



**TASK 54**

# Introduction to IEA SHC Task 54

## Price Reduction of Solar Thermal Systems

 **Fraunhofer**  
ISE

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ISEC Conference - Graz, Austria - 5 October 2018

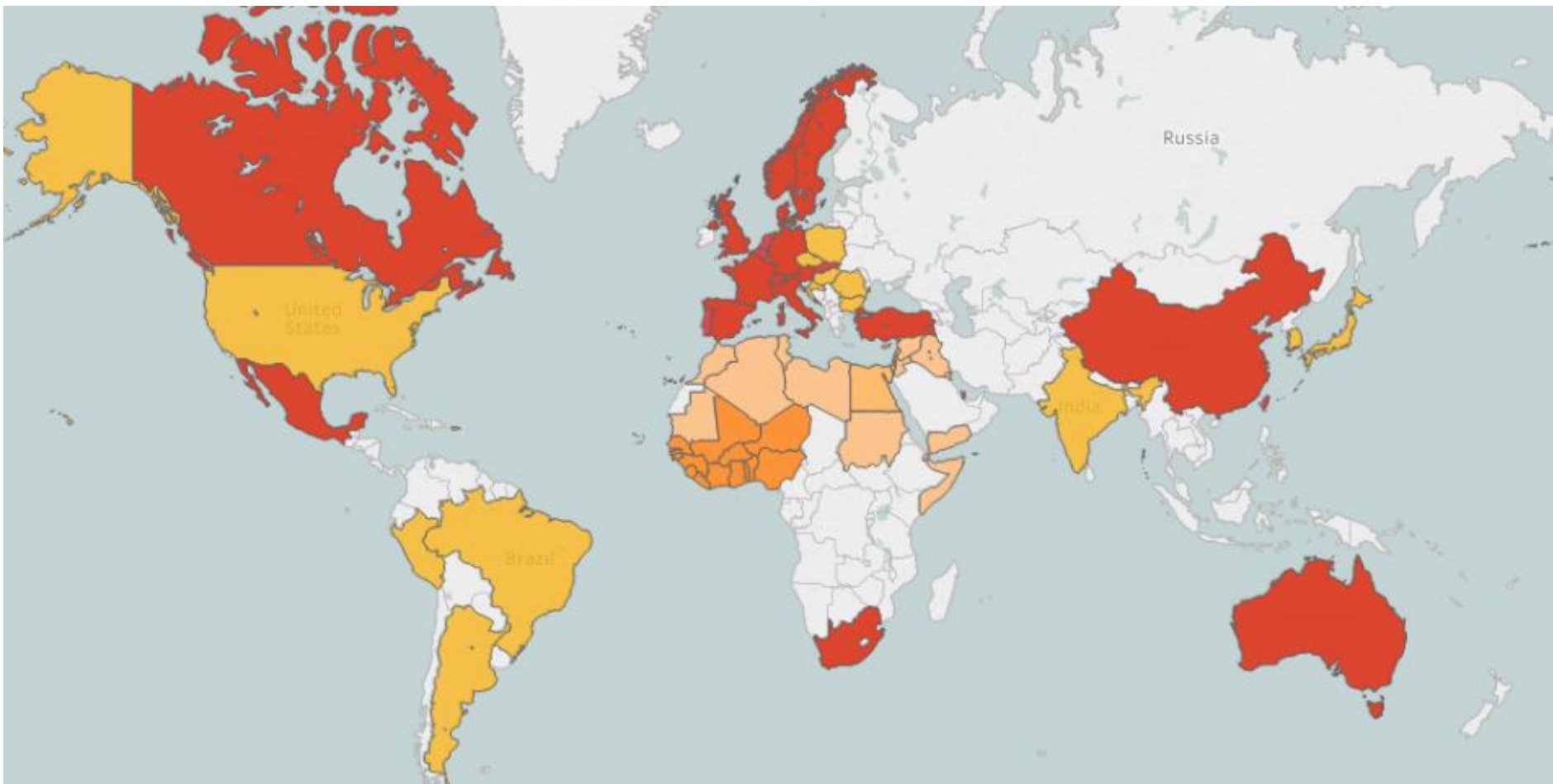


SOLAR HEATING & COOLING PROGRAMME  
INTERNATIONAL ENERGY AGENCY

# 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**
  - 5<sup>th</sup> conference (SHC 2017) was 1<sup>st</sup> joint with ISES, Nov. 2017 in Abu Dhabi
- **Collaboration with Solar Trade Associations**
  - 11<sup>th</sup> 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

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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**

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# How to reanimate the solar thermal market?





# How to reanimate the solar thermal market?

Improve Image

Improve Political Framework Conditions

Improve Economical Feasibility

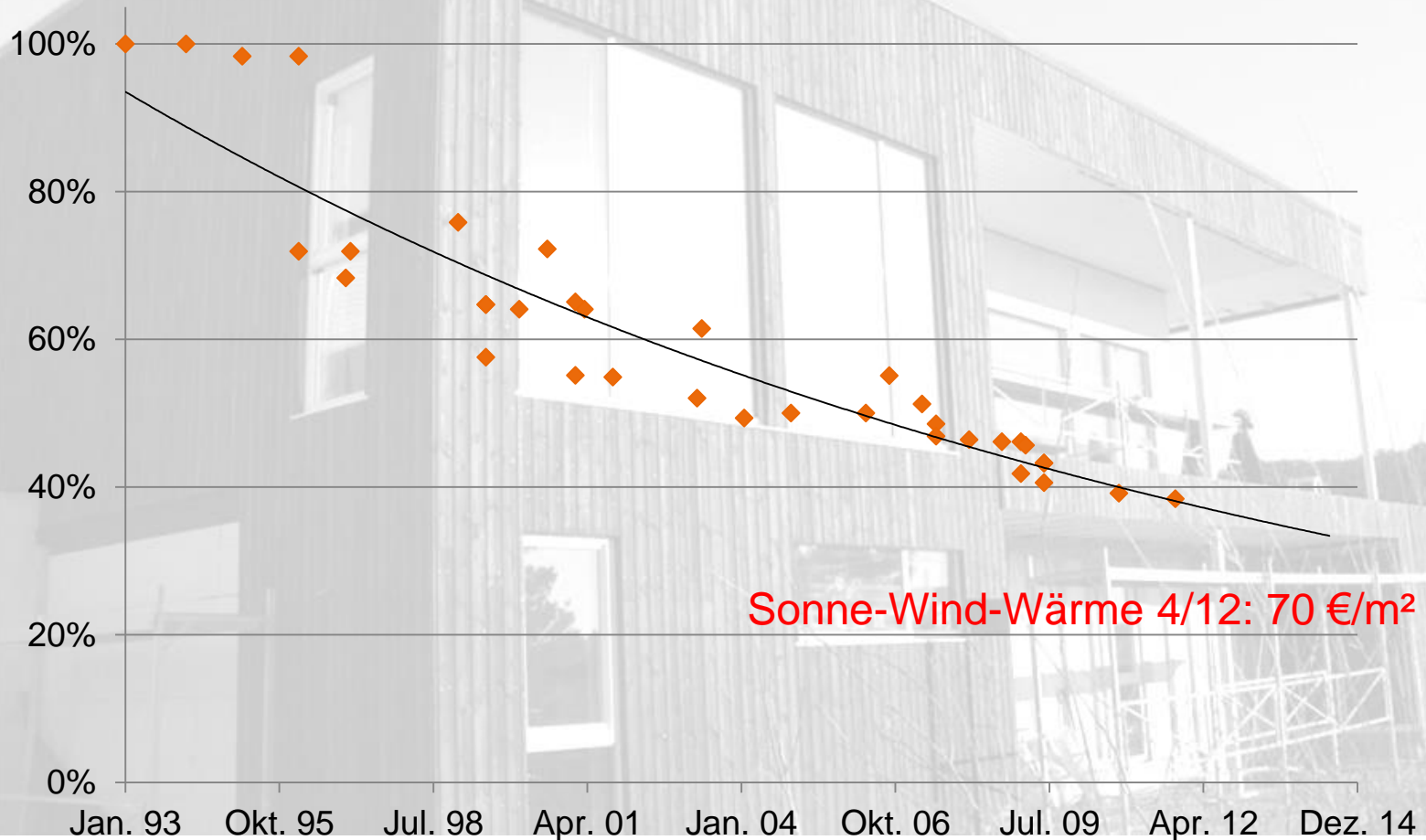
Become Cost-competitive



# 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 m<sup>2</sup> collector, 300 l DHW tank

DE 2012: 4.900 €  
DE 2015: 4.700 €

Price per m<sup>2</sup>:

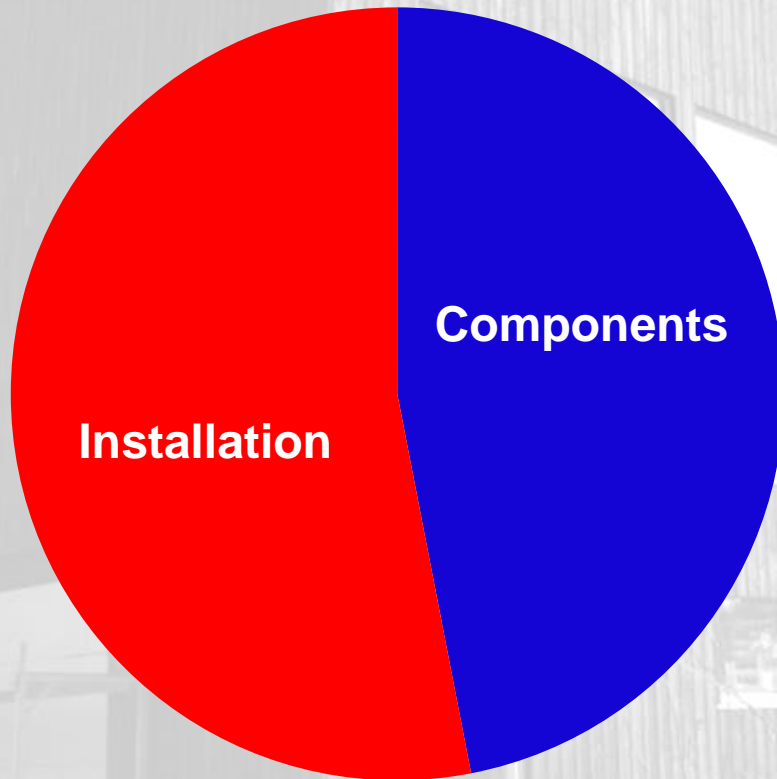
DE 2012: 98 €

DE 2015: 94 €

**No more production cost  
reduction?**

# Current Cost Structures

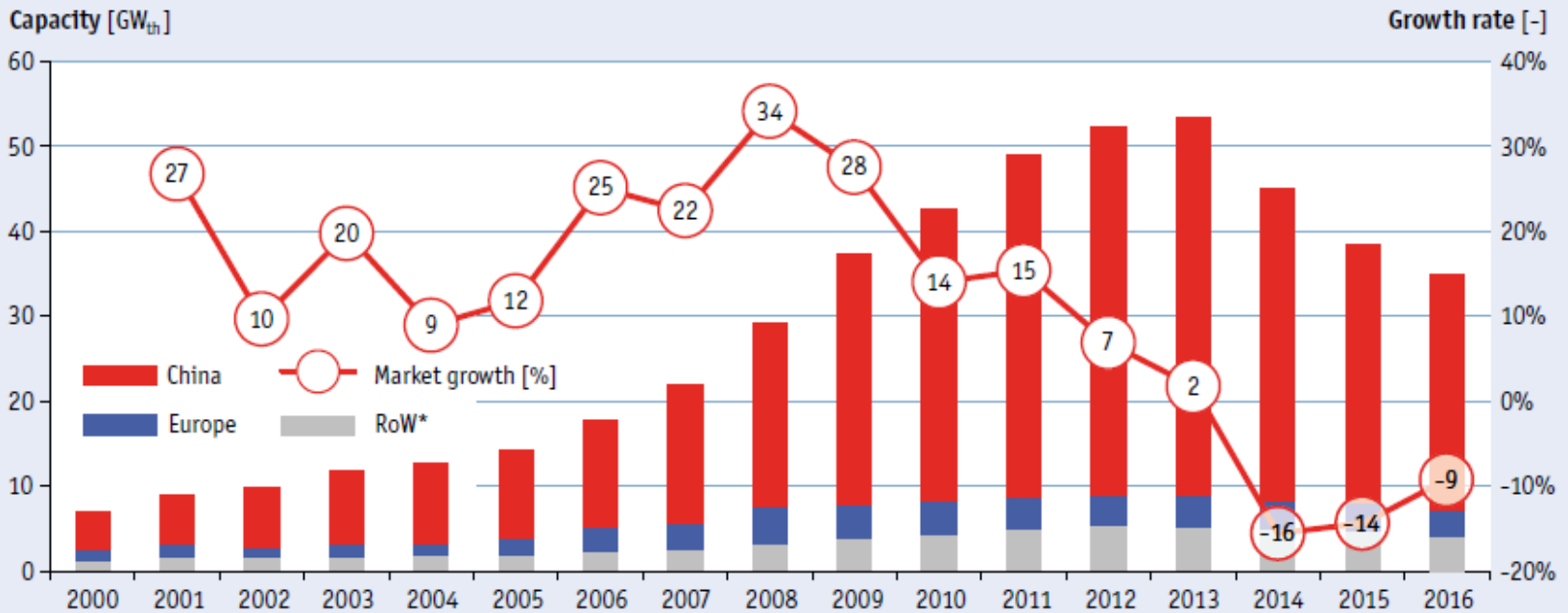
Typical solar DHW system (installed) : 5 m<sup>2</sup> collector, 300 l DHW tank



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>

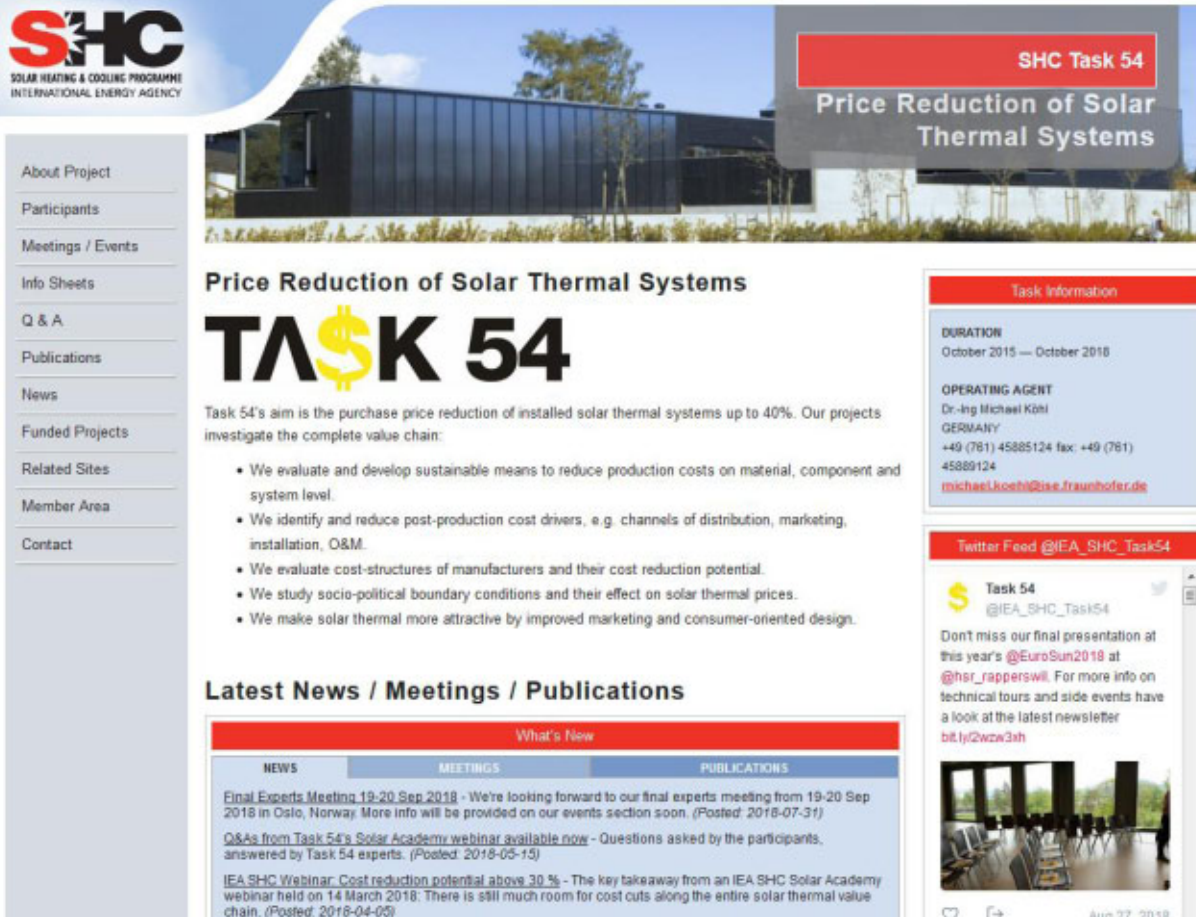


[https://twitter.com/iea\\_shc\\_task54](https://twitter.com/iea_shc_task54)



# Task 54 activities

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



The screenshot shows the website for SHC Task 54, "Price Reduction of Solar Thermal Systems". The top left features the SHC logo (Solar Heating & Cooling Programme, International Energy Agency). A navigation menu on the left includes: About Project, Participants, Meetings / Events, Info Sheets, Q & A, Publications, News, Funded Projects, Related Sites, Member Area, and Contact. The main header area has a large image of a modern building with a banner that reads "SHC Task 54 Price Reduction of Solar Thermal Systems". Below this, the title "Price Reduction of Solar Thermal Systems" is followed by the large "TASK 54" logo, where the 'A' is a yellow dollar sign. The text states: "Task 54's aim is the purchase price reduction of installed solar thermal systems up to 40%. Our projects investigate the complete value chain:" followed by a bulleted list of objectives: evaluate and develop sustainable means to reduce production costs; identify and reduce post-production cost drivers; evaluate cost-structures of manufacturers; study socio-political boundary conditions; and make solar thermal more attractive by improved marketing and consumer-oriented design. Below this is a "Latest News / Meetings / Publications" section with a "What's New" header and three tabs: NEWS, MEETINGS, and PUBLICATIONS. The NEWS tab is active, showing three items: "Final Experts Meeting 19-20 Sep 2018", "Q&As from Task 54's Solar Academy webinar available now", and "IEA SHC Webinar: Cost reduction potential above 30 %".



Info Sheets

Twitter

Publications