
Experiences in Solar Water Heater Markets in Europe and Scope for Collaboration with India for Accelerating



Headquarter of Fraunhofer ISE, Freiburg, Germany

Gerhard Stryi-Hipp

Head of Energy Policy

Coordinator Smart Energy Cities

**Fraunhofer Institute for
Solar Energy Systems ISE**

President

**European Technology Platform on
Renewable Heating and Cooling**

RE-INVEST Conference

Session Decentralized Energy Solutions

New Delhi, India, 17 February 2015

Solar Water Heating in Europe



MARKET 2013 (EU-27 + Switzerland)

- Newly Installed: 3.1 Mio m² / 2.1 GW_{th}
- In operation: 43 Mio m² / 30 GW_{th}

CHARACTERISTICS

- Solar radiation: for free and everywhere
- Daily and seasonal solar variation
Storage and auxiliary heating source needed

CHALLENGES

- Enlarge the type of applications
Large systems, district heating, process heat, higher temperature, solar assisted cooling
- Increase the solar fraction per building
From hot water to Solar-Active-Houses
- Ease operation and reduction of costs

APPLICATIONS

Domestic hot water & space heating

- One/two/multi family homes
- Hotels, hospitals, residential homes,...
- District heating
- Multifunctional façades
- PV-Thermal (PV-T) hybrid collectors

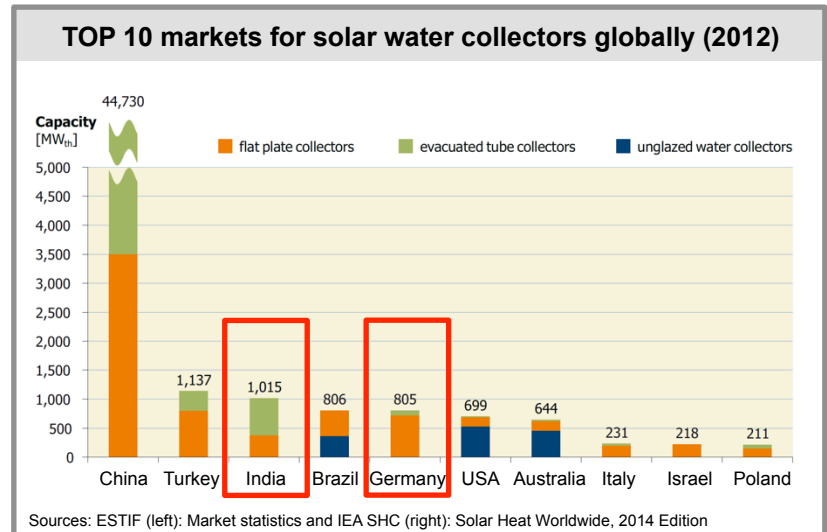
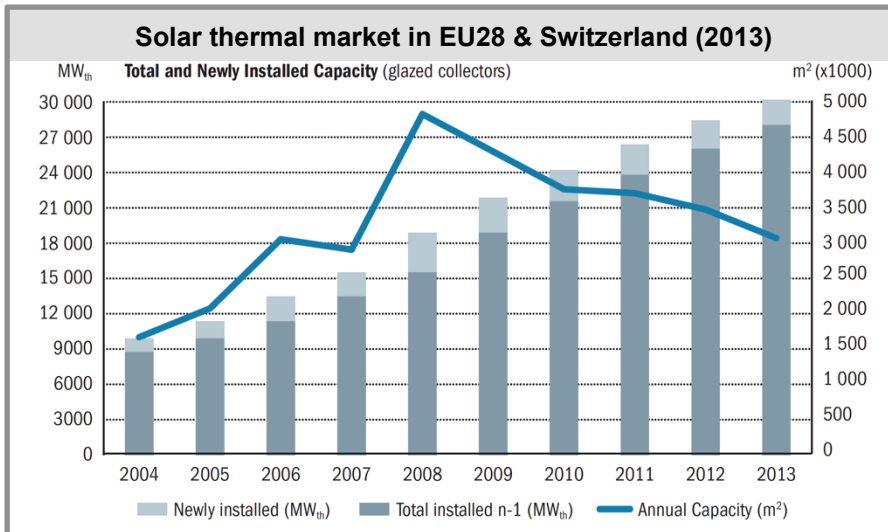
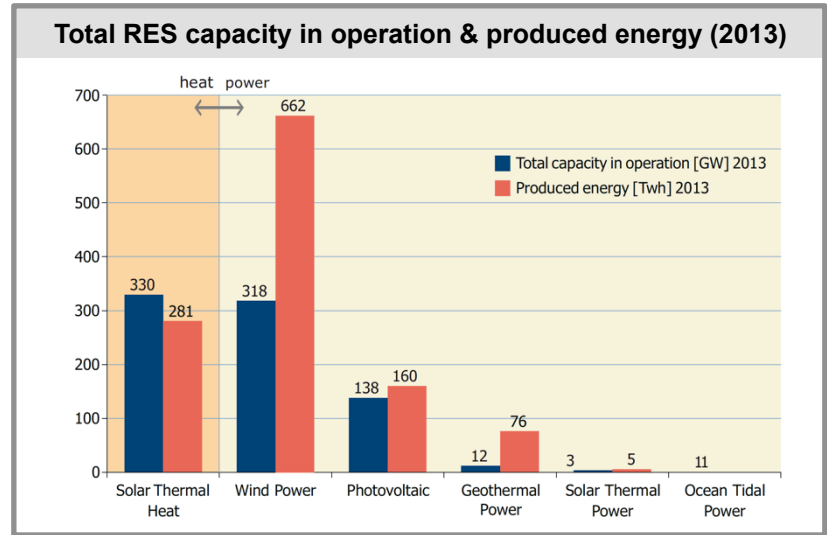
Process heat

- Low up to 100°C
- Medium up to 250°C
- Solar assisted cooling and refrigeration



Solar Water Heating Market in Europe and Global

- Solar thermal heat (SWH) is the Renewable Energy Source (RES) with the highest capacity and second highest energy generation globally
- The European Solar Thermal (ST) market is dropping since 2009
- China is by far the biggest ST market worldwide, India No 3, Germany No 5



European Technology Platform on Renewable Heating and Cooling developed Vision, Strategy and Roadmaps

Download: www.rhc-platform.org

Common Vision 2020 - 2050

**Strategic Research Priorities of Solar thermal, Biomass, Geothermal and Cross-cutting
→ Strategic Research & Innovation Agenda**

**Technology Roadmaps of Solar thermal, Biomass, Geothermal and Cross-cutting
→ Common Implementation Roadmap**

2011

2012

2013

2014

Collaboration Europe – India on Solar Water Heating

Most interesting market segment in India:

SWH for industrial processes

- Rather small market yet, but **high potential**
- **General barriers**
 - Lack of awareness
 - Concerns on reliability of SWH systems
 - No sufficient data on performance and cost savings of SWH systems
 - Available **roof space** is limited

Opportunities for collaboration

Within the GIZ-project »SoPro India« first steps of cooperation are established:

- **Monitoring of SWH systems to gain reliable data on the energy yield of SWH systems**
- **Development of a concept for cheap and robust monitoring systems**
- **Recommendations for an optimized system design are under development**

SoPro India
Solar Water Heating for
Industrial Processes in India

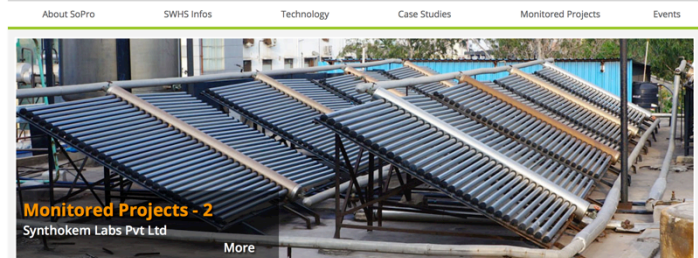


SoPro India
Solar Water Heating for
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On behalf of
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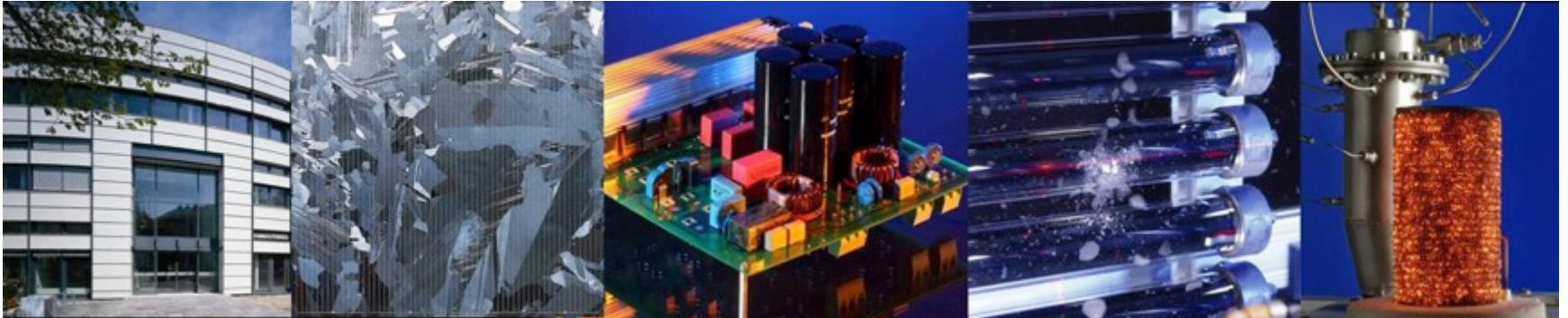
In cooperation with:
Ministry of New
and Renewable
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Thank you very much for your attention!



Gerhard Stryi-Hipp

gerhard.stryi-hipp@ise.fraunhofer.de