



New Joint Task: Solar Energy for Process Heat Systems

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Solar Process Heat joint Task proposal



- Build on previous joint tasks 33/IV and 49/IV
- Vision: Solar heat to be recognized as a reliable (and affordable) source of energy for industry
- Focus on close-to market technologies and applications up to ~ 400°C
- Balanced SolarPACES / SHC task management and structure
- Operating Agents:
 - SHC: (HSR, Andreas Häberle)
 - SolarPACES: (DLR, Klaus Hennecke)

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Subtask structure

- Subtask A – Integrated energy systems (Uni Kassel, Bastian Schmidt)
- Subtask B – Modularization (CIEMAT, Eduardo Zarza)
- Subtask C – Simulation and design tools (UChile, José-Miguel Cardemil)
- Subtask D – Standardization and Certification (CRES, Vassiliki Drosou)
- Subtask E – Guideline to Market (Fraunhofer ISE, Peter Nitz)

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Subtask A – Integrated energy systems (Uni Kassel, Bastian Schmidt)

- Integration of solar heating plants in process heat systems (centralized / decentralized)
- Energy efficiency and heat recovery; Process integration and storage management
- The role of solar energy in hybrid energy supply systems; Combination with other heating technologies (Combined heat and power, high temperature heat pumps, Solar power/power-to-heat);
- Maximum impact (solar fraction) of solar energy based on specific boundary conditions such as location, sector, temperature demand and load profile

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Subtask B – Modularization (CIEMAT, Eduardo Zarza)

- Modular system concepts for solar process heat applications
- Collectors and hydraulics (standard packages; easy installation; easy dismantling)
- Development of “standard” (recommended) interfaces for solar process heat applications

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Subtask C – Simulation and design tools (UChile, José-Miguel Cardemil)

- System simulation
- Benchmarking of different system concepts
- Preparation of useful design tools
(useful for planners without system simulation skills)

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Subtask D – Standardization and Certification (CRES, Vassiliki Drosou)

- Define KPIs for solar process heat systems
- Connect with relevant Technical Committees and Certification Bodies
- Work with current versions of relevant standards and legislation including EU regulations
- Provide information and contribute to the revision of relevant standards
- Develop Proposals for development of certification schemes

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Subtask E – Guideline to Market (FhG ISE, Peter Nitz)

- LCOH as benchmark for innovative systems □task 54 activities
- Financing schemes and business models for hybrid energy supply
- Alignment of solar process heat related national research and funding programs, seeking synchronization with other worldwide programs
- Acceleration of knowledge transfer to industry
- Mapping of R&D infrastructure
- Establish communication structures for stakeholders (researcher/investor, supplier, industry, relevant international organizations)
- Best practice examples of successful installations and business models (e.g. www.ship-plants.info)

Current Status:

- SolarPACES and Solar Cooling&Heating Executive Committees held in October and November 2018 gave their approval
- The SolarPACES ExCo supports the proposed concept for a new Joint Task with SHC on Solar Process Heat.
- The level of co-operation (according to the SHC TCP policy on Collaborative Tasks with other IEA TCPs) shall be “Joint“.
- The designated Co- Operating Agents Klaus Hennecke (SolarPACES) and Andreas Häberle (SHC) shall jointly prepare and conduct the Task Definition Phase and prepare the necessary documents for approval by the ExCo scheduled October 2019.
- A complete work plan for the new Task shall be presented by the end of 2019

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