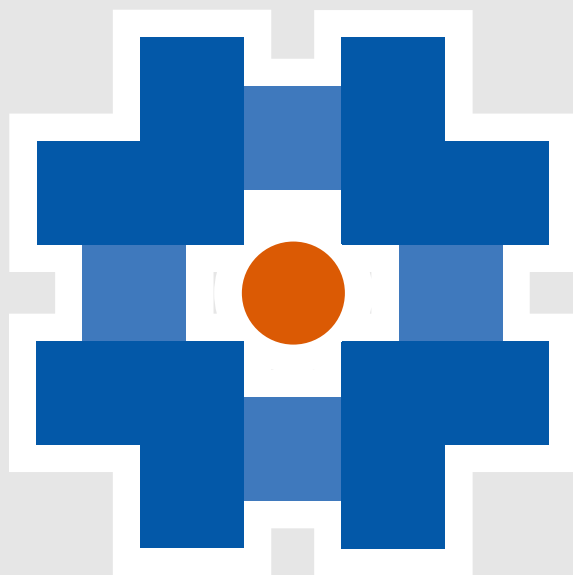




सत्यमेव जयते

विज्ञान एवं प्रौद्योगिकी विभाग  
Department of Science & Technology

भारत सरकार  
Government of India



DST-IITB

# Energy Storage Platform on Hydrogen

A Multi-Institutional R&D Centre on  
Hydrogen Energy Systems



<http://www.es.e.iitb.ac.in/esphy>

# Quotes



“The collaborative platform provided by the centre would bring best minds together and is expected to lead to research and technology outputs of immense value for clean energy driven growth. This would also accelerate innovation in clean energy domain for cost effective, reliable and robust solutions”.

## Dr. Harsh Vardhan

*Union Minister for Science & Technology,  
Earth Sciences, Environment, Forests and  
Climate Change- Government of India*



“Development of efficient and effective materials is essential for innovations in clean energy domain. The centre would strive to address the gaps and address the residual research challenge to provide end to end solution through interdisciplinary research network”

## Prof. Ashutosh Sharma

*Secretary to the Government of India,  
Department of Science and Technology*



“IIT Bombay with its Department of Energy Science and Engineering as the first such department in the country, is leading in the field of energy research.

Our research in the field of Hydrogen energy ranges from materials design, synthesis and characterization to systems simulation, design and development and demonstration for various stationary and vehicular applications. This Multi-Institutional R & D Centre will integrate the expertise and facilities available in the field of hydrogen energy across the nation and act towards addressing several energy related challenges.

## Dr. Devang Khakhar

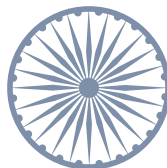
*Director, IIT Bombay  
& Center Director*



“The ESPHy will be a unique R & D and National Resource Centre to enable Innovations and HRD in the field of Hydrogen Energy. With the strong expertise in both materials and systems development, the Centre will act as a focal point towards development of next generation of materials and technologies, industrial and collaborative interactions, capacity building, knowledge dissemination and deployment of hydrogen based technologies. Large scale synthesis and development of materials and systems alongwith integration, demonstration and technology transfer for various stationary and vehicular applications will be the major objective.

## Dr. Pratibha Sharma

*Project Co-ordinator,  
IIT Bombay*



**DST-ITB**  
**Energy Storage Platform  
on Hydrogen**



# About Us

## Vision

The Centre will be the lead focal point in the country in materials and systems research, prototype demonstration, technology development, incubation of innovative ideas, industrial interactions, collaborations, manpower development and information dissemination in the field of hydrogen energy.

## Objectives

National level facility to enable innovations in the area of hydrogen energy

Collaborate with National and International level institutions and industries/companies to enable innovations and shared facilities

To develop the next generation of advanced materials and devices

Catering to address industrial problems where hydrogen can play a major role and provide industrial and societal solutions

Assist in developing standards, safety protocols associated with hydrogen systems, policy making and knowledge centre for the nation

Conduct training programs periodically for academia and industry, organise workshops and conferences, offer online courses, and publish newsletters

Capacity building and educating the next generation researchers, scientists, and engineers

## Proposed Activities

### Materials

- Metal hydrides
- Novel materials
- Process development
- Large scale synthesis

### Devices & Systems

- Simulation, Design and fabrication
- Prototype development
- Performance evaluation
- Scale up

### Utilisation

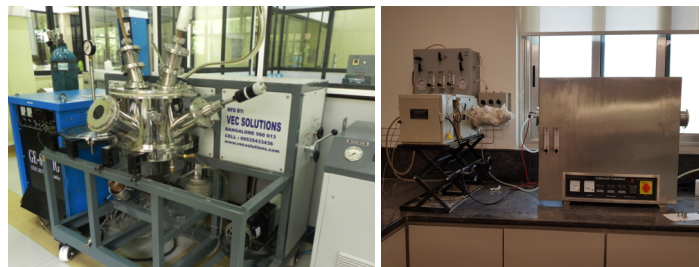
- System integration
- Stationary and vehicular applications
- Technology transfer
- IPR generation

### Outreach

- Information dissemination
- Online and in-house programs
- Workshops and conference
- Mentoring and collaboration

## Facilities

### ✓ Furnace and Melting units



### ✓ Rolling and Ball mills



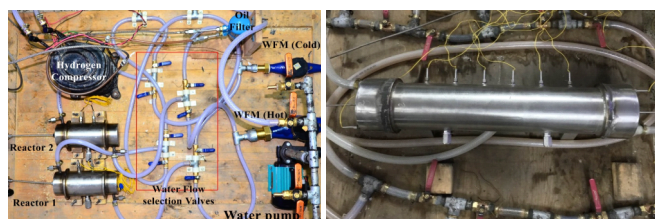
### ✓ Measurement setup (Static & Dynamic PCI, ETC)



### ✓ Hydrogen storage and purification system



### ✓ Heating and cooling system



### ✓ Glove Box, Electrochemical Wet Bench, Hyphenated TGA-MS



# Partners

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 Ministry of Science and Technology  
 Government of India

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## Academic & Industrial Partners



WICHITA STATE UNIVERSITY



University of Glasgow



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