

Thermal energy storage united arab emirates

Thermal energy storage (TES) technology makes the concentrated solar power (CSP) technology superior to the photovoltaics and wind energy, by making it capable of generating electricity around the clock. The advantage lies in less expensive storage in the form of thermal energy, compared with the expensive storage of electrical energy in batteries. This chapter covers the working principles of CSP by demonstrating the current state of the art of its primary components and the way forward to the next generation of the technology. The focus of the chapter lies on molten salts as heat transfer fluid as well as TES material, their chemistry, advancements, and challenges. All components of the chapter are covered within the framework of molten salt technology.

T1 - Thermal energy storage in concentrated solar power plants

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AB - Thermal energy storage (TES) technology makes the concentrated solar power (CSP) technology superior to the photovoltaics and wind energy, by making it capable of generating electricity around the clock. The advantage lies in less expensive storage in the form of thermal energy, compared with the expensive storage of electrical energy in batteries. This chapter covers the working principles of CSP by demonstrating the current state of the art of its primary components and the way forward to the next generation of the technology. The focus of the chapter lies on molten salts as heat transfer fluid as well as TES material, their chemistry, advancements, and challenges. All components of the chapter are covered within the framework of molten salt technology.

KW - Brayton supercritical carbon dioxide (sCO) cycle

KW - Concentrated solar power

KW - High-temperature thermal stability

KW - Two-tank direct storage



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KW - Two-tank indirect storage

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