

Small modular reactors a feasible option for sub-Saharan African

While renewable sources of energy are dependent on weather conditions, nuclear power supply is consistently regular and reliable, and therefore attracting interest across Africa.



Ryan Collyer, acting CEO Rosatom Central and Southern Africa

Nuclear power plants (NPP) are also cheaper to run than their coal or gas counterparts, even when spent nuclear fuel management and disposal are factored in. “We are working hard to highlight the true potential of nuclear power to become a catalyst for sustainable development in Africa. We all understand that nuclear will play a vital role in achieving the United Nations sustainability goals, not only in Africa, but across the globe,” says Ryan Collyer, acting CEO Rosatom Central and Southern Africa.

Small modular reactors (SMRs) offer unique benefits, including easy grid connection, flexibility in terms of placement, multipurpose application, and possible integration with renewables. SMRs are also a good alternative to diesel generators as they provide reliable power supply and prevent harmful emissions, at a competitive price. In terms of deployment, SMRs offer lower capital investment – an important factor for many African countries.

“Africa, particularly sub-Saharan Africa, has never been viewed as a robust market for nuclear power. However, with the emergence of small modular reactors technology, nuclear increases its chances of being considered as a feasible option to address regional energy needs in a low carbon and stable energy generation, with predictable costs,” says Collyer.

Floating nuclear power plants

The latest developments in this area feature Russian RITM series SMRs designed for nuclear icebreakers, land based small NPPs, and floating nuclear power plants (FNPP). These developments are based on pressurised water reactor (PWR) technology and draw from Rosatom’s 400 reactor-years of experience in the operation of SMRs.

This advanced technology incorporates all the best features from its predecessor, the ship reactor. Rosatom has already constructed six RITM series and RITM-200 reactors have already been manufactured and installed on the nuclear icebreakers Arktika, Sibir and Ural. The technology has proven its efficiency and ultimate safety throughout all stage of the life cycle, including radioactive waste management.

Rosatom is currently working on the optimised version of the floating nuclear power plant, based on RITM series reactors. In May 2020, the Russian nuclear state corporation commissioned its first floating nuclear power plant Akademik Lomonosov with two KLT-40 reactors that produce up to 77MW of electricity. FNPP Akademik Lomonosov is the northernmost nuclear power plant in the world that provides electricity to the isolated Chaun-Bilibino network in Pevek, Chukotka, Russia's Far East.

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