

## CHAPTER 11

# ENERGY

1. Energy is the prime mover of development. It is one of the vital need of daily life of every citizen. Globally, the per capita consumption of energy is used as a barometer to measure the level of economic development. The per capita consumption of electricity in Delhi is around 1,000 kwh, which is almost three times the national average. All the rural and urban villages in Delhi are electrified. According to the 1991 census, about 80% of the households in Delhi had electricity connections and the remaining 20% were in JJ clusters, unauthorised colonies and rural areas.
2. In February 1997, the Delhi Vidyut Board (DVB) replaced the Delhi Electric Supply Undertaking (DESU) which was an MCD undertaking.

### INVESTMENT IN THE ENERGY SECTOR

3. Given the importance of energy in development, the energy sector has been accorded high priority in Delhi's five-year and annual plans. The share of energy in total plan expenditure since 1980 the Sixth Five-Year Plan is given below:

Statement 11.1

### OUTLAY & EXPENDITURE UNDER ENERGY SECTOR

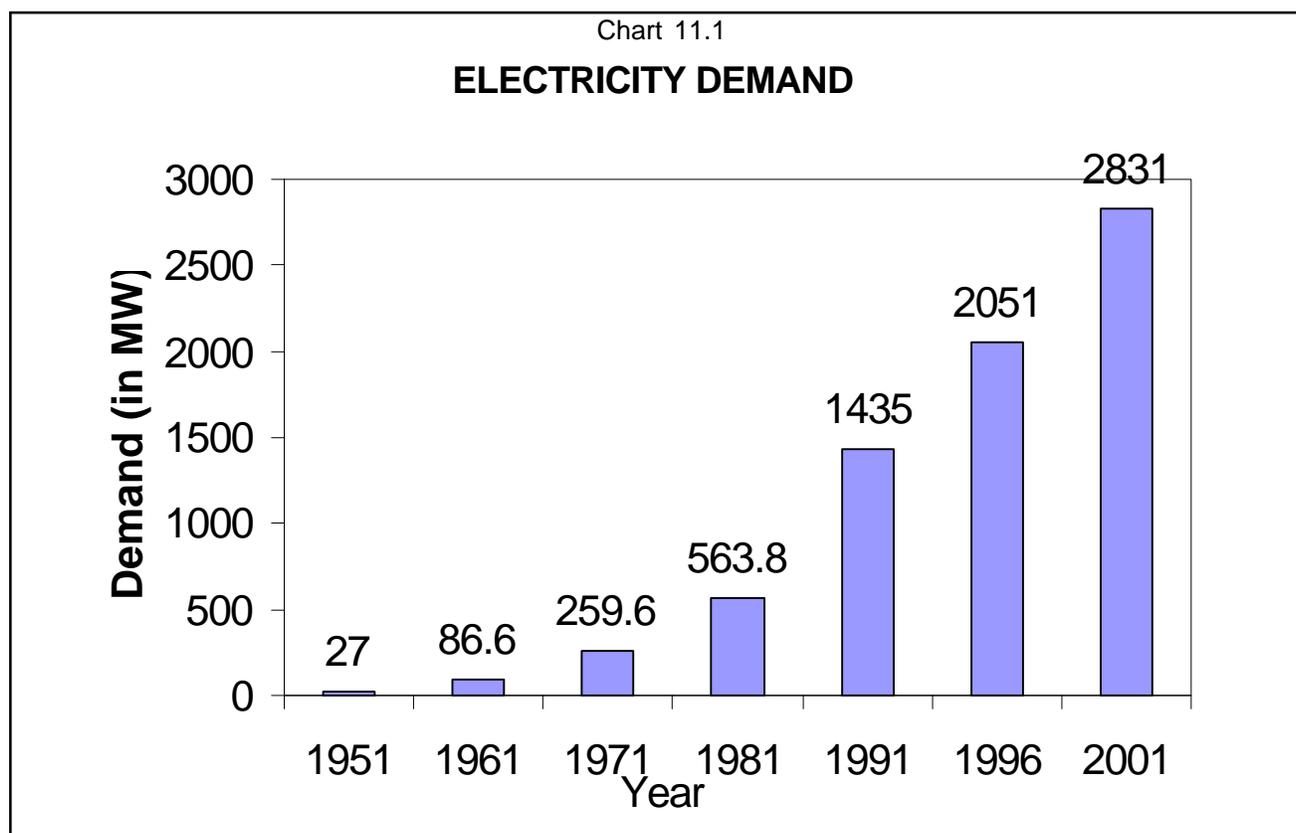
(Rupees crore)

Five-Year Plan	Period	Total Plan Expenditure	Expenditure on Energy Sector	% of Total Plan Expenditure
Sixth	1980-85	1,042.07	169.80	16.29
Seventh	1985-90	2,631.47	838.86	31.88
Eighth	1990-95	6,208.32	1,555.92	25.06
Ninth	1997-2002	15,541.28 (outlay)	3046.55 (outlay)	19.60
Annual Plan	1997-98	1,978.31	304.72	15.40
Annual Plan	1998-99	2054.56	444.15	21.10
Annual Plan	1999-2000	2302.43	485.73	19.96
Annual Plan	2000-01	3129.11	849.30	27.14

4. An outlay of Rs. 1492.97 crore (35.55% of total outlay) has been allocated for the energy sector during 2001-2002 which includes Rs.887 crore for Power Sector Reforms.

### ENERGY DEMAND

5. Delhi's energy requirement is growing at about 7-8 % per annum. From a peak demand of only 27 MW in 1951, Delhi's power demand crossed 2831 MW on 13th July, 2001 and is expected to touch 3250 MW during the year 2002 -03. Against the peak demand of 2831 MW during 2001, the total availability was 405 MW from DVB's own generation projects, 632 MW from BTPS and the balance was drawn from the Northern Region Grid.

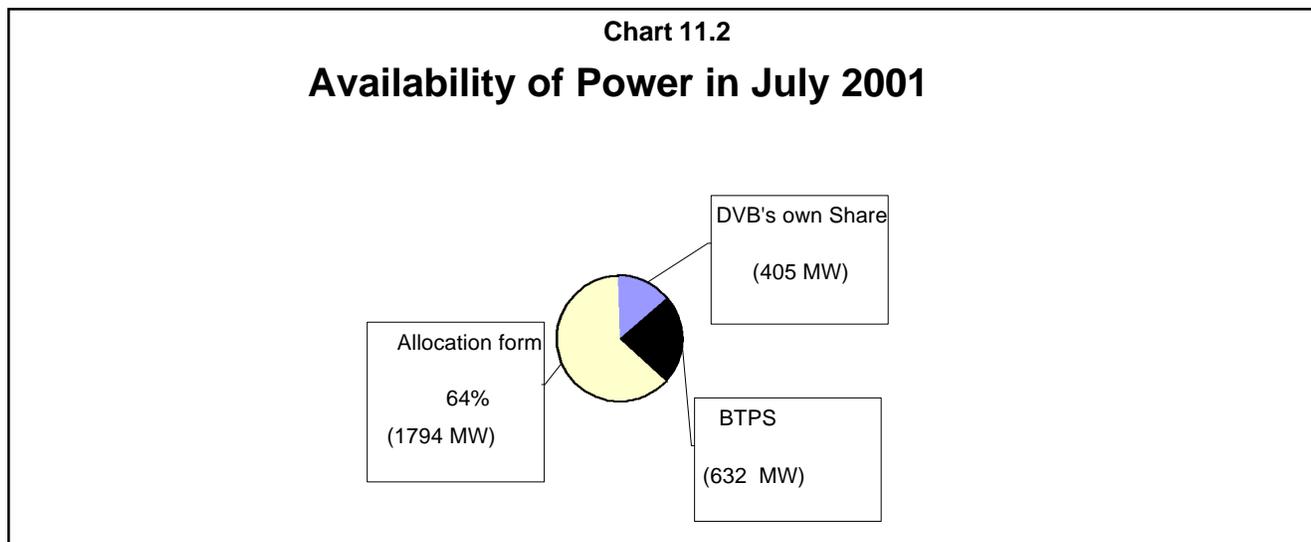


Source : DVB

### POWER GENERATION

6. While demand has been growing rapidly, capacity addition has remained relatively stagnant. The net cost of generating power from DVB's own plants is high due to low capacity utilisation and high fuel consumption by the plants. DVB's own generation installed capacity is 664 MW but availability is only around 400 MW. More than 80% of Delhi's power needs are met by

purchases from NTPC and other sources (Table 11.1). The first Gas Turbine Unit of 104MW capacity of Pragati Power Project (PPP) has started functioning from 20.2.2002. The project would commence running to its full capacity of 330 MW by the end of November, 2002.



Source : DVB

#### PLANT LOAD FACTOR

7. DVB's plant load factor for the last Five years is indicated below:

#### Statement 11.2

#### PLANT LOAD FACTOR

Year	1997-98	1998-99	1999-2000	2000-01	2001-02 (RE)
Overall PLF	41.76	35.12	44.53	49.27	46.56
I.P. Station	46.79	30.72	38.97	39.89	41.51
R.P.H.	45.35	52.18	79.44	66.85	64.27
Gas Turbine	43.18	42.30	42.18	59.63	55.18
W.H.R.U.	16.21	6.25	10.28	26.73	20.15

Source: DVB

## TRANSMISSION AND DISTRIBUTION (T&D) SYSTEM

8. The present overall transformation capacity and line length are inadequate for the peak load of 2831 MW. System augmentation is a major priority at present. The targets and achievements in the 9th Plan are indicated below :

### Statement 11.3

#### 9TH PLAN TARGETS FOR TRANSMISSION AND DISTRIBUTION SYSTEM

SN	Item	9th Plan Target	Achievement of first Four years	Annual Plan 2001-2002 target
	Delhi Vidyut Board			
(1)	T & D Works			
(A)	Transformation Capacity (Unit - MVA)			
(i)	400 KV	1260	945	315
(ii)	220 KV	2350	750	500
(iii)	66 KV	700	670	350
(iv)	33 KV	450	615	230
(v)	11 KV	1260	1058.28	250
(B)	T & D Line Capacity (Unit CKT Kms.)			
(i)	400 KV	226	122	--
(ii)	220 KV	320	25.5	15
(iii)	66 KV	110.	37.528	30
(iv)	33 KV	130	128.52	70
(V)	11 KV	4200	2838.74	950
(2)	Shunt Capacitor (Unit MVAR)	800	885	200
(3)	New Connections (Nos.)	280000	439478	1,50000
(4)	Tubewell Connections (Nos.)	2800	1413	250

Source : Delhi Vidyut Board

9. A 400-KV ring is being set up around Delhi to draw power from the Northern Regional Grid. The project is far behind its original target date of completion (June 1994). The project consists of a 400-KV double circuit line from Mandaula to Ballabgarh through Bawana and Bamnauli. The 400 KV Sub Stations at Ballabgarh and Mandaula have already been commissioned by Power Grid Corporation. DVB was required to erect 2 nos. 400 KV bays at each of these stations. Of these, the two 400 KV bays at Ballabgarh could not be erected and commissioned due to court stay on two locations on Bamnauli Ballabgarh ckts. 400 KV Bawana and Bamnauli Sub Stations have already been commissioned by DVB with 2 X 315 MVA and 1 X 315 MVA power transformers respectively.

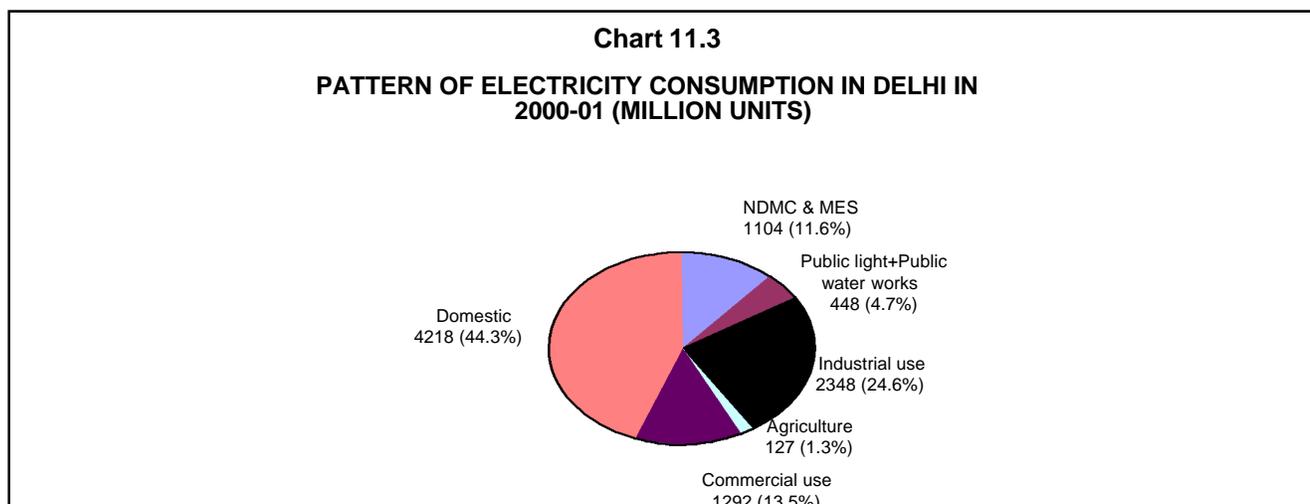
The portion of 400 KV ring between Mandaula- Bawana and Bawana- Bamnauli has already been commissioned. The remaining portion between Bamnauli - Ballabgarh could not be completed for want of forest clearance from Government of Haryana. The forest clearance has now been obtained and the project will be completed by December 2002.

10. To strengthen the T&D system, against an investment of Rs.1,378.39 crore in the Eighth Plan, a provision of Rs.1850 crore has been made in the Ninth Plan. During first four years of 9th Plan (1997- 2001), Rs.1543.55 crore were spent. A provision of Rs. 354.20 crore has been made to strengthen the T&D system during 2001- 02.
11. Average T&D losses in the country are 21%; in Mumbai they are 11% and in Calcutta they are around 19%. In Delhi, T&D losses increased from 22.6% in 1991-92 to 47.52 % in 1999-2000. The T & D losses in 2000-01 were 45.64% and estimated 43.64% in 2001-02 by DVB. The opening level of Aggregate Technical & Commercial (AT&C) loss as allowed by the Delhi Electricity Regulatory Commission for each DISCOM for 2001-02 are as follows:-

**Opening levels of A T & C loss**

DISCOM	OPENING LEVEL OF AT & C LOSS
CEDEDCL	57.2%
NNWDDCL	48.1%
SWDEDCL	48.1%
ALL DISCOMS	50.7%

12. Details regarding number of consumers and pattern of consumption are at Table 11.2 and 11.3. The number of electricity consumers has increased from 10.11 lakh in 1980-81 to 25.49 lakh in 2000-01. The share of domestic consumption has increased from about 29% in 1980-81 to 44% in 2000-01



Source : Delhi Vidyut Board

## STRATEGY PAPER

13. A strategy paper for the power sector was prepared by the Government of N.C.T. of Delhi in 1999. The important suggestions regarding structural reforms are :
- (i) A Delhi Power Generation and Transmission Company should be registered under the Companies Act to manage the existing and planned generating stations as well the EHV transmission network upto 220 KV including sub-station. This company should follow the rules, regulations and the work culture of the NTPC and PGCIL.
  - (ii) New generation should be encouraged to come up both in the private sector, as also through joint ventures. The BOT/BOOT route could also be followed.
  - (iii) New Power distribution companies should be set up to look after the transmission and distribution network from 66 KV to 400 volts, consumer power supply, metering and revenue collection in the existing six circles of the DVB. These companies should have the flexibility to be organized as joint ventures.
  - (iv) An independent, statutory Delhi Electricity Regulatory Commission should be established. This Commission should undertake licensing of new capacity, prescribe performance standards and fix tariffs after appropriate consultations.
  - (v) All legitimate interests of the employees of the DVB must be protected as part of restructuring.
14. Based on strategy paper the Government took the following steps towards power sector reforms:-
- (a). Delhi Electricity Regulatory Commission was constituted. The Commission is fully functional and has since issued tariff order for annual revenue requirement for 2001-02.
  - (b). Delhi Electricity Reforms Act, 2000 notified in March 2001. It provides for the constitution of an Electricity Regulatory Commission, unbundling of DVB into separate Generation, Transmission and Distribution Companies and increasing avenues for participation of Private Sector.
  - (c) Request for Qualification documents issued by Government and 32 companies including all the major Indian players in the Power Sector participated. Six companies short listed / pre-qualified for RPF stage.
  - (d). Six companies were registered in July 2001 splitting DVB into one generation, one transmission, three distribution and one holding company.
  - (e). Bids invited from private investors to buy equity of the distribution companies to turn them around.
  - (f). Management of DISCOMs is likely to be handed over to the successful investors by April, 2002.