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Smart grids are the next big thing for the Indian power sector

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All set to revolutionise the Indian power sector, smart grids present smart ways of addressing the country's power woes by bringing considerable efficiency in operations.Much more reliable than traditional grid systems, smart grid technologies are driven by automated and computerised applications which can detect faults and identify faulty equipment in no time. The present-day digitised smart grid applications based on information and communication technology can run on-the-go diagnostics and self-correcting mechanisms, thus considerably reducing outages and the time taken to rectify faults. Based on a two-way communication on power usage between suppliers and consumers, smart grid tools also cut down operation and maintenance costs and reduce power losses by negating the errors associated with manually-run traditional grid systems.

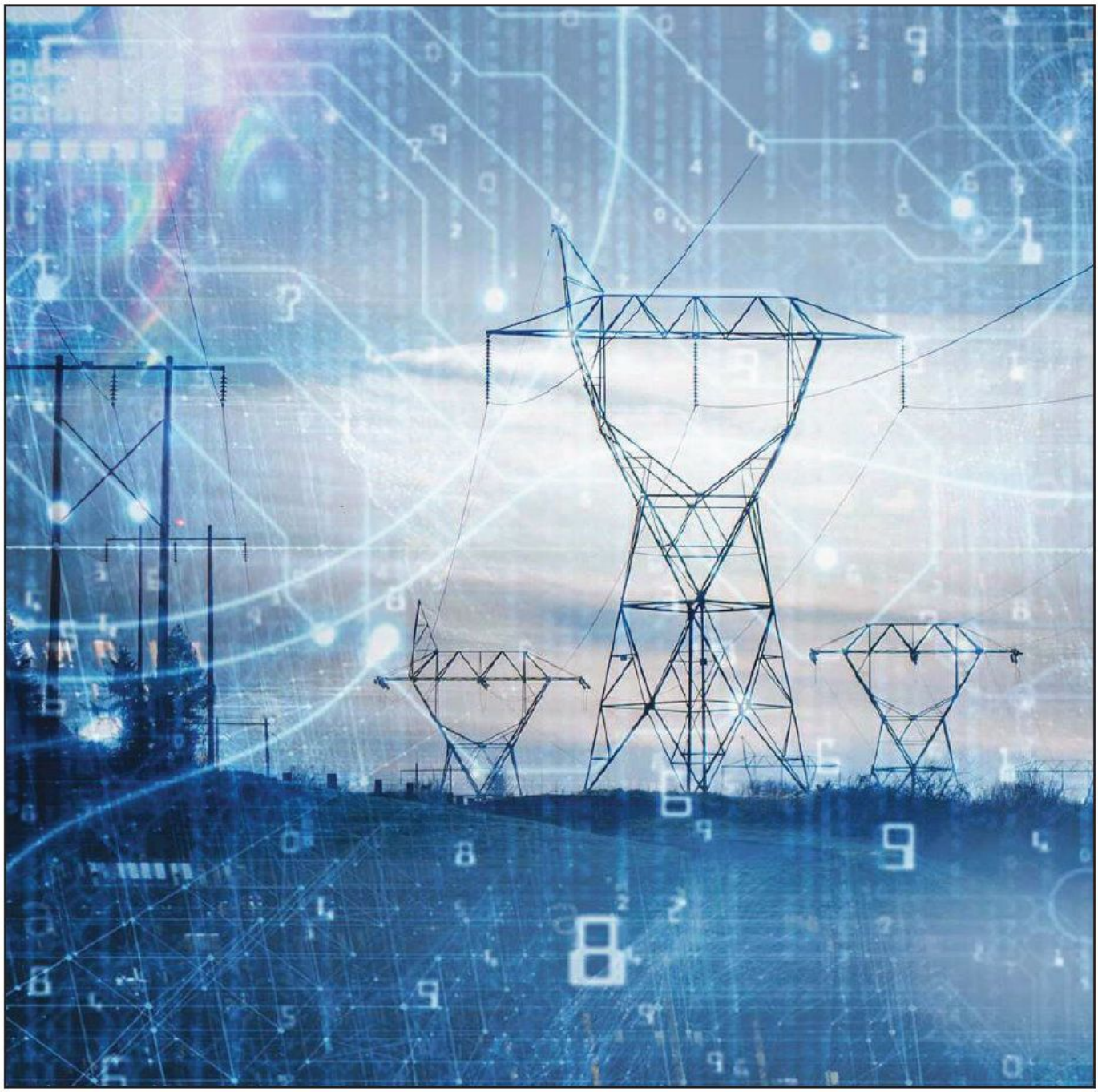
With sustainability, efficiency, reliability, and affordability at the heart of the smart grid operations, acquiring real-time data and controlling the signals at the same time is extremely crucial for any state discom to make the power systems more robust and responsive. Turning all the grids into smart grids is the way forward, but the cost can be a dissuading factor as the upgrade requires huge investments. Nonetheless, there is reason to be optimistic with the Central government taking decisive steps to come up with more comprehensive and scalable digital-age electricity grids.

The National Smart Grid Mission (NSGM) entails a total outlay ofRs9.8 billion, out of which 3.38 billion will be spent in the 12th Plan period. To begin with, 14 smart grid pilot projects have been launched under the NSGM under the supervision of the Power Grid Corporation of India and the Central Power Research Institute to develop advanced metering infrastructure and demand response. So, funds are not a big constraint. In fact, given the long-term advantages like curtailing of T&D losses by 10 percent, this investment is well worth it.

The setting up of the India Smart Grid Forum (ISGF), a public-private partnership initiative that aims to promote the adoption of smart grid technologies is another step in the right direction. It will bring together all key stakeholders to enable the deployment of smart grid technologies in a cost-effective, innovative and scalable fashion. These efforts should be backed by concrete policies and regulations with regard to safety guidelines and standards. Policymakers and regulators should work out business models relevant to the Indian context that remove the scope for any glitches during deployment.

Smart grid technologies are the future of the Indian power sector and the answer to the many problems plaguing it. With the advent of the Smart City concept, awareness about smart grid systems among consumers are steadily increasing, but a lot more needs to be done to educate them about the benefits of smart grids, like billing accuracy and check on power thefts, and their role in energy conservation and reducing carbon emissions.

Consumers should be made to realize that the information and communica-



tion technology in smart grids will help them improve their analysis in areas such as customer load patterns and tariffs, which will further result in better services. In the aftermath of the 2012 blackout caused by grid breakdowns, which plunged more than 800 million people in northern and eastern India into darkness for two days, the focus has now shifted to extra-high-voltage transmission lines capable of withstanding peak loads, as well as smart grids and decentralized electricity which can cater to the needs of local communities.

It should be impressed upon consumers that smart grid technology is a necessary condition for making the T&D infrastructure capable of handling large amounts of electricity being injected into the grid. They should be made aware that the efficient flow of electricity depends on a robust and efficient transmission network, to which smart grid applications hold the key. So, an integrated grid with an IT backbone is a must. Since many consumers have already come to realise that smart grids reduce energy consumption and make the electricity supply more efficient, the mass adoption of these technologies in the foreseeable future is a foregone conclusion.