



Contribution ID: 256

Type: **Oral**

## **Economic evaluation of SMR projects as an option to power plants burning hard coal in Czech Republic**

This paper presents general observations from development of the technical-economic study of possibility to replace the existing heating plants and cogeneration power plants burning mostly hard coal exploited in local deep pit mines with a nuclear option located.

The study specified nuclear option compiled from Nuclear Power Plants with Small Modular Reactors with capacity to reduce emissions from energy conversion sources for specific Region by approximately 80%.

The Small Modular Reactors were sited in compliance of nuclear safety rules for siting of Nuclear Power Plants, connected to the Local District Heating Systems and the electric grids and located with consideration of the planned development of residence centers and industry.

The economic assessment was carried out using the calculation of discounted cash flow for whole lifetime of the plants considered in the nuclear scenario. Uncertainties in the parameters used in the calculation were analyzed by sensitivity analysis to these parameters. Performed Calculations demonstrated that positive discounted cash flow results of nuclear option can be achieved with investment costs that correspond to credible construction price assumptions and to the operation costs derived from the operated nuclear power plants.

The observations presented in the paper are focused on technical-economic elements of conceptual study of wide deployment of Small Modular Reactors aimed at decarbonizing the centralized heating plants. The final part of the study contains a list of items that require solutions during the development of the study or need to be solved with the permitting authorities.

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Czechia

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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 15: Financing, Cost & Economic Appraisals and Contracting Approaches for SMR Projects