



Contribution ID: 385

Type: Oral

## Enabling factors for Small Modular Reactors (SMR) uptake in Bolivian future power system

To meet the global climate targets and decrease the consumption of fossil fuels, in addition to increasing renewable energy, a dispatchable low-carbon energy source is required. Nuclear power may represent a promising solution. The paper presents a study on the integration of Small Modular Reactors (SMRs) in the Bolivian power sector in 2035. The Calliope optimization tool is used to model and analyze different energy scenarios, considering parameters such as evolving energy demand, renewable resource availability, as well as technological and economic constraints for each energy technology.

Two scenarios have been analyzed: a first one to assess the feasibility of introducing one or more SMR units into the Bolivian energy mix, and a second one where the competitiveness of nuclear power was tested, evaluating whether the introduction of new renewable sources would compromise the tool's choice to install SMRs. Results demonstrate that SMRs are integrated into the Bolivian energy mix, even in the case of an increased share of renewables. In addition, a sensitivity analysis revealed the economic thresholds beyond which nuclear energy is no longer economically advantageous. For example, with an interest rate of 11%, no SMRs are installed, while at lower interest rates or investment costs, the optimal solution involves the installation of at least one SMR unit.

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

YES

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**Track Classification:** Topical Group D: Considerations to Facilitate Deployment of SMRs: Track 13: SMRs in Energy Planning for Climate Change Mitigation