase 1 is completed and should be treated as such.
- Phase 2: pre-engineering/engineering, feasibility studies (including corporate approvals) and obtaining CNCAN approvals: 2021-2022. Estimated cost CAD 2,000,000. It is expected that the funding will be shared between Nuclearelectrica, from its own funds, and external partners. In phase 2, the cost estimate from Phase 1 is refined, and the value of the project to be used for its approval is established.
- Phase 3: Project Development and Implementation: 2022-2027 (the project implementation may only be done during the planned outages). Estimated cost CAD 20-30 million. The funding model is not yet established, but the need to obtain loans and/or attract funds is foreseen.

(3) Extension of the life cycle of Unit 1 by re-tubing the reactor and refurbishing the main systems (studies).

Brief Description. Any nuclear unit has a limited lifetime, set by the project. For units with CANDU technology, the lifetime designed is 210.000 hours of operation at rated power, which, at a capacity factor of 80%, translates into an operational life of approximately 30 years. The main components and structures that are limiting the lifetime are fuel channels, calandria tubes, feeders and the reactor's building.

The refurbishment of a nuclear unit is more advantageous than the construction of a new capacity through the fact that this does not require the authorization of a new site, the construction of buildings and the installation of technological systems, and the period required for the actual refurbishment works is significantly shorter, estimated, approximately, based on the information currently available, at between 24 and 30 months, compared to minimum 64 months, the time it will last to build a new unit.

Based on international experience, the Project for the Refurbishment of Unit 1 is structured in 3 distinct phases:

- Phase 1 - Demonstrating the capacity of the current components of the reactor of Unit 1 to operate over 210,000 hours at rated power, until at least the end of 2026, finalizing the purpose of the works of the Refurbishment Project, as well as demonstrating the feasibility of the Refurbishment Project;

- Phase 2 - Contracting the General Contractor for the implementation of the Refurbishment Project and placing the orders for the equipment with long manufacturing cycle, as well as preparing the infrastructure required for the execution of the project;
- Phase 3 - Stopping the unit and the actual implementation of the Project, which must necessarily consist in the replacement of the following current components of the reactor of Unit 1: fuel channels, calandria tubes and feeders, but also of the execution of certain modernizations and replacements of components in the existent systems of the unit.

Phase 1 Implementation Strategy. SNN's GSM Resolution 9 of 27.09.2017, approved the "Updated Strategy and Action Plan for the Project for the Refurbishment of Unit 1 of Cernavodă NPP", having an associated budget of RON 250,000 thousand, and the source of funding being SNN's own funds.

Main activities envisaged:

- Determining the Volume of works required to be implemented for the outage necessary for the refurbishment of Unit 1 (2018 - 2022):
 - Assessment of the condition of structures, systems and components of Unit 1 (Condition Assessment)
 - Technical solution for the replacement of nuclear fuel channels, calandria tubes and feeders - ICCTCF - for the reactor of U1
 - Identification of project changes needed to be implemented in the outage for refurbishment, in order to increase the level of Nuclear Safety in the future operating cycle (2028 - 2058).

Value contracted / in the process of being contracted: RON 46,200 thousand / RON 3,100 thousand.

- Demonstrating the capacity of Unit 1 to safely operate over 210,000 hours at rated power, until at least the end of 2026. Contract Value: RON 35.2 million.
- Studies required to obtain the Environmental Agreement (2019 - 2022) and for input data for the Feasibility Study:
 - Management of radioactive waste resulting from the refurbishment activities of Unit 1;
 - Elaboration of the conservation program of U1 systems/components during the refurbishment".

Value contracted / in the process of being contracted: RON 6,080 thousand / 17,700 thousand.

Elaboration and approval of the Feasibility Study (2020-2022), structured in two distinct stages: Stage 1- Determining the maximum value of the Refurbishment Project for which SNN, with Unit 1 refurbished remains competitive on the electricity market and Stage 2 - Demonstrating the feasibility of the Refurbishment Project. This study will include all the information obtained from the studies conducted in Phase 1.

Estimated value: RON 5,000 thousand.

(4) Intermediate Dry Storage Spent Fuel Facility (DICA)

Brief Description. In order to support the specific needs of this field, the most important project is the one related to the management of the burned fuel, for which the construction works of the Intermediate Spent Fuel Storage Facility (DICA) are being performed in stages. The scope of the DICA Project is to build the intermediate storage facilities of spent fuel generated in the operation of Units 1 and 2 of Cernavoda NPP

and represents a condition for the authorization / re-authorization of the operation of Cernavoda NPP. The Intermediate Spent Fuel Storage Facility (DICA) where the spent fuel is stored on a temporary basis is modular, allowing thus its construction to be done in stages, as the spent fuel stored temporarily (minimum 6 years) in the Spent Fuel Storage Pool of Unit 1/2 of Cernavodă NPP needs to be transferred to the DICA.

The provision of the facilities for the intermediate storage of spent fuel is ensured by building MACSTOR modules. The Macstor 200 modules built so far consist in a parallelepiped construction with a monolithic structure made of reinforced concrete, with a length of 21.64 m, a width of 8.13 m and a height of 7.51 m, incorporating 20 metal enclosures - storage cylinders arranged vertically 10 in 2 parallel rows. In each of these cylinders, 10 baskets, each filled with 60 bundles of spent fuel are stacked, following which, the cylinder is plugged with a stopper (the inside of which is filled with concrete) and over which the flat cover is welded, then sealed by the International Atomic Energy Agency (IAEA).

Implementation Strategy. The long-term revised strategy for the development of the Intermediate Spent Fuel Storage Facility (DICA) and authorization for the extension of the lifetime of Units 1 and 2 harmonized with CNCAN's observations, and those of the Ministry of Environment and Climate Change, respectively, was approved by the shareholders of SNN through OGMS Resolution 8/28.09.2017. The development of the DICA envisages the switch to the construction of MACSTOR 400 modules, in compliance with the revised long-term Strategy and envisages the following **major stages / milestones** for the next 5 years (2020 - 2025):

- Contracting the C+M [Construction + Installation] works for Modules no. 12 - 17 and issuing the Work Commencement Order (Deadline: September 2020)
Completion of C+M works and commissioning Module no. 12 (Deadline: July 2021)
Completion of C+M works and commissioning Module no. 13 (Deadline: April 2022)
Completion of C+M works and commissioning Module no. 14 (Deadline: December 2022)
Completion of C+M works and commissioning Module no. 15 (Deadline: December 2023)
Completion of C+M works and commissioning Module no. 16 (Deadline: December 2024)
Completion of C+M works and commissioning Module no. 17 (Deadline: December 2025)
- Performing the activities regarding the reauthorization of the DICA for the MACSTOR 400 module, and obtaining all agreements / permits / authorizations required by the legislation in force, respectively (Environmental Agreement, Sanitary Permit, Water Management Permit and CNCAN Authorizations). The action will be launched in 2023 and is expected to be completed in 2025. (Deadline: August 2025)
- Contracting the C+M works, by public tender, for the first MACSTOR 400 modules (the first MACSTOR 400 module will be module 18, the first on row 3) and issuing the Work Commencement Order for the first MACSTOR 400 modules. The action will be launched in 2024. (Deadline: September 2025)

The funding of the investment will be ensured from SNN's own sources, with the estimated costs per year being as follows:

2020 - RON 10,052,810
2021 - RON 16,665,600
2022 - RON 16,665,600
2023 - RON 14,065,600
2024 - RON 14,065,600

2025 - RON 14,103,731.

According to the development plan for the DICA objective, the intention is to build, starting with Module 18, a number of 20 MACSTOR 400 modules. Module 18 must be available for the transfer of spent fuel in December 2026. In order to obtain the site and building permit for the 20 modules, SNN/Cernavoda NPP will submit to CNCAN, in the first half of 2024, a Preliminary Nuclear Safety Report, which will include the description and assessment of nuclear safety of the 20 MACSTOR 400 modules.

Furthermore, in the first half of 2025, SNN/Cernavoda NPP will request, from CNCAN, the building permit for module 18, as MACSTOR 400 module.

Considering that the MACSTOR 400 project will be deployed in stages, every time a new module will need to be put into operation, SNN/Cernavoda NPP will request the amendment of the operation and maintenance authorization of the DICA objective, so as to include the new MACSTOR 400 module.

(5) Modernization and Expansion of Physical Security System

Brief Description. The purpose of the investment is to comply with the legal requirements applicable to physical protection systems in the nuclear field, which require the modernization, extension and efficiency of the physical protection system of Cernavoda NPP (protected area and areas adjacent to the protected area) and to implement the works resulting as necessary following the study on maintaining the operation of critical infrastructure in vital structures in case of threats beyond the design basis (Post Fukushima - Daiichi). Following the nuclear accident at the Fukushima-Daiichi power plant in Japan and following the recommendations of the regulatory bodies, Cernavoda NPP contracted the elaboration of a "Study on maintaining the operation of critical infrastructure contained in vital structures in case of threats beyond the design basis" (classified document No. 07/2011)".

The study highlighted the measures required for the physical protection of the critical infrastructure contained in the vital structures of Cernavoda NPP and for ensuring a reserve of reaction time, in case of threats beyond the identified design bases.

The measures required to be implemented, according to the results of the study, correspond to the CNCAN requirements (Norms on physical protection in nuclear field NPF-01, Guide on the protection of nuclear plants against indoor sabotage GPF-02), legislative requirements in the field and recommendations of the International Agency for Atomic Energy (INFCIRC 225 Rev. 5 - Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities).

Implementation Strategy. It was proposed to divide and implement the resulting changes in several stages, depending on their importance:

1. Works with Priority 1, stage 1 and 2 - completed;
2. Works with Priority 2, Stage 1 of the completion of the physical protection system of Cernavoda NPP identified in the "Study on maintaining the operation of critical infrastructure within the vital structures in case of threats beyond the design basis";
3. Works with Priority 2, Stage 2 of the completion of the physical protection system of Cernavoda NPP identified in the "Study on maintaining the operation of critical infrastructure within the vital structures in case of threats beyond the design basis";
4. Design, installation and commissioning of a physical protection system related to the existing constructions on the site of Unit 5 for the protection of equipment intended for emergency interventions and the Emergency Control Center on site (on the site of Unit 5).

- The works with Priority 2, Stage 1 of the completion of the physical protection system of Cernavoda NPP identified in the "Study on maintaining the operation of critical infrastructure within the vital structures in case of threats beyond the design bases" are in course of implementation, they were launched in 2017 and will be finished in August **2020**;
- The works with Priority 2, Stage 2 of the completion of the physical protection system of Cernavoda NPP identified in the "Study on maintaining the operation of critical infrastructure within the vital structures in case of threats beyond the design basis" have an estimated implementation period between **2022-2025**, with the procurement procedure to be launched towards the end of 2020;
- The design, installation and commissioning of a physical protection system related to the existing constructions on the site of Unit 5 for the protection of equipment intended for emergency interventions have an estimated implementation period between **2021-2022**, correlated with the fit-out works of Unit 5.

The funding of the investment will be ensured from SNN's own sources, with the estimated costs per year being as follows:

2020 - RON	8,510,678
2021 - RON	7,850,000
2022 - RON	14,675,000
2023 - RON	23,750,000
2024 - RON	23,750,000
2025 - RON	8,478,750

(6) Fit-out of Unit 5

Brief Description. The fit-out of Unit 5 involves works required to change the intended use of the existing constructions found on its site, from that of a nuclear power plant, to that of other support objectives, useful during the lifetime of Units 1 and 2 currently in operation and the future Units 3 and 4. The objective related to the fit-out of Unit 5 was included in the investment project with code PJ-11-006 "Improving the response of Cernavodă N.P.P., namely of nuclear security functions in case of events beyond the design basis, due to the nuclear accident occurred at the nuclear plant Fukushima 1, Japan". This objective is part of the said project, as the fit-out of a new qualified seismic location for: On-Site Emergency Control Center (CCUA), Work Admission Area in case of a Severe Accident (ZALAS), PSI Station, Shelter/Administrative Area for Emergency Situations, facilities for the analysis of radiological samples, Physical Protection Control Center, Garage equipped for: maintenance of mobile diesel generator sets, associated mobile transformers, machines for radiological mobilization in the event of emergencies, motor pump, equipment for unlocking access roads will lead to the fulfillment of the commitments in the Country Report, issued after the Fukushima accident.

The main objectives of the project are those of achieving:

- *in the Integrated Building*
 - Shelter for emergency situations
 - On-Site Emergency Control Center (C.C.U.A.)
 - P.S.I. Station
 - Development of an Administrative Area for the response personnel in the event of an emergency

- Fit-out of technical areas required for sanitary, electrical, ventilation and security equipment
- Cernavodă N.P.P. Platform Thermal Point
- Garage equipped according to the requirements related to the parking of mobile intervention groups (mobile diesel generators for the total loss of power supply - Station Black Out (S.B.O.)).
- In the *Reactor Building*, construction works will be carried out to complete the building's infrastructure, closing the gaps in the perimeter wall of the building, replenishing the roof, repairs and gross interior finishes for the future intended use of the building.
- *Fit-out of the site* adjacent to the above-mentioned buildings with fencing and physical protection control points, staff and car access, including access roads, all at a level higher than the flooding level imposed by the standards.

Current Status. In order to achieve this objective, at the end of 2015, an engineering/design, procurement and construction contract was awarded. During the performance of the contract, delays were incurred, caused by objective reasons (new regulatory requirements), but also by issues related to the contractor. In October 2019, the contract was terminated. The percentage of achievement of the activities set out under the contract is about 44-45%.

SNN requested the IAEA, in order to avoid such situations to repeat in the future contract, the organization of a mission of experts with the following aim:

- a) a benchmark assessment of the design requirements for the investment objective On-Site Emergency Control Center (CCUA) - Unit 5, in relation to the best practices of the IAEA Member States regarding the measures adopted for the design and qualification requirements to external hazards for an emergency control center for a NPP site;
- b) An assessment of the technical requirements regarding the qualification of equipment to external hazards/events (in particular the seismic qualification).

The mission of expert was conducted between February 25-28, 2020. The report of IAEA experts was submitted in May 2020, and the procurement documentation will be revised in the sense of implementing the recommendations formulated by the mission of experts, and the procurement procedure will be launched to complete the investment objective.

Continuation/Implementation Strategy.

- Closing the terminated contract - requires an expertise of the objects that have not been completed in proportion of 100%, in order to establish the correct value due to the contractor.
- Performing the contracting process of the works left to be executed after the termination of the contract - estimated term of completion: **December 2020**
- Review of the environmental agreement
- Extension or reissue of the building permit by CNCAN: **November 2020**
- Performance of fit-out works for Unit 5 - estimated term for completion: **April 2022**

The funding of the investment will be ensured from SNN's own sources, with the estimated costs per year being as follows:

- 2020 - RON 20,000 - taxes + extrajudicial expertise + about 2.1 million for works not yet settled (conservatively assessed value), to be confirmed by the afore-mentioned extrajudicial expertise
- 2021 - RON 50,000,000
- 2022 - RON 40,000,000

(7) D2O Tritium Removal Installation

Brief Description. In the normal operation of a CANDU type nuclear power unit (by transforming deuterium under the influence of neutron fields, in heavy water used in nuclear systems, tritium, a radioactive isotope of hydrogen, is formed. The formation of tritium has a major impact on the performance of current operation activities, on specific radiation protection measures and programs, on the short, medium and long term management of radioactive waste, and implicitly, on the budgets to be allocated for the appropriate management of this impact. In order to reduce the concentration of tritium and limit its contribution to the radiation doses received by the plant's staff and considering the economic advantages resulting from recycling the tritium, the Tritium Removal Facility (CTRF) will be deployed at Cernavoda NPP, which will ensure the removal of tritium from the heavy water and the maintenance of its concentration at the lowest possible value. The tritium removal method used in the Project consists in removing the tritium from tritiated heavy water (DTO) by using a combination of liquid phase catalytic exchange (LPCE), followed by its concentration through cryogenic distillation (CD) and the storage of tritium in a safe state (metal hydride). The project includes the entire technological line of the CTRF, the fit-outs and equipment related to the technological process, support systems required for the operation of the facility, provision of utilities (water/sewer and electricity), technological process control equipment (including protection systems), technological pipeline networks, electrical cables, liquid and gaseous exhaust monitoring systems, as well as fire prevention and extinction equipment (see the schematic diagram in the following figure).

Implementation Strategy. In August 2018, the General Meeting of the Shareholders of SNN approved the Implementation Strategy of the Investment Project "Tritium Removal Facility at Cernavoda NPP" (hereinafter referred to as the CTRF Project) based on the Feasibility Study revision 11. The total cost of the investment according to the General Estimate is RON 895,247,882, i.e. EUR 190,478,273 (at an exchange rate of 4.7 RON /EUR), of which the C+M represents RON 145,531,444, i.e. EUR 30,946,137. We mention that the total expenses incurred so far with the design phases that have been undergone, and the permits and licenses obtained, amount to RON 63.23 million, i.e. EUR 13 million. The project's implementation strategy is based on the conclusion of an EPC (Engineering Procurement Construction) contract with an economic operator or an association with experience in achieving such objectives, selected in virtue of a competitive procedure according to the legal provisions.

Furthermore, considering, on the one hand, the complexity and specific nature ("first in a while") of the project and, on the other hand, the insufficient expertise and resources available at SNN, the strategy provides for the procurement of consulting and engineering support services (Owner's Engineering), with an organization that has the necessary expertise related to the tritium removal technology.

International experience shows that the deployment of the project requires a period of approximately 5 years (60 months), therefore, given the advantages that the operation of CTRF brings in relation to the handling and storage of tritiated heavy water during the refurbishment works, the action plan for the implementation of the project provides for the award of the EPC contract at the beginning of 2021, and the completion of the commissioning and acceptance of the facility at the beginning of 2026, approximately one year before the outage for the refurbishment of Unit 1.

The implementation timeline of the project provides for the development of the investment across seven years, the first preparatory year, and six years for the deployment of the CTRF, including the trial operation.

When elaborating the project timeline, the following main activities with major impact in the implementation of the project have been envisaged:

- Award of OE contract - May 2020;
- Award of EPC contract - March 2021;
- Preparation of execution details - April 2021 - December 2023
- Procurement of equipment with long manufacturing cycle - September 2021 - February 2024;
- Performance of construction-installation works - April 2022 - September 2024;
- Trial operation and performance tests - July 2025 - December 2025;
- Transfer to Operation - December 2025.

(8) Projects for modernizing, integrating and securing the informational flow and the IT infrastructure (hardware and software) within SNN - Digital Upgrade

Brief Description. The digital upgrade project has 4 components:

- *The component of technological modernization for IT and process systems:*
The *IT system* will be modernized and integrated within the main functions. The modernization entails both the replacement of physically and morally worn hardware with some of the new generation, more powerful and better adapted to their role, and the upgrade of software to platforms with new, integrated functions, with active support from manufacturers, in order to eliminate the vulnerabilities detected. The hardware elements to be replaced during the period 2020-2025 will include components intended for users (e.g. workstations) and components intended for the processing, storage, communications and hosting infrastructure (datacenter). The software elements to be upgraded are those used for managing activities: management of infrastructure, users and e-mail, maintenance of production assets (EAM) and related technical documentation (EDMS), financial-accounting administration (ERP-Fin), human resources administration (ERP-HR). Furthermore, these elements are to be integrated in order to provide the functionalities to all SNN entities from a single IT platform, with simplified management, hosted in a datacenter distributed on various functions between branches, which will benefit from additional modernization elements.
The ABB Symphony Harmony Distributed Control (DCS) *process system* installed in Unit 2 sums up the command, supervision and alarm of a significant part of the functions that are being performed in Unit 1 through several automation systems, e.g. Nuovo Pignone, Marconi, GEC-Alstom, Honeywell S9000, National Instruments, various local panels. Following the issue of the CNCAN cyber security norms NSC01, the DCS system was included in the list of digital process systems with security function or nuclear safety support that fall under the scope of these norms, and on this occasion, a risk analysis was performed for the equipment and critical digital or computerized components (CDA - critical digital assets) related to the DCS to cyber threats. In order to comply with the requirements, a series of modernizations will be performed: the upgrade of the DCS workstations that are morally and physically worn, the provision of a backup data center for the operational area, to ensure the redundancy of these functions and to perform the operations of Back-up and Back-up process software configurations testing, as well as the integration of current cyber security solutions for the DCS.
- *The Component Business Process Digitization* involves making investments to implement new and efficient solutions in order to automate and streamline the activity in these processes. The need to address with priority the ERP modules, which need to be extended, either within the organization, or within new functionalities, as well as the implementation of new solutions, such as the management

of processes, documents and flows related to IT processes and services, has been identified. The implementation of process management technologies requires the management of traded information, and the provision of real-time decision-making support by implementing business intelligence solutions.

- *Component Innovation and Education: Center of Digital Excellence.* In the context of CNCAN issuing the cyber security norms NSC01 and the entry into force of Law 362/2018 on ensuring a high common level of security of network and information systems, it is necessary to take measures to improve the cyber security of the operational area (OT - process data control and acquisition digital systems). In this regard, it was determined necessary to provide a center with multiple functions: continuous training and testing of own staff on both operational components and cyber security components, testing of systems used in production for various changes to be done, testing the new technologies to be implemented, including from the perspective of interoperability with existing systems. In addition, the center will shorten the training period of newly hired staff, allowing the performance of induction activities in a controlled environment, under safe conditions, on environments similar or identical to those from production.
- *Cybersecurity Component.* In the context of CNCAN issuing the cyber security norms NSC01 and the entry into force of Law 362/2018 on ensuring a high common level of security of network and information systems, SN Nuclearelectrica as an Essential Services Operator will take measures to increase the cyber security level of its informational (IT) and operational (OT) area, in line with international standards and practice of nuclear facilities. In this regard, a series of solutions will be implemented to protect and monitor cyber security of the IT-OT infrastructure, a security event monitoring center (Security Operation Center) will be implemented, and the mechanisms and technologies required to respond to security incidents, with capabilities for the detection and reporting thereof to the national center CERT.RO, will be provided.

Implementation Strategy. It is estimated that the sub-projects under the 4 components will be multi-annual, and will be launched sequentially, starting with the third quarter of 2020. These will be performed in stages, possibly interleaved, depending on the existing or subsequently identified interdependencies and conditionalities. The deployment period for this project is 5 years, in the timeframe 2020-2025.

Estimated implementation term: 2025.

3.2. MAJOR STRATEGIC OBJECTIVES

(1) Project for the Refurbishment of Unit 1 of Cernavodă NPP

The estimates associated to phase 2 (preparation of implementation) and phase 3 (actual implementation of the project) are presented below:

Phase 2 - Preparation of the Implementation (2022 - 2026)

- **Estimated total budget: RON 2,300,000,000** - own funds/loans. The structure of the funds will be determined only after the completion and approval of the Feasibility Study, which will indicate both the total cost of the Refurbishment Project, and the volume of works required to be implemented.
- **Main Activities:**
 - Structuring funding packages and signing loan agreements

- Negotiating and awarding the Engineering, Procurement and Construction Contracts (EPC)
- Procuring the equipment with long manufacturing cycle;
- Obtaining the Opinion of the European Commission - Article 41 Euratom Treaty;
- Obtaining all the authorizations and permits required to launch the project;
- Building the radioactive waste storage facilities, required for the storage of the waste resulting from refurbishment activities, as well as other infrastructure objects necessary for the project.

Phase 3 - Stopping the Unit and the actual deployment of the Refurbishment Project (2026 – 2028)

- Estimated total budget: **RON 4,560,000,000** - own funds/loans. The structure of the funds will be determined after structuring the funding and signing the loan agreements.
- Main Activities:
 - Stopping the unit, unloading the fuel and heavy water;
 - Replacing calandria tubes, fuel channels and feeders;
 - Replacing other components identified in Phase 1, in order to ensure the operation of Unit 1 for another operating cycle of 30 years;
 - Restoring the configuration of the systems and putting the Unit 1 back into operation.

Constraints/Prerequisites beyond the Control of SNN

- **Price of electricity** - if the price of electricity upon the completion of the refurbishment works is too low, due to any regulatory measures being imposed, the Romanian Government needs to implement support measures/facilities;
- **Granting of state guarantees** - in order to be able to ensure the funding of the Refurbishment Project, the Romanian Government needs to grant state guarantees that would allow SNN to access loans;
- **Legislative framework** - in order to ensure the predictability of the volume of works, it is necessary for the legislative framework in the field of nuclear and environmental protection to be maintained unchanged, from the date the final investment decision is made (approval of the Project's Feasibility Study).

(2) The Project for Units 3 and 4 of Cernavoda NPP

The Strategy for continuing the Project of Units 3 and 4 of Cernavodă NPP by organizing an Investor Selection Procedure (the "Strategy") was approved through memorandum by the Government, and by the Extraordinary General Meeting of the Shareholders of S.N. Nuclearelectrica S.A. ("SNN") in 2014. The strategy provides for the creation of a joint venture within the meaning of art. 50 of Law 137/2002, between SNN and a private investor, selected through a competitive procedure, namely a Project Company ("JVCO"), to which the value invested by SNN in the subsidiary EnergoNuclear S.A. ("EN") to be transferred. The Project Company represents the precursory company to the IPP company (independent energy producer), founded with a 2-year duration, which can be modified by mutual consent of the parties, in order to recheck the feasibility of the project, assess the assets and make the final investment decision ("DFI") for passing to the implementation stage of the Project, i.e. the IPP stage. The Procedure regarding the execution of "Green/Brown Field"-type projects by means of incorporating IPP-type companies, having as contribution in kind the goods of national companies, autonomously led companies in the portfolio of the Ministry of Economy - the Department for Energy and the cash contribution of a potential

investor was taken into consideration (the IPP Procedure), a procedure used by the Department for Energy for energy investment projects.

The Strategy for continuing the Project of Units 3 and 4 of Cernavodă NPP sets out:

- the fact that its deployment *involves the provision of funds for investments estimated at approximately EUR 5 billion, without the assets already under the property of SNN, EN and the Romanian state.*
- the need for *"support mechanisms to facilitate the implementation of large investments in the energy infrastructure, based on the principles of the free energy market, and in compliance with the European regulations on transparency, competition and state aid. The securing may be achieved both through fiscal mechanisms, and the help of commercial instruments adapted to the energy field, that would allow, mainly, the predictability of the return on investment for investors in energy production capacities through low-carbon technologies. In this context, the Romanian authorities currently have, in different stages of analysis, a series of measures intended to stimulate the investment interest for projects in energy capacities based on low-carbon technologies:*
 - ✓ *Promoting the appropriate legal framework for securing electricity sales and increasing the predictability of return on investment in large projects for production of low-carbon capacities, in compliance with the provisions of the European legislation. The analysis has under considerations measures such as: (i) the possibility for the project company to contract electricity before obtaining the manufacturer's license, both on and off the OPCOM platform; and (ii) the development of a CfD (contract for difference) mechanism, a model used in the reform of the UK electricity market, which aims to support investments in the field of energy in low-carbon production capacities;*
 - ✓ *The possibility of the State guarantee as a necessary tool to secure the funding of large energy infrastructure investments, which bring economic and social added value, provided that national and European state aid legislation is complied with, and falling within the guarantee ceiling agreed with the international financial bodies and with the application of the provisions of OUG [Government Emergency Ordinance] no. 88/2013, on the adoption of fiscal-budgetary measures for the fulfilment of agreed commitments with the international bodies, as well as for the modification and completion of normative acts, approved as amended and supplemented by Law 25/2014, H.G. [Government Decision] no. 225/2014 for the approval of the Methodological Norms on prioritizing the public investment projects and of OUG no. 64/2007 on public debt, approved as amended and supplemented by Law 109/2008, as further amended. The support measures identified shall be implemented, if applicable, depending on the opportunity decision, in compliance with the relevant legal and Community framework, including the authorization decision of the European Commission".*

Brief Description. The Project of Units 3 and 4 of Cernavodă NPP consists in completing and commissioning **2 CANDU 6 type units** on the Cernavodă NPP site, with an installed capacity of minimum **2 x 720 MWe**. The existing structures for Units 3 and 4 consist, mainly, of civil engineering structures, such as the reactor building, the turbine-generator building and the hydrotechnical circuit structures which are in various stages of completion and will continue to be used for the construction of the plant.

Project Milestones:

- The Romanian Government received in November 2010 the Opinion of the European Commission issued in compliance with Article 43 of the EURATOM Treaty, regarding the completion of Units 3 and 4 of Cernavodă NPP, which confirms the application of the technical criteria and nuclear safety in force within the EU;
- During the period 2010 - 2011, AECL (currently CANDU Energy Inc., the owner of the CANDU technology and also the design authority) a detailed technical assessment of the existing constructions on site was conducted, resulting that these may be used to continue the Project;

- The project will include improvements resulting from key lessons learned from the events occurred at the Fukushima Daiichi nuclear power plant in March 2011;
- EnergoNuclear S.A. has prepared, together with specialized consultants, the nuclear safety and engineering studies (seismic risk analysis, safety assessments following the Fukushima accident, probabilistic safety assessments, preliminary safety analysis - Chapter 15 of the Preliminary Nuclear Safety Report, seismic assessment of major equipment, list of project changes to improve safety and operating characteristics, preliminary decommissioning plan, radioactive waste management strategy);
- The “Basic Authorization Documents” and the Security Design Guidelines for the two units, defining the technical authorization requirements, have already been approved by the National Commission for Nuclear Activities Control (CNCAN). The comfort letter issued by CNCAN in May 2012, confirms that the project may be authorized in compliance with the national legislation in force;
- In September 2012, the Feasibility Study of the project was finished, revealing the fact that the project is technically and economically feasible, subject to the adoption of support mechanisms;
- Government Decision no. 737/2013 regarding the issuance of the Environmental Agreement for the project "Continuation of construction and completion works for Units 3 and 4 Cernavodă N.P.P.";
- CANDU Energy concluded (2019) that, with the implementation of some project changes, the requirements of the new European Nuclear Safety Directive are met.

Estimated Cost of the Project¹: EUR 6.45 billion, of which:

- **EUR 5.44 billion - funding requirement**
- **EUR 1.039 billion** - contribution in kind: existing civil structures, land, value invested in EnergoNuclear (SNN’s contribution) initial heavy water load (Romanian State);

Equity / loans ratio: 30% (EUR 925 million - own sources SNN) - 70% (loans EUR 4.514 billion. - with the support of Export Credit Agencies);

Loan term: 21 years, of which 6 years (2024 - 2030) grace period and 15 years reimbursement period (2031-2045) - after the commissioning;

Project Development and Implementation. Based on the experience gained, the development of the Project of Units 3 and 4 will be done in two distinct phases:

- **Phase 1 - Pre-Project (2020 - 2024).** In this phase, the economic and technical feasibility of the project will be demonstrated. Furthermore, the award of the Engineering, Procurement and Construction Contract (EPC) to a general contractor that is able to provide performance bonds (partial transfer of construction risk) and performance guarantees, placing orders for the equipment with long manufacturing cycle, as well as the preparation of the infrastructure required for the execution of the project, will be completed.
- **Phase 2 - Project Implementation (2024 - 2031).** 75 months from the date of entry into force of the EPC contract, funding and obtaining the necessary authorizations.

Phase 1 - Pre-Project (2020 - 2024)

¹ Feasibility Study 2012. Estimated costs do not include inflation, interest and fees related to external loans.

- Estimated total budget: RON 282,000 thousand. Source of funding: own funds/loans, the structure of the funds will be determined after the establishment of the project's development strategy.
- Estimated duration: 42 months
- Main activities:
 - *Obtaining the Nuclear Safety Authorization* (updating the basic licensing documents, elaborating the Preliminary Nuclear Safety Report etc.).
 - *Defining the Project* (updating the list of project changes; elaborating the procurement specifications for the equipment with long manufacturing cycle, completing the documentation for obtaining the network connection agreement, updating the Feasibility Study of the Project etc.)
 - *Preparing the Implementation of the Project* (elaborating the procurement documentation for contracting the "Owner's Engineer" type technical support services, launching, conducting and completing the procurement procedure regarding the selection of the EPC Contractor, performing the design activities of the main systems with nuclear safety role, technical reassessment of existing civil structures and elaborating a remedy plan, obtaining the necessary approvals - Feasibility Study etc. - including from the European Commission for support measures, structuring the funding and signing the loan agreements etc.)

Phase 2 - Project Implementation (2024 - 2031). Main activities: mobilization of the general contractor, procurement of equipment, completion of construction works for existing civil structures and permanent and temporary buildings, installation of equipment, completion of commissioning tests.

Constraints/Prerequisites beyond the Control of SNN

- **Granting of state guarantees** - in order to be able to ensure the funding of the Project, state guarantees must be granted, having the support of export credit agencies;
- **Implementation of a set of support measures**, including in the type of Contracts for difference (CfD), in order to guarantee the sale price of electricity;
- **Legislative framework** - in order to ensure the predictability of the volume of works, it is necessary for the legislative framework in the field of nuclear and environmental protection to be maintained unchanged, from the date the final investment decision is made.

ANNEX 1 - Estimated Costs for 2020 - 2025 Major Investment Objectives

Annex 1 - SNN Investments Strategy 2020 - 2025
Major Investments Objectives

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No.	Project Name	Achieved at 31.03.2020	Estimative costs Semester 2 2020	Estimative costs 2021	Estimative costs 2022	Estimative costs 2023	Estimative costs 2024	Estimative costs 2025	Total Estimative costs	Estimative deadline for implementation		Source of funding
										Month	Year	
1	Inspections and capital repairs achieved to Unit 1 and Unit 2 respectively during the planned outages	606	87,759	107,679	170,522	210,602	81,126	79,050	737,342			Own funds
1.1.	Corrective activities	-	2,001	684	121,394	112,719	-	-	236,796	U1OP20, U1OP22, U2OP22		Own funds
1.2.	Major preventive activities	-	85,758	106,995	46,798	47,883	81,126	79,050	447,610	U1OP22, U2OP23, U1OP24, U2OP25		Own funds
1.3.	Improvements	606	-	-	2,330	50,000	-	-	52,936	U1OP20, U1OP22, U2OP22		Own funds
2	Cobalt 60 Project	-	800	3,200	3,200	-	12,800	12,800	70,400			TBD
2.1.	Phase 1 - preliminary studies*		800									External partner
2.2.	Phase 2 - pre-engineering**			3,200	3,200				6,400		2022	TBD
2.3.	Phase 3 - design and implementation***						12,800	12,800	64,000		2027-2029	TBD
3	Unit 1 CNE Cernavoda Refurbishment - Phase 1 Project definitions (studies) (of which)	29,923	61,420	128,605	30,053	-	-	-	250,000	3	2022	Own funds
3.1	Condition Assessment		33,665	12,594	0	0	0	0	46,259	6	2021	Own funds
3.2	Showing of Unit 1 capabilities for running in safe conditions up to 245.000 hours	0	19,475	15,552	188				35,214		2022	Own funds
3.3	Management of radioactive waste from refurbishment activities of Unit 1;	0	0	6,080					6,080	2	2021	Own funds
3.4	Technical solution for replacement of the nuclear fuel channels, of the calandria tubes and of the feeders - ICCTCF - for reactor U1	0	1,280						1,280	11	2020	Own funds
3.5	Elaboration of the preservation program of the systems/components of U1 during refurbishment stage	0	0	8,379					8,379	12	2021	Own funds
3.6	Elaboration and approval of Feasibility Study		2,000	4,000	0	0	0	0	6,000	12	2021	Own funds
3.7	Project changes which can be implemented during the planned outage for refurbishment		5,000	72,000					77,000	12	2021	Own funds
3.7	Other studies and contingent/non-concurrent			10,000	29,865				39,865	12	2022	Own funds
4	Intermediate Dry Spent Fuel Storage Facility (IDSFS)	2,334	7,719	16,666	16,666	14,066	14,066	14,104	85,619			Own funds

4.1.	IDSFS - Modules 11 si 12, physical protection works at M9-M11	2,334	7,719						10,053	Dec.	2020	Own funds
4.2.	IDSFS - Modules 12 si 13, physical protection works at M12, taxes			16,666					16,666	Dec.	2021	Own funds
4.3.	IDSFS - Modules 13 si 14, physical protection works at M13 and M14, taxes				16,666				16,666	Dec.	2022	Own funds
4.4.	IDSFS- Module 15, physical protection works at M15, IDSFS relicensing procedures for MACSTOR 400 Module, taxes					14,066			14,066	Dec.	2023	Own funds
4.5.	IDSFS - Module 16, physical protection works at M16, IDSFS relicensing procedures for MACSTOR 400 Module, taxes						14,066		14,066	Dec.	2024	Own funds
4.6.	IDSFS- Module 17, physical protection works at M17, IDSFS relicensing procedures for MACSTOR 400 Module, taxes							14,104	14,104	Dec.	2025	Own funds
5	Modernization and extention of the physical protection system	439	8,072	7,850	14,675	23,750	23,750	8,479	87,014	0	12,135	Own funds
5.1.	Physical Protection works - Priority works no 2 - stage 1	439	8,072						8,511	Aug.	2020	Own funds
5.2.	Physical protection works for U5, UPS for the Physical Protection System's Control Room			7,850					7,850	Dec.	2021	Own funds
5.3.	Physical Protection works at U5, Physical Protection works - Priority works no 2, stage 2				14,675				14,675	Dec.	2022	Own funds
5.4.	Physical Protection works -Priority works no 2, stage 2					23,750			23,750	Dec.	2023	Own funds
5.5.	Physical Protection works -Priority works no 2, stage 2						23,750		23,750	Dec.	2024	Own funds
5.6.	Physical protection works -Priority works no 2, stage 2							8,479	8,479	Dec.	2025	Own funds
6	Unit 5 Rearrangement Works	0	2,120	50,000	40,000	0	0	0	92,120			Own funds
6.1.	Rearrangement works U5- taxes + extrajudicial expertise + the amount to be paid to the contractor, which will result from the expertise of the investment works that have not been yet completed in proportion of 100%	0	2,120						2,120	Dec.	2020	Own funds
6.2.	U5 Rearrangemnt Works -Construction Works			50,000					50,000	Dec.	2021	Own funds
6.3.	U5 Rearrangemnt Works -Construction Works				40,000				40,000	Apr.	2022	Own funds
7	Cernavoda NPP Tritium Removal Facility (CTRF)	60,980	3,500	42,000	115,500	280,000	213,600	96,420	812,000	Dec.	2025	SNN/ External funds
7.1	Owner's Engineering services		3,500	12,000	15,500	16,000	13,600	7,550	68,150			Own funds
7.2	Preparation of execution details			15,000	25,000	14,000			54,000			External funds
7.3	Equipment procurement			15,000	50,000	195,000	125,000		385,000			External funds
7.4	Construction and installation works				25,000	55,000	65,000	2,500	147,500			External funds
7.5	Comissioning tests						10,000	15,000	25,000			External funds
7.6	Various and unforeseen expenses							71,370	71,370			External funds
8	Digital Modernization Project		48,258	72,968	27,039	24,250	21,340	24,856	218,711	Dec.	2025	Own funds
8.1.	Modernization		15,278	29,076	8,851	6,790	5,820	7,396	73,211			Own funds
8.2.	Business processes digitalization		15,278	28,130	5,820	5,578	5,093	7,033	66,930			Own funds

8.3.	Cybersecurity		10,428	8,973	8,003	8,488	7,033	7,033	49,955			Own funds
8.4.	Innovation and learning: Center of excellence		7,275	6,790	4,365	3,395	3,395	3,395	28,615			Own funds

		2020	2021	2022	2023	2024	2025	Total
Total amount of the Own Funds	33,302	218,847	395,767	314,454	288,667	153,882	134,039	1,538,957
Total amount of the loans/ other resources		800	33,200	103,200	264,000	212,800	101,670	753,270
TOTAL	33,302	219,647	428,967	417,654	552,667	366,682	235,709	2,292,227