

Inflatable Non-imaging Solar Concentrator CSP

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Project Summary

This project proposes to employ SolenSphere LLC's (SolenSphere's) patented "Inflatable non-imaging Solar Concentrator" (US11365903 B2), and "Inflatable Non-Imaging Solar Concentrator Based Concentrating Hybrid Solar Thermal and Photovoltaic System Powered Water Desalination System" (US 11014828 B2), in conjunction with SolenSphere's modified hybrid solar thermal and photovoltaic panel as receiver, sand thermal energy storage, and thermoelectric modules, to construct a CSP system to realize ultra-high efficiency, extremely low cost, and stabilized power generation. The inflatable solar concentrator based CSP system will be integrated onto e-bike trailer to drive e-bike and portable modular trailer to form solar power generation unit to charge RV EV charging station.



Fig.9 The inflatable non-imaging solar concentrator without domed flexible divergent Fresnel lens cover CPV on a e-bike trailer



Fig.4 Prototype of the inflatable non-imaging non-tracking solar concentrator based CPV system on a e-bike trailer

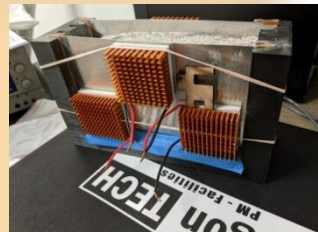
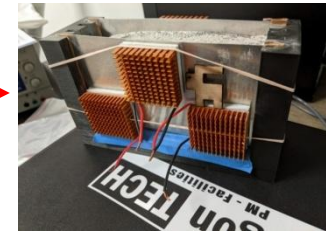


Fig.7 Sand thermo-electric energy storage package



Hybrid solar thermal and photovoltaic panels

Thermoelectric module based sand thermal energy Package



E-Bike



Project Impact

The success of the proposed project will effectively address the fundamental issues of the solar energy industry and make it the main stream of power supply in the modern society. As the rapid development of photovoltaic technology, the current photovoltaic industry is already able to generate power in a price comparable with that of electricity generated with fossil fuel. However, due to the intermittence, solar power is unable to independently support power grid. The proposed project synergistically integrate the ultra-high efficiency hybrid solar thermal and photovoltaic panel, thermal energy storage, and the thermoelectric module thermal power generation system together to not only address the issues of low efficiency and high cost, but also effectively balance the intermittence. The success of the proposed project will significantly change the landscape of the power supply over the world.

Realize ultra-high efficiency extremely low cost and stabilized power generation