Switch on or switch off?

The prime minister told chief ministers recently that the power crisis is in fact a prime political crisis. Some numbers make this evident: India's installed capacity is 132,000 MW (March 2007). Based on a GDP growth rate of 8-10 per cent, power demand is forecast to be over 210,000 MW in five years. In other words, the XI Five Year Plan, 2007-2012, must produce almost 78,000 MW extra. How did we reach this crisis and what are the short term solutions? **S.V. Divvaakar** *explains*

■ What is the energy shortage in India, and why?

Energy shortages have averaged at 9.6 per cent deficit in 2006-07, with a peaking shortage (that is, shortage in peak demand hours) touching 13.8 per cent. The deficits have been highest in north and west India, with local shortages as high as 25 per cent in some circles. These are the cumulative result of several factors:

- Sheer inadequacy in generation capacity build up — only 75 per cent of X Plan targets were met, resulting in a large backlog
- Inefficient management of transmission and distribution resulting in power theft/losses
- Cross-subsidisation across various end use categories
- Implementation bottlenecks in mega projects
- Financial closure of projects, especially the inking of power purchase agreements with state electricity boards
- Inadequate private sector involvement

■ What are the hurdles to implementation and progress in this sector?

Bearing past performance in mind — only 31000 MW capacity was added during the X Plan, the target of 78000 MW additional capacity by 2012, with an estimated investment of Rs 350,000 crore in generation, and another Rs 350,000 crore in transmission/distribution, sounds ambitious. This is because the government's expectations are that a large part of the investments would be made by the private sector. However, the quality of the business environment is still not attractive enough for large scale private investments to flow into the sector, because:

- The weak health of state electricity boards has created uncertainties over securitisation of revenues for private power producers. The government has taken steps to reform the state utilities, including the Accelerated Power Development Programme to enable a viable business environment suitably attractive for private players
- At the ground level, experiences have been harrowing for entrants. Central to the problem has been the issue of appropriate pricing (and revision mechanism) of power. Power tariffs are politically very sensitive, and subsidies declared for some categories are actually not replenished to the state utilities, which exacerbates the revenue deficits

explained

- Provisions for sale of power to third parties, including sales outside the state grid, can become feasible safety net mechanisms for generation companies; however, inter state transmission remains outside the purview of the private sector. As a result, power generation companies have no alternative than to deal with state transmission companies
- Transmission and distribution losses — currently ranging between 30-40 per cent — increasingly seen as euphemisms for power theft, and occur across all user categories. Even though the Electricity Act 2003 makes power theft a culpable offence, political will to deal with it seems lacking, considering that often, the poorer sections of society are the main offenders
- Large mega projects require a spate of environmental clearances and fuel linkages, as well as long drawn processes for land acquisition. Social opposition has delayed the implementation of several fast-track projects.

As of now, the government estimates that by 2012, there will be a marginal surplus in power generation, and is monitoring the progress on a weekly basis. However, the fundamental change needed is at the local/state level. There is not much evidence of this, even in the more reform-oriented states.

■ What are the various modes of power generation?

Thermal power, accounting for more than 77 per cent of capacity, is likely to remain the mainstream mode of generation. However, thermal projects involve long gestations, and are highly capital intensive, and so delays in implementation are likely to have a major impact on the economic growth projections.

Liquid fuel generation systems are prone to high fluctuations and basing capacity increases on liquid fuels in an uncertain international supply situation is considered risky. As a result, the idle capacity in liquid fuel generation are likely to remain as such.

India has considerable potential in hydel power generation. However, the resource is highly concentrated, with more than 55 per cent of the harnessable potential in one state, Arunachal Pradesh. However, harnessing this capacity would entail significant infrastructure for transmission and distribution to consuming locations.

Nuclear power, accounting for 6 per cent of capacity, can be further increased. However, this is unlikely to be under the purview of the private sector, and therefore unlikely to see substantial additions.

■ Are there any out of the box solutions, if projected capacities do not materialise for any reasons?

Given the intricacies of the domestic energy balance, the only other serious alternative is an energy trading framework in the South Asia free trade area, which has some energy surplus — electricity and natural gas — in Bangladesh, Bhutan, and Nepal. Similarly, Iran, Turkmenistan, Tajikistan, and Kyrgyz Republic have energy resources far in excess of their medium term demand, which can be traded with India and Pakistan, the two net importers in South Asia. Some political and diplomatic initiatives have begun in this direction, but there are several uncertainties to be resolved before a regional energy ring can be put in place.

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