



IIT Hyderabad Joins Global Consortium to Advance Zero-Carbon Silicon Refining for Solar Panel Recycling

Highlights:

- **In collaboration with Swinburne University of Technology, Australia, and partners across four countries, IIT Hyderabad to spearhead sustainable silicon refining for India’s clean energy future.**

Hyderabad, 29 October 2025 – IIT Hyderabad (IITH) has joined a **global consortium led by Swinburne University of Technology (SUT), Australia**, to advance **sustainable and zero-carbon silicon refining technologies**, aimed at recycling end-of-life solar panels. The initiative, known as the **Si-Zero Research Program (Silicon Zero Emission Recycling, Refining and Production)** brings together leading institutions from **India, Australia, Indonesia, and the USA** to develop green, circular approaches for recovering high-purity silicon — a critical material for the renewable energy sector.

This **AUD \$3 million** project (titled **Zero-Carbon and Circular Solar PV Recycling**) receives funding from the Australian Government, and brings together leading institutions from **India, Australia, Indonesia, and the USA**.

With rising solar installations worldwide and an expected surge in end-of-life panels, this initiative marks a crucial step toward **sustainable silicon recovery, resource circularity, and a cleaner energy future**.

Representing India in this prestigious consortium, **IITH**, with the support of industry partner Greenko, will play a pivotal role in developing and advancing refining methods such as **Electro Slag Refining (ESR)** and **Electrochemical Refining** for molten silicon. IITH will establish a dedicated ESR facility for silicon refining and lead a **systematic experimental and modelling-based approach** to enhance process efficiency, purity, and scalability.

This effort is aligned with **India’s “Make in India,” clean energy, and circular economy goals**, aiming to build domestic capacity in high-purity silicon production while reducing dependence on imports and minimizing solar waste.

Prof. B S Murty, Director, IIT Hyderabad, said: “This collaboration is a strong example of how international partnerships can accelerate innovation for sustainable technologies. IITH is proud to contribute its materials and process expertise to enable clean, circular, and globally relevant silicon refining solutions. We will implement this initiative for the existing solar plant of power generation capacity 0.95 MW and the ongoing installation of the solar plant of power generation capacity 3.5 MW in our Institute as a part of a practical demonstration towards amplifying the efforts of the Sustainability committee and the Net Zero policy of our Institute.”

Dr. Ashok Kamaraj, Assistant Professor, Department of Materials Science and Metallurgical Engineering, IIT Hyderabad, added: “Through this collaboration, we aim to develop efficient, scalable refining methods that make solar recycling practical and impactful for India’s growing clean energy ecosystem.”

About IIT Hyderabad:

IITH, established in 2008, has reached a respectable position in Academics, Research, Technology development, and Startups in a short span of 17 years. In the National Institutional Ranking Framework (NIRF), IITH advances its position to 7th among Engineering institutes, crossing for the first time one of the first-generation IITs, and is at 6th rank in Innovation, while it has maintained its rank within the top 10 Engineering Institutes ever since NIRF was launched. IITH is ranked 664 in QS World University Ranking-2026 (among top 10% of global institutions in citations per faculty) and among the top 10 Engineering Institutes in India. IITH secured 46 positions by 31 faculty in Global Top 2% Scientists World list 2025, released by Stanford University (SU) in collaboration with Elsevier across two categories. IITH has been striving for excellence with a motto of "Inventing & Innovating in Technology for Humanity (IITH)".

With 330+ full-time Faculty and 5,750+ Students (PG+PhD students accounting for about 60%), IITH has a strong research focus with 5100+ Projects worth of Rs. 1600+ Cr of R&D funding (Rs. 335+ Cr funding in 2024-25, i.e. Rs. 1+ Cr per faculty), 12,440+ Publications, 2,33,000+ Citations, 600+ Patents (210+ Patents in 2024 and a commitment to "Patent a Day: Mission 365" for 2025), and about 330+ Startups (that have generated 1100+ jobs with a revenue of Rs. 1500+ Cr).

Follow us on [Instagram](#), [LinkedIn](#), [Twitter](#), [Facebook](#), and [YouTube](#) for the latest updates.

To know more, please visit <https://www.iith.ac.in/>

You can view all press releases/notes from IIT Hyderabad at: <https://pr.iith.ac.in/press-release>

Please direct all media queries to | **Public Relations Officer, IIT Hyderabad** | Cell: 8331036099|

Email: pro@iith.ac.in