

CONSTRUCTION TIMES

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Hydrogen is emerging as a transformative clean energy source in EPC projects.

AK TYAGI

Founder, Chairman & Managing Director, Nuberg Engineering Ltd

How do you view the technological advancements in the Indian construction industry?

The technological advancements in the Indian construction industry are significantly contributing to its transformation. Innovations such as Artificial Intelligence (AI), the Internet of Things (IoT), and Big Data analytics are playing a crucial role in changing operational processes. These technologies enable real-time data analysis, which helps in optimizing resources and improving safety protocols. Building Information Modeling (BIM) has also become an essential tool in the industry. It allows for the creation of detailed 3D models that facilitate collaboration among stakeholders, reduce errors, and ensure that projects are completed with greater efficiency.

In addition to these technological strides, I see a strong shift towards sustainability in our industry, with an increasing adoption of green technologies and renewable energy solutions. These efforts not only align with global sustainability goals but also position companies like Nuberg EPC at the forefront of innovation.

What are the latest innovations for energy efficiency and sustainability in EPC projects?

In EPC projects, innovation is key to advancing energy efficiency and sustainability:

Advanced technologies: 3D modelling and AI streamline planning, reduce material waste, and optimize resources.

Renewable energy integration: Increasing use of solar and wind energy reduces reliance on fossil fuels but helps in achieving carbon neutrality goals.

Automation and AI: These tools are revolutionizing operations, with automated machinery, drones, and predictive maintenance enhancing precision and efficiency.

Sustainable materials: We're focusing on using energy-efficient materials and sustainable building materials in our projects. This includes exploring low-carbon concrete alternatives and other eco-friendly construction materials.

Safety technologies: Wearable safety devices and augmented reality improve on-site safety through real-time data and immersive training.

Green technologies: We are incorporating hydrogen-based solutions, including green, grey, and blue hydrogen production, aligning with the growing trend of the hydrogen economy and our commitment to sustainable energy solutions.

Energy-efficient equipment: Our projects increasingly specify and utilize energy-efficient equipment, such as boilers and other machinery, to minimize energy consumption and reduce emissions.

Nuberg EPC's heavy fabrication facility, one of the most advanced in India, supports our commitment to these innovations. Our work on the 300 TPD hydrogen peroxide plant and other global projects exemplifies our dedication to sustainable and energy-efficient solutions.

What is the potential of hydrogen as a clean energy source in EPC projects?

Hydrogen is emerging as a transformative clean energy source in EPC projects, offering a sustainable solution for various sectors including transportation, power generation, and heavy industries. Its ability to decarbonize these critical sectors is particularly significant.

When produced from renewable sources like wind and solar power, hydrogen's environmental benefits are maximized. The development of infrastructure for safe hydrogen storage and transportation is essential, with EPC projects playing a crucial role in this effort.

Government initiatives such as the Infrastructure Investment are driving hydrogen adoption by lowering production costs and enhancing competitiveness. While challenges like high production costs and infrastructure limitations persist, hydrogen's potential to contribute to the global energy transition is undeniable.

What are your expansion plans in India EPC sector? Which are the key projects?

Nuberg EPC is strategically expanding its presence in the Indian EPC sector, focusing on innovation and sustainability. Serving prestigious clients such as RCF, IOCL, TATA, NRL, ONGC, and HPCL, we have established ourselves as a trusted partner in the industry. In the chemical and petrochemical sectors, we are leading key projects like the green PVC chlor-alkali project with the Adani Group in Gujarat and sustainable chemical production initiatives with Tata Chemicals in Uttar Pradesh. Our partnerships with industry giants such as Reliance Industries and BASF further underscore our dedication to technological progress and environmental sustainability.

Our state-of-the-art heavy fabrication facility is pivotal in executing large-scale projects efficiently. Accredited with global certifications such as ASME U, U2, S, NB R Stamp, ISO, PESO, IBR, and EIL, we ensure that all our projects meet the highest international standards for quality and safety.

The initiatives undertaken by Nuberg EPC in the energy sector are centered around the promotion of renewable energy sources and the production of hydrogen, underscoring the company's steadfast commitment to fostering sustainable development. This commitment is vividly illustrated through substantial projects currently underway in Indonesia and Saudi Arabia. Furthermore, the collaboration between Nuberg EPC and L&T Construction on hydrogen purification projects serves as a testament to the former's proficiency in navigating and overcoming intricate construction-related hurdles. The strategic expansion endeavours of Nuberg EPC are propelled by an unwavering dedication to the provision of innovative, superior-quality solutions that span a multitude of sectors, reaffirming the company's position as a frontrunner in the industry.

What are the challenges and opportunities for hydrogen solutions in EPC projects aiming at green energy transition?

The shift to green energy through hydrogen solutions in EPC projects presents both challenges and opportunities.

Major challenges are:

High production costs: The expense associated with producing green hydrogen persists, largely attributed to the elevated costs of electrolyzers and sourcing renewable energy.

Infrastructure development: The nascent stage of infrastructure dedicated to hydrogen distribution and storage poses a significant barrier to widespread adoption.

Regulatory hurdles: The intricate maze of regulatory frameworks and the protracted nature of permitting processes often serve as impediments to project timelines.

Transportation: Ensuring the safe and efficient transportation of hydrogen presents a unique set of challenges, given its physical properties and the need for specialized handling and storage solutions.

Despite these hurdles, opportunities abound:

Technological innovation: Advances such as digital twin technology and predictive maintenance are pivotal in reducing costs and enhancing efficiency in hydrogen production.

Government support: Increasing investments by governments in hydrogen initiatives are fostering a conducive environment for its broader adoption.

Global collaboration: International partnerships are catalyzing innovation and the dissemination of best practices, thereby bolstering the global hydrogen economy.

Environmental impact: Hydrogen's capacity to substantially mitigate greenhouse gas emissions aligns with global climate objectives, positioning companies at the vanguard of sustainable energy solutions.

Industry and mobility: The potential for hydrogen to revolutionize various industries and mobility sectors by substituting traditional power sources with green energy represents a significant opportunity. This shift could lead to cleaner manufacturing processes, more sustainable transportation methods, and reduced reliance on fossil fuels across numerous economic activities. ■