

# Capital investment strategy 2025-2030,

*with 2035 outlook*

Development, innovation and sustainability



NUCLEARELECTRICA

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## Message from the CEO



Dear investors, partners, colleagues, and citizens,

On behalf of the team, I thank you for your trust and for the support you provide to our strategic projects. I am confident that nuclear energy will continue to play a central role in the future of Romania's and Europe's energy sector, and that Nuclearelectrica will remain a pillar of security, stability, and sustainability for our energy system.

Through this investment strategy, we reaffirm our firm commitment to national energy security and to the essential role of nuclear energy in the transition to a low-carbon future. We embrace this responsibility with confidence and strategic vision, supporting a transparent, competitive, and innovation-driven business environment.

With an investment portfolio exceeding 20 billion euros for the next decade, we are set to implement the most extensive and ambitious nuclear program in Central and Eastern Europe. Our strategy prioritizes the refurbishment of existing capacities and the development of new ones through the construction of Units 3 and 4 at Cernavodă and the small modular reactor (SMR) project at Doicești. At the same time, our investments focus on securing and modernizing the domestic nuclear supply chain, thereby strengthening Romania's energy independence.

These investment programs reflect the company's commitment to a safe, clean, and resilient energy system, which is fundamental to supporting Romania's decarbonization and energy independence goals.

We believe in the power of partnerships and openness to innovation. Together with prestigious international partners, we will integrate the best industry practices into the delivery of our programs.

Investing in our people means investing in our future. We train, attract, and support top specialists to ensure that Romanian nuclear expertise remains a benchmark of professionalism and responsibility in the region. We collaborate with universities and research centers, offering young people training and mentoring opportunities, and we develop the skills and knowledge necessary for the future.

We are fully aware of our role in the community and the economy. Every SNN project brings local and national benefits – from stable jobs and industrial innovation to sustainable development and energy independence. Transparency, rigor, and responsibility towards future generations are the foundations upon which we base all our decisions.

This strategy is more than an investment plan – it is a statement of confidence in Romania's future.

Thank you for your support and trust..

**Best regards,  
Cosmin Ghiță**

CEO

Societatea Națională Nuclearelectrica S.A.



NUCLÉARELECTRICA

# 2

## Company profile

CHAPTER





## Company profile

Societatea Națională Nuclearelectrica S.A. (SNN) is a company of strategic importance for Romania's energy system, being the only company that generates electricity from nuclear sources and one of the main nuclear operators in the region. With a share of about 20% of the total national electricity production, SNN provides steady, predictable power, contributing to the achievement of the European objectives regarding carbon emissions reduction and promoting the transition to cleaner sources.

SNN has been listed on the Bucharest Stock Exchange (BVB) since 2013 under the symbol SNN. The Romanian State, represented by the Ministry of Energy, owns 82.50% of the share capital, with the remaining approximately 17.50% of the share capital held by individual and institutional investors.

By operating the two CANDU 6 units at Cernavodă Nuclear Power Plant (1,400 MW), as well as coordinating the uranium processing and the nuclear fuel plants, SNN strengthens its competitive position and creates the foundation for the further development of nuclear projects in Romania.

SNN's operational performance is demonstrated by an aggregate capacity factor of more than 91% over the 2021-2024 period, a result that reflects technological reliability, operational efficiency and the company's ability to deliver consistent energy. This level of performance directly contributes to stable revenue streams and long-term investment attractiveness.

### SNN shareholders

<b>82.50%</b> Romanian state <b>17.50%</b> Private investors	Operation of units 1 and 2 and ancillary services (CNE Cernavodă)	Production of CANDU nuclear fuel bundles (FCN Pitești)

### SNN subsidiaries and holdings

<b>100%</b>	<b>EnergONuclear S.A.</b> Units 3 and 4 development at CNE Cernavodă
<b>100%</b>	<b>Fabrica de Prelucrare a Concentratelor de Uraniu Feldioara S.R.L.</b> Uranium concentrate processing
<b>100%</b>	<b>Nuclearelectrica Serv S.R.L.</b> Support services for group companies
<b>50%</b>	<b>RoPower Nuclear S.A.</b> Small Modular Reactors (SMR) development in partnership with Nova Power & Gas



SNN defines its identity and strategic role through a firm commitment to building a sustainable and prosperous future for Romania. The focus on innovation, excellence and social responsibility is reflected in the vision, mission and core values that guide the company's activity.

**SNN Vision: “Building a sustainable future for tomorrow’s generation.”**

This vision reflects SNN’s commitment to contribute to the development of a prosperous society, based on sustainable and innovative energy solutions that ensure the well-being and security of future generations.

**SNN’s mission: “We generate clean, safe and sustainable energy, upholding the highest standards of excellence.”**

SNN’s mission is to produce nuclear energy under the highest safety conditions, in line with the most stringent international standards, contributing to energy sustainability and environmental protection.

Through clean, safe and sustainable energy solutions, SNN contributes to the well-being of today’s and tomorrow’s generations, emphasizing professionalism, safety, sustainability, responsibility, empathy and diversity in all aspects of operations and governance.

At S.N. Nuclearelectrica S.A., the decision-making structure is organized on a clear and efficient hierarchy, to ensure sound corporate governance, transparency and high performance - essential elements in the implementation of a robust investment strategy:

- **The General Meeting of Shareholders (GMS)** is the supreme decision-making body where the company’s strategic directions are validated, including the approval of long-term investment plans. The GMS ensures that shareholders’ interests are aligned with the company’s development objectives, thus guaranteeing the legitimacy and sustainability of major investment decisions.



- **The Board of Directors (BoD)** is responsible for developing and overseeing the implementation of policies necessary to achieve strategic objectives, including investment objectives. The BoD analyzes investment opportunities, assesses the associated risks and approves the initiatives proposed by the executive management, within the limits of the mandate conferred by the GMS. SNN's Board of Directors is composed of seven members. To streamline the decision-making process, the BoD has delegated operational management responsibilities to the CEO and CFO.
- **Executive Management** is responsible for implementing the approved investment strategy, coordinating and monitoring ongoing projects. It manages the allocated resources, monitors performance indicators and regularly reports progress to the BoD and GMS, thus contributing to effective and transparent governance of the investment process.

SNN, as a joint-stock company with majority state-owned capital, must comply with public procurement legislation in all investment projects it undertakes. This legal framework ensures the transparency, fairness and economic efficiency of the procurement processes, in line with the fundamental principles established by Law no. 99/2016 and related legislation, which regulates public procurement in Romania.

Therefore, all procurement and award procedures for investment contracts shall be carried out in accordance with the rules, procedures and selection criteria laid down in public procurement law, including compliance with the principles of transparency, equal treatment, non-discrimination and proportionality. This obligation contributes to building investor confidence, reducing risk in this process and ensuring the efficient use of public, private and European funds.





NUCLÉARELECTRICA

# 3

CHAPTER

## Nuclear sector trends



## Nuclear sector trends

Following the United Nations Climate Change Conference (COP28), global nuclear energy objectives have received a significant boost, with over 30 countries committing to triple nuclear capacity by 2050. This move recognizes the critical role of nuclear technology in reducing greenhouse gas emissions and ensuring a stable energy system.

**Global installed nuclear capacity currently stands at around 400 gigawatts of electricity (GWe), providing about 10% of the world's electricity generation.**

The International Energy Agency (IEA) estimates that, depending on the energy scenario adopted at global level, global nuclear capacity could increase significantly by 2050. Thus, under moderate implementation of energy policies, global nuclear capacity could exceed 600 GWe, and under scenarios of intensive nuclear sector development, it could rise to over 1000 GWe.

Projections by the International Atomic Energy Agency (IAEA) indicate an increase in global nuclear capacity of almost 2.5 times by 2050 compared to today's level, including through the development of small modular reactors (SMRs), driven by the need to reduce greenhouse gas emissions and ensure a stable and diversified energy system in the context of the global transition to cleaner energy sources. Small modular reactors are a key component of this development, offering more flexible, easily deployable solutions adapted to both developed and emerging markets.

The development of the nuclear sector will require substantial investments, estimated at more than \$100 billion annually over the next decade, both for the development of new capacity and the modernization of existing infrastructure and the efficient integration of nuclear energy into the future energy system.

**The European Union recognizes nuclear energy as an essential pillar in the transition to a climate-neutral economy, alongside renewables. The European Union's Nuclear Alliance, made up of 11 member states - including Romania - has set an ambitious target of 150 GW of installed nuclear capacity by 2050. Reaching this target would represent an increase of about 50% compared to the current level of installed nuclear capacity and would provide about a quarter of Europe's electricity needs, as well as support for low-carbon hydrogen and heat production.**

The "Fit-for-55" plan and the REPower EU initiative aim to accelerate decarbonization and reduce external energy dependence, especially on imported natural gas. In this context, the European Commission has included nuclear energy in the taxonomy of sustainable investments and launched the Clean Industrial Deal (CID) which reinforces the transition to a net-zero emission economy through a technology-neutral approach, recognizing nuclear technologies - including SMRs - as part of the policy mix. The CID also foresees assessing the possibility of state aid for nuclear technologies, opening the way for dedicated financial support. The Net-Zero Industry Act (NZIA) provides the legislative framework that facilitates the objectives set out in the CID by setting targets for European production capacities, speeding up licensing procedures and attracting investment in net-zero technologies.

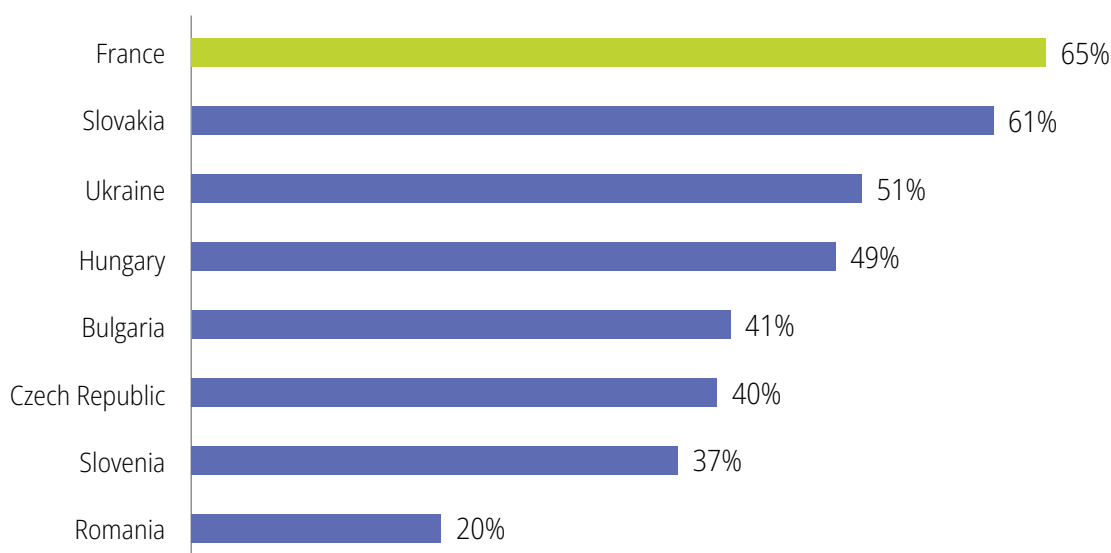
The European Commission's Affordable Energy Action Plan (AEAP) supports accelerated investment in clean energy and infrastructure with the aim of making energy more affordable for households and industries, reducing dependence on imported fossil fuels and strengthening the EU's economic competitiveness. In this framework, the Contracts for Difference (CfDs) mechanism plays a key role, foreseen to support investment in new low-carbon power generation capacity, including in the nuclear sector.

For SNN, CfDs can help ensure financial stability by increasing the predictability of revenues for the company's strategic projects, providing protection against price volatility and facilitating the attraction of capital needed to develop and modernize nuclear capacity.

Nuclear energy is recognized as an essential vector for achieving the strategic autonomy of the European Union, contributing not only to energy security, but also to reducing external technological and industrial dependence - a priority objective in the post-pandemic context and the energy crisis generated by the war in Ukraine.

The share of nuclear energy in the energy mix in Central and Eastern Europe varies significantly, from around 20% to over 60%, depending on the country. France, although not part of Eastern Europe, is an important benchmark, with a share of over 65% nuclear in its electricity generation in 2023, while Slovakia (61%), Ukraine (51%) and Hungary (49%) are among the regional leaders. Romania has a share of around 20% nuclear in its energy mix, showing significant potential for growth.

*Fig. 1: Share of nuclear energy in the energy mix of Central and Eastern European countries, compared to France, 2023*



Source: Statista, IAEA



The development of nuclear energy is of major geopolitical and strategic importance for Romania and the region as a whole. By strengthening nuclear capabilities, countries can reduce their dependence on energy imports, increase energy security and strengthen their regional position, contributing to the stability of the European energy market and reducing the risks associated with price volatility and geopolitical tensions. Thus, nuclear energy becomes an essential pillar in ensuring the energy independence and resilience of Romania and Central and Eastern Europe, providing a secure basis for sustainable economic development and promoting a more stable and predictable energy environment at European level.

In this context, Romania's Energy Strategy 2025-2035, with a 2050 perspective, emphasizes the need to maintain a diversified, resilient and low-emission energy mix, in which nuclear energy plays a key role for the stability of the national energy system. Romania's Energy Strategy foresees priority investments in the nuclear sector, by extending the lifetime of existing units, as well as the development of new capacities, including small modular reactors (SMRs)..

**The long-term strategy to reduce greenhouse gas emissions - "Romania climate neutral by 2050" supports this framework, identifying nuclear energy as a key vector in achieving climate neutrality. The document foresees the refurbishment of Units 1 and 2 of CNE Cernavodă, the construction of two new nuclear units and the development of a small modular reactor plant. These measures are essential to strengthen national energy security.**

Also, through the Integrated National Energy and Climate Plan (NECP, 2024), Romania aims to reduce net greenhouse gas (GHG) emissions by 85% by 2030 compared to 1990 levels, and sets a long-term objective of achieving a 96% reduction in net GHG emissions by 2040 and a complete reduction in net GHG emissions by 2050. In the energy sector, a net reduction of 87% by 2030 and over 94% by 2050 compared to 1990 levels is targeted. The nuclear sector is foreseen to contribute to this strategic objective by extending the lifetime of existing capacities and developing new capacities, including Small Modular Reactor (SMR) projects, to ensure the stability, safety and sustainability of the energy system.

In conclusion, the role of nuclear energy is crucial in the global and European context of the transition towards a cleaner, stable and secure energy system. Romania, through its updated strategies and plans, recognizes nuclear energy as a fundamental pillar for achieving the objectives of reducing greenhouse gas emissions, strengthening energy security and supporting long-term sustainable economic development. These initiatives are fully in line with global and European ambitions for climate neutrality and energy sector transformation, underlining the importance of investing in modern and innovative nuclear capabilities.



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**Refurbishment  
of Unit 1**

**RTH**



**Small  
Modular  
Reactors**

**SMR**



**Units 3 and 4  
development**

**U3&4**



**Heavy water  
detritionation  
facility**

**CTRF**



**Medical  
radioisotopes**

**IRIS**



# 4

## Strategic development directions

CHAPTER

## Strategic development directions

In the context of a constantly transforming energy market and the increasingly urgent requirements for clean, safe and sustainable energy, SNN assumes a proactive and leading role in the Romanian and European nuclear sector by adopting an ambitious investment strategy.

SNN aims to strengthen and expand its production capacity, promote innovation and ensure the sustainability of its operations within a framework of excellence and responsibility.

**EUR 20 billion**

### **SNN's strategic investment portfolio is estimated at more than 20 billion euro for the next decade**

and is structured in three core directions, each with a major impact on the development of the nuclear sector and Romania's energy security:

#### **I. Expanding and diversifying production capacity**

**EUR 15 billion**

through investments of over €15 billion, the company aims to increase and diversify production capacity, including new units and advanced technologies. The main investment programs included under this strategic direction are:

1. **Units 3 and 4 development at CNE Cernavodă**
2. **Small Modular Reactors (SMRs) development**

#### **II. Enhancing the safety, reliability and operational excellence of existing capacity**

**EUR 4.6 billion**

with investments of more than €4.6 billion, SNN is modernizing its current infrastructure, ensuring the optimal and safe operation of the nuclear power plant. The main investment programs included under this strategic direction are:

1. **Unit 1 refurbishment**
2. **Interim burned fuel storage development**
3. **Emergency facilities center development**
4. **Nuclear fuel plant modernization and development**
5. **Uranium concentrate processing plant upgrading and development**
6. **Digital transformation and resilience**
7. **Other significant investments**

#### **III. Sustainability and innovation**

**EUR 0.4 billion**

with investments of over EUR 0.4 billion, SNN promotes innovative and sustainable solutions that contribute to the circular economy and the development of a diversified portfolio of products and services. The main investment programs included under this strategic direction are:

1. **Heavy water detritiation facility**
2. **Diversifying the product portfolio by producing medical radioisotopes**

Through this strategic approach, SNN strengthens Romania's position as a key player in the production of clean energy, and generates economic, social and environmental benefits at national and regional level, contributing to energy security, decarbonization and sustainable development of the country.

The financing of this investment strategy is an essential element as it determines the capacity for effective implementation of the planned programs. The choice of financing sources and methods directly influences the capital structure, financial risk as well as the return on investment.

SNN aims to minimize financing costs as a financial objective by building a financing structure composed of a mix of own sources, attracted sources, and other support mechanisms, as follows:

#### **Own sources:**

- surplus cash available to the company after the distribution of dividends;
- in-kind contribution of SNN and the Romanian State to the share capital of Energonuclear (EN), for the development of the U3 & U4 Project.

#### **Attracted sources:**

- syndicated bank loans from international financial institutions;
- bank loans from Export Credit Agencies ("ECAs"), depending on the country of origin of the project cost items;
- corporate bond issuance;
- non-reimbursable funds;
- other forms of funding attracted, including equity in partnership structures or other arrangements.

#### **Other support instruments:**

- Contracts for Difference (CfD) - this mechanism ensures a stable price for the energy produced, reducing market risk and providing long-term revenue predictability.
- Protection mechanism against changes in policy or legislation - protection clauses and insurance against political and legislative risks are essential in energy infrastructure projects where exposure to such risks is high.

Through a diversified and flexible approach, SNN sets the premises for attracting the financial resources needed to carry out the investment strategy and to strengthen its position on the energy market. This diversified financing strategy aims at minimizing financing costs, giving the company a competitive advantage and a solid basis for the sustainable development of SNN.

# 5

CHAPTER

## Capital investment programs



## Capital investment programs

### I. Expanding and diversifying production capacity

#### 1. Units 3 and 4 development at CNE Cernavodă



The development program of units 3 and 4 at Cernavoda is being carried out through the project company EnergoNuclear S.A. (EN) which was established in 2009 and has the legal status of a wholly-owned subsidiary of SNN, as the sole shareholder.

The development of units 3 and 4 at CNE Cernavoda is a strategic program of national interest that contributes both to the achievement of Romania's strategic energy security objectives, an essential component of national security, and to the promotion of national interests in the global and regional context. The project consists in finalizing the construction and commissioning of 2 units of minimum 724 MWe each, using CANDU (Canada Deuterium Uranium) nuclear technology.

The development of units 3 and 4 is brown field, as the existing civil structures are already about 40% completed. The Romanian state owns key assets essential for the construction and operation of these units, including the heavy water for the first load and the uranium octoxide needed for the first nuclear fuel load.

In 2023 a support Agreement was signed between the Romanian State and SN Nuclearelectrica S.A. regarding the development of Units 3 and 4 at CNE Cernavodă, and represents the firm commitment of the Romanian State for the development of the new units.



The development of units 3 and 4 at Cernavodă is structured in three main stages as follows:

- **Stage I – Preparatory.** The stage was successfully completed in 2024 and included the reassessment of the civil structures, obtaining the Letter of Comfort from CNCAN and the European Commission opinion, updating the Support Agreement and signing the Engineering, Procurement and Construction Management (EPCM) contract. The EPCM contract has been signed with an international consortium of companies, named “FCSA Joint Venture”. The contract covers both the Limited Notice to Proceed (LNTP) and the Final Notice to Proceed (FNTP) stages and has a total estimated value of €3.2 billion.
- **Stage II – Preliminary Works (Limited Notice to Proceed - LNTP).** The expected duration of Stage II - LNTP is 24-30 months from the date of entry into force of the contract, i.e. the submission of performance guarantees. The critical path of the LNTP Stage is given by the finalization of the documentation for obtaining the Nuclear Safety Construction Permit, the cost estimates for Stage III - Final Notice to Proceed (FNTP) and the implementation schedule of the FNTP stage, which are the basis for the final investment decision. Stage II has the following main objectives: to prepare the necessary engineering to define the project; to structure and contract the financing (through cost estimates and implementation schedule with high degree of certainty); to obtain the Nuclear Safety Authorization for the Construction stage and to take the Final Investment Decision to move to Stage III (Construction).
- **Stage III – Construction (Final Notice to Proceed).** The estimated duration of Stage III - FNTP is 80-84 months. This estimate will be adjusted and confirmed at the end of Stage II - LNTP. The main objectives of Stage III are the initiation and completion of the construction and installation works.

### Engineering, Procurement and Construction Management Agreement (EPCM)

The engineering, procurement and construction management (EPCM) agreement for the development of reactors 3 and 4 at Cernavodă was signed in November 2024, during the UN Climate Change Conference COP29 in Baku, between EnergoNuclear and the FCSA Joint Venture. The contract, with an estimated value of around €3.2 billion, is structured in two stages: the first, the LNTP, lasting 24-30 months, followed by the FNTP (Final Notice to Proceed), which will last 80-84 months, after the final investment decision and commercial terms have been made. This agreement foresees the provision of engineering, procurement, construction management, technical assistance and quality assurance services until the commissioning of the units. The FCSA JV is composed of leading international companies Fluor (Fluor B.V., Fluor Energy Transition Inc.), Candu Energy (subsidiary AtkinsRéalis), Ansaldo Nucleare, S&L Engineers and Sargent & Lundy Energie.

## 2. Small Modular Reactors (SMRs) development



The development of the small modular reactors is carried out through the project company RoPower Nuclear S.A. which was established in 2021 and is equally owned by SNN and Nova Power & Gas (member of E-INFRA).

The SMR program aims to develop electricity generation capacity in a small modular reactor nuclear power plant. This investment consists in the completion and commissioning of six NuScale Power Module NPM™ modular units on the site of the former Doicești thermal power plant, with a gross installed capacity of 462 MWe (6 x 77 MWe).

The first major milestone of the project was achieved in October 2022, with the signing of the first major contract, the Front-End Engineering & Design (FEED 1) contract with NuScale in Washington, partially funded by a US Trade and Development Agency (USTDA) grant that ran from November 2022 to July 2023. In December 2022 a contract was signed for the development of the Licensing Basis Document (LBD) in order to develop and ensure a necessary and timely legislative framework for the implementation of the SMR project in Romania.

The final investment decision will be taken after the prerequisites have been fulfilled, subject to obtaining the necessary authorizations and approvals, which include the site permit to be issued by CNCAN and the subsequent site approval.

The program implementation strategy is structured in six stages as follows:

■ **Stage 1 – Front-End Engineering & Design (FEED 1)**

The stage included planning, studies, engineering and design activities that contain the essential elements of the project definition, with reference to the site conditions of the former Doicești plant, the applicable national and international regulatory and authorization requirements.

FEED Stage 1 was the first phase in defining the site specifics for a VOYGR-6 NuScale project and involved identifying the differences between the Standard Plant Design and the specific requirements of Romanian legislation/standards and the site.

■ **Stage 2 – Front-End Engineering & Design (FEED 2)**

The key objectives of FEED Stage 2 include obtaining an AACE Class 3 budget estimate (according to AACE International - Association for the Advancement of Cost Engineering standards), finalizing the feasibility study as required by law. Also in this phase, the financing strategy for the construction will be finalized and the procedures to obtain the necessary authorizations from the competent authorities will start.

The estimated value of FEED Phase 2 is 243 million USD.

■ **Stage 3 – Engineering, initial procurement phase, site preparation**

At this stage, the documentation for the building permit is submitted, the Environmental Impact Report is drafted, site mobilization and site preparation take place. Fabrication of NuScale Power Modules starts and detailed design is largely finalized. Deep excavation and other essential construction works are also carried out. Some activities extend beyond December 2026 and overlap with later phases of the project, including completion of the reactors and water basin walls.

■ **Stage 4 – Construction**

This stage starts with “full notice to proceed” and contains most of the construction activities. It also includes the approval of the International Atomic Energy Agency for SALTO (Safety Aspects of Long Term Operation).

■ **Stage 5 – Commissioning and commercial operation**

At this stage the NuScale modules are installed and fuel loading and inspection takes place. Work on the 6 modules is staggered at about 1.5-2 months. Commercial operation starts with the first day of delivery of the energy produced by module 1 to the electricity market. In the following months, the other 5 modules will be progressively commissioned starting with 2030, ensuring a transition to full plant operation

By implementing this strategy, the SMR project at Doicești is positioned as a basic solution in Romania’s energy transition, contributing to the consolidation of energy security, the reduction of greenhouse gas emissions and the sustainable development of the country.

## II. Enhancing the safety, reliability and operational excellence of existing capacity

### 1. Unit 1 Refurbishment



Unit 1 at Cernavodă, equipped with CANDU (Canada Deuterium Uranium) technology, is a nuclear reactor that uses heavy water (deuterium) as moderator and coolant, and natural uranium as fuel. This technology is distinguished by its flexibility in fuel utilization and the high safety of the nuclear fission process.

**Unit 1 was commissioned in 1996, marking Romania's debut in commercial nuclear power production.**

The projected lifetime of Unit 1 at Cernavodă is 210,000 operating hours at rated power. Assuming an average capacity factor of 80%, this corresponds to about 30 years of operation. The main factors limiting the lifetime of the unit are wear and degradation of critical components such as fuel channels, calandria tubes, feeders and the reactor building structure. These elements are subject to a continuous monitoring and evaluation process to ensure the safety and performance of the plant throughout the entire operating period.

The main objective of the refurbishment program is to extend the lifetime of Unit 1 of the Cernavodă nuclear power plant for an additional cycle of about 30 years (up to 245,000 operating hours) by carrying out the reactor retubing and refurbishment of the nuclear and conventional parts, which will ensure the long-term safe operation of the plant.

The extension of the operating lifetime of Unit 1 represents an efficient solution, as prolonging its operation by another life cycle can be achieved at significantly lower costs compared to building a new facility of the same capacity. This approach ensures the supply of greenhouse gas emission-free electricity, with minimal environmental impact and at competitive costs, thus contributing sustainably to the decarbonization of the energy sector and to Romania's energy and environmental targets.

The program implementation strategy is structured in **three stages** as follows:

■ **Stage 1 – Preparation and Feasibility Analysis (2017-2022)**

This stage involved defining the scope of the project, assessing the life extension needs, estimating the costs and preparing the feasibility study. The finalization of the stage was marked by the approval of the investment decision based on the analysis of the technical and economic options.

■ **Stage 2 – Planning, authorization and implementation preparation (2022-2027)**

During this stage, the process includes obtaining the necessary permits, securing financing, contracting engineering and construction services, and purchasing materials and equipment. Execution plans are defined and staff training is organized, ensuring alignment with the project schedule.

■ **Stage 3 – Execution, modernization and commissioning (2027-2030)**

The last stage involves shutting down the unit, unloading the fuel and carrying out major rehabilitation works, with a focus on re-tubing the reactor. The process continues with technological testing, staff training and finalization of the project through handover and decommissioning of the temporary facilities, preparing the unit for the resumption of operations under optimized conditions.

The Engineering, Procurement and Construction (EPC) contract has been signed with the consortium Atkins Realis, Canadian Commercial Corporation, Ansaldo Nucleare S.p.A and Korea Hydro & Nuclear Power Co, and the scope of the contract covers the following categories of works:

- **retubing** - replacement of reactor components that have reached the end of their service life after the first operating cycle of the plant;
- **refurbishment** - design modifications, replacement of major equipment, inspections;
- **infrastructure** - construction of buildings, storage platforms, road platforms etc.

The value of the modernization program is estimated at around €3.5 billion.

## 2. Interim burned fuel storage development (DICA)



The implementation of the DICA program aims to extend the dry interim storage facilities for spent nuclear fuel generated by Units 1 and 2 at CNE Cernavodă, being an essential condition for the plant authorization.

The interim storage is modular, allowing construction to be phased according to storage needs as fuel from the units' storage pools is transferred after the minimum six-year period. The project provides for the construction of 37 MACSTOR concrete modules, which will progressively provide the necessary storage capacity for the burned fuel periodically discharged from the reactors.

The MACSTOR modules are an advanced and safe solution for the storage of spent nuclear fuel, designed to meet the highest international standards of safety and efficiency.

These modules have a robust monolithic reinforced concrete structure designed to integrate 20 cylindrical metal enclosures. Each cylinder houses 10 baskets containing bundles of burned nuclear fuel. After filling, the cylinder is sealed with a concrete plug and a welded lid, ensuring maximum containment and safety. The sealing process is finalized and verified by the International Atomic Energy Agency (IAEA), ensuring compliance with the most stringent global regulations on spent nuclear fuel storage.

This solution provides Nuclearelectrica with modern, safe and sustainable storage capacity, contributing to the long-term sustainability of nuclear operations.

The implementation of this project aims to extend the dry storage capacity of spent fuel over a period of 50 years, with the possibility of extension up to 100 years.

## II. Enhancing the safety, reliability and operational excellence of existing capacity

The SNN strategy foresees the expansion with six MACSTOR 200 modules (modules 12-17), followed by 20 MACSTOR 400 modules (modules 18-37), to provide the storage capacity needed for two-unit life cycles, in line with the requirements of CNCAN and the Ministry of Environment.

The expansion of the MACSTOR 400 module burned fuel storage facility is planned to begin with contracting work for modules 18-23 in July 2025, with each module to be completed and accepted in phases from May 2027 through March 2033, providing the required storage capacity for the future.

The program is worth over 270 million euro.

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### 3. Emergency facilities center development

The investment program was initiated based on the experience gained from operating nuclear power plants, the lessons learned after the Fukushima nuclear accident in Japan, new legislative requirements, and the need to capitalize on the existing constructions at the Unit 5 site, which are at various stages of completion. Through redesign and adaptation, the project objectives are aligned with the needs of the operating units and future developments.

**The objectives of this program are to provide seismically qualified spaces with uninterruptible power supply, physical protection and controlled environmental conditions (temperature, humidity, etc.) for the relocation of existing support systems of Units 1 and 2 and the future location of systems for which additional operating requirements are imposed in safe zones.**

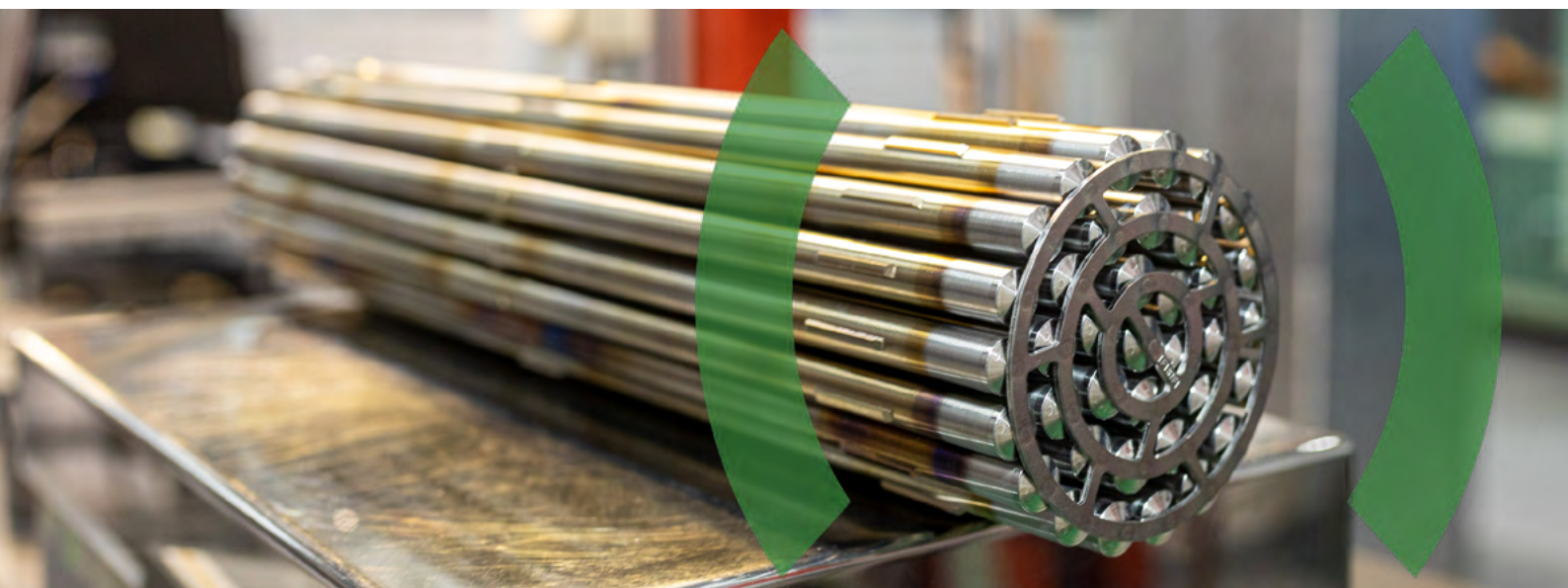
This program aims to refurbish and develop the existing Unit 5 building into an Emergency Facilities Center (EFC) to ensure an effective response to potential emergency events.

The EFC will include crisis shelters, Emergency Control Center, fire equipment depot, an administrative area for emergency response personnel as well as technical spaces for equipment. The infrastructure works will also be completed, and the site will be arranged with controlled access and access roads at an elevation above the flood risk level.

Construction works are underway, with the goal of completing and preparing the EFC for operational readiness during 2026.

The program's budget is over 35 million euro and through this investment, SNN strengthens its emergency response capacity and ensures the safe operation of Romania's nuclear units, reaffirming its commitment to nuclear safety, environmental protection and the local community.

## 4. Nuclear fuel plant modernization and development



The objective of the Pitesti Nuclear Fuel Plant (FCN Pitești) modernization and development is to expand the production capacity to cover the fuel bundle needs for all four nuclear units planned at Cernavodă, as well as to modernize the technological flow in order to increase productivity, operational safety, energy efficiency and improve working conditions for the staff.

The doubling of the production capacity at the Pitesti Nuclear Fuel Plant is a complex project that involves the rehabilitation and modernization of existing technological spaces and buildings, their adaptation to new technological flow requirements, the construction of new technological areas, an increase in the number of equipment, as well as the recalibration of the staffing structure.

The project to double production capacity involves several stages, as follows:

- **Preliminary internal analysis:** Assessment of the current situation (equipment, premises, personnel) to determine the need and appropriateness of the project;
- **Feasibility study:** Elaboration of the design brief and feasibility study to choose the optimal technical-economic option and to establish the budget and implementation strategy;
- **Detailed design:** Contracting and realization of detailed design solutions and obtaining the necessary permits;
- **Implementation:** contracting and execution of infrastructure works, procurement and commissioning of technological equipment.

The project to modernize and expand the capacity of the Pitești Nuclear Fuel Fabrication Plant is planned to be completed and commissioned in 2031, with the aim of ensuring the necessary operational capacity in advance of the commissioning of units 3 and 4 at Cernavodă.

By doubling the production capacity and modernizing the Pitesti Nuclear Fuel Fabrication Plant, SNN reaffirms its commitment to Romania's energy security and to supporting a modern and efficient domestic nuclear supply chain. This investment will strengthen Romania's position as a regional leader in the field of nuclear energy and will support the strategic objectives of the transition to clean and safe energy.

## 5. Uranium concentrate processing plant upgrading and development



The mission of the Uranium Concentrate Processing Plant at Feldioara (FPCU - Feldioara S.R.L.) is to ensure SNN's strategic balance regarding the access to internal and external primary nuclear energy resources.

The project involves capital investments in the modernization and re-technologization of the assets taken over from Compania Nationala a Uraniului S.A. and the operationalization of the Tulgheş-Grințieş uranium mine. At the company level, a strategy has been developed and approved, aiming to provide a coherent technical and economic approach that supports the foundation of strategic decisions necessary to ensure the complete nuclear fuel cycle and cost control for SNN – an essential component in strengthening its security of access to primary nuclear energy resources. This strategy serves as a basis for making well-informed future decisions regarding the complete nuclear fuel processing cycle within the company.

The implementation strategy includes:

- the takeover and commissioning at Feldioara plant the purification and conversion of technical uranium concentrates into sinterable uranium dioxide powder;
- The transfer and operationalization within Feldioara plant of the concession license for the Tulgheş - Grințieş uranium ore mining activity;
- Adoption of the strategy to cover the consumption needs and the intangible stock of technical uranium concentrates;
- Diversification of supply sources, transportation routes and the range of technical uranium concentrates;
- Upgrading and developing the production capacity of the new plant for purification and conversion of technical uranium concentrates into sinterable uranium powder; commissioning and maintenance at designed production capacity;
- Construction and commissioning of the mineral processing plant for uranium ore (originating from the Tulgheş – Grințieş underground mine / open pit) in the form of technical uranium concentrates;
- Development, in partnership with other interested companies, of projects for the extraction and valorization of domestic or foreign mineral resources used in the production of materials for the nuclear energy industry (uranium, magnesium, beryllium, graphite, zirconium, REEs, nickel, cobalt, etc.).

For achieving the objectives the following activities are planned:

- Construction of a new uranium ore processing plant – TG Plant at Feldioara;
- Construction of a new plant for refining technical uranium concentrates – YC Plant at Feldioara;
- Opening, preparation and exploitation of a new uranium deposit under the concession license for Tulgheş - Grințieş mining operation.

## 6. Digital transformation and resilience

Digital transformation and resilience are strategic pillars in Nuclearelectrica’s ambition to strengthen its position as a regional leader in the nuclear sector. By investing in digitization, integrating advanced technologies and strengthening cyber resilience, SNN aims to create an agile, secure and future-ready organization able to respond effectively to market challenges and digital risks, as well as to generate added value in the medium and long term.

Through digital transformation and resilience projects, SNN aims to:

- I. **Maintain a high level of nuclear safety** through continuous monitoring of equipment, early detection of anomalies and process optimization (predictive maintenance), and significantly reduce the risks associated with nuclear energy through digitization.
- II. **Increase operational efficiency** by automating processes and optimizing the use of resources, which will also lead to cost savings.
- III. **Facilitate the performance of investment projects** with the help of digital technologies, enabling high-performance project execution.
- IV. **Facilitate a high standard of economic efficiency** by enabling access to analytical data for SNN management, thereby supporting decision-making processes. This will allow for trend identification, outcome prediction, and gaining a competitive advantage.
- V. **Ensure cybersecurity** by protecting IT infrastructure and sensitive data against cyber threats.

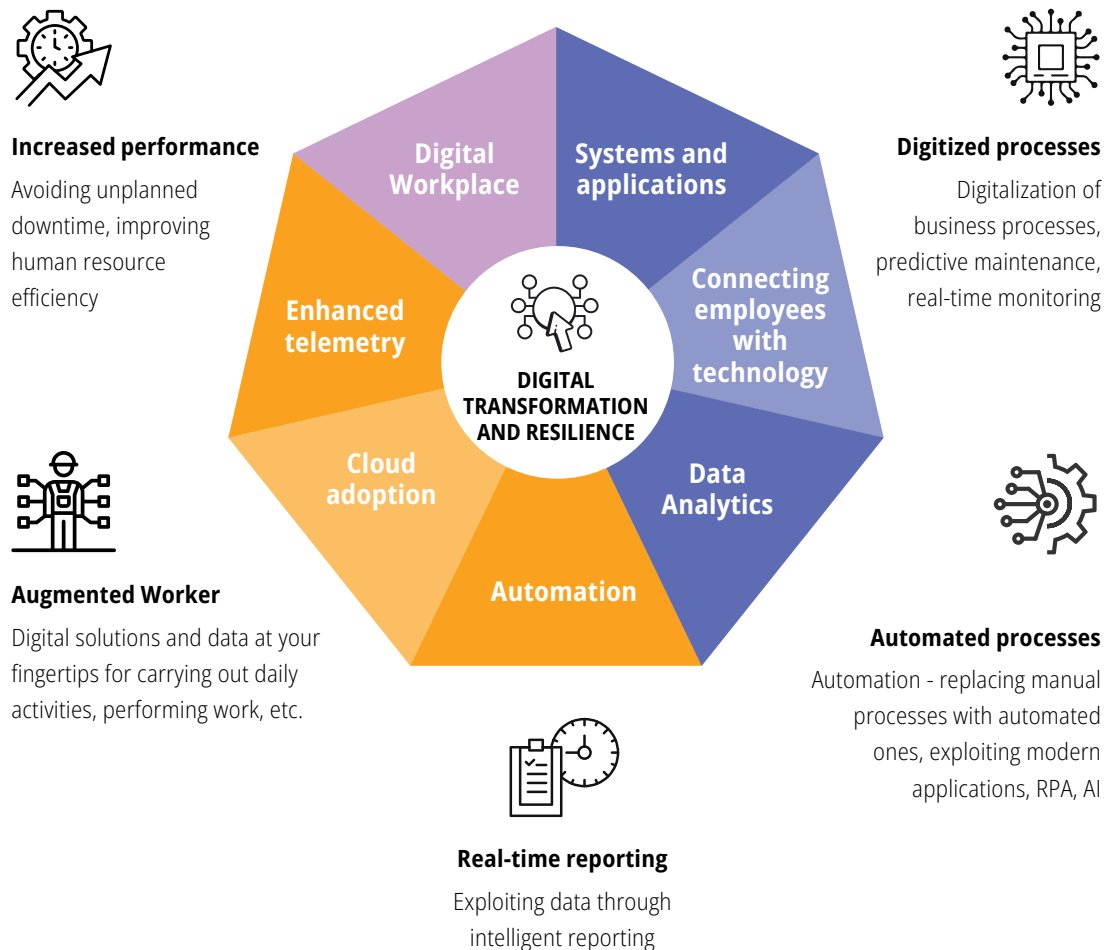
To support its digital transformation and resilience strategy, SNN has set a clear objective to increase the level of automation and digitalization. This objective targets the seamless integration of digital technologies into employees’ daily activities.



## II. Enhancing the safety, reliability and operational excellence of existing capacity

The image below highlights the main directions of this transformation: enhanced performance, digitalized processes, augmented worker capabilities, real-time reporting, and process automation.

Fig. 2: Digital integration into employees' daily work



Source: SNN

The following digital transformation and resilience projects have been planned within SNN:

- Implementation of Digital twin/Virtual Power Plant;
- Digitizing work routines (Digital work packages);
- Implement a data governance model and a centralized reporting mechanism for decision making;
- Increasing digitalization through Cloud adoption (private hybrid);
- Providing digital solutions for the implementation and monitoring of strategic investment projects;
- Streamline and automate business processes with digital solutions;
- Operationally streamlining IT&C processes and ensuring appropriate technological upgrade;
- Digitalization of processes specific to the SNN Group structure

## II. Enhancing the safety, reliability and operational excellence of existing capacity

Nuclearelectrica's investment strategy in cybersecurity, as the operator of Romania's only nuclear power plant and a vital component of national critical infrastructure, is of utmost importance and is based on principles aligned with the nuclear sector's specific requirements.

Nuclearelectrica's cybersecurity strategy is integrated into its overall digitalization and modernization strategy, with the primary objective of ensuring nuclear security and operational continuity. It covers both the IT&C infrastructure and the operational technology (OT) domain.

The main planned cybersecurity investment projects within SNN include:

- Implementation of advanced security solutions for the OT environment: industrial traffic monitoring solutions (ICS/SCADA Network Monitoring), anomaly detection specific to OT protocols, and endpoint security platforms in OT environments;
- Strengthening Monitoring, Detection, and Incident Response Capabilities (SOC/CSIRT);
- Supply Chain Security;
- Identity and Access Management (IAM/PAM) in the OT environment.

In the context of its investment strategy, SNN aims to make cyber awareness and cyber security resilience fundamental components integrated into all company projects. This approach aims to increase the company's ability to prevent, detect and respond effectively to cyber incidents, thereby helping to protect critical infrastructure, sensitive data and ensure business continuity.

In the current geopolitical and economic context, characterized by volatility in energy markets and increased cross-border risks, cybersecurity in the energy sector becomes a strategic priority. The significant increase in cyber-attacks on energy infrastructures highlights critical vulnerabilities that can have a direct impact on national security and operational stability. By systematically integrating cyber resilience requirements and measures into all foreseeable projects, not only digital transformation projects, SNN is strengthening its leadership position in nuclear energy and demonstrating the ability to respond adaptively and proactively to the challenges of the cyber environment.

SNN also aims to implement and leverage a proactive threat intelligence approach to collect and analyze relevant data on emerging cyber threats, both nationally and internationally. This capability will enable SNN to manage risks in an informed and proactive manner by rapidly adjusting protection and response measures, thereby strengthening the protection of digital infrastructure and ensuring continuous alignment with best practices in the field.

## 7. Other significant investments planned



### 7.1 Inspections and capital repairs at Units 1 & 2

A significant component of SNN's annual investment and equipment programs (modernizations section) is the inspections and capital repairs carried out at Unit 1 and Unit 2 respectively during planned outages.

The sequence of planned shutdowns of the units at CNE Cernavodă is carried out every two years for each unit, U1 and U2, in accordance with international practice and the preventive and corrective maintenance program, except for the Unit 1 refurbishment period, which starts in 2027. During the planned outages, each unit is taken out of service for complex maintenance, inspections, mandatory testing and implementation of design changes, processes prepared well in advance and managed by dedicated project management teams. During the refurbishment of Unit 1, the planned shutdown program for Unit 1 will be temporarily suspended, as the refurbishment involves a longer shutdown period and much more extensive activities, with the aim of extending the operational lifetime of the unit by another 30 years.

## II. Enhancing the safety, reliability and operational excellence of existing capacity

There are three major categories of activities during the planned shutdowns:

- I. **Corrective activities** - activities that have significant nuclear safety or production impact resulting from periodic project evaluations and/or internal or external operating experience. They represent potential vulnerabilities and addressing them ensures safe and efficient plant operation.
- II. **Major preventive activities** - mandatory inspection activities arising from applicable licensing requirements and standards, as well as from strategies developed to ensure the performance of systems, structures and components by preventing degradation of key design parameters and failure of important plant equipment.
- III. **Upgrades** - activities that have resulted from engineering monitoring of structures, systems and components and/or industry experience as technically and economically justified opportunities to achieve improved performance over the original plant design.

Through the annual program of inspections, capital repairs carried out during planned shutdowns, SNN ensures the continuity and operational safety of Units 1 and 2, strengthening Romania's position as a producer of clean, safe and efficient nuclear energy.

## 7.2 Fuel bundle implementation (37M-C6M)

Aging effects in the primary heat transport circuit, particularly in the pressure tubes of CANDU 6 nuclear power plants, cause the maximum power level at which the unit can operate to decrease after approximately 15 years of operation.

The modified 37M fuel has been adopted by CANDU industry plants as the optimal solution to counteract the residual aging effects of the pressure tubes.

The main difference compared to the reference fuel, called 37R, is the smaller diameter of the central element ("the central pin of the fuel bundle").

This reduction in diameter provides a better critical heat flux (the flux at which fuel cooling in vapor film deteriorates significantly) under inadequate cooling conditions. This type of fuel, together with the critical power data for the fuel in the channel, allows the maintenance of a slightly higher power level than that achieved using the reference 37R fuel bundle design.

For the implementation of the new 37M fuel type, starting in 2032, Cernavodă Unit 2 will gradually reduce power in the last five years before refurbishment. The implementation process for the 37M fuel will take approximately five years. The final investment decision for this new fuel will be made based on confirmation of the investment value and nuclear safety.

### 7.3. Modernization and extension of the physical protection system

The purpose of this investment is to modernize, expand, and increase the efficiency of the physical protection system at Cernavodă NPP, in accordance with legal requirements, international standards, and post-Fukushima recommendations on nuclear security.

Implementation is structured in two main phases, with work prioritized based on risk and impact on plant security:

#### Stage 1 – Feasibility Studies and conceptual solutions (2025–2026)

- Analysis of existing risks and vulnerabilities;
- Definition of technical and conceptual solutions, as well as preparation of feasibility studies.

#### Stage 2 – Design and execution of physical protection works (2026–2030)

- Detailed design of physical protection systems;
- Implementation of turnkey projects, focusing on modern technologies and operational efficiency;
- Integration of new systems with existing infrastructure.

The estimated budget for this program exceeds €55 million, reflecting the scale and complexity of the works required to meet the imposed security standards.

Special emphasis is placed on the physical protection of buildings at the Unit 5 site, which will host emergency intervention facilities. This ensures an increased capacity for rapid and effective response in the event of major incidents, strengthening nuclear security at the national level.

The modernization and expansion of the physical protection system at Cernavodă NPP is a strategic investment essential for Nuclearelectrica, aligned with the latest nuclear security requirements and international best practices. The project will significantly contribute to enhancing plant safety and protecting critical infrastructure in the long term.

### 7.4. Electricity generation and energy storage capacities

SNN is analyzing the possibility of diversifying its portfolio of electricity generation and energy storage capacities. This analysis is based on the 700 MW production deficit generated during the refurbishment period of Unit 1, as well as the increasing need for balancing the energy system. These challenges are amplified by the reduction of baseload generation capacities and the increasing share of renewable sources (wind and solar), without adequate compensation through storage systems.

In this context, SNN is evaluating the implementation of a system composed of fast-response generation equipment and storage units, capable of actively participating in the day-ahead market (DAM), the ancillary services market, and the balancing market.

The estimated value of the project is approximately €40 million.

## III. Sustainability and innovation

### 1. Heavy water detritiation facility



During normal operation of a CANDU-type nuclear power unit, tritium - a radioactive isotope of hydrogen - is formed in the heavy water used in nuclear systems. The formation of tritium has a significant impact on daily operational activities, specific radioprotection measures and programs, and the short-, medium-, and long-term management of radioactive waste, as well as on the budgets required for the proper administration of this impact. To reduce tritium concentration and limit its contribution to radiation doses received by plant personnel – and considering the economic advantages resulting from the valorization of tritium – the Cernavodă Nuclear Power Plant will build the Heavy Water Detritiation Facility (Cernavodă Tritium Removal Facility, or CTRF), which

will ensure the removal of tritium from heavy water and maintain its concentration at the lowest possible level.

The detritiation method used in the project consists of removing tritium from tritiated heavy water using a combination of Liquid Phase Catalytic Exchange (LPCE), followed by concentration through Cryogenic Distillation (CD), and safe storage of tritium (as metal hydride).

The implementation strategy for the CTRF involves two contracts: one (EPC) for detailed project development, procurement of necessary equipment, construction and installation works, and commissioning; and a second contract for consultancy and supervision of the contractor, including support for preparing the required licensing documents (Owner's Engineering – OE).

The agreed duration of the works with the designated contractor, KHNP, including trial operation, is 50 months (ensuring completion of the CTRF before the actual start of Unit 1 refurbishment works), and the EPC contract value exceeds €195 million, including provisions and the cost of consumables required for the first two years of operation.

The project implementation schedule foresees a seven-year investment period: one preparatory year and six years for CTRF construction and trial operation.

The main activities considered in the project schedule with major impact include:

- Awarding the EPC contract and obtaining the environmental permit – 2023;
- Obtaining the construction authorization (from CNCAN) and starting construction works – 2024;
- Completion of commissioning and entry into operation: 2027–2028.

The estimated value of this investment program exceeds €250 million.



## 2. Diversifying the product portfolio by producing medical radioisotopes



Medical radioisotopes play an essential role in the diagnosis of cancer, heart diseases, and other illnesses, and are increasingly used for cancer treatment. Over 10,000 hospitals worldwide use radioisotopes in approximately 100 different nuclear medicine procedures, totaling nearly 49 million medical procedures annually. In the EU alone, more than 1,500 nuclear medicine centers perform around 10 million procedures for patients each year. Europe, with its unique supply network, innovative technological developments, and strong commitment to clinical research, plays a central role in nuclear medicine. The EU is the leading supplier of medical radioisotopes on the global market, with a market share of over 60% for some of the most widely used radioisotopes.

Some of the most important recent pharmaceutical and clinical developments in nuclear medicine cancer treatment originate in the EU.

Forecasts for radioisotope demand show a rapid increase, especially from 2027, driven by the development and industrialization of new types of therapeutic radiopharmaceutical products based on Lu-177, which have huge potential to treat not only niche cancers but also common ones, such as prostate cancer.

Framatome SAS is an international industrial leader in the nuclear energy sector, including nuclear medicine, promoting the production of isotopes for medical applications. Based on Framatome's patented technology, reliable industrial-scale production of Lu-177, a medical isotope used for targeted cancer therapies, can be ensured. Currently, this technology is installed at Bruce Power, Canada, and was implemented during a scheduled reactor outage.

Based on the memorandum of understanding signed in November 2023 between Nuclearelectrica and Framatome, and the recommendations from the feasibility study on Lu-177 production using Framatome's IPS technology, the investment decision was made to implement the Innovative Romanian Isotope System (IRIS) project at Cernavodă NPP Unit 2.

The project implementation strategy is structured into four main stages:

- I. **Stage 1 (2024–2025):** Project preparation and initiation through the conclusion of the irradiation agreement, establishment of the management framework, conceptual design, supplier selection, reservation of long-lead components, preparation of the licensing plan, and finalization of the irradiation contract.
- II. **Stage 2 (2024–2025):** Development of the basic design, initiation of detailed design, commencement of the authorization process, and procurement of long-lead equipment.
- III. **Stage 3 (2025–2027):** Obtaining project authorization, production of long-lead equipment, installation and testing of mock-ups, as well as installation of equipment outside the reactor.
- IV. **Stage 4 (2027):** Obtaining approvals for commissioning, operation, and production, installation of equipment during the planned outage (May 2027), system commissioning, and start of commercial production.

This program approach ensures an orderly, predictable implementation in line with safety, regulatory, and economic efficiency requirements, laying the foundation for the long-term success and viability of the project.



# 6

## Economic impact and sustainable development

CHAPTER



## Economic impact and sustainable development

SNN's investment strategy directly and profoundly supports Romania's economic development through a series of investment programs that generate added value, energy stability, and extensive industrial opportunities in a regional and global context focused on the green transition and energy security.

### Commitments of the Romanian State for SNN projects

The Romanian state, through the Ministry of Energy, holds 82.5% of SNN shares. This majority stake ensures strategic stability for the development of nuclear projects. The state has actively and formally assumed its role as a supporter of SNN's nuclear projects, confirmed especially by the signing in 2023 of the Support Agreement for the Cernavodă Units 3 and 4 Project – a document that enshrines the state's firm commitment to this objective of national interest.

Government support is materialized through a package of structural and policy measures: integration of nuclear projects into the National Integrated Energy and Climate Change Plan (PNIESC) and Romania's Energy Strategy, promotion of the EU taxonomy for nuclear energy, and active participation in relevant international agreements. These actions confirm Romania's position as a country with a strategic vision for the role of nuclear energy in the energy transition and in ensuring energy independence.

### Human Capital development

With over 2,400 direct employees and a broader impact on more than 12,000 indirect jobs, SNN is not only a pillar of the Romanian energy sector but also a strategic employer in the energy industry. With the implementation of major investment projects – such as Cernavodă Units 3 and 4 and the development of small modular reactors (SMRs) – the total number of supported jobs is expected to exceed 20,000, further strengthening the company's contribution to the national economy.

In a sector where performance is inextricably linked to human competence, the company's human resources strategy focuses on attracting, retaining, and continuously developing specialists, including the repatriation of qualified personnel and training a new generation of experts.

Continuous investment in people is essential for maintaining nuclear safety, and SNN supports this effort through extensive collaborations with universities and research centers. Scholarship programs, internships, and professional training support the integration of young specialists into the company's strategic projects, contributing to the long-term renewal and strengthening of human capital.

SNN actively collaborates with universities in Romania, such as the Politehnica University of Bucharest (UPB) and Ovidius University of Constanța, to develop both practical and theoretical training programs in nuclear energy. Through initiatives such as the Nuclear Energy Exploration Center (E2 Center at UPB) and dual education programs, the company supports the training of the next generation of specialists, providing access to state-of-the-art technologies and direct mentorship from experts. These partnerships reflect SNN's commitment to ensuring continuity of competencies and long-term operational security.

## Strategic investments and effects on the national economy

Over the next decade, SNN is undertaking an ambitious investment program with profound effects on both the energy sector and the entire national economy. Through modernization, expansion, and innovation activities, SNN generates direct and indirect benefits that extend across multiple industrial and service sectors.

**Direct benefits** include a substantial increase in clean energy production capacity, ensuring the stability and safety of the energy system, and strengthening Romania's energy independence. Investments in projects such as the refurbishment of Unit 1, construction of Cernavodă Units 3 and 4, and SMR development create demand for equipment, materials, and specialized services, stimulating industrial production and the construction sector.

**Indirect benefits** are equally significant: SNN contributes to national GDP growth through capital investments and domestic intermediate consumption, generating revenues and jobs in industry, construction, energy, and specialized services. The nuclear industry already supports over 12,000 direct and indirect jobs, and with expanded investments, this figure could exceed 20,000 employees, including in adjacent fields such as medical isotope production and the development of new technologies.

**The broad economic impact** is also reflected in the revitalization of the national industry, through the involvement of local companies in the supply chain, modernization and renewal of production equipment, and the training of a new generation of specialists in nuclear energy and equipment manufacturing. SNN projects attract strategic partnerships, technology transfer, and know-how, strengthening Romania's competitiveness in external and EU markets.

## Sustainable development and environmental impact

SNN plays a key strategic role in Romania's energy system, currently providing approximately 20% of national electricity production and 33% of low-CO<sub>2</sub> electricity. This fundamental contribution to the national energy mix translates not only into security and stability for the electric system but also into a major environmental impact: since the commissioning of Cernavodă Units 1 and 2, Romania has avoided the emission of over 215 million tons of CO<sub>2</sub>, and SNN's operations reduce greenhouse gas emissions by about 10 million tons annually.

With the planned major investments, SNN will amplify its impact: by 2035, SNN's share is estimated to rise to approximately 36% of total electricity production and over 60% of low-CO<sub>2</sub> electricity. With the implementation of these projects, the estimated annual reduction in CO<sub>2</sub> emissions will reach 24 million tons, consolidating SNN's position as a regional leader in the energy transition and climate change mitigation.

SNN's investments not only support the development of next-generation nuclear infrastructure but also generate tangible economic benefits for society through job creation, local industry development, and support for a dynamic and sustainable business environment. These initiatives make SNN a driver of economic growth and regional development, strengthening Romania's position as a leader in the energy transition and the adoption of innovative solutions for a cleaner and safer future.

## Disclaimer

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This document presents the major investment programs of Societatea Națională Nuclearelectrica SA (SNN) and the strategic direction we intend to pursue in the coming years. The implementation of these programs depends on a range of external and internal factors, as well as risks and opportunities that may evolve over time. The strategy presented reflects the current vision of management and is based on reasonable estimates and assumptions at the time the strategy was developed; it does not constitute a guarantee of future results. The strategy may be adjusted in response to changes in the economic, technological, geopolitical, or regulatory context in the energy sector.

For an independent assessment when making any decisions regarding SNN, the company recommends consulting documents and public information approved by the Financial Supervisory Authority and the Bucharest Stock Exchange.

We invite you to view this document as a presentation of the company's chosen strategic direction, not as a promise or firm commitment regarding the future. For any investment decision, we recommend consulting official public sources and, if necessary, a specialized financial advisor.

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