

# Jakson Green

## Making big strides in the green hydrogen space

From an energy product firm in 1947 to a fully diversified energy group in 2022, the journey of India-based infrastructure major Jakson Group has spanned the fields of distributed energy, solar, battery energy storage systems and EPC over 75 years. The group has forayed into a number of green energy-related businesses over the last two decades, chiefly noticeable among which are its successes with solar module manufacturing, solar IPP, solar EPC and distributed battery energy storage areas within the renewable space. Recently, the group has carved out all of its green initiatives under a new venture, Jakson Green, a platform that focusses on the EPC, asset development and asset management of renewable energy projects including solar, utility-scale storage, renewable hybrids, waste-to-energy (WtE), fuel cells, green hydrogen and green ammonia; besides its plans for manufacturing of electrolyzers in India. In an interview with *Renewable Watch*, Vish Iyer, Global Chief Commercial Officer, Jakson Green, shares the plans of the new venture and his thoughts on the sector. Edited excerpts...

### What is the motivation behind starting Jakson Green?

Jakson Green plans to deliver 10 GW of renewable energy assets by 2025 and 20 GW by 2030. The firm plans to enter the electrolyser manufacturing space, besides building and operating green hydrogen/green ammonia assets globally. This is in line with its vision of being a Power-to-X player, producing over half a million tonnes per annum of green hydrogen and ammonia by 2030.

Our focus shall be largely on new energy transition areas such as green hydrogen, green ammonia, renewable natural gas and other derivatives, keeping solar EPC as the anchor business. Since the green hydrogen market is at a nascent stage, we are also playing a market-moving role as an early-stage developer of green hydrogen projects on which we can work with a number of partners who could be either IHPs or end users. We are already receiving early interest from a range of investors who are eager to partner with us for initial projects in this space. On the solar side, for a specific set of clients, specifically financial investors who do not have development teams in-house, we may consider donning the developer cum EPC hat selectively.

### What are your plans in the WtE segment?

We are presently working on a food



waste-to-CNG project of 250 tonnes per day capacity, which will be set up in south India. The potential for bio-CNG in India is immense, given that the government has announced commendable measures through the new biomass policy. We believe, if the feedstock issues are solved, this segment can provide better returns than plain vanilla renewable energy projects. In addition, the challenge of offtake is much less in this segment thanks to existing demand from blue-chip corporates and PSUs including GAIL, IOCL, HPCL showing interest.

### What are your plans for green hydrogen?

At present, we are working on a few pilot projects in the green hydrogen space. Of these, some are being delivered under the turnkey EPC model and some under the build-own-operate opex model. These are decentralised projects developed to meet the captive requirements of industries. As the production of green hydrogen is close to the point of consumption in such projects, it helps us avoid logistics issues.

### Which electrolyser technology have you chosen and what is the reason for selecting that particular technology?

In our pilot projects we are broadly using both PEM and alkaline technologies. While alkaline is a tried- and -tested technology, others like PEM, AEM and a host of other emerging technologies are the subject of extensive discussion, and are also undergoing initial deployments. From an indigenisation standpoint, alkaline looks best suited for India as we aspire to manufacture electrolyzers in the near term.

### Which type of C&I clients have you partnered with for your green hydrogen pilots?

These clients are spread across the petrochemical, steel, oil refineries and fertiliser segments. Going forward, we aim to explore the untapped C & I potential for distributed ammonia across the entire pro-

cessing industry, from foods to chemicals.

### What are your organisation's plans in the green ammonia space?

Our large-scale project announcements have been primarily focused on green ammonia. Jakson Green and the Rajasthan government recently signed an MOU in October 2022 to build a green ammonia project in the state. We are evaluating development of a 15,000 tonnes per annum green ammonia plant in the first phase along with an integrated hybrid renewable power complex, thereafter expanding further across phases. While we are also developing a pipeline of similar early stage projects across other states in India, we are also pursuing opportunities globally. Besides, we are also looking at some interesting decentralised requirements for green ammonia plants across the country.

### Are the inputs used in your projects locally produced or imported?

For the two technologies that are more commonly in use currently, that is alkaline and PEM, the dependence is more on imports, especially for stacks and membranes. However, for the alkaline electrolyser our aspiration is for maximum indigenisation enabling us to provide Made in India products for green hydrogen projects around the world.

### What are the organisation's key industry collaborations and partnerships?

As we speak, we are coming up with our own market-ready alkaline technology and will make related announcements at an appropriate time. While we may be dependent on import of stacks initially, the aim is to have near complete indigenisation of the supply chain over the next few years. Within the PEM technology space, we are exploring partnerships with established players and startups alike. On the financing side, we have received early interest from thematic bluechip institutional investors who are keen to partner with us on a variety of initial projects within the new energy transition space, be it green hydrogen/green ammonia or renewable natural gas projects.

### Do you have a manufacturing facility available for electrolyzers?

We have already earmarked capex for our upcoming gigafactory in India to manufacture alkaline electrolyzers. Most likely, it will be either at Noida, where the group already produces solar modules, or at a facility in Pune, where the group manufactures other energy products.

### What are the key operational challenges that you are facing in your pilot projects?

We have observed the offtake contracts to be a key challenge in the green hydrogen segment. Many projects being planned are increasingly finding it difficult to sell the green hydrogen produced. Also, there are operational challenges related to putting in place the logistics to move the molecules, especially with respect to storage, transportation and liquefaction. While an IHP may produce green hydrogen at a competitive price, there is a good chance that the additional cost of logistics involved might at times make it less competitive.

### What is the price at which you are planning to sell green hydrogen going forward?

There are a range of prices that work for projects, which are influenced in turn by several factors such as input power costs. Broadly, the market would hinge around a benchmark that clients and investors are comfortable with, such as commodity contracts for gas, urea and other molecules. While prices are becoming competitive for green hydrogen through electrolysis vis-à-vis grey hydrogen, we are working on a unique gasification technology that can produce decentralised green hydrogen at \$3-\$4 per kg.

### How will the profit margins of the green hydrogen business compare with those of your traditional renewables business?

Green hydrogen business is a high multiple new energy business with decent potential for profits as compared to traditional renewable energy. Projects being developed at an early stage of the industry could command respectful premiums while providing upsides for investors. This is also the reason why a set of pure develop-

ers, besides IHPs are active in this space and are launching initial projects. As the segment matures just as we saw in other green energies, it is expected that more utilities will enter this space and returns would compress. However, as of today, we expect the hydrogen space to command at least mid-to-high returns across developing markets.

### What are your key suggestions to the government?

Currently, SECI is planning to pool the aggregate demand for hydrogen and ammonia in the market and come out with tenders for supply from IHPs. On a similar note, since the government is also involved in power trading, they could also consider creating a commodity trading vertical within the state and central power trading agencies. Creation of a large bankable wholesale market will help green hydrogen/green ammonia space enter hockey-stick growth territory. There could also be potential demand aggregation and market creation using gas exchanges of India and perhaps GAIL can play a transformational role in establishing infrastructure for the molecule transportation.

Further, on the policy front, a piecemeal approach will not help grow this segment. We saw that in a span of four to five months in 2022, from practically nothing, the US emerged as one of the largest green hydrogen/green ammonia leaders globally. This has been on the back of one single legislation – the Inflation Reduction Act, 2022. Our earnest request to Indian policymakers across the spectrum would be to quickly come out with the national hydrogen policy on the lines of the US IRA or risk making the exports of Indian green hydrogen/green ammonia uncompetitive in the long run.

Lastly, while the planned production-linked incentive scheme for electrolyzers is a positive step towards localisation of supply chains for electrolyzers, the government would do well to implement rules to ensure we have a fair shot at making India the electrolyser hub for the world. ■