

Power IT

Promoting efficiency and improving revenues

A high level of automation and the use of IT in the power sector is no longer just a thing, it has become a necessity. While policy-makers and those at the helm of affairs are obsessed with adding more and more generation capacity, hardly any effort is being made towards optimal use of existing power stations and transmission and distribution systems. However, with power availability consistently lagging behind demand, it has become crucial to make the best possible use of the existing infrastructure.

At the plant level, automatic generation and microprocessor-controlled distributed control systems can lift the availability levels of the power station. These systems reduce the chances of tripping and breakdowns since human intervention is minimal. Even the down time of equipment can be greatly reduced using such systems by resorting to preventive maintenance rather than shutting down the plant, which results in loss of power generated.

Good IT systems are extremely critical in the area of transmission and distribution. These are even more relevant for India where losses are high and, more often than not, the leakage points are not identifiable. Systems such as SCADA can be extensively used for compilation of extensive data and management of the distribution systems using these. The pilferage points too can be zeroed in on using such systems, as the flow of power can be closely scrutinised. Here again, trippings due to human errors can be avoided. Use of such systems will become even more critical as the transmission sector moves from being a fragmented stand-alone system to becoming a national grid.

Modern metering systems using electronic meters, AMRs, remote metering and spot billing can also go a long way in improving the bottomline of the cashstrapped electricity boards. On the one hand, these systems can bring in additional revenues and on the other, they can reduce the time lag between billing and collection.

While modern control and instrumentation systems are being extensively used in new power plants and older plants are moving from solid state systems to microprocessor-based systems, on the distribution side there is still not much progress. Only a handful of states such as Rajasthan, Tamil Nadu and Andhra Pradesh have gone in for a limited version of SCADA systems, that too for very small areas.

Even though most of the equipment and systems are locally available, they are very expensive. Companies such as ABB, BHEL, Siemens, Alstom, Tata Honeywall and Yokogawa Bluestar offer control and instrumentation products, but their prices are relatively high, primarily due to the low level of indigenisation.

Financing is another impediment in the widespread use of these systems. Even though these systems have low payback periods and the loans can be recouped much faster, financial institutions and banks are not very willing to lend. This is primarily due to the fact that most of the distribution networks are governed by the SEBs and their debt servicing capabilities are highly questionable. Multilateral funding agencies have done their bit in funding SCADA systems at an experimental level, but for commercial scale installations, banks and financial institutions will have to pitch in. The ministry has also made concessional loans and grants available through the power Finance Corporation, but clearly these are not enough.

The use of IT is likely to become even more critical in India in the coming years. With transmission losses estimated to be over 40 per cent, we cannot complain about not having enough generation capacity. The capacity is there but sadly enough, it is not being utilised optimally. And this is where IT, instrumentation and control systems can step in and make a big difference.

Reference book:

Power Line Volume 5 No. 11

August 2001