

EPG-CATF Research Report

Small Modular Reactors: A Technical and Economic Assessment. General considerations and the case of Romania

Launch Event

23 November 2023, 10:00 – 13:30

Marmorosch Hotel, Bucharest, Romania

Small Modular Reactors (SMRs) represent the promise of a new nuclear technology to supply zero-emissions, safe, and dispatchable power, amid intensified efforts to reduce carbon emissions and ensure energy security. With small size and capacity and simplified design, modular and factory-made, SMRs are expected to supply new kinds of industrial consumers of electricity and/or heat – e.g., steel mills, aluminum smelters, chemical plants, off-grid mining, refining facilities, electrolyzers, and replacement of closing coal power plants. SMRs will offer zero-emissions baseload (yet partly flexible) power to an energy system with an increasing share of variable renewables. They would be geographically more distributed, with smaller footprints, and much less dependent for cooling on water bodies than the large-scale nuclear power plants. And, importantly, they would cost notably less per MWh than new units of the latter sort.

EPG and CATF will present and publicly launch their joint research report on the techno-economic aspects of SMR investments. The study offers a cautious endorsement for the development of the most viable SMR designs. SMRs may bring an important contribution to the intensifying efforts of reaching net-zero emissions by 2050, as well as to ensuring energy security and price affordability.

The research report covers the following topics:

- Definition, typology, and characterization of SMRs, with a discussion of their value proposition.
- The issue of SMR costs, which mainly investigates the technical and economic features of SMR designs.
- A description of the Romanian nuclear sector, its status and specifics, long-term planning, as well as its recent commitment to the SMR technology.
- Assessment of ten SMR designs, of various degrees of relevance to the Romanian nuclear sector.
- Policy recommendations, with focus on the Romanian regulatory landscape, yet with international relevance.

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AGENDA

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| 09:30 – 10:00 | Registration and welcome coffee |
| 10:00 – 10:10 | Welcome speech
Radu Dudău , President, EPG
Carlos Leipner , Director of Global Nuclear Energy Strategy, CATF (online) |
| 10:10 – 10:30 | Fireside chat: The role of SMRs in energy transition
Sebastian Burduja , Minister of Energy, Romanian Government
Tamara Lagurashvili , Regional Manager Europe, CATF |
| 10:30 – 10:45 | Presentation of the EPG – CATF Research Report
Radu Dudău , President, EPG |
| 10:45 – 12:00 | Panel: The role of SMRs for a low-carbon power system in Romania
Andrew Maxwell , Senior Nuclear Expert in the Advanced Nuclear Energy Program, CATF
Cosmin Ghiță , Chief Executive Officer, Nuclearelectrica (SNN), Romania
Elena Popescu , General Director Energy Policy, Ministry of Energy
Andrei-Răzvan Budu-Stănilă , Expert in Nuclear Engineering, National University of Science and Technology Politehnica, Bucharest
Radu Dudău , President, EPG
Moderator: Alina Arsani , Head of Energy Systems, EPG |
| 12:00 – 12:20 | Q&As |
| 12:20 – 12:30 | Conclusions |
| 12:30 – 13:30 | Buffet Lunch |

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Report authors

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About EPG

Energy Policy Group (EPG) is a non-profit, independent think-tank specializing in energy and climate policy. EPG does evidence-based policy analysis on the decarbonization of the energy, industry, buildings and transport sectors. Its geographical focus is mostly the European Union and Southeast Europe, yet its analyses are informed by the global market, technology, and geopolitical trends. EPG is based in Bucharest, Romania, where it was founded in 2014.

About CATF

The Clean Air Task Force (CATF) is a global environmental non-profit organization that works to accelerate the transition to a clean energy economy. CATF's experts develop and advocate for policies that reduce and regulate emissions that are harmful to people and the planet, and they work to enable the development, deployment, and commercialization of critical carbon-free technologies. CATF is headquartered in Boston, MA, USA, with offices in Europe and staff around the world.