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The Gondal Wind-Solar Hybrid Park in Gujarat is a significant achievement as it marks Fourth Partner Energy's entry into the wind sector with a hybrid project. Hybridisation has enabled the company to combine solar and wind power – resulting in improved predictability of energy supply and higher utilisation of the power evacuation & distribution infrastructure, said Balakrishnan Janardhanan, Head of Open Access – Projects (Wind), Fourth Partner Energy in an interview with Energetica India. Mr. Janardhanan added that the 40 MW WSH project will supply Gujarat's industries with green energy at competitive tariffs.

Q Please give us an overview of Fourth Partner along with its vision and mission.

Balakrishnan Janardhanan: Fourth Partner Energy (4PEL) is India's leading renewable energy solutions company, catering to commercial and industrial businesses. We offer renewable energy-as-a-service (REaaS) to help businesses offset almost 100 percent of their energy requirement through clean sources.

Founded in 2010, our mission is to deliver clean energy solutions to commercial and industrial businesses directed at improving their bottom line and reducing their carbon footprint. We understand that the client's priority is to maximise savings and ensure that our renewable energy-driven solutions are innovative, low-carbon and easy to adopt. Our customised clean energy solutions include onsite and offsite solar & wind, wind-solar hybrid, battery storage, energy trading and EV charging Infrastructure. Through our full suite of integrated energy solutions, we are able to offer round-the-clock green energy to our esteemed clients.

Our vision is to be the leading renewable energy platform in South and Southeast Asia by enabling decarbonisation of energy and maximising value for all our Fourth Partners – our customers, service providers, financiers, and our team.

Q Fourth Partner Energy is operational across Vietnam, Indonesia, Bangladesh and Sri Lanka, along with a pan-India presence. Kindly brief us on some of the notable wind projects undertaken by the company.

Balakrishnan Janardhanan: Fourth Partner Energy was founded in 2010 as a solar products company. Today, our business offers the entire spectrum of integrated renewable energy solutions and services. We forayed into wind earlier this year and today have commissioned our first wind-solar hybrid park in Gondal, Gujarat. This 40 MW WSH project will supply Gujarat's industries with green energy at competitive tariffs.

In addition to this, we are developing projects in the states of Tamil Nadu and Karnataka – both ISTS and STU connected to cater to industrial clients pan-India.

Q The company recently celebrated part commissioning of Gondal Wind-Solar Hybrid park in Gujarat. Tell us more about it.

Balakrishnan Janardhanan: Gujarat is amongst the forerunners in India's energy transition story and we have been present in the State for years now through our distributed solar projects. The Gondal Wind-Solar Hybrid Park in Gujarat is a significant achievement as it marks our entry into the wind

sector, that too with a hybrid project. Hybridisation has enabled us to combine solar and wind power – resulting in improved predictability of energy supply and higher utilisation of the power evacuation & distribution infrastructure. This 40 MW hybrid project is significant because it reiterates our commitment to accelerating decarbonisation and showcases our expertise as market leaders in developing and managing RE projects.

Q Can you briefly outline how WSH as a model is beneficial to the corporate client as well as the RE developer?

Balakrishnan Janardhanan: The penetration of renewable energy into the grid is increasing and to better manage issues of availability, utilisation infrastructure or intermittency of RE – hybridisation of solar and wind energy is a good solution.

Moreover, if you look at how it has evolved, initially stand-alone wind and solar projects aimed for a range of PLF from 17 percent to 25 percent. However, as renewables' share in the grid grew, infrastructure constraints and intermittency challenges arose. To increase renewable energy integration into the grid, it became crucial to enhance predictability and to address these challenges, the concept of hybridisation emerged.

By combining wind and solar power generation, the availability of both energy sources can be optimized. For instance, solar power is available during the day, while wind power can be harnessed continuously. This approach has yielded impressive results, achieving PLFs of up to 50 percent, and even higher in specific cases such as Maharashtra and Karnataka, where wind resources are abundant. The sharing of pooling infrastructure & EHV lines optimises the economics of the projects when compared to standalones. Furthermore, the falling prices of energy storage have opened up opportunities to add battery systems to these hybrid projects, thereby enabling potential PLFs of up to 85 percent. By incorporating storage at the generating station, the grid infrastructure can be fully utilised, energy supply becomes more predictable – thereby reducing industries' dependence on fossil fuels. It is a great option for businesses looking to maximise their renewables consumption as it reduces LCOE and provides better cost savings per unit.

Q Coming back to your specific WSH project in Gondal – What are some of the challenges that 4PEL faced and how were you able to mitigate them? Do you have any similar in the pipeline?

Balakrishnan Janardhanan: Executing our first WSH project in Gujarat was a terrific learning experience despite regulatory and policy-related challenges along the way. The State had a sunset clause for WSH policy and the project had to be commissioned before March 31, 2023. Developers across the board faced uncertainty as there was no announcement of a new policy before the expiry of the existing one. Gujarat is a flourishing and forward-thinking state – if state utilities and nodal agencies are proactive in extending or announcing new



guidelines, it will help developers commission projects systematically without any rush in obtaining last-minute clearances or approvals.

As for 4PEL's plans on the WSH front – we are very keen to leverage this model across most states and look to focus on standalone solar projects for mostly the distributed segment and in those states where there is no wind or enabling policy for it.

We currently have projects under construction in Karnataka for both ISTS and STU-based projects. In Tamil Nadu, we are working with the utility and nodal agencies to convert standalone projects into hybrid projects. At 4PEL, we are always looking for ways to improve our projects and meet the needs of our customers.

Q According to the reports, India will roll out its first tender to set up four 4 GW of offshore wind energy off Tamil Nadu coast before the end of CY2023. What are your views on the country's potential in offshore wind energy?

Balakrishnan Janardhanan: India has approximately 140 GW of offshore potential on its 7600 KM coastline with annual average wind speeds hovering above 7 m/s. However, we are yet to explore the opportunities in the onshore segment to the full extent. Offshore wind projects can be divided into two categories: near-shore and deep-sea. Near-shore projects are located in shallow water up to 20 meters, while deep-sea projects are located in water up to 60-70 meters.

India is already exploring options for both near-shore and deep-sea projects. NIWE is already coordinating to install wind masts, deploy SODAR and LIDAR technologies and collect wind data. This data will be used by investors to assess the potential of each project.

There are already companies with experience in offshore wind

who are looking to invest in India. These companies have the technology and expertise to install and operate offshore wind projects.

The main challenge for offshore wind in India is the cost. The cost of energy generated from offshore wind projects is currently hovering around 7 per kWh, compared to INR 3.3-3.5 per kWh for onshore wind projects. The government should come out with a clear policy for at least the next 10 GW on the point of this difference in cost, which will help out OEMs / developers to invest & indigenise the technologies that can bring down the LCOE gradually. The generation from offshore projects is expected to be throughout the year, delivering a higher PLF when compared to the onshore projects, which can fetch a small amount of premium.

Once the cost of offshore wind is comparable to onshore wind, it will become more commercially viable – paving the way for India to become a major player in this growing industry. Offshore wind in India is nascent and it is likely to take another 4 years for the first offshore project to get commissioned.

Q Could you shed some light on the wind energy sector of India? What has been your experience in the field of wind energy?

Balakrishnan Janardhanan: The wind energy sector in India has witnessed remarkable growth over the past 15 years. The commercial installation of the first wind turbine took place in 1986 in coastal areas of Maharashtra (Ratnagiri), Gujarat (Okha), and Tamil Nadu (Tirunelveli). Since then, India has made significant progress in wind energy and now competes with developed European countries in terms of renewable energy penetration.

However, despite the achievements, there is still ample room for further growth in the wind energy sector. India, as a developing nation, has a comparatively lower per capita energy utilisation, but there is a steep climb expected in the next 10 years. The domestic consumption of energy, including air conditioners and other equipment, is increasing rapidly, along with industrial consumption. Therefore, it is an opportune time to invest in both solar and wind projects to increase the share of renewable resources in the energy mix.

Reflecting on the experience in the wind energy field, it initially served as a financial tool rather than a standalone business or power generation sector. Tax breaks of 80 percent and additional depreciation benefits allowed businesses to write off up to 100 percent of their earnings or profits into wind energy investments. Initially, wind energy was primarily seen as a captive generating source, with limited policies for third-party sales or group captive mechanisms. However, over time, the industry matured, and measures such as third-party sales, tenders, and auctions were introduced to make it more investor friendly.

From 2011 onwards, independent power producers (IPPs) and climate fund investors recognised India as a bankable

country for wind energy investments. This led to significant investment growth compared to previous decades. While the industry has grown substantially, there is still untapped potential for further expansion. Hybridisation and integrating energy storage systems, such as pumped hydro storage, into the network could fuel even greater growth in the future.

Overall, India's wind energy sector has achieved significant milestones, but there are ongoing opportunities to capitalize on the country's renewable energy potential and drive further advancements in the field.

Q What are your views on India's plan to install 140 GW of wind power by 2030? What technological advancements would help India to reach this ambitious goal?

Balakrishnan Janardhanan: India's plan to install 140 GW of wind power by 2030 is ambitious, but several factors contribute to its feasibility. The government has been supporting the wind industry through SECI tenders and reverse auction bids, which have significantly reduced tariffs and encouraged competition among original equipment manufacturers (OEMs). This has led to the introduction of higher capacity and more efficient wind turbines, helping to lower the levelised cost of energy (LCOE). Similarly, falling solar module prices have contributed to competitive solar tariffs.

To reach the ambitious goal, technological advancements and policy clarity are crucial. Technological progress is already happening, with larger and more efficient turbines being developed. The integration of competitive energy storage solutions, as the cost of storage decreases, will further enhance the growth of renewable energy.

On the policy front, both central and state governments need to provide clarity and support to investors. Clear policies, especially regarding inter-state transmission system (ISTS) connections and group captive mechanisms, are essential. Clarity on policies for the next 5 to 10 years would create a favourable environment for investors to sell power directly to consumers, benefiting the grid and enabling better management of transmission and wheeling charges.

Furthermore, streamlining the installation of high-voltage (HV) transmission lines and resolving right-of-way (ROW) issues related to material movement is important. Uniform laws and land acquisition policies across states would facilitate faster project implementation. The government's role should focus on providing policy clarity rather than financial investments.

Overall, while technological advancements are progressing well, the key areas of focus to achieve the 140 GW target are policy clarity, improved evacuation systems, streamlined ROW schemes, and government support in land acquisition. Providing long-term policy certainty for investors will enable faster growth in the wind energy sector.