SolarPACES 2022, 28th International Conference on Concentrating Solar Power and Chemical Energy Systems

Preface

https://doi.org/10.52825/solarpaces.v1i.961

Published: 08 Dec. 2023

Preface: SolarPACES 2022, 28th International Conference on Concentrating Solar Power and Chemical Energy Systems

Avi Shultz[1]

[1] US Department of Energy, Washington, DC, USA

The SolarPACES 2022 International Conference was held from September 27 to September 30, 2022 in Albuquerque, New Mexico. As the premier international conference and network for advancing commercial deployment and research and development of concentrating solar-thermal power (CSP) and related technologies, the community was excited to convene in person after two years of virtual collaboration.

The conference brought together more than 400 participants from 29 countries. The technical presentations and plenary sessions highlighted exciting advances in state-of-the-art commercial deployment and next-generation research and development. There was much focus on emerging commercial markets, including the value of thermal energy storage for cost-effective long duration energy storage – charged either with electricity or solar heat – and the use of solar thermal energy for industrial and chemical processes, especially to decarbonize the large portion of energy that's currently used for industrial process heating.

By holding the conference in the U.S., we were able to highlight particular technical and strategic objectives being advanced by the U.S. Department of Energy (DOE) and the US Government, including the progress in advancing the Generation 3 (Gen3) CSP test facility [1] at Sandia National Laboratories. This megawatt-scale system will demonstrate a fully integrated thermal transport and storage system that can collect, store, and deliver heat above 700° Celsius, using solid particle heat transfer media. Attendees to the conference were able to tour the globally renowned CSP research center at Sandia National Laboratories and the National Solar Thermal Test Facility (NSTTF). The NSTTF opened in 1978 as the world's first tower research facility for CSP and has been operating for more than 40 years. The site has been a center of excellence in the development of molten salt technologies for CSP and has played a key role in the demonstration of technologies used in some of the largest solar power plants in the world.

We also highlighted the recent announcements from the U.S. Department of Energy of the Energy Earthshot Initiatives to accelerate breakthroughs of abundant, affordable, and reliable clean energy solutions by the end of this decade. Specifically, the Long Duration Storage Shot [2] established a target to reduce the cost of grid-scale energy storage by 90% for systems that deliver 10 or more hours of duration, to $0.05 per kilowatt-hour of electricity delivered from storage. The Industrial Heat Shot [3] aims to develop cost-competitive industrial heat decarbonization technologies with at least 85% lower greenhouse gas emissions by 2035. Hydrogen Shot [4] seeks to reduce the cost of clean hydrogen by 80%, to $1 per 1 kilogram. CSP technologies have promising potential to contribute to all of these important goals.

The 2022 conference covered important contributions in all of these areas, and more, across 15 technical tracks, coordinated and chaired by international experts in each field. We had high

quality contributions across the board, including 211 oral presentations and 111 posters. Additionally, the plenary sessions brought together leading experts on energy storage, US and global markets for CSP technologies, and a specific focus on industrial decarbonization.

On behalf of SolarPACES, I thank all of the conference participants, authors, presenters, track chairs, and the conference organizing committee for an extremely successful meeting!

Avi Shultz

Chairman of the 28th SolarPACES conference

References

1. https://www.energy.gov/eere/solar/generation-3-concentrating-solar-power-systems-gen3-csp
2. https://www.energy.gov/eere/long-duration-storage-shot
3. https://www.energy.gov/eere/industrial-heat-shot
4. https://www.energy.gov/eere/fuelcells/hydrogen-shot