

2023 HIGHLIGHTS

Task 63 – Solar Neighborhood Planning

THE ISSUE

A large portion of the potential for energy efficiency in buildings and the potential to utilize solar energy remains unused. The combination of making buildings more energy efficient – through refurbishment interventions and new developments – and increasing the use of renewable energy sources is key for moving towards a low carbon energy transition. The increased use of solar energy is one of the important development paths. The urban fabric needs to utilize passive solar gains and daylight to reduce the energy use in buildings, as well as to improve the inhabitants' comfort in indoor and outdoor areas. In addition, active solar energy systems integrated in the urban context contribute to the production of renewable energy as heat and electricity. All these strategies help cities and citizens to reach sustainable development targets.

OUR WORK

The main objective of SHC Task 63 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. Key players include developers, property owners/associations, architects, urban planners, municipalities, and institutions. The Task's scope covers solar energy issues related to new neighborhood development and existing neighborhood renovation and development.

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

The types of support being developed include design strategies for new and existing communities with focus on solar energy and methods for securing sunlight access and right to light. Furthermore, the Task is working on economic strategies and business models for improving the use of passive and active solar energy. Apart from economic values, added values or co-benefits of solar energy are considered. Another objective is to study the workflow of tools needed to support decisions in all planning stages (tool chain). All this work will be capped off with case studies from each participating country connecting the close ties to practice and implementation.

Participating Countries

Australia

Canada

China

Denmark

France

Italy

Norway

Slovakia

Sweden

Switzerland

Task Period

2019 – 2024

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KEY RESULTS IN 2023

Case studies involving stakeholders, business models, and more

More than **20 case studies from 10 countries** were documented and are presently being reviewed before they are published online in 2024. The case studies present new and existing development areas requiring refurbishments, infills, etc. The topics included are (when applicable): overview of the case - the planning process - active solar strategies and energy systems - passive solar strategies (solar access, daylight, etc.) - surface uses - financial mechanisms and stakeholder engagement - interviews and insights from key actors - environmental, social, and other impacts - tools and workflow - tools for informed design support - lessons learned and recommendations, and - final information page.

The case studies show many possibilities for using solar neighborhood planning and design strategies to achieve good daylighting conditions, improve thermal comfort, and produce solar energy locally. Implementing passive and active solar solutions highlights the importance of performing analyses (e.g., on solar potential, daylighting, thermal comfort, energy use, and production) throughout the urban planning process.

Linking to the case studies, the importance of involving different stakeholders is discussed in the report “An Integrated Framework for Stakeholder and Citizen Engagement in Solar Neighborhoods” (to be published in 2024). This report aims to bring further awareness to the importance of **engaging with different stakeholder groups** in the context of solar neighborhood planning and provide practical guidance in this direction. The report highlights that stakeholder engagement activities in solar neighborhoods can take many forms. In some cases, these activities are central to the planning process, while in others, their role is primarily to inform citizens and other stakeholders. By adopting a multi-stage approach, engagement activities can be enriched throughout the life cycle of a solar project, leading to co-created outcomes informed by a participatory process.

Another important topic for solar neighborhood developments is **financing mechanisms and business models**. Since solar neighborhoods often span multiple land-use spaces, the local community members are key stakeholders in these developments. As such, involving the community would promote the investment and dissemination of these developments. In doing so, certain solar neighborhood business models can include individuals who otherwise cannot gain direct benefits from solar projects due to not being able to purchase their own solar equipment. This topic is discussed in the report “Solar Neighborhood Financing Mechanisms and Business Models” (to be published in 2024) and suggests developed business models that promote solar neighborhood developments.

While waiting for the report above and other reports, you can read this new article based on work in SHC Task 63 and SHC Task 51, [Ten questions concerning planning and design strategies for solar neighborhoods](#), in *Building and Environment*, Volume 246, 2023. The ten questions answered in this article provide a critical overview of the technical, legislative, and environmental aspects to consider in planning and designing solar neighborhoods.

