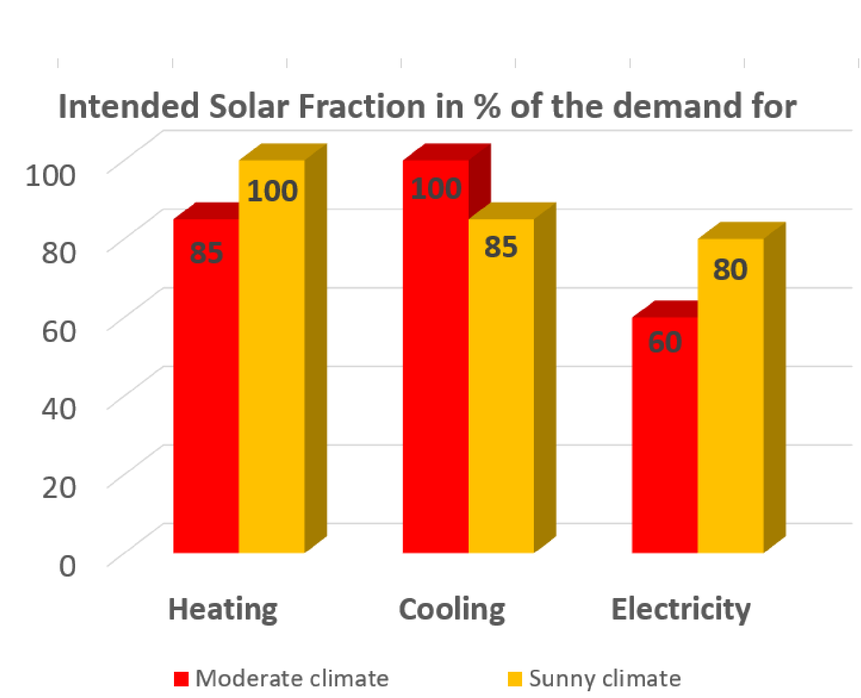
# Task 66: Solar Energy Buildings

## Integrated solar energy supply concepts for climate-neutral buildings and communities for the "City of the Future”

SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

OBJECTIVE: Development of economic and ecologic feasible energy supply concepts with high solar fractions




Moderate climate: e.g. central Europe, northern China and northern USA
Sunny climate: e.g. southern Europe, southern China and southern USA, Australia, Mexico

## Areas of Work

The task addresses single-family buildings, multi-story residential buildings and building blocks and communities, for both, new and existing buildings. The separation between (single) buildings and building blocks or communities is based on the aspect whether the buildings are connected to a thermal grid or not. While single buildings have their individual heating system, building blocks and communities are connected to a thermal grid.

### Subtask A: Boundary Conditions, KPIs, Definitions and Dissemination

*Leader: Frank Späte (OTH Amberg-Weiden, Germany, f.spaete@oth-aw.de)*

- Define performance assessment methodology for SEBs* incl. KPIs**
- Assessment of SEBs of Subtask B and C
- Organization of Industry Workshops
- Preparation of guidelines for policy makers, municipalities, energy related companies

### Subtask B: Thermal stand alone Buildings and Building Blocks / Communities

*Leader: Xinyu Zhang (China Academy of Building Research, China, zxyhit@163.com)*

- Development and definition of sample cases
- Identification of demonstration Projects
- Planning and implementation methodology
- Modelling, simulation and optimization tools

**Note: Subtask B and C were merged → New Subtask ”BC”**

### Subtask C: Thermal grid connected Buildings and Building Blocks / Communities

*Leader: Elsabet Nielsen (Technical University of Denmark, Denmark, ean@byg.dtu.dk)*

- Development and definition of sample cases
- Identification of demonstration projects
- Planning and implementation methodology
- Modelling, simulation and optimization tools

### Subtask D: Current and future technologies and components

*Leader: Thomas Ramschak (AEE - Institute for Sustainable Technologies, Austria, t.ramschak@aee.at)*

- Documentation and analysis of current and future technologies
- Classification and techno-economic technology assessment
- Development SEB* solution sets and guidelines

Net-zero-energy multi-storey building, Copenhagen, Denmark
Source: Yakov Safir, CEO at Racell via Elsabet Nielsen, Technical University of Denmark, Denmark

* SEB = Solar Energy Building
** KPI = Key Performance Indicator

## Outcomes

Summary of KPIs; Definition of Reference Buildings; SEB promotion documents; Demonstation cases (Case studies); Processes and tools currently used to design new SEBs and convert existing buildings into SEBs; Catalogue describing optimized solutions of SEBs and communities; Description of available technology portfolio, future technologies and components

## Duration: July 2021 – June 2024

### Participating Countries

*Australia*
*Austria*
*China*
*Denmark*
*France*
*Germany*
*Italy*
*Mexico*
*Portugal*
*Slovakia*
*Switzerland*
*United Kingdom*

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