# Solar Cooling for the Sunbelt Regions – a new IEA SHC Task

Daniel Neyer, NB / Uni Innsbruck & Uli Jakob, JER / Green Chiller
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Online, 1st September 2020

Status of Solar Cooling (2015)

Density of Solar Cooling projects:

High density

Low density

Source: SOLEM Consulting

no claim on completeness
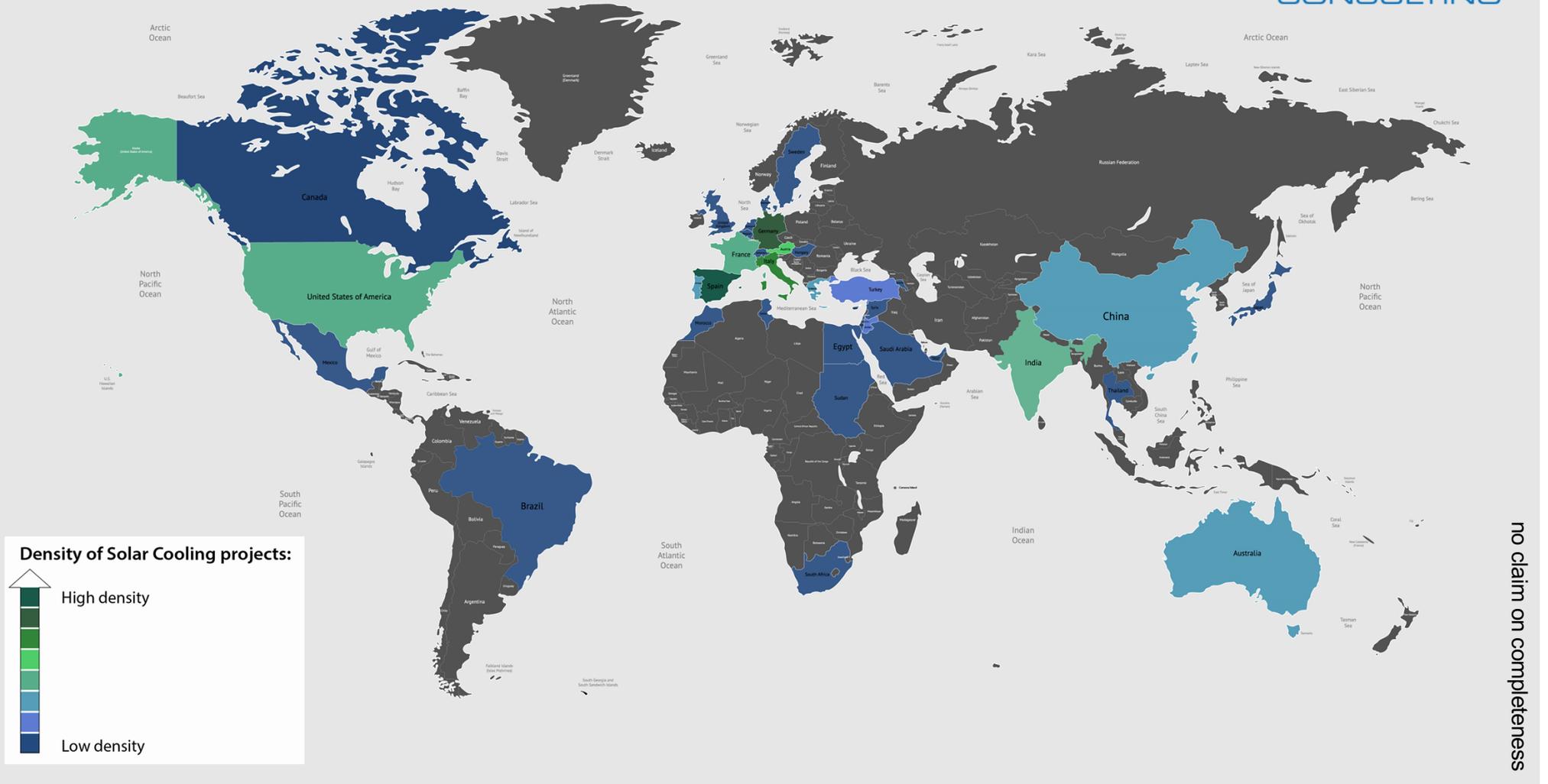
No. of Solar Cooling installations
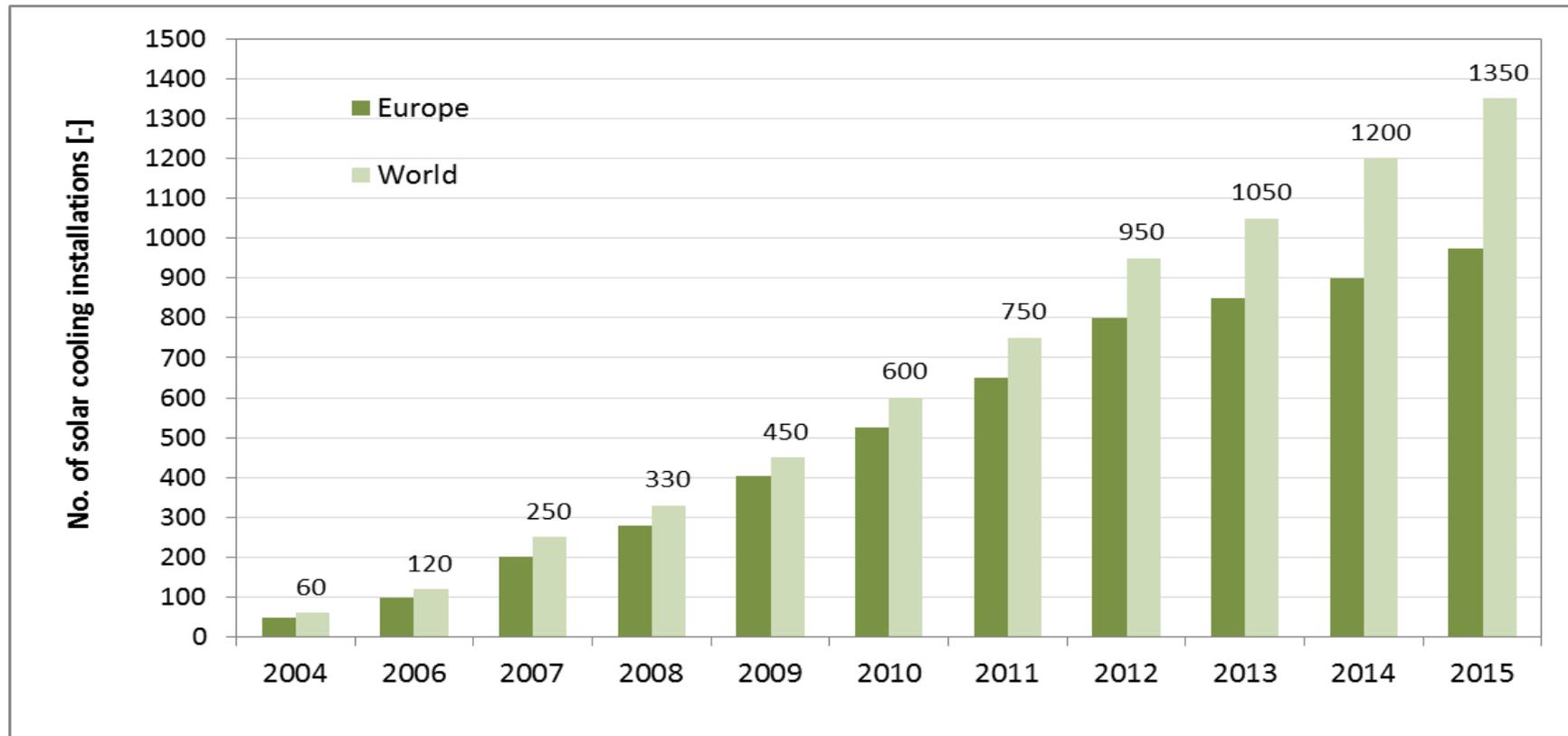

Source: SOLEM Consulting / TECSOL

Still a niche market :
≈ 2,000 systems installed worldwide (2019)

Sunbelt regions
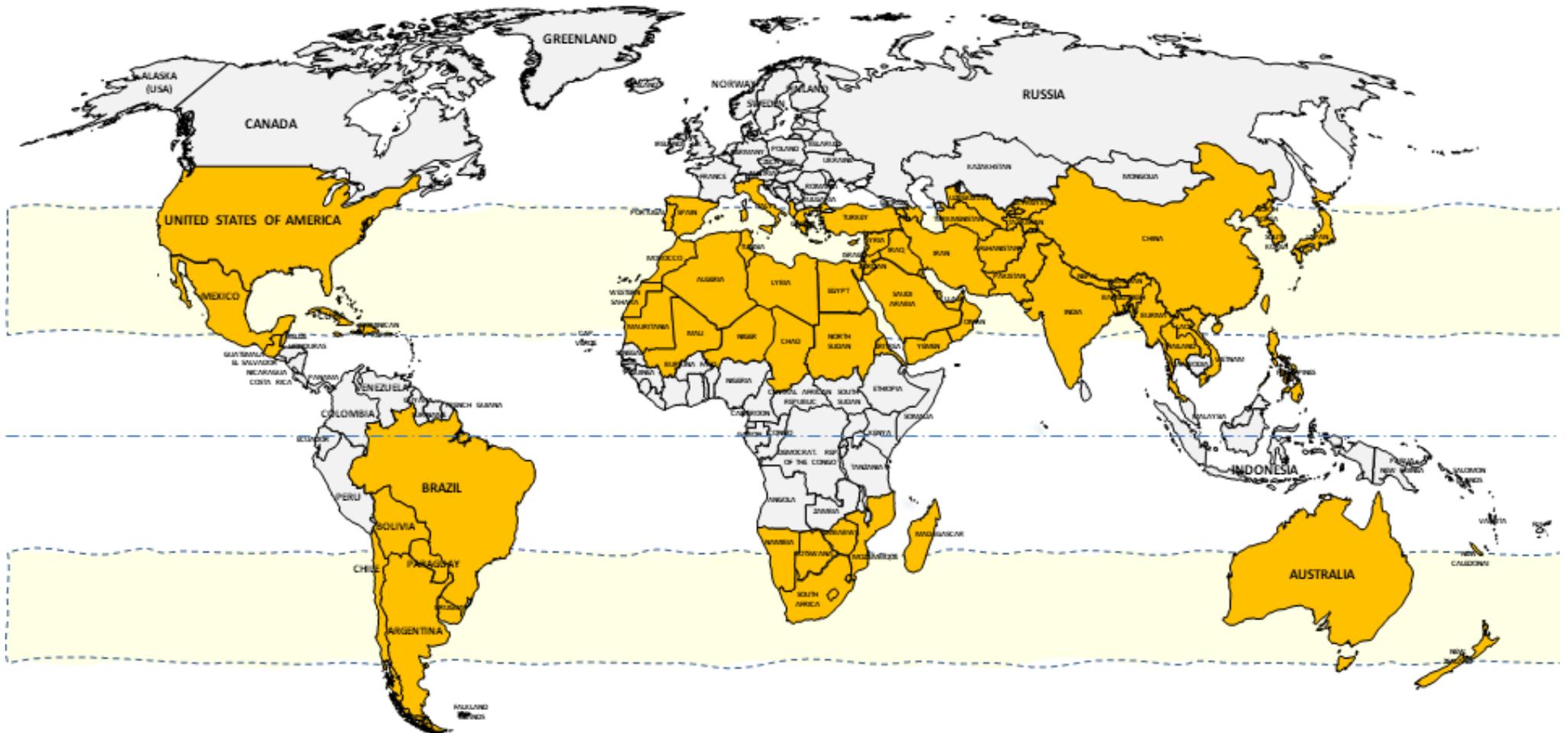
Task 65 Objective & Scope

Objective

- Focus on innovations for **affordable, safe and reliable solar cooling systems for the sunbelt regions worldwide**

- Implementation/adaptation of components and systems for the different boundary conditions is **forced by cooperation with industry** and with support of target countries like UAE through Mission Innovation IC7

- The innovation driver and the **keyword is adaptation** of existing concepts/technologies to the sunbelt regions using solar energy either solar thermal (ST) or solar PV

Scope

- Build on previous tasks 25, 38, 48 and 53

- **Target size segment** on cooling and air conditioning between **2 kW and 5,000 kW** (PV and ST)

- Task duration: July 2020 – June 2024

Task 65 Subtasks and Leaders

Subtask A: Adaptation
lead country: Italy
subtask leader: Dr. Salvatore Vasta, CNR-ITAE

Subtask B: Demonstration
lead country: USA
subtask leader: Wolfgang Weiss, ergSol Inc. (Limited Sponsor)

Subtask C: Assessment and Tools
lead country: Austria
subtask leader: Dr. Daniel Neyer, Neyer Brainworks

Subtask D: Dissemination
lead country: Germany
subtask leader: Prof. Dr. Paul Kohlenbach, Beuth University of Applied Sciences Berlin

Task 65 Subtask Content

Subtask structure

Subtask A: ADAPTATION
- A1: Climatic conditions & applications
- A2: Adapted components
- A3: Adapted systems
- A4: Building and process optimization potential
- A5: Standardization activities

Subtask B: DEMONSTRATION
- B1: Show cases on system and component level
- B2: Design guidelines
- B3: KPI definitions
- B4: Standardization / solar cooling kits
- B5: Lessons learned (technical and non-technical)

Subtask C: ASSESSMENT & TOOLS
- C1: Design tools and models
- C2: Database for technical and economic assessment
- C3: Assessment tools
- C4: Assessment and sensitivity analysis

Subtask D: DISSEMINATION
- D1: Homepage / publications
- D2: Policy advice & financing models
- D3: Guideline / roadmaps for sunbelt countries
- D4: Book or booklet
- D5: Workshops
- D6: Stakeholder engagement

Technologies
- PV / ST
- Compresion / sorption chillers
- Hybrid heat pumps / DEC / ...

Climate zones of sunbelt
- Torpical
- Arid

Heat rejection
- Water saving / treatment
- Innovations

Storage
- Concepts (ice, water, PCM...)
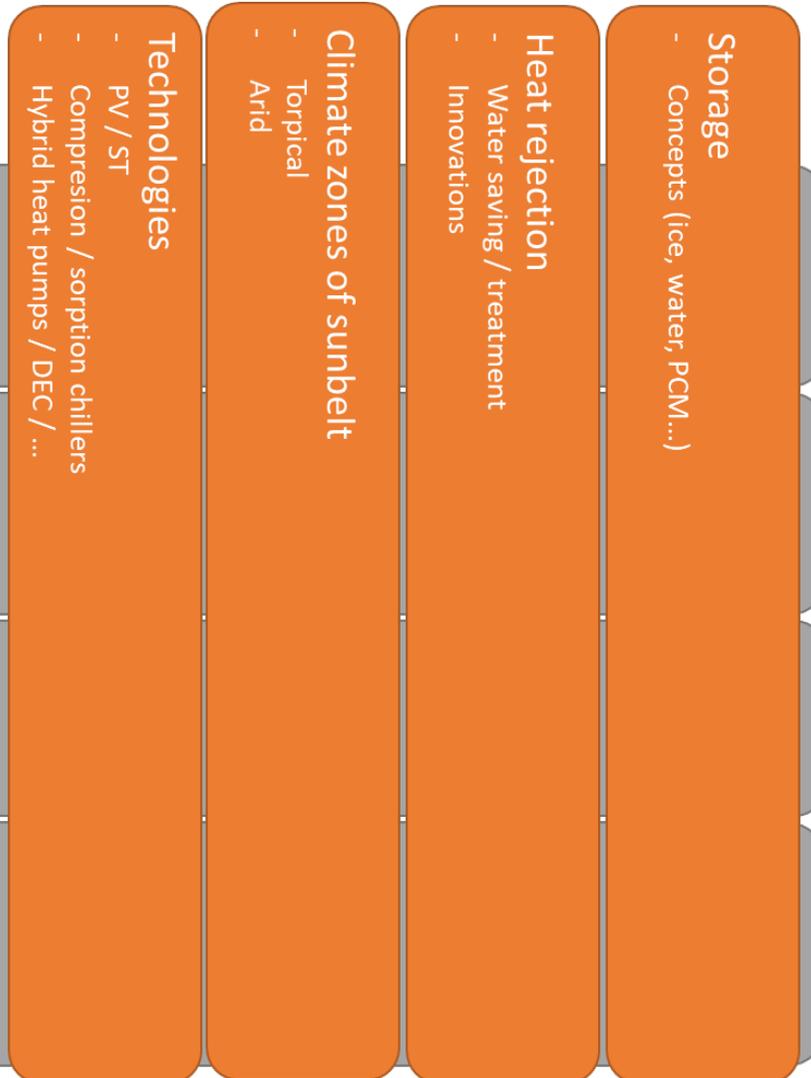
Collaboration with other SHC Tasks, IEA TCPs, organizations/institutions

- IEA SHC Task 64 on Solar Process Heat

- **IEA HPT Annex 53 on Advanced Cooling/Refrigeration Technologies Development**

- IEA EBC Annex 80 on Resilient Cooling of Buildings

- **Mission Innovation IC7**

Task 65 Future work

- **Virtual Kick-off meeting on September 28th-29th, 2020**

  (GoToMeeting -> registration for participants and interested experts: https://task65.iea-shc.org/event?EventID=7307)

- Check out the **Task 65 website** and stay tuned:
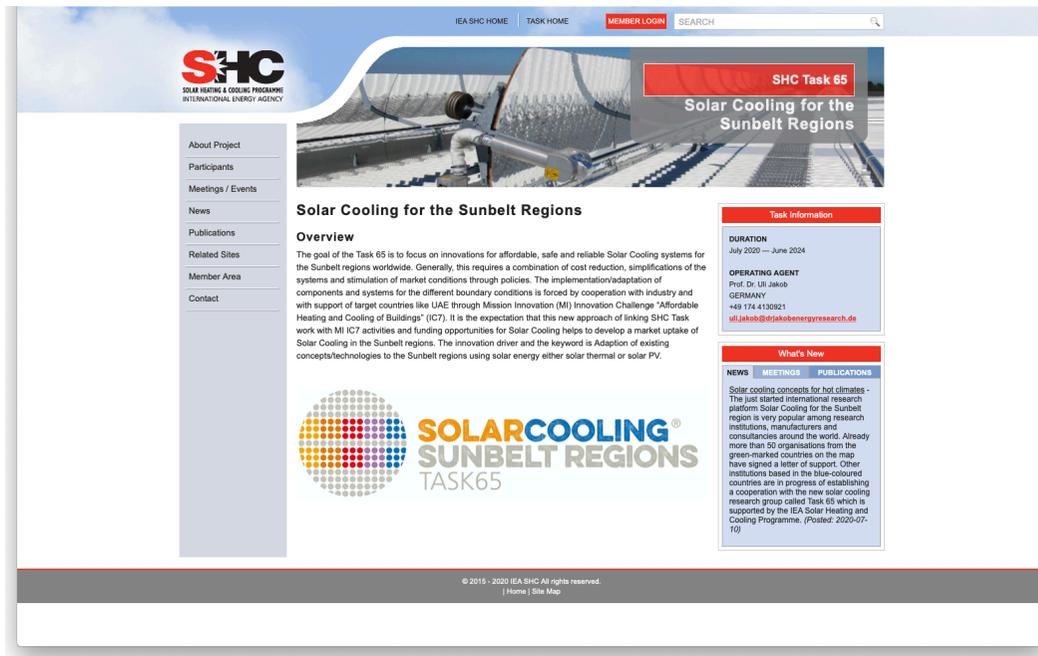
www.iea-shc.org

Contact: Dr. Daniel Neyer, Subtask C leader
             Prof. Dr. Uli Jakob, OA IEA-SHC Task 65

Neyer Brainworks GmbH, Austria / daniel@neyer-brainworks.at

Dr. Jakob energy research GmbH & Co. KG, Germany / uli.jakob@drjakobenergyresarch.de