
Solar DSG System

What is solar direct steam generation (DSG)?

Solar direct steam generation (DSG) systems are well suited for process steam applications and are able to provide steam at the pressure required by common industrial processes. Nevertheless, reliable control has always been a challenge for solar DSG system hindering its wider adoption.

How much thermal energy does a DSG solar plant use?

In a DSG solar plant the thermal energy needed for superheating steam ranges from 10 to 30%, so the contribution of the additional storage system is smaller than the share of the steam accumulator. 12.4.2.2. Two-tank molten salts thermal energy storage system

What is a commercial DSG Solar System?

Commercial DSG solar plants feature examples of systems using line-focusing systems, i.e., parabolic trough collectors or linear Fresnel systems, and point-focusing systems, in particular central receiver systems (CRSs), .

What is the control strategy for solar DSG systems?

In this paper, a control strategy for solar DSG systems is presented. The control strategy is based on proportional-integral-derivative (PID) control theory combined with model-based feedforward control. Experimental data demonstrate that the control strategy provides good performance in terms of stability and setpoint tracking.

Moreover, advanced concepts for integrating solar DSG systems in industrial settings are presented in the framework of the SolSteam Project. In addition we present details ...

The thermal analysis obtained by means of the SOLEEC software provided a comparison between a solar power plant implemented in the combined cycle power plant ...

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There is a need for more research efforts to develop next-generation adaptive spatial solar forecasting methodologies, which should be capable of meeting both the technological ...

Abstract Distributed solar generation (DSG) has been growing over the previous years because of its numerous advantages of being sustainable, flexible, reliable, and ...

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Direct steam generation (DSG) solar power plants are currently one of the suitable and best options to foster the commercial development of concentrating solar power ...

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