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Reduction of import dependence is achievable – says CMD

AK Tyagi, founder, CMD, Nuberg Engineering speaks to Construction Week on a few points

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What changes have been made in the EPC sector in relation to global sustainability efforts, and how does it influence project timelines and costs?

The EPC industry has experiences shifts during last five years due to international sustainability movements. Automation and AI incorporation into project management systems has transformed the discipline, enhancing time efficiency and operational accuracy while removing human oversight blunders. Modular construction and prefabrication are increasingly being adopted as effective methods to minimize waste, enhance quality control and accelerate project delivery.

Sustainability is becoming increasingly integral in plant construction, and the focus is also on electrification and energy storage. Greener materials, improved insulation, and more advanced water and waste systems are being used. Tough environmental laws have also driven the move towards cleaner building techniques. Environmental, Social, and Governance (ESG) policies are beginning to define the business approaches within the entire EPC industry. Their practices are increasingly integrating design and procurement processes with ESG compliance frameworks to guard against reputational and financing risks. These changes are impacting project schedules and budgets. Though most projects incur initial costs, there is long-term benefit in reduced risk, compliance, and improved operational efficiency.

During the design phase, 3D simulations enable engineers and clients to virtually walk through the plant before construction begins. This allows them to do planning precisely and help in scalable design. Smart energy systems that

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are driven by IoT devices aid in maximizing utilization of resources on a real-time basis and reduce the total cost and carbon footprint.

But the industry is encountering a significant bottleneck, a lack of trained professionals well-versed in these emerging technologies. Bridging this gap demands focused investments in workforce training, and on-site up skilling programs tailored to emerging construction trends.

How is the EPC sector responding to the trends that are shaping India's chemical and fertilizer infrastructure?

The EPC sector trends affecting India's chemicals and fertilizers infrastructure focus on self-reliance, local manufacturing, modular construction, and sustainability. There is a stronger focus towards greenhouse gas reduction, achieving set operational goals, and using cutting edge tools for project management enhancing environmental responsibility.

The EPC industry is shifting in alignment with international sustainability targets and domestically driven initiatives such as 'Make in India.' Incorporation of emission controls, modern approaches to wastewater treatment, and systems that reduce energy consumption are being exercised. Lowering emission controls and modernized wastewater approached locally minimize expenses, help meet deadlines, and enhance domestic industries. Digital methods are increasingly performing quality checks for waste reduction at construction sites. Engineers and clients can interactively view the models of the plant using 3D simulations which makes planning precise and scalable execution feasible. Furthermore, there is better collaboration intra and inter departments which aids in optimizing resource utilization. Modular construction is becoming more popular as a quicker, less dirty alternative. EPC contractors are supporting the enhancement of self-sufficiency in essential sectors like fertilizers in India through modernization and advanced technology construction of new plants.

What are the ways in which Indian EPC firms can localize manufacturing in India to transform its industrial sector?

The enhancement of localization of manufacture can be furthered by Indian EPC firms through the active and primary use of domestically made equipment, machinery, and materials on all projects. Reduction of import dependence is also achievable through greater collaboration with domestic technology providers as well as investment in local R&D. Localization can also be achieved by collaborating with Indian manufacturers, setting up shops at project sites, establishing fabrication and vitalizing greater use of Indian machinery. It will also be necessary to highlight the importance of supporting Indian startups, MSMEs, and regional suppliers as it strengthens the supply chain while driving innovation within the country.

Furthermore, tailoring project requirements to Indian standards, utilizing initiatives like Production-Linked Incentive (PLI) Programs and collaboratively striving towards the goal to build an Indian industrial sector that sustains self-reliance. Highest commitment to 'Design and Make in India' at all stages of EPC execution is critical in redefining the industrial scenario of the nation.

How have the international experience of Nuberg EPCs projects completed in over 30 countries influenced your strategies for innovation, safety and project execution?

At Nuberg, safety is part of the core of our business, characterized by robust HSE policies and ongoing training at every job site. We are proud to have developed a zero-accident culture, evidenced by over 1 million safe man-hours worked at the FACT-CD plant.

Our relentless focus on innovation has most recently resulted in the first commercial-scale hydrogen fuelling station in India, as well as advances in modular construction and green hydrogen. Patented technologies developed at our R&D centre in Gujarat enhance our global competitiveness.

In terms of speed, we proved our agility during the COVID-19 pandemic by delivering a $27 million Chlor-Alkali plant plant in Egypt on-time and on budget, thanks to our various engineering teams deployed rapidly in new time zones.

We still maintain strict budgets, quality expectations and are fully integrated for EPC, which allows us to deliver turnkey projects safely, on schedule, and to the highest international standards.

Our international projects have made our entire safety management system even better. It centres on continuous training, hazard identification, and risk mitigation. Our teams are thoroughly trained in local custom regulations and are able to handle any safety risks across all project locations.

Along with enhancing project execution, we ensure the efficient handling of complex logistics, supply chains, and cross functional teams operating in different time zones. By adopting global best practices, we guarantee the effective, high quality outcome tailored to the distinctive needs of every client.

Can you define any recent landmark projects which promise to exemplify Nuberg EPC's engineering, procurement and construction expertise?

Nuberg EPC has offered integrated engineering services on complex multi-discipline projects across the world. One notable example is India's largest Chlor-Alkali project for the Adani Group, where Nuberg has been awarded EPCM contracts for 2200 TPD Caustic Soda plant within the 1MMTPA Green PVC project at Mundra, Gujarat. This project has been designed with state of the art technology packages and is a cornerstone of Mundra Petrochemical Ltd.'s expanding operation which includes the production of essential chemicals such as caustic soda, chlorine, hydrochloric

acid and sodium hypochlorite.

Along with the Chlor-Alkali plant, Nuberg EPC has supplied other key units commercially like Sulfur Recovery Units (SRU) and Pressure Purification Units (PPU) in other projects showing their capabilities of sophisticated process equipment fabrication in modern refining and petrochemical plants.

One newer example is Spolana S.R.O.'s 550 TPD Sulphuric Acid Plant at Neratovice, Czech Republic. The project is notable both in terms of size, technological enhancement, incorporating the latest process automation and artificial intelligence enabled safety solutions. Nuberg EPC's implementation of predictive safety and accurate planning not only achieved the deadline but also presented a zero-accident track record, reinforcing the company's world-class operating excellence and safety record.

These projects demonstrate Nuberg EPC's capability to overcome unprecedented challenges, meet client commitments, and set new safety, technology, and reliability standards in the global EPC industry.

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