FUNCTIONAL PLAN

POWER DEVELOPMENT IN NCR

NATIONAL CAPITAL REGION PLANNING BOARD
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FUNCTIONAL PLAN FOR POWER DEVELOPMENT IN NATIONAL CAPITAL REGION

1.0 PREAMBLE :

The section 16 of the National Capital Region Planning Board Act 1985 provides for preparation of Functional Plans by the Board, with the assistance of the planning committee, for proper guidance of the participating states and the National Capital Territory after the Regional Plan has come into operation. Section 2(d) of the NCRPB Act defines Functional Plan as a plan prepared to elaborate one or more elements of the Regional Plan. Functional Plan for the Power development is one such plan. As in the case of Regional Plan which is a statutory document, the functional plan for the power development is also statutory and therefore, the policies and programmes contained in the document, after due process of approval by National Capital Region Planning board and notification thereafter, would be binding on all concerned.

Accordingly, the Board has drawn up a Functional Plan for power development with the help of a Study Group on Power development, which has been constituted specifically to prepare this plan.

2.0 Introduction :

The National Capital Region (NCR) extends over an area of 30,242 sq.km., comprising Delhi and parts of the three adjoining States namely, Haryana, Rajasthan and Uttar Pradesh. The main objective of the Regional

Plan-2001 is to evolve harmonised policies for control of land use and development of infrastructure in the region so as to avoid any haphazard development of the region and contain the growth of Delhi by deflecting 2 million population to the region. Three distinct zones have been identified namely Delhi, Delhi Metropolitan Area (DMA) and rest of the region stipulating a restricted growth of Delhi, moderate growth of DMA towns and induced growth of the priority towns and complexes in the rest of the region.

Power is indispensable for any development and for improving the living and working standards of the people. Inadequate availability of power both qualitatively and quantitatively is one of the main constraints in the desired rate of growth of economic activities in National Capital Region. Developed industrial areas are available in all the priority towns identified for induced growth in the NCR Plan but the entrpreneurs feel shy in shifting there due to the lack of power. On the other hand, the position of availability of power in Delhi is far better. The deficit in Delhi would be 787 MW against the deficits of 1528 MW, 1909 MW and 3113 MW in the states of Haryana, Rajasthan and Uttar Pradesh. This is acting as a deterrant for the shifting of industries from Delhi to NCR towns. To remove these imbalances, the plan suggests the ensuing strategies.

3.0 Objectives:

To provide a power supply system in the priority towns which ensures availablity of adequate and reliable power for the industry, economic and business activity at least at par if not better than Delhi Metropolis.

4.0 Power Supply in NCR

At present the power supply to various states/regions is regulated through the Regional Grid system. The power supply system of the NCR states viz. Haryana, Uttar Pradesh, Rajasthan and Delhi forms part of the northern grid. The northern grid which is overseen by the Northern Regional Electricity Board (NREB) get power through various central and states generating stations and in turn supply power to the constituent states. The priority and Delhi Metropolitan Area (DMA) Towns get power supply from the Northern Regional Grid. Although the overall control and monitoring of the northern regional grid operation is by the NREB, the basic management and control of the power supply system in the states is by state governments through their respective Electricity Boards. The electricity boards of NCR states are not giving any special priority to the DMA/Priority towns in the matter of supply of electricity.

4.1 Power Supply Position :

Based on likely VIII plan capacity addition of 20729.7 MW in the country and demands as per the 14th EPS report, the anticipated power supply position in the NCR states at the end of 8th plan (1996-97) is as follows :

Power Supply Position	Northern Region	NCR States			
		Delhi	Haryana	Rajasthan	U.P
Peak Demand (MW)	24234	2532	3058	3851	8263
Peak Availability (MW)	14896	1745	1530	1942	5150
Surplus /Defecit	-9388	-787	-1528	-1909	-3113
%	-38.5%	-31.1	-50.0	-49.6	-37.7
Energy Requirement (MU)	129587	14416	15183	22232	43957
Energy Availability (MU)	105401	13153	10148	12572	37852
Surplus/Defecit	-24186	-1263	-5035	-9660	-6105
%	-18.7	- 8.8	-33.2	-43.5	-13.9

5.0 Power Requirements of NCR :

The power requirements of important nodal growth centres (Priority/DMA towns) at the end of 8th plan have been assessed by CEA as follows :

Power requirements in nodal centres (in MW)

	1996-97	2001-02
Uttar Pradesh		
Meerut	160	230
Hapur	50	75
Bulandshahr-Khurja	140	220
Noida	150	240
Ghaziabad	300	430
Haryana		
Panipat	193	306
Rohtak	148	243
Rewari	78	124
Gurgaon	122	219
Faridabad	315	483
Rajasthan		
Alwar	165	281
Bhiwadi	130	266
	1951	3417

6.0 Strategies :

In order to achieve the basic objectives of having both qualitative and quantitative power supply in the priority towns of NCR at par with Delhi, the following strategies are being suggested :

6.1 The priority towns should have their own power generating stations specifically for the areas which are earmarked for shifting the industry etc. from Delhi to these towns. These generating stations should be separate from existing stations which may be there in some of these towns. The existing generation stations will continue to feed power into the main grid. The proposed generating stations can also feed into the main grid and the power supply for these areas can be fed through grid stations specifically earmarked for

these area. Thus normally the power generated at the proposed power generating stations will be fed into the grid and the demand of these areas will be met by the power from the grid. This will ensure the reliability and all other advantages of being part of the grid. At the same time the grid stations meant for these areas should have islanding system by which, in the event of major grid failure the proposed generating stations can be islanded and are firstly safe of cascade tripping and secondly will immediately start supplying power to the areas uninteruptedly. The nodal centres should be free from load shedding.

The proposed generating stations should have the capacity of atleast 50 to 60% of the power demand for these areas.

Power generation requirements in nodal centres (in MW)

	Generation Capacity
Uttar Pradesh	
Meerut	80
Hapur	30
Bulandshahr-Khurja	70
Noida	75
Ghaziabad	150
Haryana	
Panipat	100
Rohtak	75
Rewari	30
Gurgaon	50
Faridabad	150
Rajasthan	
Alwar	75
Bhiwadi	60
	945 MW

The generating stations should be gas based and should be equipped to use alternative fuel like naptha/diesel in the event of shortage/non availability of gas. The allocation of gas for these should also be given high priority. The availability of gas is believed to be increased in the northern region with the coming of gas pipe line from Iran. For gas based stations, we can plan for bigger stations and start with units of small capacities of 30 to 40 MW which are indigenously available and do not require very long gestation period for being put up. Therefore, while these stations can be planned for an ultimate capacity, the individual units can be put up as and when demand rises.

6.2 Distribution System :

Though there is an existing T&D system in these nodal centres but to have a reliable power supply, these areas should be provided with modern transmission and distribution system. The sub transmission and distribution lines should be laid underground and sub-stations should be in-doors with equipment having proper protective devices. This will ensure the system free from disturbances due to weather, tempering, vendalism etc.. They should be designed to have adequate spare capacity in sub transmission and distribution lines and the transformer capacity to provide for inter transfer of power in the event of local breakdown in the system.

6.3 Automatic Operation of the Distribution System :

In order to have reliability of power supply for consumer, it is proposed that they should be provided with Supervisory Control and Data Acquisition System (SCADA) with complete automation of the operation of the power supply system. This will facilitate immediate transfer of power from one place to another in the event of breakdown or any disturbance in the system.

7.0 Investments

The total investments worked out for above system is to the tune of Rs.3600 Crore at present price (1995-86) level (Rs. 3 Cr. for power generation per MW and 0.6 Cr. for Transmission & Distribution lines per MW). The investment is spread over a period of 10 years. Keeping five percent increase per annum in the cost, the total investment worked out by 2005-06 is of the order of Rs.5400 Crore. (However, this does not include gas line infrastructure costs.)

8.0 Financing Strategies

It is proposed to keep the investments for generation of power (Rs. 3000 Cr.) under private sector. The investments under transmission & distribution works (Rs. 600 Cr.) are proposed to be under state sector with an outlay of Rs.300 Crore in the IX plan and Rs. 300 Crore in the X Plan respectively spread in the state plans of Haryana, Rajasthan and Uttar Pradesh. The private sector can make Power Purchase agreements with respective State Govt.