

The Feasibility of Small Modular Reactors (SMRs) in the Energy Mix of Saudi Arabia

Monday, 13 November 2023 14:30 (20 minutes)

This paper discusses the technology and usage of SMR technology in the Kingdom of Saudi Arabia (KSA). Implementing such technology is helpful and can facilitate meeting the 2030 vision, which states net zero carbon emissions by 2060. SMRs with around 300 MWe contain advanced passive safety to eliminate any possible risk. With their small size compared to large reactors, SMRs can be multi-unit to increase the power and reduce the cost. Also, KSA is the largest producer of desalinated water and diesel generators used as a power source. Therefore, using SMR rather than diesel generators can reduce costs and CO₂ emissions. In KSA, SMRs can be used as the primary source of electricity production for far-distanced areas, for example, or as an addition to existing plants. One unit of SMR can generate electricity for 0.93% of the population and produce 0.78% of the total energy produced in KSA. Furthermore, SMRs can integrate with renewable sources to compensate for the drawbacks since the vision states that renewables and natural gas will reach 50% of the energy mix in 2030. Saudi Arabia is taking action towards nuclear technology by constructing the uranium extracting facility and for SMRs by signing the contract for the SMART reactor with South Korea.

Speaker Bio

Primary authors: A-SALHABI, Abdalaziz (Mechanical Engineering with Concentration in Nuclear Power Engineering); Mr ALHABIB, Ahmad (Chemical Engineering with Concentration in Nuclear Power Engineering); Mr ALJOHANI, Mohammed (Mechanical Engineering with Concentration in Nuclear Power Engineering); Mr ALHARBI, Talal (Mechanical Engineering with Concentration in Nuclear Power Engineering)

Co-authors: SHAMS, Afaque (Mechanical Engineering); AL-ATHEL, Khaled (KFUPM-Mechanical Engineering)

Presenter: A-SALHABI, Abdalaziz (Mechanical Engineering with Concentration in Nuclear Power Engineering)

Session Classification: Day 1- Parallel Session - III : Fusion and Advanced Reactors

Track Classification: Fusion and Advanced Reactors