MINISTRY OF NEW AND RENEWABLE ENERGY

Workshop on Solar Thermal Technologies

[Stakeholder Consultation on Quality Control of Solar Water Heaters (SWH), and Scaling Up of Concentrated Solar Thermal (CST) Applications in India]

Date: 13 September 2023 (Wednesday), 10 AM – 3.30 PM **(IST)**
Venue: MNRE Auditorium (Ground Floor), Atal Akshay Urja Bhavan, CGO Complex, Lodhi Road, New Delhi-110003

Agenda

Time	Session/Topics	Speakers
0930 – 1000 hrs	**REGISTRATION AND NETWORKING TEA**	
1000 - 1030 hrs	**INAUGURAL SESSION**	
1000 – 1005 hrs	**Welcome Address & Introductory Remarks**	Dr. Arun K. Tripathi, Advisor/Scientist-G, MNRE
1005 – 1010 hrs	**Address**	Sh. HJS Pasricha, Deputy Director General, Bureau of Indian Standards (BIS)
1010 – 1020 hrs	**Special Address**	Sh. Tarun Kapoor, Adviser to Prime Minister
1020 - 1025 hrs	**Keynote Address**	Sh. Bhupinder Singh Bhalla, Secretary, MNRE
1025 – 1030 hrs	**Vote of Thanks**	Dr. Anil Kumar, Scientist – D, MNRE
1030-1300 hrs	**TECHNICAL SESSION 1** **Panel Discussion: Quality Control, and Lab Development/Upgradation for Testing SWH** **Moderator:** Dr. A.K. Tripathi, Advisor/Scientist-G, MNRE **Co-Moderator -** Mr. Jaideep Malaviya, Secretary General, Solar Thermal Federation of India (STFI)	
1030 – 1100 hrs	**(a) Context Setting Presentation - Status of Solar Water Heaters (SWH) in India** • Progress and Status of SWH installations in the country, states with untapped potential • Cost economics • Recent Technology Developments • Regional Testing Centres and Lab Upgrades • Challenges (quality control, limited policy incentives, low-quality products, inadequate testing, end-user awareness, perceived risks on economic viability viz Solar PV Rooftop) • Best Practices & Proposed Interventions	• Members of the Solar Thermal Federation of India (STFI) • Dr. Anagha Pathak, Assistant Professor and Solar Thermal Programme Coordinator, Savitribai Phule Pune University
1100-1230 hrs	**(b) Deep Dive Discussion** **Issues:** • Introduction and implementation of Quality Control Order for SWH • Testing - Status of Existing Regional Testing Centres (RTCs), need for new/upgraded RTCs, sustainable operations of RTCs.	**Panelists:** • Mr. Surendra Kumar, Managing Director, Nuetech Solar Systems & Chairman – STFI • Mr. Sanjay Jinturkar, MD, Sudarshan Saur • Dr. Anagha Pathak, Asst. Prof. and Solar Thermal Prog. Coordinator, Savitribai Phule Pune University

	• Recommended priority interventions to revive SWH across the country – policy, quality control order – launch and implementation, testing, R&D, awareness, innovative financing – carbon finance.	• Mr. Rakesh Kumar, Joint Director, Bureau of Indian Standards (BIS) • Mr. Asim Kumar Joshi, Senior Scientist, and In-Charge, Solar Energy Division, Sardar Patel Renewable Energy Research Institute (SPRERI) • Mr. Vikram Raman, Vice President – Marketing, Racold India (Ariston Group) • M Ganesh Pai, Director, Supreme Solar & President Karnataka Solar Manufacturers Association (KSMA)
1230 - 1250 hrs	**Video Presentation & Q/A**	
1250 – 1300 hrs	**Summary of Recommendations & Next Steps**	Dr. A.K. Tripathi, Advisor/Scientist-G, MNRE
1300 – 1400 hrs	**LUNCH BREAK**	
1400-1525 hrs	**TECHNICAL SESSION 2** **Panel Discussion: Challenges and Potential Interventions to Scale Up Concentrating Solar Thermal (CST) Applications in India** **Moderator:** Prof. (Dr.) Dharam Buddhi, Vice Chancellor, Uttaranchal University	
1400 – 1415 hrs	**(a) Presentation - Status of CST in India** • CST roadmap highlighting the actual potential in India. • Institutions & Industrial applications • Selection of appropriate CST technology based on the availability of DNI in 5 different Indian regions. • Successful case studies on CST. • Proposed Interventions.	Dr. Pankaj Kumar, National Technical Expert, United Nations Industrial Development Organisation (UNIDO)
	(b) Deep Dive Discussion **Issues:** • Status of Technology Advancements, R&D in CST technologies including, thermal energy storage (TES) • Scale-up Challenges faced by different CST Technologies (e.g., community cooking, process heating and cooling) • Significance of Concentrated Solar Power • Priority interventions to Scale Up Adoption ➢ R&D interventions ➢ Policy framework ➢ Financing ➢ Awareness, any other **Q/A**	**Panellists:** • Dr. Avadesh Yadav, DDG, National Institute of Solar Energy (NISE) • Dr. Pankaj Kumar, National Technical Expert, UNIDO • Dr. Deepak Gadhia, Chairman, Sunrise CSP India Pvt. Ltd. • Mr. Prakash Bhalekar, CEO, Quadsun Solar • Prof. (Dr.) Manoj Kumar Soni, Birla Institute of Technology and Science (BITS) Pilani • Mr. Vaibhav Singh, Executive Director, PwC • Mr. Rajan Varshney, DGM, NTPC Limited • Dr. SS Chandel, Shoolini University
1515 – 1525 hrs	**Summary of Recommendations & Next Steps**	Prof. (Dr.) Dharam Buddhi, Vice Chancellor, Uttaranchal University
1525 – 1530 hrs	**Concluding Remarks**	Mr. Arun Choudhary, Scientist-B, MNRE
1530 hrs	**TEA BREAK**	

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Background

India is ranked 7th on the list of top solar thermal countries. India has reportedly achieved 18.2 million sq. m of collector area under operation at the end of 2021.[1] Around 1 million square meters of collector area is being installed in the country annually, saving more than 1 GWh of electricity. The MNRE-GEF-UNIDO Roadmap pegged the industrial market potential of CST at 6.45 MWth. Though deployment of most CST applications relies on grants and loans, realising their immense potential would require multiple interventions and collaboration amongst stakeholders.

The MNRE R&D Division conducted a survey amongst Solar Water Heater stakeholders in June-July 2023 that gave an insight into the challenges resulting in this decline in SWH adoption. The adoption of CST applications and SWH, if scaled up efficiently, could act as important solutions for achieving India's renewable energy, and climate change mitigation ambitions while also spurring local development, jobs, industrial decarbonization, progress on net zero targets, and reduction in environmental pollution.

Workshop Objective

Against this backdrop, the MNRE, in collaboration with the Solar Thermal Federation of India (STFI), organized the **Workshop on Solar Thermal Technologies, on September 13, 2023,** to bring together stakeholders representing manufacturers, solar thermal EPC providers, industry, distributors, beneficiaries, testing centers, research institutions, as well as policymakers to broadly identify priority interventions for reviving and harnessing the untapped potential of solar thermal solutions across the country. The Workshop will include **two technical sessions:**

(i) **Technical Session 1: Panel Discussion: Quality Control, and Lab Development/Upgradation for Testing SWH**

(ii) **Technical Session 2: Panel Discussion: Challenges and Potential Interventions to Scale Up Concentrating Solar Thermal (CST) Applications in India**

[1] https://solarthermalworld.org/news/india-close-to-the-solar-mission-target-of-20-million-m2/

Participation

The Workshop was attended by nearly 100 participants, the majority if which included industry stakeholders and manufacturers from different parts of the country, namely, Maharashtra, Gujarat, and Karnataka.

Key Takeaways

- ***MNRE SWH Survey Findings:*** Dr A.K. Tripathi in his welcome remarks presented the key findings (given below) of the MNRE Survey on Solar Water Heater (SWH) conducted in JuneJuly 2023 which formed the basis for the Workshop.

Key Findings – MNRE SWH Survey

CHALLENGES	POTENTIAL INTERVENTIONS
1. **Lack of accredited labs** for timely **testing** (Savitribai Phule is the only accredited RTC)	1. **Upgrade testing infrastructure in RTCs; enable accreditation of RTCs,** explore setting up new RTCs (e.g., southern India)
2. Lack of **Quality Control**, an influx of inferior quality products eroding consumer trust	2. Roll out of the **Quality Control Order**
3. Building bye-laws by Municipalities, govt. tenders **lack SWH installation mandates**	3. Implement **Building Bylaws/property rebates/ Government tenders** mandating BIS SWH systems
4. **Terrace sizes are small, Competition** from technologies such as **heat pumps**, especially for institutional use	4. **Pilots/Scale-Up in industries** requiring low-grade heat (dairies), explore climate finance
5. Limited efforts by central and state governments to create **consumer awareness**	5. **Awareness** campaigns - different user segments
6. **Challenges in Commercializing** Innovative Technologies/Solutions for SWH	6. Encourage R&D projects to drive down costs, and **government intervention to commercialize** innovative SWH solutions (e.g., NALSUN-NG)
7. **Perceived perception** of PV being more economically attractive (no subsidy for SWH)	7. **Encourage states to replicate successful SWH policies (e.g., Karnataka);** explore **nominal incentives for BIS systems, and** learn from **international policy** models (China).

- ***BIS Perspective on Quality Control:*** Mr. HJS Pasricha, Deputy Director General (DDG), Bureau of Indian Standards Quality Control highlighted ongoing standards and certification for solar thermal products and underlined plans of rolling out a Quality Control Order for Solar Water Heating Systems
- ***UNIDO's Experience on India's CST Sector:*** Dr. Pankaj Kumar from UNIDO referred to the CST Roadmap 2022 (drafted by UNIDO-GEF-MNRE) which has identified the potential of CST for industrial applications in India as 6.45 GWth and recommended a programmatic approach to harness this potential.
- ***Industry Perspectives on Solar Water Heaters:*** Mr Surendra Kumar, Chairman of the Solar Thermal Federation of India presented the industry's perspective and recommendations to the MNRE for strengthening the solar water heater (SWH) segment. This included (i) emulating the Karnataka policy framework for SWH in other states of India, (ii) end-user subsidies, tax, rebates, and special incentives for rural consumers (iii) issuance of the BIS Quality Control Order on SWH; (iv) integrating SWH into the Smart Cities Programme; (v) launch of a promotional SWH target.

Gallery


Date : 13/09/2023
Progress and status of SWHS installations in the country
PART-1
Presented by- Shri Sanjay Jinturkar
Bureau of Indian Standards (BIS)
Special Address - Sh. Tarun Kapoor, Adviser to Prime Minister
Keynote Address - Sh. Bhupinder Singh Bhalla, Secretary, MNRE
Mr Surendra Kumar, Chairman, Solar Thermal
Workshop on Solar Thermal Technologies
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