Steam Energy and Solar Power Generation

Does a direct steam generation solar power plant have integrated thermal storage?
A direct steam generation solar power plant with integrated thermal storage. J. Solar Energy Eng. Transac. 132, 0310141-0310145. doi: 10.1115/1.4001563 Birnbaum, J., Feldhoff, J. F., Fichtner, M., Hirsch, T., Jöcker, M., Pitz-Paal, R., et al. (2011). Steam temperature stability in a direct steam generation solar power plant.

Can solar steam generation help solve critical societal issues?
Scientific Reports 7,Article number: 11970 (2017) Cite this article Technologies for solar steam generation with high performance can help solving critical societal issuessuch as water desalination or sterilization,especially in developing countries.

Are solar steam generators effective?
Results are compared with the experiments reported by Zhou et al. 41, Ghasemi et al. 18, Bae et al. 43, Ni et al. 31, and Zielinski et al. 46 (gray, black, dark gray, light gray, and blue symbols, respectively). These overall efficiencies can be successfully compared with the ones obtained by solar steam generators based on advanced materials.

Is a 3D solar steam generator a photothermal device?
The 3D solar steam generator device with a nanocarbon composite of graphene oxide and carbon nanotubes being photothermal componentin this work shows a very strong dependence between its solar energy efficiency and surface areal density.

In direct steam generation (DSG) concentrating solar power (CSP) plants, water is used as heat transfer fluid (HTF). This technology is commercially available today and it has ...

A low cost, highly flexible and environmentally friendly water generation method known as interfacial solar steam generation (SSG) has recently been popularized by many researchers due to the continuously ...

Solar steam generation at the sterilization condition suffers from low efficiency, especially in passive solar thermal devices. We developed a stationary solar collector with a transparent ...

The new material is able to convert 85 percent of incoming solar energy into steam -- a significant improvement over recent approaches to solar-powered steam generation. What"s more, the setup loses very little heat in the ...

For the first time, we report a deployable, three-dimensional (3D) origami-based solar steam generator capable of near full utilization of solar energy. This auxetic platform is designed based on Miura-ori tessellation and ...

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Compared to conventional concentrated solar power systems, which use synthetic oils or molten salts as the heat transfer fluid, direct steam generation offers an opportunity to achieve higher steam temperatures in the Rankine ...

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