SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

TASK 54

Introduction to IEA SHC Task 54

Price Reduction of Solar Thermal Systems

Fraunhofer ISE
TECSOL

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

ISEC Conference - Graz, Austria - 5 October 2018

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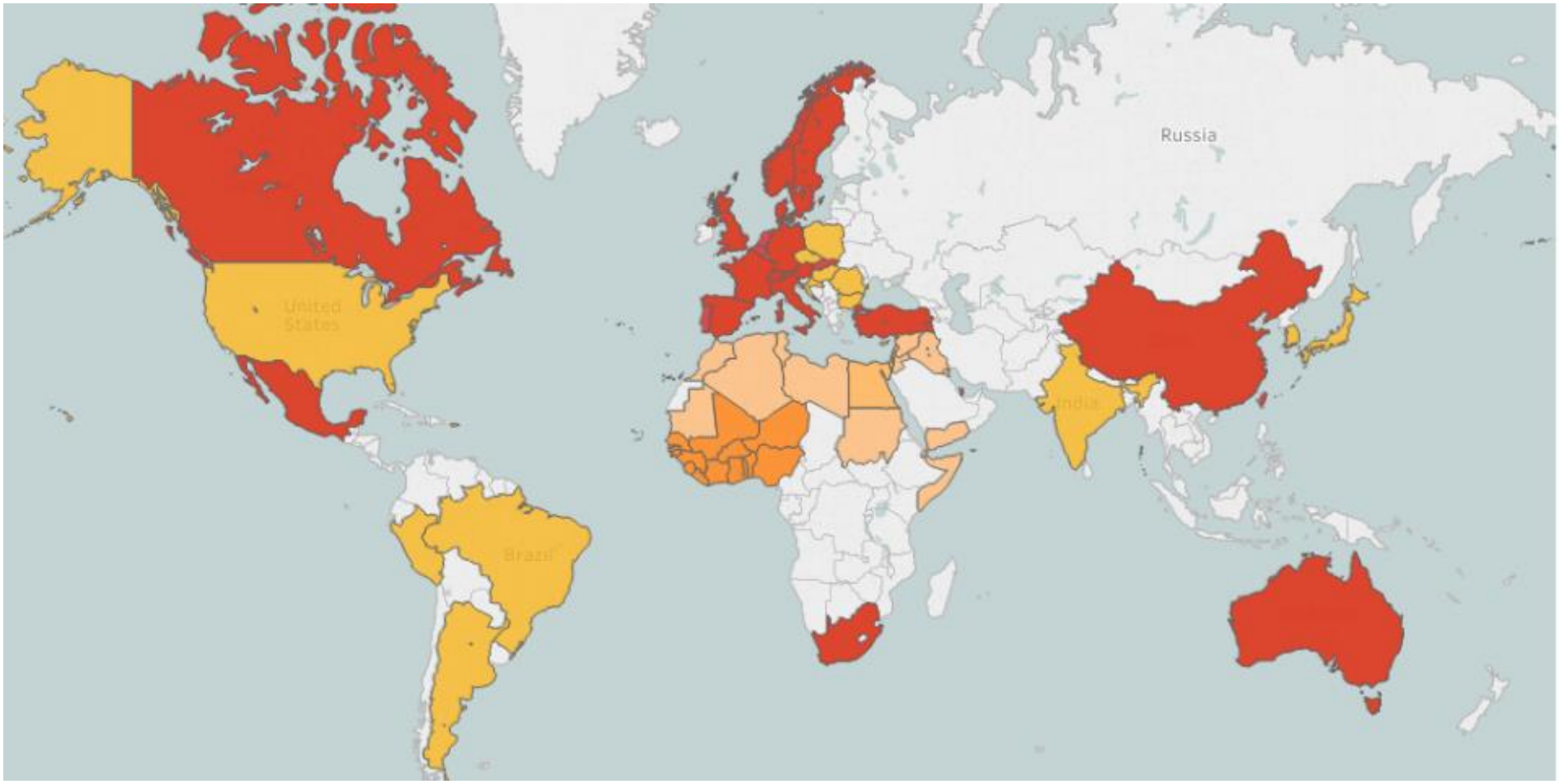
The IEA SHC Technology Collaboration Program

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



20 Member Countries + EC
+ 5 Sponsor Organizations

Sponsors – 47 additional Countries
RCREEE
ECREEE
ISES

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?

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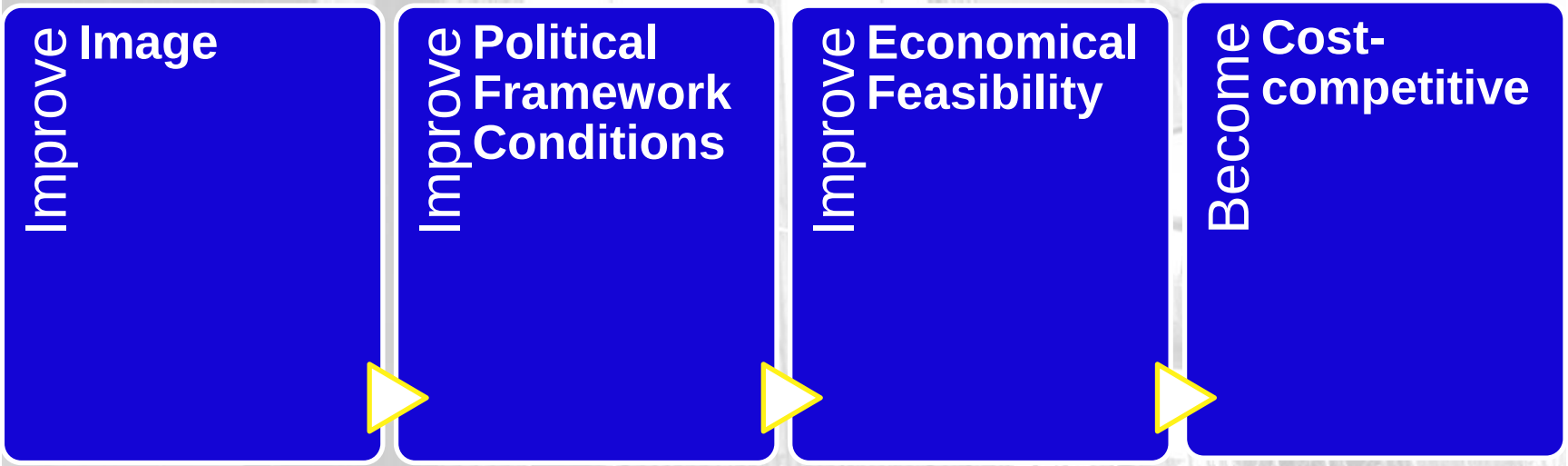
How to reanimate the solar thermal market?



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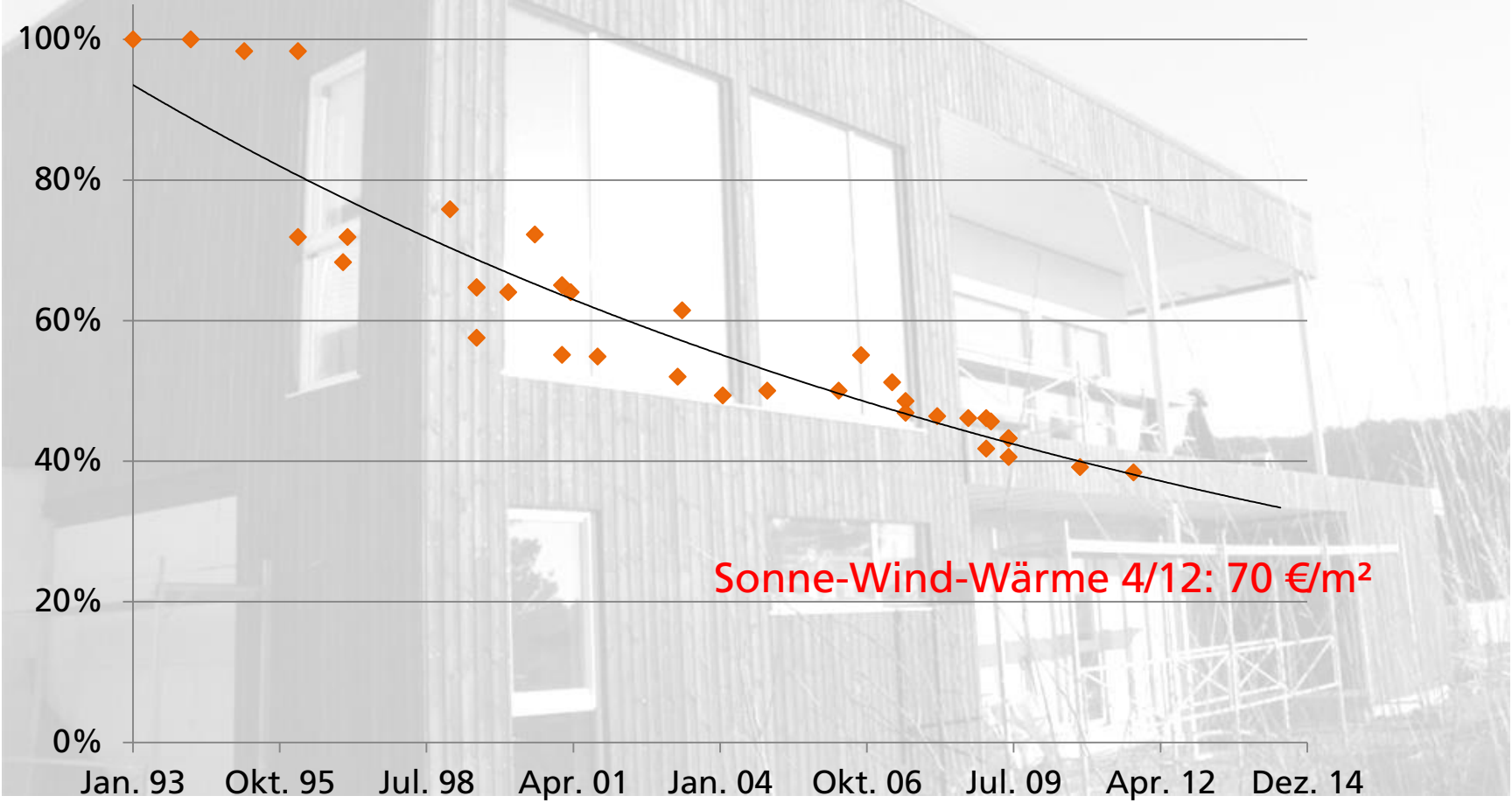
Past Cost Development

Development of production costs of collectors since 1993:

Decrease about 4%/year



Renewable Heating & Cooling European Technology Platform

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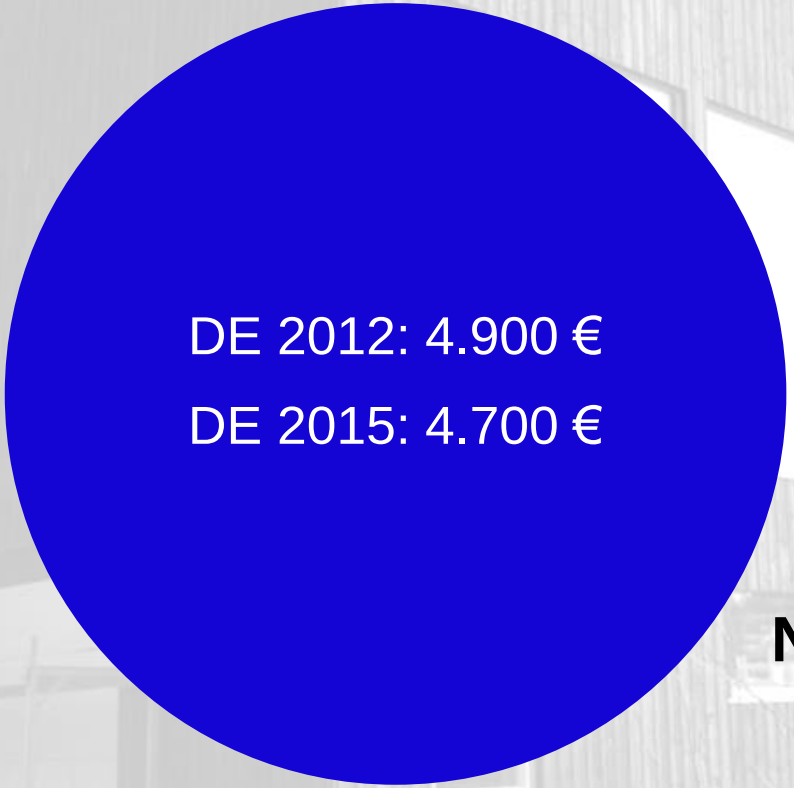
Current Cost Structures

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



Price per m²:

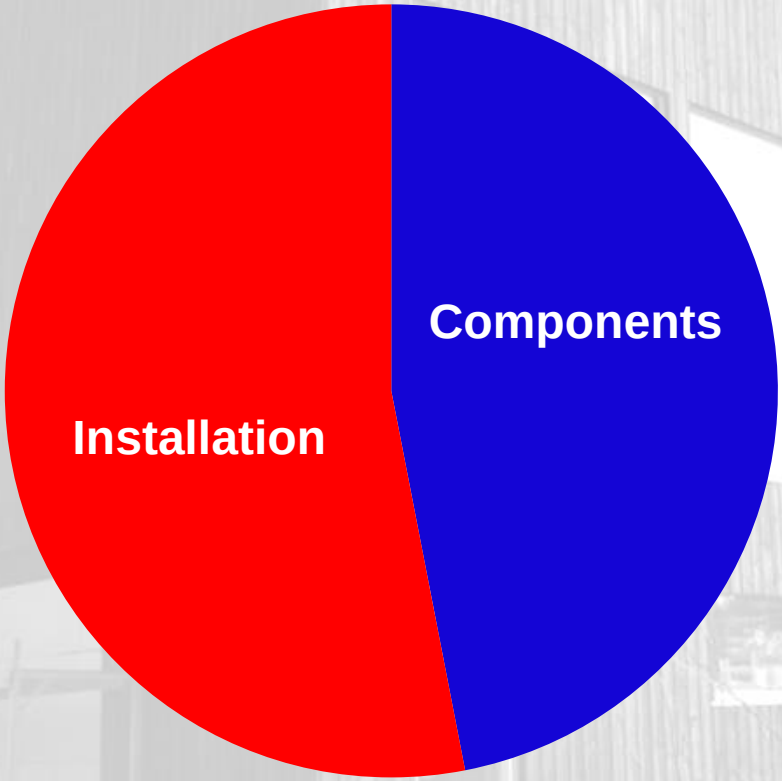
DE 2012: 98 €

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 €

Renewable Heating & Cooling European Technology Platform

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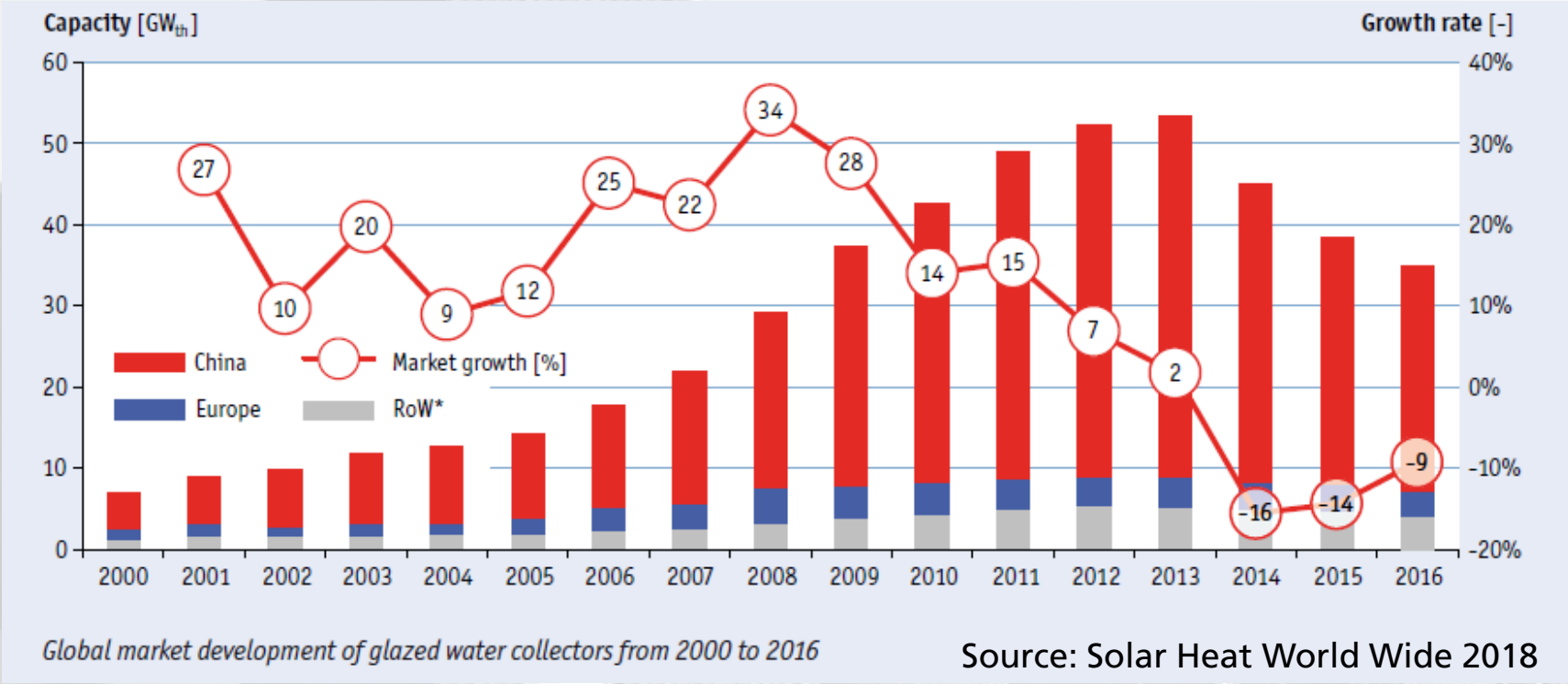
Market Development



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

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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

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)
- Universtity of Kassel (Germany)
- University of Stuttgart ITW/TZS (Germany)

Programme for today

- **Calculating the system-based Levelized Costs oh 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

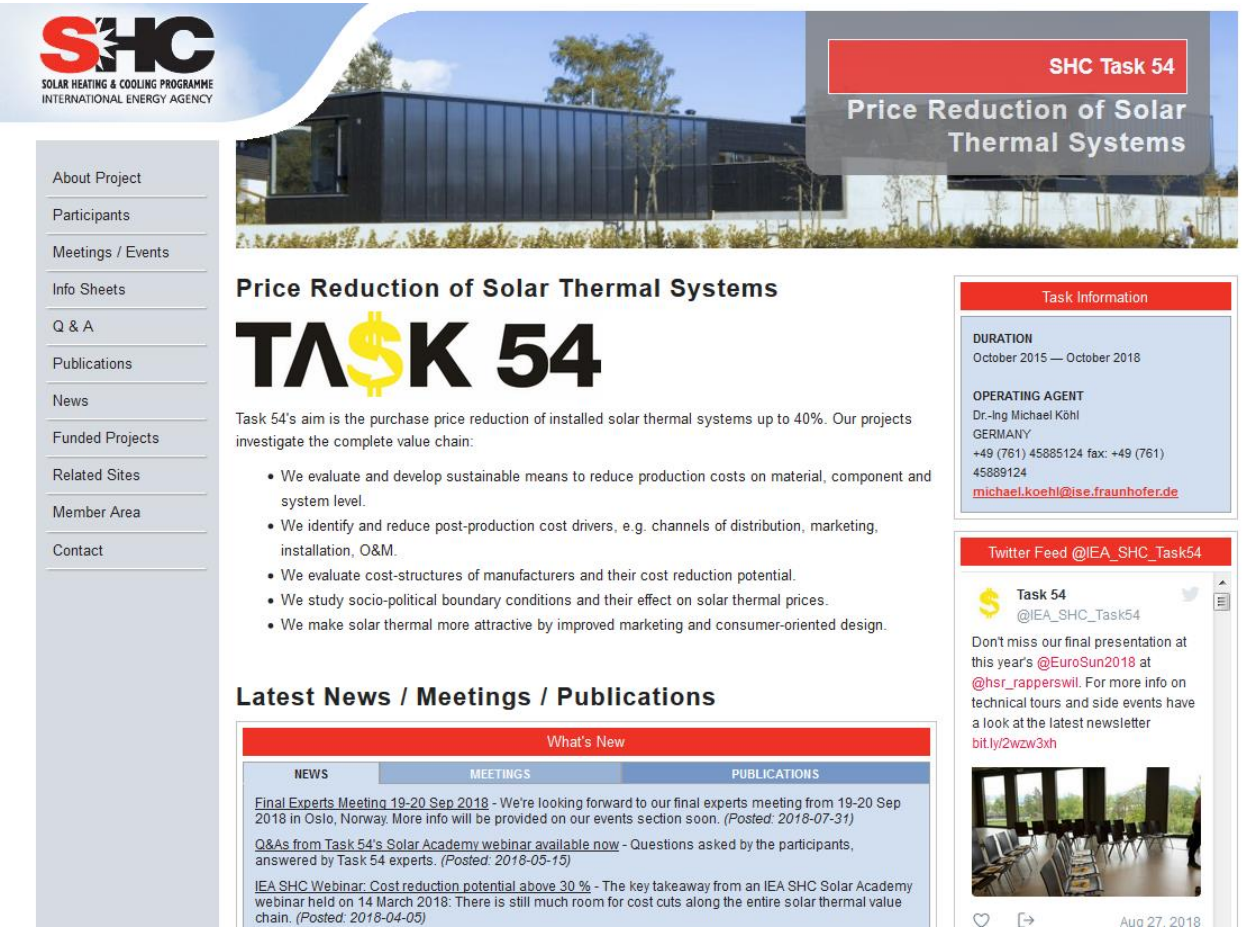
More on Task 54:

http://task54.iea-shc.org

https://twitter.com/iea_shc_task54

Task 54 activities

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



Info Sheets

Twitter

Publications

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