# Power Reliability with GIS

BSES Yamuna Power Ltd. (BYPL) covers several areas of East and Central Delhi with its power distribution system. The organisation has over 14 lakh customers and 14 division offices. In an effort to improve its services, BYPL upgraded and augmented its infrastructure, investing over INR 6,600 crore in this exercise. Despite this success, BYPL was plagued by the problem of outages. It needed to efficiently identify and resolve them.



*Anish Kalucha, CIO, BYPL*

The company thereby, developed an Intelligent Outage Management System (i-OMS) that used the power of ArcGIS to improve the quality and reliability of the power it was supplying to consumers and make significant savings.

To know more about i-OMS, we engaged into a conversation with Anish Kalucha, CIO, BYPL .

### What were the key challenges with the existing system?

The company's traditional Outage Management System (OMS) had certain disadvantages such as the fact that it was built on an old platform, had slow server response as a heavy application, was non-predictive in nature, non user-friendly, and non-compatible with smart apps. The OMS had to be downloaded frequently and offered limited reports.

The older version of OMS was relying on inputs from SCADA/DMS/EMS or IVR systems to estimate the location of the faults causing the outages, generate switch orders and manage work crews. This approach was reactive, since the analysis and the location of the faults was occurring well after the outage had taken place. The precedents that were critical to the analysis of potential and future outages or their likely impact were not being recorded or were lost. One of the major problems was getting data and the quality of data. The users were pulling data from the highly scattered databases. Many users had created their own databases and they were also not synced.

A GIS-based outage management system was the solution to our problems. Not only, it could help us manage outages better, but also have a single repository of all data.

### How is the system helping in managing power outages?

The i-OMS is connected to other enterprise systems like SCADA, SAP and ERP systems. Since it's based on GIS, whenever there is an outage in field; that outage first goes to SCADA and since i-OMS is integrated with SCADA, the outage automatically gets updated in i-OMS. Whenever there is an outage, an SMS is automatically sent to all our consumers, so that they get first hand information about the outage in their area. They also get to know in how much time it will be resorted and the electricity will be back. While, consumers are getting the information, our field staff is also getting alerts on a real time basis. We have given them Android-based mobile application so that they can respond to outage at real time and close the information on field itself.

The same i-OMS is working at our call centers as well and when consumers call, our centers share with them the real time information about any planned/emergency outage or breakdown and even inform them about the time when that will be restored. The system has significantly reduced the cost of a breakage/shutdown for the utility and its rate payers. We are now being able to provide quality power 24x7. Overall productivity of network engineers has also increased by almost 20 percent!

### What role has Esri India played in the scenario?

i-OMS has been effectively implemented by Esri India. Various technologies were used for the development of a GIS-based scheme creation module including the ArcGIS Server and ArcGIS API for JavaScript. As the application used the ArcGIS architecture, the accuracy of its corporate data assets was enhanced in an exponential manner.

### How do you plan to make the system more effective using latest technologies like IoT and AI?

We are working on IoT, wherein we have installed sensors at all our transformers to continuously monitor their performance, like the oil level, oil and pump temperature, and gap which is available in RMUs. Whenever, there is low oil or high temperature, the sensors generate an alert to the maintenance staff stationed on the field and they can take corrective action immediately.