

Power System in Jharkhand

A report was submitted on 27th May, 2003 after study of power scenario in Jharkhand. The study involves review of the present power supply position to identify areas requiring special attention in future power development program to ensure optimal and comprehensive economic development of the state.

Objectives of Study

The main objective of the study covers the following tasks

- Collection of the various data of the existing system and analysis of the same.
- Simulation of the existing system at 33kv and above voltage under JSEB area of supply.
- Preparation of a power map of the state showing the 33KV and the above voltage network owned and operated by JSEB
- Carrying out Load Flow Studies for identifying the adequacy of the above-mentioned existing network under peak/off peak load conditions.
- Estimate the energy and peak demand for the areas of the State under JSEB network corresponding to 2006-07 and 2011-2012. This demand Forecast was done to carry out load flow studies to judge the adequacy of the under construction and already sanctioned network. Carrying out Load Flow Studies based on project load conditions to identify the required up-gradation in the network by 2011-12.

Energy and demand forecast

The resource rich state of Jharkhand has immense potential for industrialization with its large deposits of minerals, which could provide a firm launching pad for various industries. New industrial policy, new projects would in turn affect the demand for electricity and hence the network planning. In view of this, careful assessment of future load in the state is of importance.

To forecast load an approach has been adopted which combines statistical and regression techniques with economic judgement to produce long-term forecasts of electricity demand to be met by JSEB. In the analysis, Jharkhand has been compared with states of similar characteristics like Orissa, Madhya Pradesh and Uttar Pradesh. Each of these states have experienced different growth on the basis of which scenarios were developed under the assumption that Jharkhand would experience growth similar to these states under different scenarios. The results under various scenarios developed in accordance with envisaged growth in Real NDPfc of Jharkhand show that energy requirement would range between 5577 to 6480 million units by 2006/07 and between 6607 to 8864 million units by 2011/12. The peak load is estimated to be between 1157 and 1345 MW by 2006/07 and 1509 and 1978 MW by 2011/12.

Existing power supply and position

Presently the load demand of Jharkhand is met by six utilities namely JSEB, TVNL, NTPC, DVC, NHPC and Tata Power. JSEB meets the requirement by generating from its power plant and bulk purchase of power from DVC, NTPC, TVNL and NHPC. In DVC licensed area JSEB has its own Distribution System. The state has also been allocated share of about 134 MW in Central Sector Power Stations. The total installed capacity of the state is 1390 MW. The maximum peak load and minimum load under JSEB command are 507 MW and 258 MW respectively.

Power supply scenario by end of March 2007

By the end of year 2006-07, the installed capacity of JSEB would be 1720 MW. Total availability of generation both from its own sources and its central sector share works out to 1262(1024+238)MW. The study shows that load generation requirement for the year 2006-07 corresponding to a typical Peak Load day is 1534 MW. It has also been analyzed that present network is not adequate to meet the anticipated load demand by 2006-07. After construction of grid stations and demand transmission lines, network will be capable of meeting the increased load

both under normal and outage condition.

Power supply scenario by end of March 2012

Extension of Tenughat unit and share of power in NTPC will increase the total installed capacity to 2260 MW. JSEB peak occurs during the months of May-June when water availability at Sikidiri is minimum and Hydro generation contribution from this is assumed to be nil. Total availability of generation both from its own sources and its central sector works out to 1792(1254 + 538)MW.

At this time, the load demand has been anticipated at a growth rate 3.5% i.e. considering slightly higher level of growth than previous five year plan. By this time, government's industrial policies and rural electrification is expected to lead to higher growth in electricity demand as per scenario 2. The load generation balance for the year 2011-12 is estimated to 1984 MW. The proposed network system corresponding to 2006-07 needed strengthening to evacuate power from the anticipated new generating stations as well as to meet the increased load demand by 2011-12.