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Changing Culture

Shift in balance of power as consumers become active participants

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The power industry has come a long way in leveraging technology for its business plans to transform the lives of people. Historically, the industry has focused on the supply side, that is, putting up infrastructure upstream to the consumer meter. However, with a recent drive towards smart metering, consumer reach is undergoing rapid transformation. From a power utility company's perspective, there was absolutely no interest in going beyond consumer meters due to the lack of a compelling economic incentive. This lack of interest in the industry can be seen in virtually all the illustrations of how the industry generally depicts its business, often stopping at the customer's meter. As long as customers pay for the readings on the meter, it was the end of the business transaction for power companies.

The conventional industry structures have led to two major outcomes:

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- First, all industry players, including stakeholders such as regulators and policymakers who were responsible for setting tariffs and giving the direction had confined their focus to the meter. Interestingly, innovators, service providers and investors also typically did not think beyond the meter.
- Second, the industry had forced consumers to remain passive. They remained disengaged from what was happening upside of the meter with limited options behind the meter (BTM).

However, with rapid changes in technology, the balance of power in the industry has shifted and the consumer has now become an active participant in the decision-making process. This phenomenon explains many of the challenges faced by the industry today as it suddenly confronts the reality of consumers becoming more engaged and more proactive – by becoming “prosumers” in large numbers in many parts of the world.

As the cost of storage continues to fall, some prosumers can go a step further and become “prosumers” (producing, consuming and managing their energy) by investing in storage. The implications associated with the rise of distributed energy resources (DERs) are thought-provoking for energy economists. With advancements in semiconductor and communication technologies, there is a high possibility of the emergence of new technologies and service options that are offered by intermediaries and aggregators that will enable consumers, prosumers and prosumers to engage in peer-to-peer trading. For example, when the sun is up during the day, one can charge the batteries of electric vehicles (EVs) from a neighbour across the road, or the localities across the city with intermediate trading. Currently, the entire sector is traversing through a paradigm shift with enhanced focus on decentralisation of power generation, e-mobility, emergence of home automation products and smart appliances. The possibilities of serving consumers through BTM solutions have increased exponentially in recent years. The integration of smart meters, smart appliances, energy generation, and storage with data analytics will change the way the sector has been operating so far.

Industry players may argue that trading between two consumers without the involvement of the distribution company is too futuristic. However, with the emergence of blockchain technology, which permits peer-to-peer transactions at speed, with ease, at high levels of security compared to industry standards, without the costs or involvement of an intermediary or a gatekeeper, would change the dynamics of peer-to-peer transactions in the near future. Further, advanced solutions in terms of technology, policy, etc. will act as enablers to enhance the speed of adoption of solar rooftops, e-vehicles, energy efficient products and smart appliances.

Against this background, we can conclude that the transition of electric power systems is not limited to a shift towards renewables and low-carbon fuels alone. It is a transition towards a more decentralised and flexible source of generation or digitalisation. It also includes a new focus towards BTM with active participation of consumers in the decision-making process.

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With this tectonic shift in the industry structure and the active participation of end consumers, the whole economics of the industry is rapidly undergoing a transformation. Traditionally, the industry's definition of its business domain typically stopped at customer meters. But there is a whole universe of possibilities on the other side of the meter, that is, BTM. While the industry focuses on return on investments in assets upstream of the meter, there is probably as much on the customer side of the meter as well.

In the Indian power sector, the Government of India has embraced a focused approach to reforming the distribution sector through the Restructured Accelerated Power Development and Reforms Programme (R-APDRP), Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), Ujwal Discom Assurance Yojana (UDAY), Deen Dayal Upadhyaya Gram Jyoti Yojana, Integrated Power Development Scheme (IPDS) and Saubhagya scheme. However, the results from this reform scheme are not encouraging as the levels of consumer satisfaction and commercial losses are far from acceptable. Over the last few decades, discoms have invested heavily in the sector with investments totalling more than Rs 1.5 trillion in improvement of their information and operational technology infrastructure, system strengthening, feeder segregation, improvement of last-mile connectivity, smart metering and capacity building of their staff.

The economic benefits of BTM are encouraging. As most of the state-owned discoms have not shown willingness to reform, energy sector players with investments



in the BTM segment can win over the target segment of consumers by offering lower rates than the discom tariffs. Further, the Government of India has planned additional investments of Rs 3 trillion under the Revamped Distribution Sector Scheme with a large part of it focusing on the conversion of conventional meters to smart prepaid meters.

The upcoming market coupling mechanism and electricity derivatives market will further strengthen this transition. As we have witnessed in the case of the open access mechanism, economic incentives (lower tariffs than discom tariffs) will generate consumer interest. In the future, BTM incentives will help in the transition of consumers from traditional discom businesses, whether or not supported by the Electricity Act amendment process.

It is time for utility power companies to realise and adapt to this change, which has been happening in most of the developed countries. Utilities need to

emerge as solutions providers beyond the meter in the coming years to be able to sustain and grow in the long run. The traditional ways of operations are fast becoming obsolete, and now is the time for everyone to understand the limitless possibilities of the BTM market and the transformations in consumer services that can take place on account of the same.



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