Building off the current Task on Solar Cooling for the Sunbelt Regions, this proposed new project aims to demonstrate the potential for sustainable and efficient heating/cooling solutions as a system approach for industrial applications in Southeast Asia, the Pacific region, and African and South American countries. The work will also focus on thermal energy storage and industrial waste heat recovery. The cooling and air conditioning systems included will range from 2 kWr to 5,000 kWr and use both solar thermal and photovoltaic (PV) technology as both can deliver efficient heat and cold combinations for industrial applications, including agri-food, manufacturing, and tourism.

The primary target audience of the new project are energy consultants, planners, project developers, energy managers, plant manufacturers, solar thermal collector manufacturers, solar cooling turnkey providers, and chiller producers using natural refrigerants but also investors and financing bodies, especially but not only from the regions mentioned above. These stakeholders are invited to help strengthen the proposed Task work to demonstrate sustainable and efficient heating/cooling solutions in industry.

There is still time to participate in this exciting and important work. The next meeting will be in conjunction with the April 2024 ISEC conference in Graz, Austria. To learn more about the proposed project and how to join, contact the Task Organizer, Uli Jakob, at uli.jakob@drjakobenergyresearch.de.

Fact – Decarbonization requires a change in our energy supply and hybridization. Green fuels will and can meet industrial energy demand (e.g., hydrogen and in combination with CO2 energy carriers [e.g., methane, methanol, ethanol]). But today, e.g., 99% of H2 for industrial use is from non-renewable energy sources[1]

That is what one would call an untapped potential for solar reactors. The demand for “green” energy sources is increasing, and using the sun to produce them is a win-win.

This proposed project would work on technologies to use solar radiation to produce H2 and other fuels via photothermal, photocatalytic, and photo-electrochemical processes. The work would

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be divided into three areas: 1) materials and component development, 2) reactor design, and 3) system integration.

If you want to be part of this expert exchange network on Solar Fuels, join us in our shared efforts to realize the use of sunlight for novel fuel production.

The next meeting is on April 9, 2024, in Graz, Austria, one day before the ISEC 2024 conference on April 10-11. To learn more about the proposed project and how to join, contact the Task Organizer, Bettina Muster-Slawitsch, at b.muster@aei.at.

### Solar Reactors

Solar reactors using solar radiation for the production of H2 and other fuels via photo processes.

### SHC Publications

#### New Publications Online!

You won’t want to miss our new reports highlighted below. You can read them online or download them for free. Our complete library of publications – online tools, databases, and more – dating back to the start of the SHC Programme can be found on the IEA SHC website under the tab “Publications” or under a specific Task.

#### Solar Cooling for the Sunbelt Regions

**Building and Process Optimization Potential**

An overview of the SHC Task 65 work on the potential of energy-efficient buildings and processes for new and existing buildings in Sunbelt regions is described in this report. Several projects are used to quantify the amount of energy used for cooling systems, and results from a literature review highlight different passive and active low-tech solutions to optimize the energy performance of a building.

**Design Tools and Models**

This report summarizes the work completed on reviewing and adapting tools and models for technical and financial assessment, solar cooling design, and project phases from pre-feasibility to simulation to monitoring.

**Lessons Learned (technical and non-technical)**

In this report, discover key insights on solar cooling adoption across diverse regions and review the survey results on stakeholders’ requirements, expectations, and circumstances.

#### Solar Heat Processes

**Guideline for Yield Assessment in SHIP Plants**

Four case studies are used in this report to compare solar collectors using different simulation tools to identify differences and impact on the leading performance indicators.