Strategic Plan
2024 – 2029

International Energy Agency
Solar Heating and Cooling Technology Collaboration Programme (SHC TCP)

SHC
SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

Solar Heating and Cooling TCP

The International Energy Agency (IEA) Solar Heating and Cooling Technology Collaboration Programme (SHC TCP) is an intergovernmental, multinational collaboration platform that has been advancing the research, development, and commercialization of solar heating and cooling solutions since 1977.

Vision

Solar heating and cooling for secure and sustainable energy for all.

Mission

To bring the latest solar heating and cooling research and information to the forefront of the global energy transition.

Scope

The scope of the SHC TCP includes the practical use of sunlight for heating, cooling, and daylighting. The core research areas are technologies for heating, ventilation, and air conditioning for (1) buildings and neighborhoods, (2) industry, and (3) agriculture. The Programme is technology neutral and aims to find the best available solar solution.
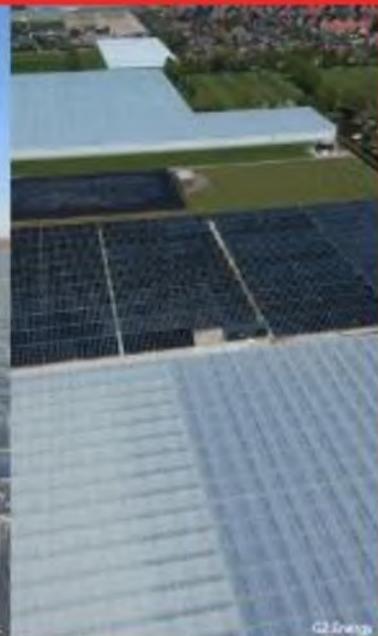

Buildings & Neighborhoods   Industry   Agriculture

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Strategic Context

If the world is going to have a chance of limiting the global temperature rise to 1.5 °C above pre-industrial levels, there must be a major transformation of the global energy sector over the next 25 years. Solar heating and cooling (SHC) will undoubtedly play a major role in this transformation, for example **delivering affordable hot water** for 1200 million homes (the IEA's Net Zero by 2050 sector milestone), **providing secure and clean energy for industrial processes,** or **safe and reliable space cooling for emerging economies**. However, in recent years many countries have faced challenges in increasing the deployment of solar heating and cooling technologies at the scale required to achieve the net zero transformation ranging from market barriers to policies, incentives, and subsidies that ignore solar thermal. Over the next five years, the SHC TCP members will work together to overcome these challenges to support the IEA's overarching mission of achieving a net zero energy sector by 2050.

Strategic Objectives

Analyze. Provide authoritative and impartial analysis on solar heating and cooling and daylighting technologies, markets, and barriers.

- Conduct analysis that links solar heating and cooling designs and technologies as solutions to **energy security concerns** and **environmental and economic goals.**

- Collect and provide high-quality **data**, for example, publish annual Solar Heat Worldwide report, develop Levelized Cost of Heat methodology, and develop analytical tools that support SHC and daylighting R&D, effective deployment, and market growth, including CO_2-emission reductions.

- Support the development and harmonization of new and current **standards** necessary for the widespread use of innovative solar designs and applications in the building, agricultural and industrial sectors.

- Identify and prioritize **R&D needs** for solar heating and cooling, leading to expanded markets due to **new application fields and further improvements in the performance-to-cost ratio.**

Research. Demonstrate the effectiveness of solar heating and cooling technologies and designs through increased performance and reduced costs, facilitating their market competitiveness in heating and cooling applications.

- Develop effective designs and technologies for solar energy as part of a **climate-neutral solution** for heating and cooling building demand and heat storage technologies, including software and hardware solutions.

- Work to address **SHC integration** issues in urban strategies, user acceptance, and building design and aesthetics, as well as work to incorporate solar heat into energy supply system investigations as **sector**

coupling of renewable heat and electricity supplies increases.

- Continue **R&D activities** and **strengthen interactions with industry** to address cost drivers and market competitiveness.

Connect. **Cooperate with stakeholders, including international organizations, local, regional and national governments, potential users, energy and urban planners, and industry.**

- Establish or enhance **partnerships** with the IEA and other TCPs, R&D community, international organizations[1], national governments, munici-palities and cities, associations and certification bodies[2], utilities, manu-facturers and suppliers, intermediary industries[3], and end users.

- Build relationships with **IEA member countries** that are not SHC members by developing new Tasks aligned with their interests and strengthening the TCP's presence in the Asia Pacific region.

- Support increased use of solar applications in **developing countries** through targeted dissemination of Task results, participation of developing countries in Tasks, country/sponsor membership in the TCP, Solar Academy activities, and other TCP initiatives.

- Increase cooperation with **stakeholders** from other heating and cooling sectors (e.g., heat pumps, district heating, and storage), industry sectors (e.g., lighting, water treatment, and agriculture), and end-use sectors (e.g., residential, commercial, and industrial) to create new knowledge targeted to efficient heating and cooling.

Communicate. **Raise awareness and understanding of the potential and value of solar heating and cooling systems.**

- Communicate the **value of solar heating and cooling designs and technologies** in publications and public events. Continue outreach activities, including SHC conferences (for example, EuroSun) and Task workshops, Solar Academy webinars, SHC Solar Award, and targeted Task and TCP publications.

- Promote the **advantages of solar thermal and hybrid applications** with other renewables.

- Communicate the **value of solar heating and cooling designs and technologies** to policy-makers, financiers, and other decision-makers.

- Support the **IEA in communicating the value and potential** of solar heating and cooling.

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1 For example, IRENA: International Renewable Energy Agency (http://www.irena.org/), ISES: International Solar energy Society (https://www.ises.org/), Mission Innovation (http://mission-innovation.net/), UNIDO: United Nations Industrial Development Organization (https://www.unido.org/), GN-SECs: Global Network: Sustainable Energy Centres (https://www.unido.org/news/gn-sec), CIE: Commission on Illumination (https://cie.co.at/).

2 For example, SHE: Solar Heat Europe (http://solarheateurope.eu/), ECTP: European Construction, built environment and energy efficient building Technology Platform (https://www.ectp.org/), ISO: International Organization for Standardization (https://www.iso.org).

3 For example, real estate developers and investors.

Organisation for Economic Co-operation and Development (OECD) is an international organization that works to build better policies for better lives. The goal of the OECD is to shape policies that foster prosperity, equality, opportunity, and well-being for all. We draw on 60 years of experience and insights to better prepare the world of tomorrow.

www.oecd.org

International Energy Agency (IEA) is at the heart of global dialogue on energy, providing authoritative analysis, data, policy recommendations, and real-world solutions to help countries provide secure and sustainable energy for all. The IEA recommends policies that enhance the reliability, affordability, and sustainability of energy. It examines the full spectrum of issues, including renewables, oil, gas and coal supply and demand, energy efficiency, clean energy technologies, electricity systems and markets, access to energy, demand-side management, and much more.

www.iea.org

IEA Technology Collaboration Programmes (TCPs) support the work of independent, international groups of experts that enable governments, organizations, and industries from around the world to lead programmes and projects on a wide range of energy technologies and related issues.

www.iea.org/areas-of-work/technology-collaboration

IEA Solar Heating and Cooling Technology Collaboration Programme (SHC TCP), established in 1977, is one of longest running TCPs. For over 45 years, the overarching objective of the IEA SHC Programme has been advancing the research, development, and commercialization of solar heating and cooling technologies.

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Are you a Solar Heating and Cooling expert? Contact us today to join our mission.

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