FISA EURADWASTE 2025

SNETP Forum

Public awareness of SMR: challenges and opportunities for nuclear power in the energy transition

Ganna Proskura[1] and Borys Zlobenko[1]

[1]SI "Institute of Environmental Geochemistry" NAS of Ukraine, 34a Palladin Ave., 03142 Kiyv, Ukraine

Introduction

Given the increasing demand for electricity in Ukraine and the growing requirement for energy security and low-carbon energy in combating climate change, introducing small modular reactors (SMRs) is justified and economically feasible. Along with traditional nuclear power plants, they can take a share in the diversified energy balance, operating without connection to power grids. They can also be used for heat production, water desalination, hydrogen production, etc. Today, ten leading countries are developing over eighty SMR projects, and their global market after 2027 is estimated at approximately $ 1 trillion.

Description of the research problem

Global interest in SMRs is growing due to their ability to meet flexible, safer power generation environmental needs for a broader range of users.
Stakeholder participation in the local population's involvement is an essential element of the regulation and support mechanism for the development of SMR. The stakeholder engagement process, which aligns with the Aarhus Convention, underscores the importance of public input. Training and engaging with local communities throughout the development and deployment can build trust and solve problems. Public hearings have generally not been a mechanism for effective communication about decision-making and engendering public confidence in nuclear energy based on the Chornobyl experience.

Methodology

Qualitative analysis is used to analyze public perceptions, policy implications, and technological advantages and disadvantages of SMRs.
Comparative analysis of SMRs' strengths and weaknesses highlights their advantages and challenges compared to conventional nuclear reactors.
Public opinion and discourse analysis are used to check the role of public discourse, possibly through surveys, media reports, or consultations with stakeholders.
Policy review and institutional analysis of the role of regulations, licenses, and legal aspects in deploying SMRs suggest reviewing existing policies and institutional frameworks.
Establishing a comprehensive digital information SMR hub and collaboration platform.
Organization of knowledge brokerage events and workshops for SMR stakeholder identification and engagement.

Results

In Ukraine, a public opinion poll of participants was used to obtain opinions on implementing small modular reactors. In July 2023, the editors of the Uatom.org website launched an online survey on the prospects for implementing small modular reactors to determine the level of public awareness about developing the latest technology and attitudes towards it. The survey results were published on a website on nuclear and radiation safety and non-proliferation (https://www.uatom.org/en/public-opinion-poll-2). According to the survey results, 51.5% of respondents know what a small modular reactor is, and 48.5% have heard about this technology for the first time. The results show which technologies are more popular and whether survey respondents differentiate between those who develop and those who operate installations with such technologies. For example, 16% and 2% of respondents chose Energoatom and DTEK among the development companies' options, respectively. Still, these organisations do not develop small modular reactors, and they are likely to operate them in the future. People mostly know about Westinghouse (20%) and NuScale (19%) SMRs.
Communication methods are actively used to engage various stakeholders, including industry experts, scientists, environmental groups and local communities. The newspaper "Svit" published information about an important issue recently discussed at the Presidium of the National Academy of Sciences of Ukraine meeting about the prospects for promoting small modular reactors in Ukraine. Academicians at the NAS of Ukraine believe that introducing SMRs can become one of the main promising vectors of development. It is also necessary to organise a round table and discuss the issue of building small modular reactors with a broader range of stakeholders.

Conclusions

Public recognition and acceptance of nuclear power can influence decision-making regarding the introduction of SMRs. The State Institution "IGNS NAS of Ukraine" conducts research, analysis, and environmental assessment of safety SMR. Scientists have formulated technical requirements for a comprehensive monitoring system and systems for controlling critical parameters in the zones of influence of SMR and are developing a dialogue to improve trust communication with the public.
Ukrainian researchers are invited to share their views on the importance of stakeholder engagement for the future of SMRs. We will collectively explore strategies and actions for effective stakeholder engagement within the SMR ecosystem, which aims to actively support the SMR project and foster collaboration and innovation among stakeholders.

Acknowledgements:
The FORSAFF WP of the EURAD-2 project has been co-funded by the European Union under Grant Agreement n°101166718.