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Seeds of Tomorrow



L&T's Green Energy vertical is fast evolving as a driver of sustainable growth, writes *Bappaditya Paul*

In July, between his many pressing business meetings in India and abroad, L&T CMD S N Subrahmanyam took out time to visit a nondescript place in Gujarat – about 300 km west of Ahmedabad. Accompanied by Derek M Shah, Head of L&T's Green Energy vertical, he was inspecting a large land parcel that L&T recently acquired near Kandla Port.

Subrahmanyam listened keenly, occasionally raising a query, or offering a suggestion, as Derek and his team explained the nitty- gritty of the plan by pointing on a sitemap laid out in front of them. The humid sea breeze, blowing in from the Gulf of Kutch via Kandla Creek, was unable to break into their intent discussions.

About 570-odd km away, on the west zone of L&T's sprawling manufacturing hub at Hazira in south Gujarat, Siddharth Gupta, Chief Executive of L&T Electrolysers Ltd (LETEL), was busy discussing with colleagues the commissioning and trial of robots for the assembly and manufacture of electrolyser stacks.

In another Gujarat city – Vadodara, the engineering hub of L&T Energy GreenTech Ltd (LTEG) - deputy general manager Swagat Mohapatra was preparing to head to Hazira for a project management discussion with his LETEL peers.

And back home at the Mumbai headquarters of LTEG, Puneet Agarwal, an executive assistant to Derek, was scheduling a board meeting of GH4 India which he planned to place for his boss' approval on latter's return from Kandla. GH4 India is an equal partnership joint venture between LTEG, Indian Oil, and NASDAQ-listed ReNew Energy.

These are only a few snapshots from a beehive of parallel activities typical of L&T's Green Energy business landscape – evolving daily – both literally and figuratively.

As of FY24, nearly 40% of L&T's revenue comes from green offerings such as setting up solar plants, wind and nuclear power projects, manufacturing enabling equipment, etc., for clients globally. But Green Energy, as a separate business vertical, started taking shape in 2022. It stemmed from L&T's ambition to be a key player in the ever-growing global energy transition from fossil fuel to clean energy.

“In 10 years, clean energy will be the order of the day in every aspect of human life, and India is poised to be the centre for green hydrogen. Given our extensive engineering and manufacturing prowess, we at L&T want to be a significant

part of this energy transition and are working hard towards it,” says Derek, glancing at a passing Mumbai Metro train through the glass façade of his cabin.

As of today, L&T’s Green Energy vertical has three entities under its ambit. LTEG focused on the development of clean energy technology and green EPC projects. LTEL, a wholly-owned subsidiary of LTEG, invested in the manufacture of electrolysers which is the most important component in a green hydrogen plant. And GH4 India is dedicated to developing green hydrogen projects for clients in India.

According to Derek, L&T has plans to manufacture other clean energy equipment as well, including fuel cells. Fuel cells are electrochemical cells that convert the chemical energy of a fuel (often hydrogen) and an oxidising agent (often oxygen) into electricity through a pair of redox reactions.

Elevating Energy

In 2023, LTEG inked a Technology Licence Agreement with France’s McPhy Energy for transfer of electrolyser technology. Based on this technology, LTEL indigenously manufactured its first electrolyser – a 1 megawatt (MW) one – and put it to use for L&T’s maiden Green Hydrogen Plant commissioned in February this year at Hazira east zone. The plant is operated with power drawn from L&T’s own rooftop solar plant.

Apart from serving as a functional model for prospective clients, the output from the Green Hydrogen Plant – hydrogen and oxygen – caters to L&T’s Heavy Engineering (HE) vertical which manufactures critical equipment for a variety of sectors. While HE blends the hydrogen with natural gas to operate its furnaces; it uses the oxygen for cutting metal plates that go into equipment manufacture.

Close on the heels of the electrolyser manufactured for in-house use, LTEL won its first commercial order this April from Sadhana Nitro Chem – a pharmaceutical company based in Maharashtra. LTEL is to manufacture and supply them electrolysers totaling 8 MW capacity and everyone at LTEL is now immersed in this, while working towards prospective orders from other clients as well.

LTEL’s manufacturing activities are presently spread across three shopfloors at Hazira west zone. Keeping in mind the growing business prospects, it is constructing a fourth one in the vicinity.

On one shopfloor, equipment manufacturing manager Bhavdeep Patel and others are busy overseeing the fine-tuning of an Electrolyser Processing Unit meant for Sadhana; on another, assistant manager Kunal Kishore is engrossed in organising the Electrolyser Stack Assembly Unit. Equipped with nine robots, the highly automated shopfloor can deliver a 0.5 MW stack in just a day.

“Right now, our installed capacity for electrolyser manufacture is 180 MW. We will augment it to 300 MW by March 2025 and 1 GW by September 2025,” says Derek. Over the next two years, LTEL’s projected revenue is upwards of Rs 1,500 crore, and the same will keep on growing commensurate with the capacity augmentation, he explains.

On the plot acquired at Kandla, L&T has plans to set up six ‘trains’ of green ammonia production facilities. Each of them will have an annual capacity of 0.3 metric tonnes (MT), totalling the overall capacity of 1.8 MT green ammonia generation.

“Combined with the renewable power plant and the process plant, each train will require an investment of around Rs 7,000 crore. Our first train will be operational by March 2028,” Derek says.

In line with a strategic investment direction, L&T will partner with off-takers and other external players to set up the Kandla plants. The prospective partners will be from across geographies, including Europe, Southeast Asia and Japan that will eventually use the green ammonia produced at Kandla.

Future Footsteps

Apart from Kandla, L&T is also acquiring another land parcel at Odisha’s port town Paradeep, situated on the banks of the Bay of Bengal. This one is for green hydrogen and its derivatives.

“Odisha government has already issued us the requisite letter inviting us to choose the site. We will finalise this in the next 3-4 months,” Derek says. The green ammonia produced at Kandla will cater to Europe; the produce from Paradeep will cater to Far East, including Japan.

While L&T’s Green Energy vertical will take some time to ramp up its revenue flow as the demand for green hydrogen, green ammonia, etc., is still shaping up both in India and abroad, it has already got a shot in the arm. The Government of India (GoI) enlisted LTEL for 300 MW / annum production linked incentive (PLI) for electrolyzers under the National Green Hydrogen Mission.

In addition, GoI’s Strategic Interventions for Green Hydrogen Transition (SIGHT) scheme presents numerous emerging opportunities.

SIGHT’s Mode-1 Tranche-II is likely to enable the production of 450 kilotons per annum (KTPA) green hydrogen. Modes 2A & 2B are poised to facilitate the production of 739 KTPA green ammonia and 200 KTPA green hydrogen, respectively, representing a combined investment exceeding Rs 1.5 lakh crore. LTEG is actively pursuing for a significant allocation under SIGHT.

Besides, GoI is also slowly pushing for the mandatory use for a certain percentage of clean fuel in all types of manufacturing and processing plants that consume power.

All this means the rewards for L&T’s planned investment in Green Energy are already guaranteed.

“This is just the beginning. Over the next decade, the demand for clean energy will grow exponentially. It will be a phenomenal transition that will undo the dependence on fossil fuel. Countries producing / using green hydrogen and its derivatives will be the leaders in this transition, helping the world decarbonise and achieve Net Zero goals,” Derek says.

It’s now the monsoon in India, and across the rural belt farmers are busy sowing paddy against an expansive misty skyline. Similarly, L&T’s Green Energy vertical too is sowing the seeds of tomorrow – the seeds that will germinate and reap benefits not only for L&T, but also for India.

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