

Appendix-A

SEMINAR ON “GREEN HYDROGEN”

Hosts: Indian National Academy of Engineering and International Solar Alliance

22 APRIL 2024

Time: 11:30 – 17:00 hours IST

Mode: Virtual

INAUGURAL SESSION	
Time	11.30 AM to 12.15 PM
Welcome by host (3 Minutes)	Mr. Pradeep Chaturvedi, FNAE Chairman, INAE Delhi Chapter
Opening Remarks by President, INAE (5 minutes)	Professor Indranil Manna, FNAE President, Indian National Academy of Engineering (INAE)
Special Address by DG, ISA (5 minutes)	Dr. Ajay Mathur, FNAE Director-General, International Solar Alliance and Chairman, INAE Forum on Energy
Inaugural address by Chief Guest (30 minutes)	Mr. Bhupinder Singh Bhalla, Secretary, Ministry of New and Renewable Energy, Government of India
Vote of Thanks (2 minutes)	Lt Col Shobhit Rai (Retd) Officiating Executive Director, INAE

SESSION - I

Session Title	Green Hydrogen- Relevance, Policy, Regulations and Standards
Time	12.15 PM to 1.15 PM
Background & Rationale	<p>Hydrogen has long been recognized as a pathway to deep decarbonization, particularly in hard-to-abate sectors. There is a renewed global interest in this versatile energy resource, with several governments announcing Green Hydrogen policies, strategies, and targets, and global multilateral and private sector organizations increasingly recognizing Hydrogen in their near-to-midterm strategies.</p> <p>This session brings together policymakers and experts to analyze the role of existing policies, regulations, and standards in ensuring the scaling up of green hydrogen deployment in India.</p>
Session objectives	<ol style="list-style-type: none"> i. Assess policy and regulatory frameworks and incentives that can accelerate green hydrogen ecosystem readiness. ii. Approach for market creation and harmonization of global standards for domestic consumption and export.
Session Chair and Moderator	Dr Anil Kakodkar, FNAE, Chancellor, HBNI, Mumbai; Former President, INAE; and Former Chairman of Atomic Energy Commission and Secretary to Government of India, Department of Atomic Energy
Panel Discussion (50 Minutes)	<p>Panelists:</p> <ul style="list-style-type: none"> • Professor Indranil Manna, FNAE, President, Indian National Academy of Engineering (INAE) • Ms. Gauri Singh, Deputy Director-General, International Renewable Energy Agency (IRENA), Abu Dhabi, UAE • Mr. Jonas Moberg, CEO, Green Hydrogen Organization, Geneva • Mr. Sarbojit Pal, Manager of Partnerships, Clean Energy Ministerial (CEM), Headquarter, Paris
Audience interaction and way forward (10 minutes)	Moderated by Session Chair

LUNCH BREAK: 1.15-2.30 PM (75 Minutes)

SESSION - II

SESSION - II	
Session Title	Economics of Green Hydrogen in the Indian context
Time	2.30 PM to 3.30 PM
Background & Rationale	<p>India has established green hydrogen as a core pillar of its decarbonization and net zero strategy. India's National Green Hydrogen Mission (NGHM) sets out a roadmap for using hydrogen to meet its climate targets and make India a green hydrogen hub. This mission aims to enable India to become a global hub for the production, usage, and export of green hydrogen and its derivatives.</p> <p>This session will delve into the current economic landscape of green hydrogen in India. We will explore factors influencing its cost competitiveness, including renewable energy prices, electrolyzer technology advancements, green hydrogen production and use; and infrastructure development.</p>
Session objectives	<ol style="list-style-type: none"> i. Analyze existing and emerging business models for off-take of green hydrogen in India. ii. Identify key economic factors and policy instruments that can drive down green hydrogen costs.
Session Chair and Moderator	Dr. Ajay Mathur, FNAE Director-General, International Solar Alliance and Chairman, INAE Forum on Energy
Panel Discussion (50 Minutes)	Panelists: <ul style="list-style-type: none"> • Dr. Ashish Lele, Director, National Chemical Laboratory (NCL), Pune, India. • Dr. Pradeep Tharakan, Director, Energy Transition, Asian Development Bank • Mr. Shreyans Jain, Investment Officer, Upstream Asia, Manufacturing Agribusiness and Services, International Finance Corporation (IFC), India • Mr. Sturle Harald Pedersen, Chairman of the Board, Greenstat Norway • Mr. Mathieu Geze, Director Asia - HDF Energy, Indonesia
Audience interaction and way forward (10 minutes)	Moderated by Session Chair
TEA BREAK: 3.30-3.45 PM (15 Minutes)	

SESSION - III

SESSION - III	
Session Title	Demand creation for Green Hydrogen in the Indian context
Time	3.45 PM to 4.45 PM
Background & Rationale	<p>The National Green Hydrogen Mission demarcates the sectors and the market development approach. The highest priority is accorded to those sectors where green hydrogen would support the replacement of fossil fuels and fossil fuel-based feedstocks. These include:</p> <ul style="list-style-type: none"> • replacement of fossil fuel-derived hydrogen with green hydrogen in ammonia production and petroleum refining; • blending of green hydrogen in City Gas Distribution (CGD) systems; • production of steel with green hydrogen. <p>This panel discussion will delve into the current landscape of green hydrogen demand in India, identifying the key challenges and opportunities that exist. By exploring strategies to stimulate demand across different applications, we can promote a thriving green hydrogen ecosystem in India.</p>
Session objectives	<ol style="list-style-type: none"> i. Understand the emerging demands of green hydrogen in various sectors across India. ii. Examine effective strategies to accelerate green hydrogen demand in India.
Session Chair and Moderator	Dr. BN Suresh, FNAE, Chancellor, Indian Institute of Space Science & Technology (IIST) and Honorary Distinguished Professor, ISRO Headquarters and Former President, INAE; Director, VSSC, Trivandrum; and Member, Space Commission
Panel Discussion (50 Minutes)	<p>Panelists:</p> <ul style="list-style-type: none"> • Dr. Sanak Mishra, FNAE, Former President, INAE; Member of Governing Board, Steel Research & Technology Mission of India; and Formerly Managing Director of Rourkela Steel Plant and Member of the Board of SAIL, India • Dr. Umish Srivastva, Executive Director (AE&IOTDD), Indian Oil Corporation Limited (IOCL), India • Dr. Bibek Bandyopadhyay, Senior Adviser, EY India; Former Director Solar Energy Centre; and Former Adviser, MNRE, Government of India.

	<ul style="list-style-type: none"> • Mr. Birinder Singh*, Director (CRS), Indian Farmers Fertiliser Cooperative (IFFCO), India • Mr. Hiren Mehta*, Chief Commercial Officer, VP Business Development, Green Hydrogen and Ammonia, ACME Cleantech Solutions, India
Audience interaction and way forward (10 minutes)	Moderated by Session Chair

VALEDICTORY	
Time	4.45 PM to 5.00 PM
Closing Remarks and Way Forward (15 minutes)	<ul style="list-style-type: none"> • Mr. Pradeep Chaturvedi, FNAE, Chairman, INAE Delhi Chapter • Dr. Ajay Mathur, Director-General, International Solar Alliance and Chairman, INAE Forum on Energy

*To be confirmed (TBC)