



TASK 54

Introduction to IEA SHC Task 54

Price Reduction of Solar Thermal Systems



Dr. Michael Köhl - Fraunhofer Institute for Solar Energy Systems ISE
Dr. Daniel Mugnier - TECSOL

ISEC Conference - Graz, Austria - 5 October 2018



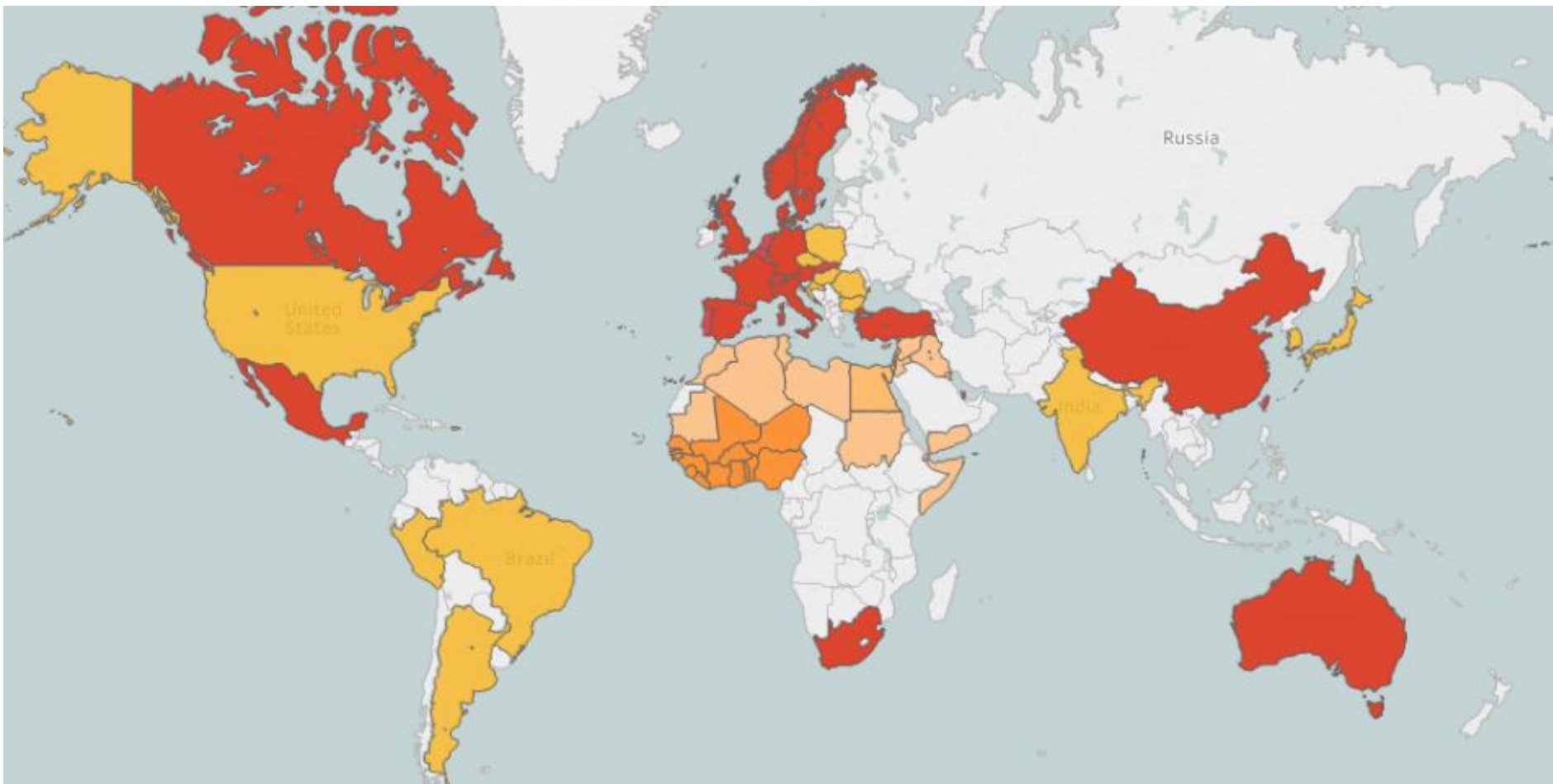


SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

The IEA SHC Technology Collaboration Program

SHC TCP Snapshot

- 20 member countries, EC and 5 Sponsors(ECREEE, RCREEE, ISES, ECI, GORD)
- 9 Tasks & 1 Working Group focused on:
 - Solar heating and cooling technologies for residential, commercial, industrial and agricultural end-uses
 - Capacity building projects for all solar technologies
 - Market information and projects to support global market deployment.
- Experts participating in Tasks:
 - **Formally participating**
 - Total approx. 600
 - 28% from Industry
 - **Informally engaged**
 - Total approx. 1,700
 - 35% from Industry



Map is without prejudice to status of or sovereignty over any territory, to delimitation of international frontiers/boundaries and to name of any territory/area.

IEA SHC Other Activities

- **SHC International Conference on Solar Heating and Cooling for Buildings and Industry**
 - 5th conference (SHC 2017) was 1st joint with ISES, Nov. 2017 in Abu Dhabi
- **Collaboration with Solar Trade Associations**
 - 11th meeting during SHC 2017 in Abu Dhabi
- **SHC Solar Award**
 - 2017 award winner: Austria's Climate and Energy Fund, presented at SHC 2017 in Abu Dhabi
- **Solar Academy** – webinars, videos, national days and onsite training
- **Solar Heat Worldwide** – annual statistics report
- **Task publications/databases/info sheets/newsletters**
- **SHC book series** with Wiley Publishers
- **Programme newsletter, *Solar Update*** – 2 per year
- **Social Media**
 - Twitter - @IEASHC
 - LinkedIn - IEA Solar Heating and Cooling Programme (group 4230381)

IEA SHC Current Targeted R&D Work

Task 54: Price Reduction of Solar Thermal Systems

Task 55: Towards the Integration of Large SHC Systems into DHC Networks

Task 56: Building Integrated Solar Envelope Systems for HVAC and Lighting

Task 57: International Standards & Global Certification

Task 58: Material and Component Development for Thermal Energy Storage

Task 59: Renovating Historic Buildings To Zero Energy

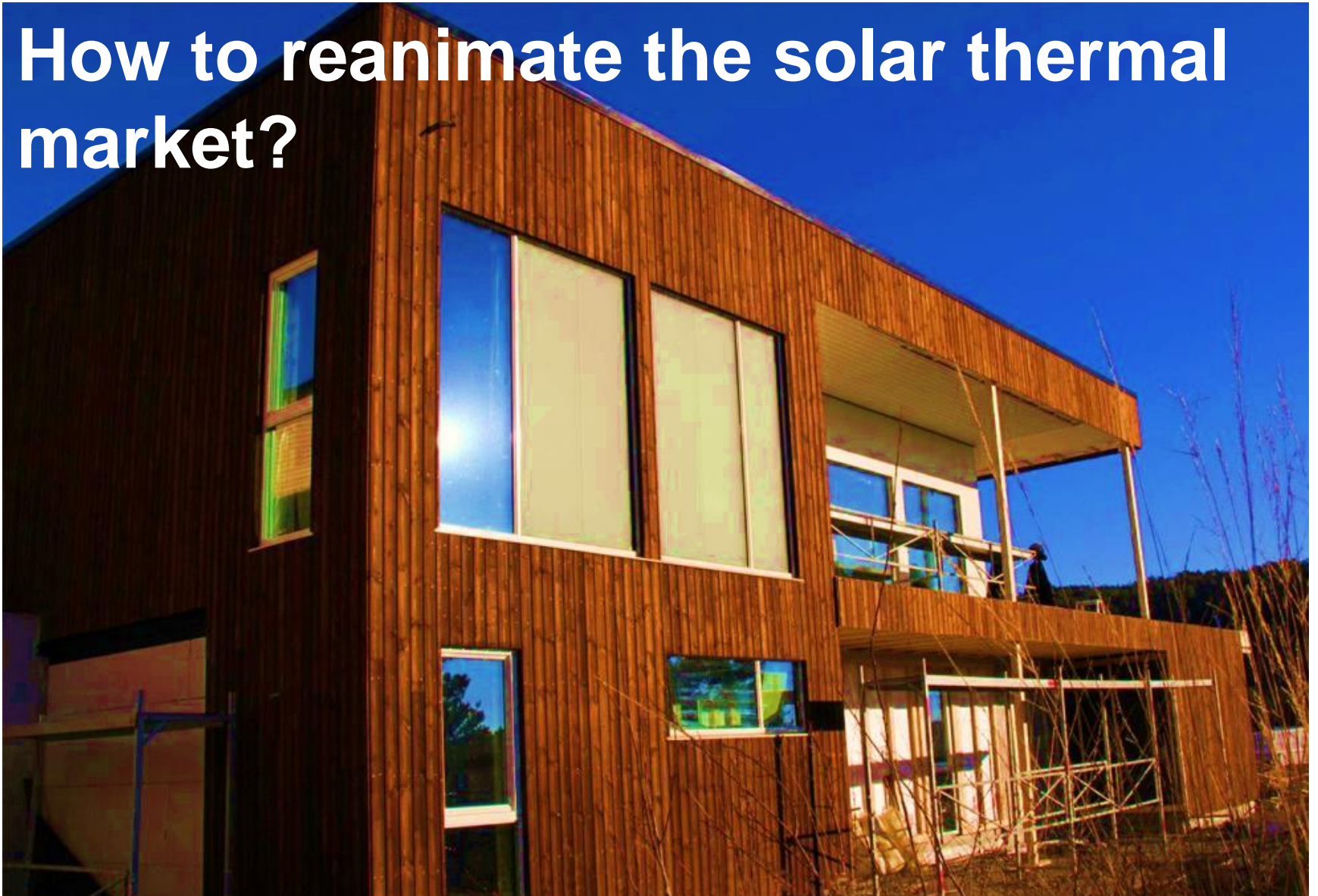
Task 60: Application of PVT Collectors and New Solutions with PVT Systems

Task 61: Integrated Solutions for Daylight and Electric Lighting

Task 62: Solar Energy in Industrial Water and Wastewater Management

Working Group: Life Cycle Assessment for Solar Heating and Cooling Technologies

How to reanimate the solar thermal market?



How to reanimate the solar thermal market?

Improve Image

Improve Political Framework Conditions

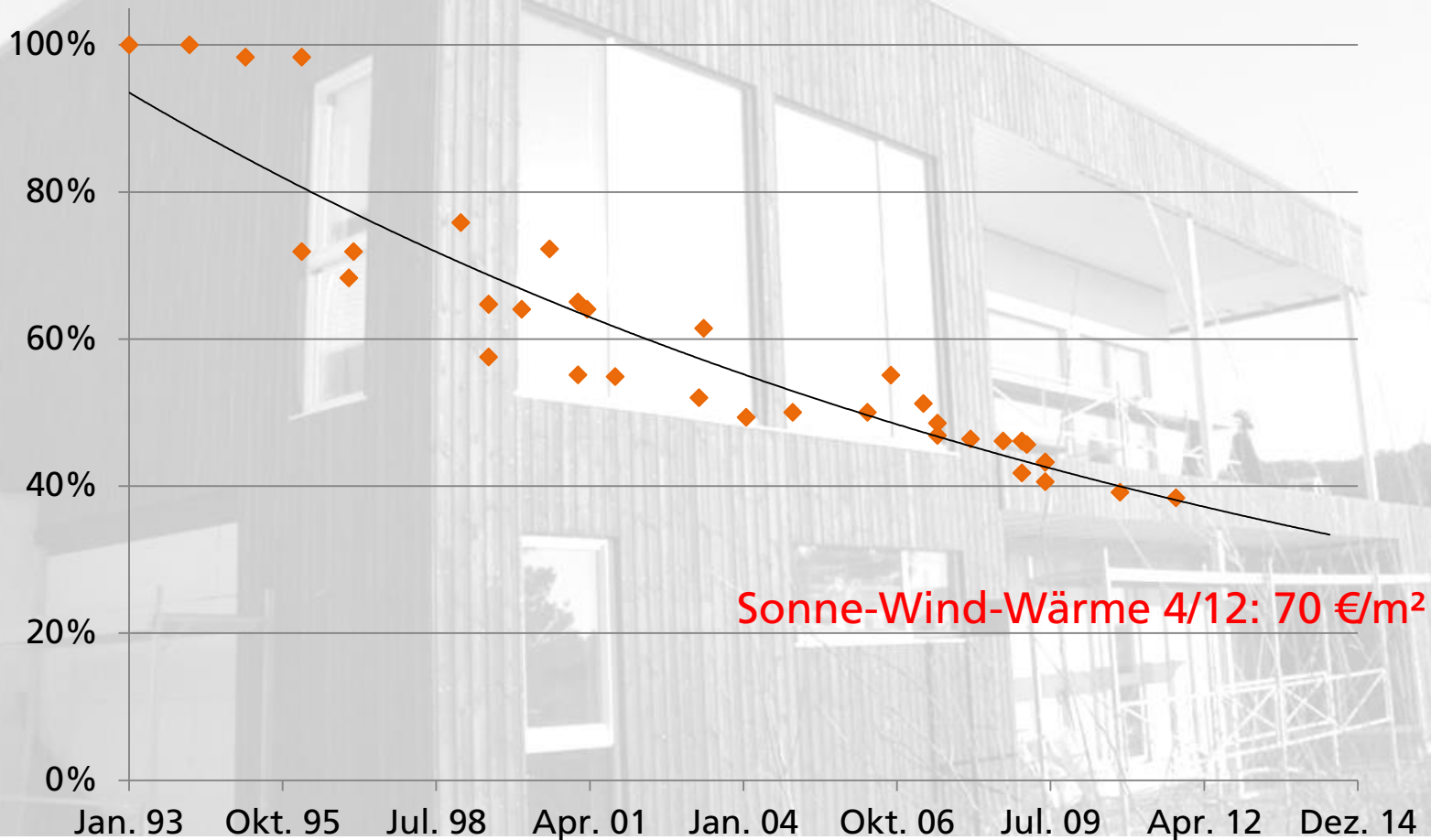
Improve Economical Feasibility

Become Cost-competitive

Past Cost Development

Development of production costs of collectors since 1993:

Decrease about 4%/year



Current Cost Structures

Typical German solar DHW system (installed) : 5 m² collector, 300 l DHW tank

DE 2012: 4.900 €

DE 2015: 4.700 €

Price per m²:

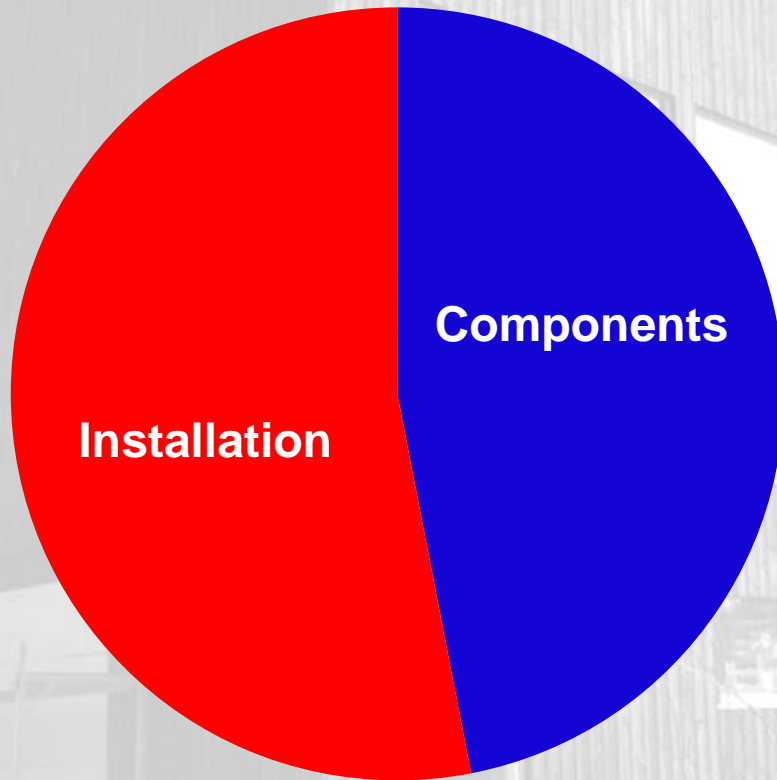
DE 2012: 98 €

DE 2015: 94 €

**No more production cost
reduction?**

Current Cost Structures

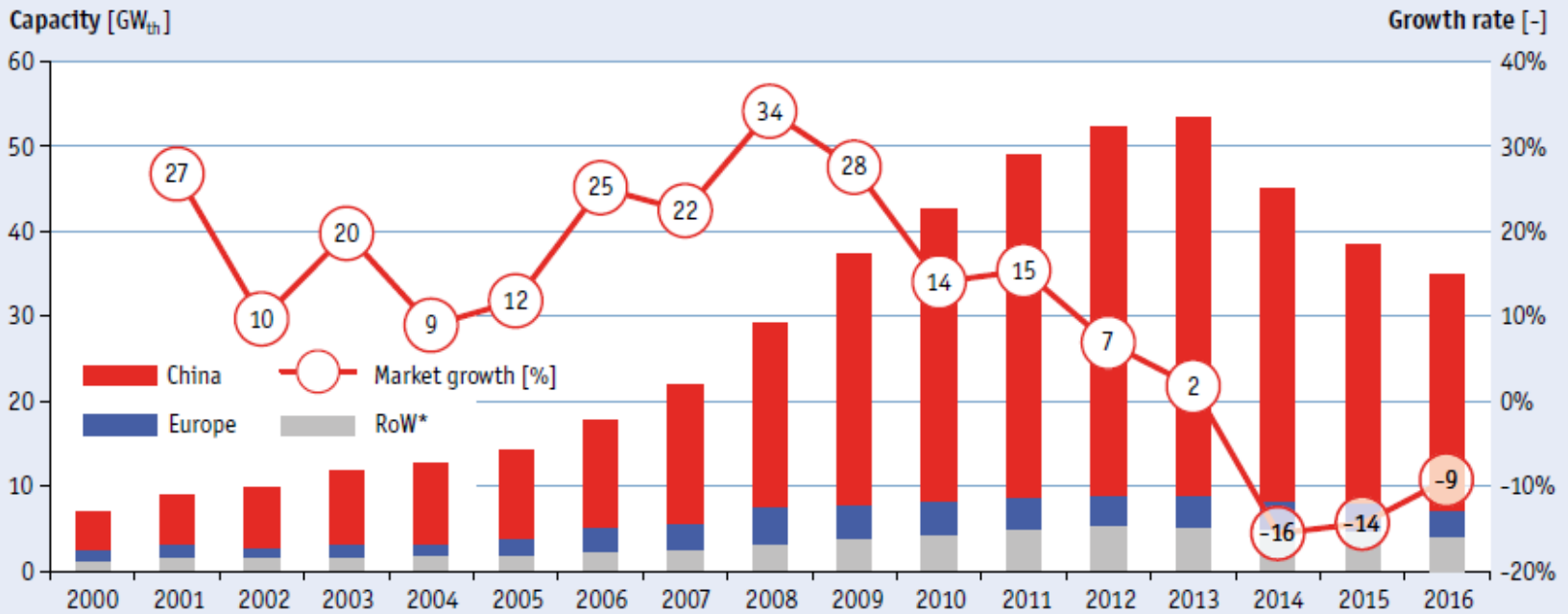
Typical solar DHW system (installed) : 5 m² collector, 300 l DHW tank



DE 2012: 2.300 €

DE 2015: 2.100 €

Market Development



Global market development of glazed water collectors from 2000 to 2016

Source: Solar Heat World Wide 2018

Shrinking market results in reduced economy of scale effects

=> Reduce price => increase attractivity and markets => reduce costs

Price reductions in the entire Solar Thermal Value Chain



1. Design & Development

2. Materials & Components

3. Production



4. Distribution



5. Installation

6. Operation and Maintenance



Task 54 Participants so far

- Advanced Polymer Compounds (Austria)
- AEE INTEC (Austria)
- Aventa AS (Norway)
- DTU & Solar Key Int. (Denmark)
- Fraunhofer ISE (Germany)
- Grundfos (Denmark)
- ISFH (Germany)
- KBB Kollektorbau (Germany)
- Linuo Paradigma (China)
- SPF (Switzerland)
- Sunlumo Technology (Austria)
- Tecsol (France)
- University of Aachen (Germany)
- University of applied science Ingolstadt (Germany)
- University of Florence (Italy)
- University of Linz, IPMT (Austria)
- University of Kassel (Germany)
- University of Stuttgart ITW/TZS (Germany)

Programme for today

- **Calculating the system-based Levelized Costs of Heat (LCoH) for reference solar thermal systems**

Dr François Veynandt, AEE Intec

Improvements developed during the IEA SHC Task 54:

- **New materials**

Pr. Gernot Wallner, JKU IPMT & Robert Buchinger, SUNLUMO

- **Technical improvements**

Dr. Alexander Thür, Uni Innsbruck

- **Non-technical improvements and learning curve issues**

Dr. Daniel Mugnier, TECSOL

- **Impact of the improvements developed during IEA SHC Task 54 on the thermal energy costs**

Dr. Karl Anders Weiss, FhG ISE

More on Task 54:

<http://task54.iea-shc.org>



https://twitter.com/iea_shc_task54

Task 54 activities

 <http://task54.iea-shc.org/>



- About Project
- Participants
- Meetings / Events
- Info Sheets
- Q & A
- Publications
- News
- Funded Projects
- Related Sites
- Member Area
- Contact

Price Reduction of Solar Thermal Systems

TASK 54

Task 54's aim is the purchase price reduction of installed solar thermal systems up to 40%. Our projects investigate the complete value chain:

- We evaluate and develop sustainable means to reduce production costs on material, component and system level.
- We identify and reduce post-production cost drivers, e.g. channels of distribution, marketing, installation, O&M.
- We evaluate cost-structures of manufacturers and their cost reduction potential.
- We study socio-political boundary conditions and their effect on solar thermal prices.
- We make solar thermal more attractive by improved marketing and consumer-oriented design.

Latest News / Meetings / Publications

What's New		
NEWS	MEETINGS	PUBLICATIONS
<p>Final Experts Meeting 19-20 Sep 2018 - We're looking forward to our final experts meeting from 19-20 Sep 2018 in Oslo, Norway. More info will be provided on our events section soon. (Posted: 2018-07-31)</p> <p>Q&As from Task 54's Solar Academy webinar available now - Questions asked by the participants, answered by Task 54 experts. (Posted: 2018-05-15)</p> <p>IEA SHC Webinar: Cost reduction potential above 30 % - The key takeaway from an IEA SHC Solar Academy webinar held on 14 March 2018: There is still much room for cost cuts along the entire solar thermal value chain. (Posted: 2018-04-05)</p>		

SHC Task 54

Price Reduction of Solar Thermal Systems



Info Sheets

Twitter

Publications

Task Information

DURATION

October 2015 — October 2018

OPERATING AGENT

Dr.-Ing Michael Köhl
GERMANY
+49 (761) 45885124 fax: +49 (761)
45889124
michael.koehl@ise.fraunhofer.de

Twitter Feed @IEA_SHC_Task54

 **Task 54**
@IEA_SHC_Task54

Don't miss our final presentation at this year's @EuroSun2018 at @hsr_rapperswil. For more info on technical tours and side events have a look at the latest newsletter bit.ly/2wzw3xh



Auto 27, 2018