

Greensphere-ESG

Mitigating risk investing in operational renewable energy assets in India

Recently, **Chase McWhorter**, Institutional Real Estate, Inc.'s managing director, *Institutional Investing in Infrastructure*, spoke with **Mel Badheka**, managing partner and CEO of Greensphere-ESG, about the firm's investment strategy for renewable energy infrastructure in India. Following is an excerpt of that conversation.

We know Greensphere is focused on acquiring operational assets in the Indian renewable energy space. What can you tell us about the renewable energy market in India, as a whole?

The government of India has set the goals for 2022 of 100 gigawatts of solar and 60 gigawatts of wind capacity installed in the country. Today, they are at 34 gigawatts and 37 gigawatts, respectively. There is much to be done and strong growth potential in the country. We are actively participating in conversations with our local partners and policymakers at various state and federal levels to ensure that we are part of the conversation, in terms of energy policy and also in terms of driving some of the core institutional changes that are required to bolster the overall energy market.

What approach is Greensphere taking in this market?

We seek to acquire long-term, yield-plus, income-generating assets to deliver consistent returns across the asset class. Think of it as a power utility investment, with a yield-plus return.

Considering the financial attributes of the PPA price, tenure and technology choice, we believe India is a compelling market with an achievable double-digit return profile.

The Government of India under the current administration has achieved great strides and will continue to be a stable business and policy environment for renewables for the foreseeable future. Consistent currency performance against the dollar eases the country risk, as well.

We approach things quite differently from the typical acquisition of assets in India's renewable energy market. Essentially, armed with a bit of due diligence and some financial modeling, most acquisitions don't seem to deliver on the potential. In order to truly understand the Indian environment and the local business environment, it is essential to have boots-on-the-ground experience and operational expertise to be able to then manage the asset in addition to leading the acquisition. And this where the Greensphere team's advantage comes into play — we have more than 25 years each of operational expertise and experience, especially in the field, in terms of operations and maintenance

and optimization of the energy yield from the assets. This gives us a distinct advantage in terms of operational capability after the acquisition is complete. The pipeline that we are looking at in terms of acquisition is somewhere in the order of 6 gigawatts of operational assets, so we are looking at a major position within the market, and we expect that this will be consistent for the foreseeable future.

Drawing on some parallels with the other markets in the Asia Pacific region, there is a significant amount of grid congestion and grid challenges in terms of evacuation infrastructure, and we see similar challenges in India, as well. It was very important for us from a strategy perspective to look at asset classes that are already in an operational and interconnected status, rather than going in at a greenfield or a brownfield stage, which inherently has an associated risk profile that we don't feel is appropriate.

You've alluded to one already. What would you say are the key risks associated with Indian infrastructure energy?

In our business, energy yields directly affect revenues and IRRs. The key risks are around the operational excellence and optimization of the assets. Let's step back for a moment and look at it from a pure greenfield play. In that case, today the operational assets that would come about would be on the basis of auction tariffs, which are discovered in reverse-bidding auctions, which are conducted by the central government and some state governments. These tend to yield very low IRRs, as well as having an inherent deployment risk specifically related to land acquisition and permitting, which allows an amount of delay in the project. This translates to an uncontrolled risk or unmitigated risk in terms of liquidated damages to the off-taker, so it is one major part of the challenge in India. Coupled with that, of course, you have a tremendous amount of congestion, although the government has done a fantastic job of building out grid capacity. The demand is so high, however, that they are simply not able to catch up quickly, which also presents other types of challenges in terms of actually being able to generate revenue streams and cashflows once you are operational. Layering on top of that, there are other challenges in terms of the local communities that oftentimes are vocal in their objections. We have a lot of different steps we must go through in terms of environmental permits and local community permits. While very similar to other geographies, India is nuanced in that the local governments have a tremendous amount of power over the public and public sentiment.

How are you able to mitigate or rise above those risks?

Developers have been successful, and will continue to build out capacity. However, consider the auction rules — once you sign, the power-purchase agreement, or PPA, has 18 months to get to operational status. It is unrealistic in terms of the time allotted to the local governments to process the permits, the land parcels, the transfer of assets and commissioning of the project. Let's assume an asset is already beyond the COD and we are evacuating power — Greensphere has a tremendous amount of experience in operating the assets leveraging modern methods, IOT-enabled technology and optimization techniques. In terms of operational excellence, we look at things at a farm level — at a wind-park level, rather than at a turbine level. That allows us to look at things like wake optimization, technologies and approaches, where we are able to essentially raise the entire plant's energy yield rather than focusing on a single turbine, which allows us to lift the entire rate of return on that asset.

How does Greensphere go about optimizing that operational performance?

In our assessment, oftentimes these assets are not well maintained and operating performance suffers as a result. In the case of solar, there is a lot of dust and there are contaminants on the surface areas of those modules, resulting in lower yields. Solar arrays, inverters and cabling require regular maintenance. In addition, in a lot of these locations, there is quite a bit of plant overgrowth that tends to invade the space of the solar modules and cause damage. This kind of maintenance has to be done at the local level, and that is really where we have a tremendous amount of expertise. On the wind-park side, wake-field optimization is one approach, where we use internet-of-things-enabled technologies to do remote monitoring and management not just of the turbine, but also at the pooling substation. There are some additional measures we must take, in terms of studying the wind flows and studying the environment to better under-

stand, what is the real wind profile at that site? You have a lot of upstream or downstream wake effects that happen, especially when you have other operators in the area. These are some of the detailed things we look at very, very closely from an operational excellence perspective.

From an investor perspective, ESG is very important, and ESG is actually in your corporate name. How does your team approach ESG?

ESG is something that is very close to our core values in terms of who we are and how we operate. One of the things we have learned over the years is the community outreach that has to happen at the social level is critically important when you are setting up projects in a local environment, especially in more rural areas, where you have micro-economy opportunities. That is something we actively promote and invest in, beyond what we would normally be expected to do, and that outreach has helped us solidify our bonds and relationships at the local levels, which essentially allows us to have our boots on the ground, supplemented with local support. That alliance with the local public and communities is critical, especially when you have such valuable assets to secure that are so far away from headquarters.

Especially in rural areas in India, where there is not much electrical infrastructure other than where the wind or solar farms are, local villages don't even have power coming in on a regular basis, so we look to supply power to the local village as a means to ensure that we are supporting the local development and, thereby, also developing the local talent pool that is available to do the operations and maintenance in those areas.

In terms of our governance model, at the corporate level we are extremely aligned both in policy and compensation at the executive levels and into the rest of the firm. We do not accept anything that allows our fiduciary responsibility to be compromised to our investors.



CONTRIBUTOR

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Mel Badheka is a skilled senior executive, entrepreneur and dynamic leader. He brings over 25 years of deep knowledge and experience in the energy industry. Badheka has had senior leadership positions at Envision Energy and Halliburton Energy Services in renewables, hydrocarbons, software, and technology innovations across the globe.

This article presents the author's present opinion reflecting current market conditions, which are subject to change without notice. It has been prepared for informational and educational purposes only and should not be considered as investment advice or as a recommendation of any particular security, strategy or investment product.

CORPORATE OVERVIEW

Greensphere-ESG aggregates undervalued renewable energy assets in target markets. We focus on improving asset-level performance through best-in-class, ESG-principled operating capabilities, application of proper asset-management technologies and improved risk-adjusted financial performance.

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