

Topic

Performance Modelling of an Open Volumetric Receiver CSP Plant Incorporating Rock Bed Thermal Storage

Candidate's Name

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Description

Open volumetric receiver (OVR) concentrating solar power (CSP) plants employ air as a heat transfer fluid, potentially enabling higher power cycle operating temperatures, higher solar-electric efficiencies and reduced electricity generation costs. Importantly, they are also able to utilise inexpensive rock to store thermal energy. In this study, computational tools were developed to enable the design and performance modelling of OVR CSP plants incorporating rock bed thermal energy storage. These tools were ultimately applied to evaluate, for the first time, the performance and operating characteristics of such a plant when employed for peak power generation.