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Feasibility study of a hybridization of small modular reactor with a solar power plant using molten-salt heat storage in Algerian south

Owing to the growing future energy security challenges on the national and international scale, it becomes necessary and urgent to set up a new and renewable energy policy in order to respond to the increasing demand for electric power. Quests that involve the exploring of all available resources of energy.
Nowadays, in the world, there has been an increasing interest in green energy, which provides climate-friendly decarbonized electricity (neither greenhouse nor pollution effect). The coupling between renewable energies and nuclear energy can be a promising way to enhance renewable energy deficiencies and to reduce the dependency on fossil energy.
While in Algeria, a country which conceals inestimable resources of solar energy, there is an increasing interest in renewable energy, while it seems that the coupling between solar and nuclear energy is weakly prospected. In order to explore such ways and to respond to the concerns of remote areas in southern Algeria not connected to the national electricity networks, our choice has been made on the hybridization of a very small modular reactor with a concentrated solar plant, taking into account the severe climatic environments of these regions. The present paper presents the results obtained from different hybridization configurations.

Country OR International Organization

Algeria

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

Yes

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