

However, thermal power is not without its problems. Unlike hydro — which involves no transportation of the basic resource — coal may have to be moved considerable distances, thus adding to costs (when not burned at mine mouth plants). Further the heat value of the generally low quality coal in India is largely below the standards for internationally traded steaming coal. Other problems and challenges include environmental issues such as ash disposal, liquid waste treatment etc.

Another technical shortcoming for the sector has been the switch to larger boiler units (from 110 MW to 200-210MW) which have taken longer than expected to operate at full capacity because of the desire to commission units before initial testing has been completed. Dealing with the pressure of energy shortages also explains why boiler overhaul and other maintenance has been performed increasingly less often. This, in turn, has given rise to an above-average incidence of plant malfunctioning. This cannot go on forever, however, and one can easily envisage a significant allocation for plant overhaul.

Other problems faced in the thermal sector include shortages of explosives at mines and overall delays in completing coal mines.

The combined impact of these various factors has been the relatively low capacity utilization at thermal generating stations — currently estimated at 56 percent. Indeed were it not for the inclusion in the data of the relatively high utilization rates recorded at thermal stations operated by the Central Government National Thermal Power Corporation, the level of capacity use would be significantly lower. Correcting this situation has become a central task in the thermal field. Canadian firms with capability relevant to this area should consult with the Canadian High Commission regarding specific opportunities. While funding is a major constraint for all activity in the sector, the GOI and SEB's recognize the significant returns through incremental investments in existing facilities to increase plant utilization. Opportunities for Canadian firms to provide services and equipment to thermal plants to increase productivity are considerable.

f) Gas-based Power

Natural gas as a source for generating electrical power is becoming an increasingly accepted alternative use of gas within the Indian policy making framework. The direct economic and opportunity costs to the Indian economy of India's increasing power gap combined with the short gestation periods for gas based projects are the reasons for the usage of gas as both a peak hour fuel and baseload fuel. The World Bank and India's Planning Commission to a large extent agree that power generation should be a large scale user of incremental natural gas supplies. The magnitude of investment required to convert new natural gas resources to electrical power is enormous. For example, estimates have been made that the cost of bringing 50 percent of the additional gas resources available to the turn of the century into the power generation sector would be in excess of \$ 15 billion.

g) Captive Power Plants

Though most power in India is generated by specialized government-owned utilities, there is also some production of electric power by industry itself. However, at the present time, the installed capacity of captive power plants in the country is only about 5,000 MW with generation being only about 2,000 MW.

Large industrial companies such as TATA have led the way in the development of captive power projects to ensure supply for heavy industries such as steel operations.

Given the shortages and unreliability in supply, the Federation of Indian Chambers of Commerce and Industry (FICCI) has suggested to the GOI that private sector industry should be liberally encouraged.