How dud Discoms can be energised

Making 'reliability index' mandatory will help Discoms become sustainable and financially viable

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Today, India has an installed generation capacity of 370 GW, which is almost double the peak demand requirement of the nation, and a well-integrated national grid with no major bottlenecks obstructing the free flow of power across the country.

However, despite this, 24x7 'power supply for all' is a distant dream. Consumers hardly get uninterrupted quality power despite paying for it.

The series of announcements made by the Ministry of Power in the last few months — like timely release of tariff, avoidance of build-up of regulatory assets, rights of consumers, and mandatory third-party energy audit by Discoms — aim to re-energise the ailing distribution sector, wherein even State Electricity Regulatory Commissions (SERCs), which are supposed to be the beacon of light, have become mere flickering lamps with ineffective monitoring mechanism.

The first National Electricity Policy 2005 states that for the protection of consumer interest "Reliability Index (RI) of supply of power should be indicated by distribution licences and a roadmap for declaration of RI for all cities and towns up to district headquarters as also for rural should be drawn by SERC. The data for RI should be compiled and published by CEA."

The Electricity Act 2003, considering distribution business as being monopolistic, empowered SERCs to set performance standards for Discoms to comply with. These standards comprise a parameter related to reliability of supply — for example, based on the type of outage, how much time a Discom should take to restore power; or if a new connection is applied for, then in how many the meter is installed.

To overcome policy paralysis and ensure the availability of correct RI data from state utilities, the Power Ministry developed a national portal. However, the Discoms, the pivot of the power distribution business, seem reluctant to support the initiative.

In such a dismal scenario, the enforcement of RI is the only way to energise the dud Discoms. RI is measured mainly in terms of the System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI). SAIDI defines the total average outage duration faced by a consumer in a particular time period while SAIFI indicates how many times a customer faces an outage in a year.

Discoms can improve reliability with better maintenance and advanced technologies

SAIDI for a distribution company in the developed world is in few minutes — for example, in a country like Singapore or Japan a customer faces an average outage duration of fewer than five minutes every year.

In India, Mumbai is amongst the best-served cities with a SAIDI of less than 20 minutes, Delhi's customers are also quite well placed and face at the most around 20 hours outage in a year. In comparison, most of the state Discoms are no more than a pale shadow of these cities. with SAIDI running into several days in a year.

A Discom can surely improve RI with better maintenance, advanced technologies, and building system redundancy for setting up a robust network. Mumbai, for example, has underground networks resulting in very few outages, and with automation and redundancy to restore any outage quickly has the best SAIDI in India.

It is said, what gets measured gets managed, or monitored. But ironically, no one seems to be adhering to this. In the absence of basic technologies like Supervisory Control and Data Acquisition System (SCADA), which is essential for RI determination, it is nearly impossible to capture the exact time of outage and restoration. While all private Discoms use SCADA for network data monitoring and control, not even a single state Discom uses SCADA effectively for managing its network.

GIS used globally

Currently, all utilities worldwide use GIS, which provides details of electrical assets and associated consumers data with geographical locations. GIS helps to map a particular outage with the exact numbers of affected customers. All utilities effectively use these two technologies to improve the reliability index and serve their customers in the best possible manner.

The Central Government, under the RAPDRP scheme, tried to introduce these technologies in urban areas. However, due to the lukewarm response of Discoms, these systems could not be optimally used and reliability indexes were never captured. It may be noted that two decades back, the US had a similar problem wherein the Federal Energy Regulatory Commission made it mandatory for all Discoms to use technology to calculate RI without any manual intervention. This transformed the power reliability scene in the country.

It's time all SERCs made it mandatory for Discoms to implement foundational technologies like SCADA, GIS in a time-bound manner. Firstly, the move will help in setting up RI benchmark amongst all Discoms. Further, it will result in the development of a competitive ecosystem by making it evident which all utilities are providing reliable supply. Many Discoms, it is believed, knowingly serve less energy to rural customers due to high loss levels associated with these areas and, thereby, lower their commercial losses.

Secondly, the RI will also give key insights on whether utilities are ensuring efficient utilisation of operating expense (opex) allowed by SERCs. With this mechanism in place, SERCs can also benchmark opex per unit of energy served for tariff determination.

Presently, different SERCs follow different rules for the determination of opex. Utilities can prioritise their maintenance practices based on SCADA data and, in fact, they can shift from preventive maintenance to reliability-centric maintenance to optimize opex.

Thirdly, improved reliability parameters under effective regulatory monitoring will lead to a spurt in the latent demand, which will not only relieve stressed generation assets but also help in developing a more dynamic energy market.

Finally, customers will also have the benefit of reduction in tariff as the increased consumption at much lower cost, additional energy input from renewables and lower opex per unit due to increased demand will result in reduction in per unit cost of supply.

It is time that all Discoms notify the RI based on the aforesaid technologies for ensuring 24x7 supply. The move will also contribute towards the government's efforts to reduce loss levels and make Discoms sustainable and financially viable.

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