Solar Thermal Value Chain and Cost Reduction Potential



Dr. Stephan Fischer

TZS / ITW University of Stuttgart

Journée R&D ADEME Sophia Antipolis, France

26 April 2018







General information

Focus of presentation

- Overview about solar thermal value chain influencing the levelised cost of heat LCoH
- Showing ingoing effort and outcome of each step in the solar thermal value chain
- Showing potential measures which can be applied to reduce LCoH for each step of the value chain



Solar Thermal Value Chain









1. Architect,
Planner,
Energy
Consultant

2. Production

3. Distribution

4. Installation

5. Installed System 6. Operation and Maintenance

7. Cost of kWh solar (LCoHs)













Solar Thermal Value Chain Production

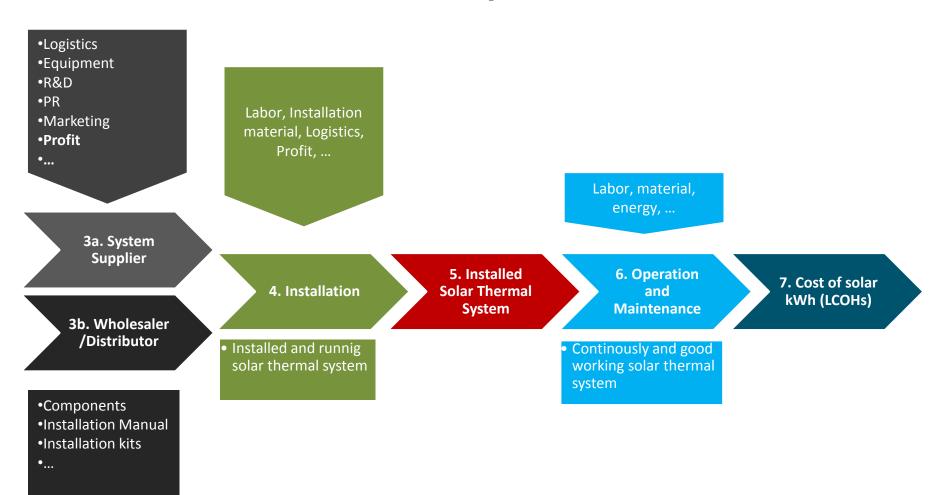
Energy, Machinery, Labor, Operation Costs, Profit 2.2. Materials 2.1 Raw 2.3 Sub-Semi-finished 2.4 Components materials components parts Absorber Collector Copper Copper Pipe Insulation Heat storage Aluminium Aluminium sheet Glass cover Controller Steel Steel sheet Heat exchanger Mounting system Sand Glass Collector frame Fittings • Oil Polymer







Solar Thermal Value Chain Distribution – Installation – Operation and Maintenance









Potentials within the value chain

- Materials
 - use of different materials, system designs
- Production costs
 - different materials, process cost optimisation, standardisation, economy of scales
- Installation
 - reduction of stagnation temperature, process cost optimisation, standardisation
- Operation & Maintenance
 - reduction of stagnation temperature, standardisation
- Service life time
 - reduction of stagnation temperature, standardisation





Thank you for your attention!

Research and Testing Centre for Thermal Solar Systems (TZS) / Institute of Thermodynamics and Thermal Engineering (ITW) / University of Stuttgart Stephan Fischer

www.itw.uni-Stuttgart.de fischer@itw.uni-stuttgart.de





