

Deploying Small Modular Reactors in Romania – TRENDS & INSIGHTS

The transition to a neutral climate and clean economy along with the aim of improving external energy security by means of strengthening the production capabilities present substantial opportunities for developing net-zero technology sectors. It follows that the efficient seizing of net-zero opportunities will lead to significant industrial and economic shifts, while creating value, growth, additional jobs and a more resilient socio-economic system within the EU countries.

In this context, Romanian authorities looked into promoting investments in net-zero technologies such as: small modular reactors (SMRs); electricity storage technologies & capacities; renewable energy technologies; grid technologies etc.

Being in a more advanced stage, the deployment of SMRs in Romania appears to shape a trend in terms of technology and partner selection process; financing structure, while also involving certain potential regulatory hurdles. Thus, we've pulled out 5 key insights with relevance for the SMRs.

Innovative technology. More than 80 SMR designs under development - A glimpse into SMRs

SMRs are advanced reactors with a power capacity of typically up to 300 MW(e) per unit, which is about one-third of the generating capacity of traditional nuclear power reactors and whose components and systems can be shop fabricated and then transported as modules to the sites for installation as demand arises¹.

Based on current designs, SMRs appear to offer unique attributes in terms of efficiency, economics, and flexibility. While nuclear reactors provide dispatchable sources of energy – they can adjust output accordingly to electricity



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demand – some renewables, such as wind and solar, are variable energy sources that depend on the weather and time of day. Hence, SMRs could be paired with and increase the efficiency of renewable sources in a hybrid energy system².

All of these appear to place SMRs as a key 'player' in the clean energy transition. Today, more than 80 SMR designs are under development, deployment or in the licensing stage at different stages in 18 Member States, the United States of America, Canada, Argentina, China, Russia and South Korea³.

No International or EU legal framework specifically addresses SMRs

The current international nuclear legal framework does not specifically address the SMRs, but neither expressly excludes them from its scope. Despite this, they generally remain subject to the international legal frameworks applying to

other types of nuclear technology⁴. Considering the underlying innovative technology and flexibility of SMRs in terms of capacity, design, location of the SMR, purpose of its use, level of quantities of nuclear material, waste disposal etc., it appears that the current international legal framework will probably undergo some adjustments to cover all SMRs. This will prove essential for understanding and mitigating a major legal issue, respectively the liability and, subsequently, the means to hedge such potential liabilities (i.e., insurance, financial securities). Another relevant legal topic in connection with SMRs will be the waste disposal solution(s), which need to be adjusted for the new radioactive waste streams and the particularities of SMRs.

Nuclear half in. In addition, the EU legislative proposal for one of the main components of the GDIP⁵, namely the Net-Zero Industry Act refers to SMRs as net-zero technologies, which entails that SMRs may benefit from a more streamlined administrative and permitting process. Also, significant pushes are made to include the nuclear sector as a whole and to treat nuclear in the same way as other strategic technologies under the NZIA to ensure a 'level playing field'. The proposed Regulation now needs to be discussed and agreed by the European Parliament and the Council of the European Union before its adoption and entry into force⁶.

Romania takes significant steps to accommodate the first deployment of SMRs in Europe. Seizing a potential unique opportunity vs. asserting competition and transparency

Under the umbrella of several U.S.-Romania Partnerships, Nuclearelectrica, NuScale and a Romanian private company signed a MoU to explore the deployment of NuScale's SMR technology

¹ See Advances in Small Modular Reactor Technology Developments A Supplement to: IAEA Advanced Reactors Information System (ARIS) 2022 Edition, which may be accessed here: https://aris.iaea.org/Publications/SMR_booklet_2022.pdf

² See for example the article entitled 'What are Small Modular Reactors (SMRs)?', published by Joanne Liou, IAEA Office of Public Information and Communication, published on September 13, 2023, which is accessible here <https://www.iaea.org/newscenter/news/what-are-small-modular-reactors-smrs>

³ See Advances in Small Modular Reactor Technology Developments A Supplement to: IAEA Advanced Reactors Information System (ARIS) 2022 Edition, which may be accessed here: https://aris.iaea.org/Publications/SMR_booklet_2022.pdf

⁴ See the JCR Science for Policy Report, Applicability of the international nuclear legal framework to small modular reactors (SMRs), Preliminary Study, 2022, by Alexandra van Kalleveen, which may be accessed here: <https://publications.jrc.ec.europa.eu/repository/handle/JRC128204>

⁵ Green Deal Industrial Plan

⁶ https://ec.europa.eu/commission/presscorner/detail/en/IP_23_1665

in Romania. To date, significant steps were attained towards the goal of becoming a SMR hub in the region, such as: (i) the location for the first SMR was set to be on a former power plant site in Doicești; (ii) Nuclearelectrica together with a private company launched the project company for the development of the first SMRs; (iii) Nuclearelectrica awarded NuScale the contract for Phase 1 of Front-End Engineering and Design Work for the Doicești SMR via a negotiated procedure without prior publication of a call for tenders under the ‘only one possible provider’ legal ground⁷; (iv) willingness to consider financing Romanian SMRs has increased over the last year, with multiple letters of intent being issued by U.S. and other multinational public-private partners from the U.S., Japan, the Republic of Korea and the UAE⁸; (v) several MoUs for establishing partnerships in connection to the deployment of SMRs have been signed⁹; (vi) the Romanian National Commission for Nuclear Activities Control approved the Licensing Basis Document for the NuScale SMR powerplant¹⁰ and, recently (vii) a sector contract for the elaboration of a complementary study on the site selection of the first SMR reactor in Romania was awarded by means of another negotiated procedure without prior publication of a call for tenders under the ‘only one possible provider’ legal ground¹¹. Reaching these milestones enables the transition towards the next stages of the project, as it establishes the foundation to initiate the second phase of the Front-End Engineering and Design study. For a different approach in terms of SMR technology partner selection, one may look at the competitive procedure with negotiation conducted by the Great British Nuclear¹² whereby six companies’ designs for SMRs have been selected to progress in a government competition as deemed to be most able to deliver cutting-edge technology by mid-2030s¹³.

Based on specific criteria, a company may be deemed as a “contracting entity” under Law no. 99/2016, which may trigger the obligation for such company to apply sector rules

According to Law no. 99/2016, any legal entity that meets the criteria to be qualified as a “contracting entity” shall apply the provisions of sector procurement law for all procurements by means of a supply of products, works or service contract, provided that the works, supplies or services are intended for the pursuit of one of the activities deemed as “relevant” under the law. Whether a company is deemed as a

“contracting entity” is not linked to the private or public nature of such company, but to 2 criteria: the specified field of activity in which the contracting entity operates and the basis upon which the contracting entity carries out that activity. In a nutshell, there are three types of contracting entities, namely (i) contracting authorities; (ii) public undertakings; and (iii) entities operating based on special or exclusive rights. Under Law no. 99/2016, the provision of or operation of networks to provide a service in connection with the production, transport or distribution of electricity energy is construed as a “relevant activity”. Thus, whenever deploying activities in the above-mentioned area, one should carefully evaluate whether it falls under the definition of a “contracting entity” – which lead to the obligation to apply sector rules and offer access only to contractors from EU ‘acceptable’ countries. In addition, although in certain situations a type of procurement may be exempted from the application of Law no. 99/2016, it may fall under Law no. 98/2016 on public procurement (e.g., depending on the source of financing of the procurement, the activities involved in the contract to be awarded and the value).

Investment strategy, Third-country Partners and Project finance may add additional regulatory hurdles in the deployment process

As a major project for the Romanian landscape, the deployment of SMRs in Romania may prove to require additional support (besides the one from the current shareholders of the development company), both to secure proper project financing and strengthen the project company’s indebtedness, without adverse consequences for its shareholders in connection to other investment projects¹⁴.

Considering the multiple instruments enacted within the EU to ensure a level playing field and fair competition for all companies in the internal market, the investment strategy, co-option of partners and type of finance selected for the deployment of SMRs may add additional hurdles within the process. For example, FDI clearance or notification under the FSR (i.e., including for certain export financing measures) may be expected to be sought and obtained to fully comply with the EU requirements and continue the project. Sort of this looks set to become a major feature / development for the energy sector and lead to opportunities, job creation and growth.

⁷ <https://www.e-licitatie.ro/pub/notices/ca-notices/view-c/100346747>

⁸ <https://www.nuclearelectrica.ro/2023/05/20/us-and-multinational-public-private-partners-look-to-finance-up-to-275-million-for-the-small-modular-reactor-smr-project-in-romania-us-exim-and-fdc-issue-letters-of-interest-for-4-billion-financ/?lang=en>; <https://www.nuclearelectrica.ro/2023/07/05/dspe-to-invest-eur-75-million-in-ropower-to-develop-the-doicesti-smr-power-plant-in-romania/?lang=en>

⁹ <https://www.nuclearelectrica.ro/2023/06/13/nuclearelectrica-nuscale-powere-infra-nova-power-gas-fluorenterprises-si-samsung-ct-corporation-semneaza-un-memorandum-de-intelegere-pentru-a-colabora-in-vederea-implementarii-centralelor-nus/>; <https://www.nuclearelectrica.ro/2023/07/05/dspe-va-investi-75-de-milioane-de-euro-in-ropower-pentru-a-dezvolta-centrala-smr-de-la-doicesti-romania/>

¹⁰ <https://www.nuclearelectrica.ro/2023/09/29/nuclearelectrica-and-nuscale-power-salute-the-approval-by-cncan-of-the-licensing-basis-document-lbd-for-the-nuscale-small-modular-reactor-powerplant-with-a-gross-installed-power-of-462-mwe/?lang=en>

¹¹ <https://www.e-licitatie.ro/pub/notices/ca-notices/view-c/100408738>

¹² <https://www.find-tender.service.gov.uk/Notice/020640-2023?origin=SearchResults&p=1>

¹³ <https://www.gov.uk/government/news/six-companies-through-to-next-stage-of-nuclear-technology-competition>

¹⁴ See also the Strategy for the implementation of the NuScale Small Modular Reactors (SMR) Project at the Doicești site, the Investors’ Agreement for the implementation of this project and some measures related to the Strategy approved by the Nuclearelectrica’s shareholders, accessible at the following link: https://www.nuclearelectrica.ro/ir/wp-content/uploads/sites/9/2022/08/EN-FINAL-Nota-AGA-aprobare-Strategie-SMR-si-Acord-Investitori_12.09-4.pdf