Solar thermal energy abkhazia

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This analysis is part of a series from our new report, Technology and innovation pathways for zero-carbon-ready buildings by 2030, and provides the strategic vision of experts from the IEA Technology Collaboration Programmes (TCPs) on how to help achieve some of the most impactful short-term milestones for the buildings sector outlined in the IEA"s Net Zero by 2050 Roadmap; each report"s title reflects one of these milestones. Learn more about the report and explore the TCPs.

Therefore, the deployment of solar thermal technologies in the 2020s will need to at least match the total deployment from the previous two decades for the 2030 milestone to be met. The contribution from emerging solar thermal technologies will be critical to meet this goal. Targeted innovation (technology, regulatory, and market) directed towards bringing these emerging technologies into their growth phase will be necessary in the next five years.

To achieve the 400 million dwelling target, a hybrid approach of deploying standard and emerging solar thermal technologies by 2030 will be required. Government support for large-scale pilot projects of the emerging smart solar-powered heat storage systems in the 2020s could direct this technology towards the 9thTechnological Readiness Level (TRL) internationally by the end of the decade.

Solar thermal technologies can provide high fractions of water heating demand at low capital cost, even in cold climates. They can be used stand-alone or integrated into virtually any type of heating system, regardless of the primary heat source (direct electricity, heat pumps, district heating, biomass, or clean fuels). Exemplary uses of standard solar thermal technologies (evacuated tube and flat plate) with water-based heat storage include:

Many of the 100 million households targeted in the NZE Scenario to rely on rooftop solar PV by 2030 could have power-to-heat related technologies installed that work intelligently to optimise self-consumption. These emerging solar thermal technologies are:

Deployment growth rates for standard solar thermal technologies have generally declined globally in recent years, however, 2021 did show a change in this downward trend with a positive growth rate of 3%. Some markets in 2021 have demonstrated that significant year-on-year deployment growth rates of standard solar thermal are still achievable, with Italy, Brazil and the United States posting growth rates of 83%, 28% and 19%, respectively.

Data is scarce on the current deployment of emerging solar thermal technologies (e.g. solar photovoltaic to heat), however markets such as South Africa have already reached 10 MWp since the start of data collection in 2018.

The major challenges to achieving the 2030 milestone are the certification and installation standards for solar thermal technologies (standard and emerging), which are currently not sufficiently harmonised across all regions. The discontinuous deployment and promotion policies are not conducive to the efficient development of the solar thermal industry; and innovation spending is often not aligned with industrial strategy, leading to poor allocation of research funding and weak internal markets for solar thermal technologies.

Regulations. Consider national and local requirements, and harmonise the regulations, standards, testing, and certification procedures (for standard and emerging solar thermal technologies).

Building codes. Advance national building energy codes moving toward deep energy efficiency, zero-carbon-ready metrics, renewables integration, and flexibility.

National energy planning. Develop and implement solar thermal technology development and deployment roadmaps based on the specific characteristics (political, social, and economic) of the country

National energy planning Pay special attention whether internal markets (or export market) for the technology exists in the particular country once launching a governmental innovation support programme.

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