



SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

Solar Neighborhood Planning

SHC Task 63

Maria Wall, Lund University, Sweden

Task Duration: 1 September 2019 – 31 October 2023

Solar energy for buildings and urban areas - historical planning perspective

- Urban density ruled by access to daylight and natural ventilation:
 - Solar Access: “the ability to have uninterrupted direct rays of sunlight fall onto one’s property”
 - Right to Light: ”a legally enforceable right to a reasonable proportion of the natural unobstructed flow of direct solar radiation”
- Then came electricity (light) and mechanical ventilation
- Simple rules were forgotten/not needed in second half of the 20th century– Densification of cities
- NOW – sustainable cities and renewable energy push for ”right to light” for daylight and solar energy production
- BUT increased population growth and environmental gains of walkable and public transport push towards increased density

Solar contributions today



- **Passive solar energy**: indoors and outdoors to reduce heating demand and improve thermal comfort and health
- **Daylighting** buildings and outdoor areas, to reduce electricity for lighting and improve visual comfort and health
- **Local renewable energy production** using Photovoltaics (electricity) and Solar Thermal Systems, to help create energy/resource self-sufficient environments and not rely on energy imports, and to create resilience to energy price fluctuations
- **Local food production** and use of **green areas** for improved air quality and reducing storm water (roofs, facades, outdoor areas)

Solar Neighborhoods - Opportunities

- A means to achieve net zero energy districts and low carbon cities
- To address both solar energy production and daylighting/passive solar when planning neighbourhoods, enables to identify synergies and to avoid conflicts between competing uses of solar energy (e.g. daylight versus energy production)
- Don't waste the possibilities to use available surfaces!
- Creating long-term **solar access** for energy production and for daylighting buildings and outdoor environments (right to light)



Task 63: Solar Neighborhood Planning, 2019-2023

Objective & Scope

Objective

- The main objective is to support key players to achieve solar neighborhoods that facilitate long-term solar access for energy production and for daylighting buildings and outdoor environments – resulting in sustainable and healthy environments.

Scope

- The scope of the Task includes solar energy aspects related to
 1. New neighborhood development
 2. Existing neighborhood renovation and development

Solar energy aspects include active solar systems (solar thermal and photovoltaics) and passive strategies. Passive solar strategies include passive solar heating and cooling, daylighting, and thermal/visual comfort in indoor and outdoor environments.

The role of solar aspects related to energy, environment, economy and inhabitants' comfort and health is in focus

Definition - neighborhood

A neighborhood is defined as a group of buildings, a district/precinct. It is a spatially defined specific geographic area, often including different types of buildings and functions, open space and infrastructure.

A neighborhood can be part of a larger city or a smaller village. It can be part of an urban area, a rural development or represent an isolated community.

- Connected to a district heating/cooling network or outside, given different boundary conditions

Subtasks and leaderships

A. Solar Planning Strategies and Concepts

Leader: Caroline Hachem-Vermette, University of Calgary, Canada

B. Economic Strategies and Stakeholder Engagement

Leader: Daniele Vettorato and Silvia Croce, EURAC Research, Italy

C. Solar Planning Tools

Leader: Jouri Kanters, Lund University, Sweden & Martin Thebault, University Savoie Mont-Blanc – INES, France

D. Case Studies

Leader: Gabriele Lobaccaro & Mattia Manni, NTNU, Norway
+ leaders of Subtask A, B and C + TM

Project leader (Task Manager): Maria Wall, Lund University, Sweden

Participating countries

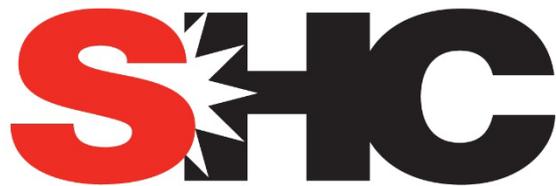
- Australia
- Canada
- China
- Denmark
- France
- Italy
- Norway
- Sweden
- Switzerland



Thank you!

Task 63: Solar Neighborhood Planning: <http://task63.iea-shc.org>

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