

A new renewable energy distribution model for telecom towers located in off-grid rural areas is beginning to emerge as telecom companies make a shift from diesel-based backup systems. Under this model, micro renewable energy plants are set up by renewable energy service companies (rescos) with telecom companies as their anchor clients. While the model offers an assured source of income for the resco, it provides power access to rural communities.

Omnigrid Micropower Company [OMC] Private Limited has adopted this business model. It builds, owns and operates micro power plants using solar, wind and bioenergy sources to provide power to telecom towers and rural communities, which have poor grid connectivity. The company was founded in 2011 by telecom industry veterans Anil Raj, Rohit Chandra, Ganapathi Srinivasan and Pär Almqvist. It commenced commercial operations in 2012.

OMC has two power service portfolios – one for telecom towers (230 V grid equivalent) and the other for communities (packaged/portable and wired power). It also set up micro power stations at sites with four to five telecom towers in the vicinity. An OMC solar station can support three telecom towers and serve about 3,000 households. These stations also have a battery bank, diesel generators, a power management system and a remote access unit. For telecom customers, power is supplied through underground cables to the telecom base station at a mutually agreed price. These tariffs decrease as the site load increases, and as more customers avail of the services. Simultaneously, a part of the power generated is supplied to the community through bijli boxes, which are rented out through local entrepreneurs. Bijli boxes are custom-designed kits, available in various sizes/capacities, containing lanterns, power boxes and other power utility products.

The company installs a separate server for TV and internet services, which stores content and applications including educational and entertainment videos and news clippings. OMC also deploys Wi-Fi systems in the unlicensed ISM (industrial scientific and medical) bands, which can serve an area within 3-4 km of a site. Recently, it commenced operations of electric vehicles – scooters and bicycles – on a trial basis.

### Key insights

OMC's business model is slowly gaining traction with several new rescos looking to jointly serve telecom towers and rural communities. The following are the key insights from the company's operational experience:

Off-grid telecom towers consume more power: As village communities get access to power, their voice and data usage increases, thereby leading to higher network uptime. This implies higher power consumption at a particular tower site. The rise in power consumption levels is in addition to the higher energy demand resulting from infrastructure sharing in rural areas. With this, the telecom power demand in off-grid rural areas is expected to increase significantly.

While the energy bill of an operator may increase marginally, the resultant increase in ARPUs from the adjoining community is estimated to be 12-14 per cent.

As per OMC, a tower site will consume over 25 kWh of power as compared to the current consumption levels of 10-12 kWh. Therefore, the company has designed its modular solar plants with adequate scalability to accommodate the growing power needs of telecom sites as well as industrial and residential users.

Pyramid at the bottom of the pyramid: This comprises the rural poor with very low per capita income. Typically, a rural household spends Rs 180 per month on kerosene for lighting purposes. OMC's solutions cost Rs 100-Rs 120 per household for similar electricity needs. The company began offering simple mobile charging units to rural households in 2011. In 2012, it added lighting systems and fans to the package, followed by electric vehicles and TV sets in 2013. Going forward, it is planning to introduce DC water pumps. This strategy of expanding the power portfolio will lead to a reduction in the per unit cost of electricity for consumers.

Distribution is essential: The company delivers its products at the consumers' doorstep. It provides all electrical equipment on rent without any upfront costs. The capex is zero and there is an opex for various packages.

### Future plans

Currently, the company operates 10 microgrid systems of 24 kW each in Uttar Pradesh. It will roll out another 100 plants over the next two to three months. Its long-term plans involve rolling out 5,000 plants in four to five years. Moreover, OMC's plants will provide energy support for 4G roll-outs. With the establishment of 4G networks, the telecom sector is likely to witness an increased deployment of distributed servers and micro data centres co-located with each mobile tower. These remote data centres, which are required to process and store content, will add to

the power demand from such micro plants.

**Based on a presentation by Dinesh Gupta, General Manager, Operations, OMC at a conference on Energy Needs of the Telecom Sector**

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