



Press Release

SEIL ENERGY AND IIT-MADRAS COLLABORATE TO REVOLUTIONIZE CARBON CAPTURE TECHNOLOGY

Nellore, 12 February 2025: SEIL Energy India Limited (SEIL), One of the largest independent power producers (IPP) in India, and the Indian Institute of Technology (IIT), Madras, have joined forces to develop a groundbreaking carbon (CO₂) capture technology. This innovative project, supported by SEIL's CSR initiative, has resulted in the creation of '*Chemogel*', a patented (IIT-Madras) nanoparticle-based solvent that significantly enhances carbon capture efficiency. The revolutionary research is supported by SEIL as its corporate social responsibility (INR 7.1 million).

Mr. Raghav Trivedi, CEO – SEIL Energy India Limited, said, *“We are proud to partner with IIT-Madras on this project. Our collaboration has the potential to transform industrial carbon capture processes, and we are excited to take this technology to the next level. This breakthrough aligns with our commitment to sustainability and reducing our carbon footprint.”*

Chemogel, the amino derived microgelated solvent developed through this collaboration, has demonstrated better performance in lab tests as compared to conventional amine-based solutions. It outperforms traditional amine-based solvents with higher carbon capture rates, improved regeneration efficiency at atmospheric and higher operating temperatures, and improved SO₂ tolerance.

A team from the Department of Chemical Engineering, led by Prof. Jitendra Sangwai, along with his research scholar Yogendra Kumar is partnering with SEIL Energy India Limited to develop novel methods for carbon capture. Prof. Sangwai is establishing a pilot plant demonstrator to facilitate improved carbon capture from coal fired power plant stacks.

According to **Prof. Sangwai**, decarbonizing industrial clusters is crucial for achieving net-zero transition, which cannot be accomplished without large-scale, industry-oriented carbon capture and sequestration technology. Yogendra Kumar added that the pilot studies aim to optimize the performance of *Chemogel* technology in accordance with established standards in actual industrial operating conditions. The breakthrough has significant implications for the development of more efficient and effective carbon capture technologies, which are crucial in the global effort to reduce greenhouse gas emissions and mitigate climate change. SEIL Energy and IIT Madras are committed to further developing and deploying this technology to support a sustainable future.



About SEIL:

SEIL Energy India Limited – SEIL – (Formerly Sembcorp Energy India Limited) is a leading Independent Power Producer (IPP) committed to contributing towards India's energy security. The company has a successful track record of developing and operating thermal power generation assets in the country. It has a 2.64GW supercritical thermal power generation complex located in SPSR Nellore District, Andhra Pradesh, India.

Led by its strong leadership team, SEIL is a committed and long-term partner in the region's progress. It provides reliable and sustainable power to consumers across the sub-continent. SEIL partners with the government and industry towards supporting India's energy security and developmental goals. With 4X660MW operational units, SEIL is well-positioned to offer best-in-class energy solutions to meet the region's energy needs.

SEIL Energy India Limited is a Great Place To Work certified organization.

ABOUT IIT MADRAS

Indian Institute of Technology Madras (IITM) was established in 1959 by the Government of India as an 'Institute of National Importance.' The activities of the Institute in various fields of Science and Technology are carried out in 18 academic departments and several advanced interdisciplinary research academic centres. The Institute offers undergraduate and postgraduate programmes leading to B.Tech., M.Sc., M.B.A., M.Tech., M.S., and Ph.D., degrees in a variety of specialisations. IITM is a residential institute with more than 600 faculty and 9,500 students. Students from 18 countries are enrolled here. IITM fosters an active entrepreneurial culture with strong curricular support and through the IITM Incubation Cell.

Recognized as an Institution of Eminence (IoE) in 2019, IITM has been ranked No.1 in the 'Overall' Category for the sixth consecutive year in India Ranking 2024 released by National Institutional Ranking Framework, Ministry of Education, Govt. of India. The Institute has also been ranked No.1 in the 'Engineering Institutions' category in the same Rankings for nine consecutive years – from 2016 to 2024. It was also adjudged as the 'Top innovative Institution' in the country in Atal Ranking of Institutions on Innovation Achievements (ARIIA) in 2019, 2020 and 2021. ARIIA Ranking was launched by the Innovation Cell of Ministry of Education.

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