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## Opportunity and challenges to use Small Modular Reactor Program in Ethiopia

One of Ethiopia's most crucial and fundamental infrastructures is the energy sector to transition the country to green and sustainable energy sources in order to meet its goal of becoming a middle-income nation by 2025. In recent years, Ethiopia has experienced rapid social and economic development, which has contributed to significant advancements toward Sustainable Development Goal 2. The country is encouraged to gradually raise its energy demand through this approach. The upshot of this is the need to diversify the country's mixed energy sources to satisfy the growing demand. The country has a plan to use the Nuclear Research Reactor and small modular reactor for both non-electric applications and the Nuclear Energy Program to introduce nuclear energy into the country's energy mix. The feasibility study was conducted by the Nuclear Task Force under the Ministry of Innovation and Technology of Ethiopia to assess the status of the nuclear infrastructure against the guidelines and requirements recommended by the International Atomic Energy Agency (IAEA). At present, the country lacks the necessary knowledge, skills, and expertise to safely, efficiently, and economically run a nuclear power program. Additionally, there is rarely a university with a strong department or faculty of nuclear science and/or engineering that can be relied upon to train the country's nuclear workforce. The country has the enormous intention of generating 1,200 MW of nuclear-powered electricity in 25 years. The country has recently been obtaining electricity from approximately 90% hydropower, while the remaining 8% and 2% are from wind farms and thermal sources, respectively. This paper presents an overview of the opportunities, challenges and lessons learned during the feasibility studies of a research reactor in Ethiopia as a newcomer. Finally, participation in this conference helps the participant share basic knowledge about the small modular reactor and its uses.

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Ethiopia

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### Confirm that the work is original and has not been published anywhere else

YES

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