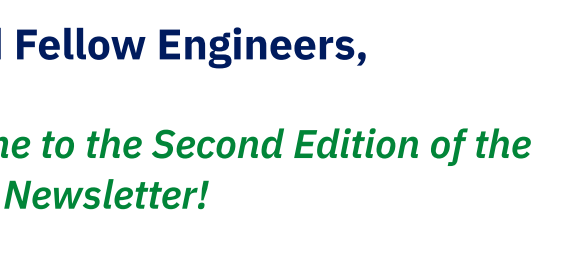


# Where Engineering Disciplines Intersect and Innovation Begins



**Dear Friends and Fellow Engineers,**

*A Heartfelt Welcome to the Second Edition of the IMECE India 2025 Newsletter!*

The momentum is unstoppable! Following the phenomenal buzz from the inaugural edition of our official IMECE India 2025 newsletter, Axis: The IMECE India 2025 Edit, we're back with game-changing insights that will reshape your engineering perspectives.

This powerhouse edition delivers:

1. The Hydrogen Revolution: Engineering India's Clean Energy Future
2. IMECE FEME Flex: Unleashing Women's Leadership in Engineering
3. See You in Hyderabad: Marking Nagarjuna Sagar Dam's Engineering Feats

**#IMECEIndia2025**

## The Hydrogen Revolution: Engineering India's Clean Energy Future

India is making the world's most ambitious bet on hydrogen with 5 million tonnes of annual green hydrogen production capacity planned by 2030, backed by 125 GW of renewable energy and ₹8 lakh crore in total investments.

Let's explore the complex engineering challenges behind this ambitious bet:

01

### The Production Breakthrough

India aims to bring down the cost of green hydrogen to \$1.5 per kg by 2030. It requires revolutionary advances in electrolyzer technology. The engineering challenge is not just about the electrolyzers. It's about seamlessly integrating them with India's renewable energy grid, managing power supply, and scaling up from laboratory prototypes to industrial-scale systems that can produce thousands of tonnes annually.

02

### The Storage & Transport Puzzle

Hydrogen is the smallest molecule in the universe, making it incredibly difficult to contain. Hydrogen pipelines are subject to embrittlement and permeation, and key challenges include reducing cost, increasing energy efficiency, maintaining hydrogen purity, and minimizing leakage. Traditional steel tanks become brittle when exposed to hydrogen, requiring new materials like metal hydrides and carbon nanotubes.

03

### Pressure Technology: The Unsung Hero

Behind every hydrogen application lies sophisticated pressure technology. Hydrogen's unique properties demand completely rethinking traditional pressure vessel design.

Engineers must solve materials compatibility issues, develop leak-proof high-pressure storage systems (up to 700 bar for vehicle applications), and create safety protocols for handling a gas that ignites with just 4% concentration in air.

04

### Real-World Impact

This isn't just theoretical engineering, it's reshaping industries.

- Hydrogen fuel cell vehicles are competing with battery EVs for the future of transportation.
- Steel manufacturers are replacing coal with hydrogen to slash emissions.
- Power plants are preparing to burn hydrogen-natural gas blends, then transition to pure hydrogen.



*"Hydrogen's unique properties challenge everything we know about pressure vessel design - this is where breakthrough engineering meets real-world application."*

~ Dr. Dipak K. Chandiramani,

Independent Consultant and Track Chair, Pressure Technologies



*"Transforming our pipeline infrastructure for hydrogen is one of engineering's greatest challenges and greatest opportunities."*

~ Mr. KB Singh,

Founder and Principal Consultant of KB Singh & Associates and Track Chair, Offshore Onshore Pipelines Transmission & Distribution System



*"The hydrogen revolution demands engineering excellence at every step, from production to storage and safe transportation. IMECE India is where these critical solutions converge."*

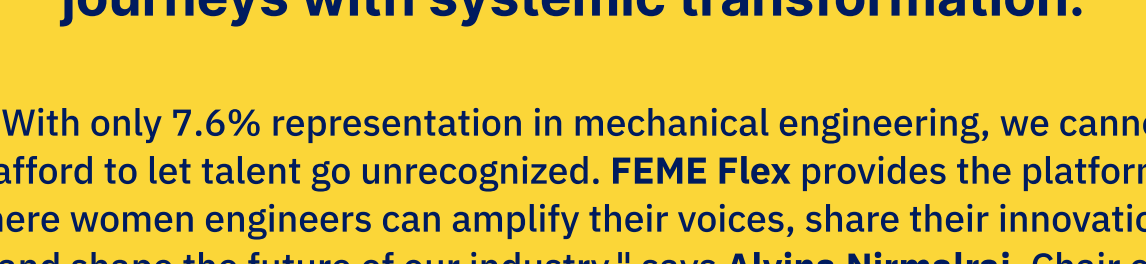
~ Mr. Akhil Mehrotra,

Managing Director of Pipeline Infrastructure Limited and Track Chair, Clean Energy Technologies & Systems

## IMECE FEME Flex: Unleashing Women's Leadership in Engineering

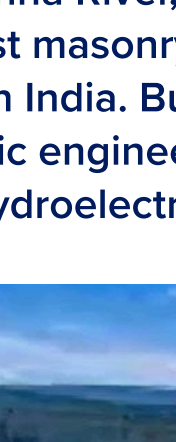
IMECE India's Women in Engineering is where established women leaders and emerging professionals engage through the FEME Flex: "Flex your Journey, Engineer the Change" panel discussion.

FEME Flex at IMECE India 2025 moves beyond the typical diversity discussions and creates an exclusive platform where women engineers showcase their resilience, adaptability, and leadership across industry, academia, and entrepreneurship.



**Join us on September 12, 2025 at Women in Engineering - IMECE India 2025 as we deliver concrete outcomes connecting individual journeys with systemic transformation.**

"With only 7.6% representation in mechanical engineering, we cannot afford to let talent go unrecognized. **FEME Flex** provides the platform where women engineers can amplify their voices, share their innovations, and shape the future of our industry," says **Alvina Nirmalraj**, Chair of ASME India Women in Engineering Interest Group and Structural Analysis Engineer at Boeing.



**See You in Hyderabad!**

Standing tall across the Krishna River, the Nagarjuna Sagar Dam is one of the world's largest masonry dams, a marvel of post-independence engineering in India. Built in the 1960s, it showcases remarkable civil and hydraulic engineering that continues to power irrigation and hydroelectricity for millions.



Its sheer scale and purpose reflect India's engineering ambition and execution. Don't miss visiting this iconic structure when you're in Hyderabad for IMECE India 2025!

**#IMECEIndia2025 10–13 September 2025 | HICC, Hyderabad**



**Discover more** about the IMECE India 2025 tracks on the **official website:**

[www.asme-india.org/imece/tracks](http://www.asme-india.org/imece/tracks)



**Early bird registrations are now open, apply now:**

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