CHAPTER 11

ENERGY

1. Power is the energy that runs daily life of every citizen. It is hard to imagine life in modern day without Power. It is a critical input for economic development and one of the vital needs of every citizen. Globally, the per capita consumption of energy is often used as a barometer to measure the level of economic development. All forms of economic activity, be it agriculture, industry or services, is reliant on the uninterrupted supply of power That is why Power shortage has always remained one of the greatest priority of Delhi Govt. The forthcoming Common Wealth Games have added a fresh impetus to the Delhi Government's efforts to improve the Power supply in Delhi. Delhi has the highest per capita power consumption among the States and Union Territories of India, with a consumption of 1265 KWH per capita per annum in 2004-05 as compared to the national average of 606 KWH.

2. From 1st July, 2002 under the Delhi Electricity Reforms Act, DVB was unbundled into Six companies comprising of a Generation Company, a Transmission Company, three distribution companies and one holding company. The Generation and Transmission functions are performed by the two companies i.e. Genco and Transco as wholly State Government owned companies, the distribution functions have been entrusted to two private companies viz BSES and TATA Power Ltd. BSES has taken up two distribution companies namely; BSES Rajdhani Power Ltd and BSES Yamuna Power Ltd., while the third company is with TATA Power which has been named as New Delhi Power Ltd. Transco company also makes available bulk supply of power to NDMC and MES for distribution in their respective areas.

INVESTMENT IN THE ENERGY SECTOR

3. The share of energy in total plan expenditure since Ninth Five-Year Plan is given below:

Statement 11.1

OUTLAY & EXPENDITURE UNDER ENERGY SECTOR

(Rupees in crore)

Plan	Period	Total Plan Expenditure	Expenditure on Energy Sector	% of Total Plan Expenditure
Ninth Plan	1997-2002	13465.09	3589.69	26.66
Tenth Plan	2002-2007	23000.00 [Outlay]	3457.50 [Outlay]	15.03

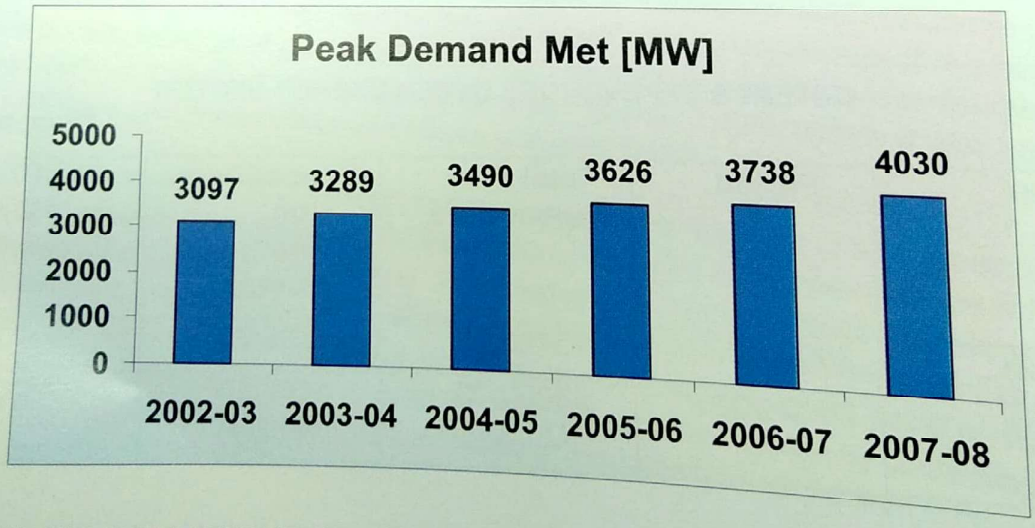
Five-Year Plan	Period	Total Plan Expenditure	Expenditure on Energy Sector	% of Total Plan Expenditure
Annual Plan	2002-2003	4404.84	1576.80	35.80
Annual Plan	2003-2004	4609.22	1706.29	37.02
Annual Plan	2004-2005	4260.53	625.74	14.69
Annual Plan	2005-2006	4280.87	271.47	6.34
Annual Plan	2006-2007	5083.70	257.24	5.06
Annual Plan	2007-2008	9000.00	1250.00	13.88

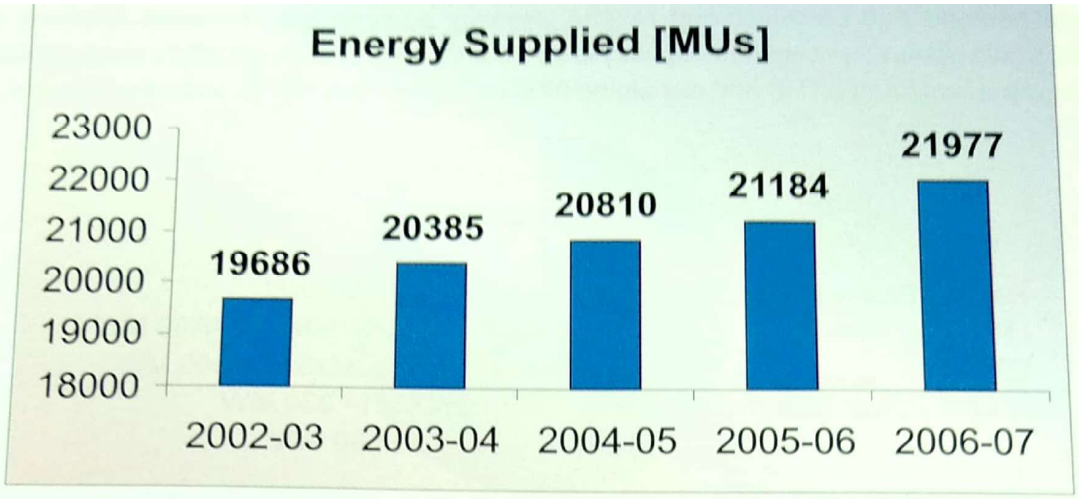
ENERGY DEMAND

4. From a peak demand of only 2879 MW in 2001-02, Delhi's power demand crossed 4030 MW on 11th June, 2007. Delhi Transco Ltd. (DTL) has met this demand from various sources as detailed below:-

Availability from Delhi's own plants and other states though bilateral agreements.	1242 MW
Availability from Central Sector Stations	2788 MW
Total demand met	4030 MW

Chart 11.1





Source :- DTL

5. As per the projections made by the Seventeenth Power Survey Committee of Central Electricity Authority (CEA), Ministry of Energy, Govt of India, the maximum demand of Delhi will grow to 6961 MW by the end of 11th Five Year Plan. Further, a meeting was held on 15.12.06 under the chairmanship of Secretary(Power), Govt. of India regarding preparation/ strengthening of transmission system of DTL for absorbing a capacity of 10000 MW planned for Delhi for Common Wealth Games 2010 which is going to be available from various sources including upcoming new Power Projects in and around Delhi.

6. The overall supply of power in Delhi has improved significantly as the load shedding decreases year after year as shown hereunder:-

Statement 11.2

ENERGY DEMAND AND LOAD SHEDDING

POWER GENERATION

7. While demand has been growing rapidly, capacity addition has remained relatively stagnant. Delhi's own generation installed capacity is 994.5 MW. Nearly 38% of Delhi's power needs are met by its own plants and BTPS and remaining 62% by import from NTPC and other sources (Chart 11.3).

Statement 11.3
INSTALLED CAPACITY

Rajghat Power House	Coal based	67.5x 2= 135.00 MW
I.P. Power Station	Coal based	62.5x3+60x1= 247.50 MW
GTPS	Gas based	30x6+34x3= 282.00 MW
Pragati Power Station	Gas based	104x2+122x1= 330 MW
	Total	**=994.50 MW**

Capacity Addition Programme :-

8. To meet the power demand of Delhi, the following projects are under consideration of Govt of Delhi

(i) Setting up of 1500 MW Gas based Power Project at Bawana

A combined cycle Gas based Power Project of 1500 MW Capacity is proposed at Bawana. Environmental clearance has been received from MOEF. International Competitive bidding has been floated on 31st July 2007 for supply and erection of the plant. MOU has been signed with M/S Petonet LNG Ltd. for supply of gas.

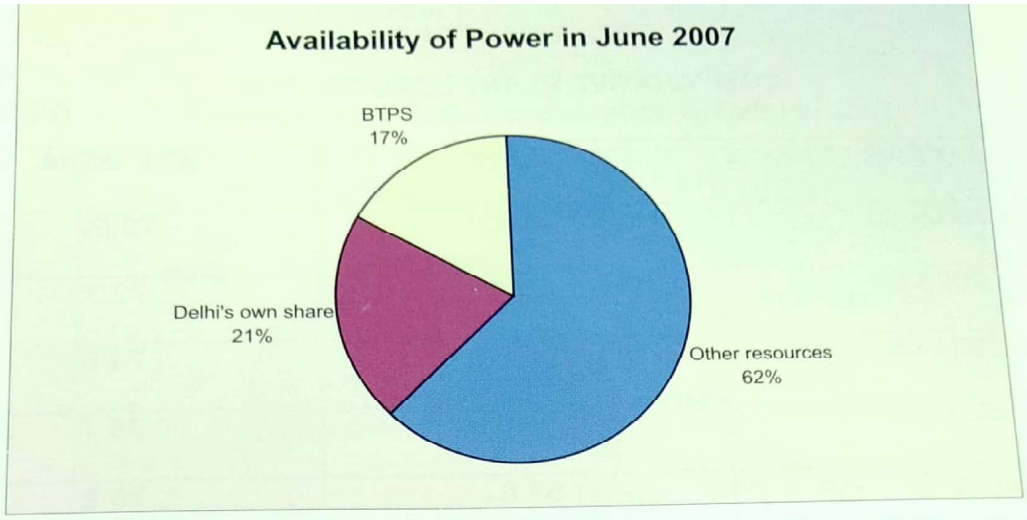
(ii) Coal based Power Plant in Distt. Jhajjar, Haryana (1500 MW)

A 1500 MW Coal Base Power Plant is being set up in district Jhajjar (Haryana) by a Joint Venture Co.(Arawali) Power Company Ltd. of GNCTD, Govt of Haryana and NTPC Ltd. With equity contribution of 25%, 25% and 50% respectively by sharing of power equally by Delhi and Haryana. Civil work have commenced at site. Water and coal availability tied up. Contracts for supply of Boiler and Turbine have been awarded. Zero date of the project is July 2007 and scheduled for commissioning before the Common Wealth Games 2010.

(iii) Setting up of 750 MW Project at Bamnauli

A 750 MW Combined Cycle Gas Based Project has been proposed to be set up at Bamnauli in South-West Delhi. Land involving an estimated cost of Rs.109 crore has been purchased from DDA. Ministry of Power & NG has directed GAIL to source gas from the Project from RIL's KG basis. Water availability has been tied up from Dwarka STP of DJB.

(iv) NDPL IS ALSO SETTING UP ITS OWN power plant of 90 MW capacity at Rohini which will be commissioned by 2009.



Source : Power Department

PLANT LOAD FACTOR

9. Plant load factor for the last five years is indicated below:

Statement 11.4

PLANT LOAD FACTOR

Year	2002-03	2003-04	2004-05	2005-06	2006-07
Overall PLF	51.29	59.11	65.53	56.81	67.81
I.P. Station	28.65	35.38	42.45	45.42	43.92
R.P.H.	71.68	65.25	58.96	48.57	53.69
Gas Turbine Plant	49.14	49.03	62.32	70.46	67.36
P.P.S.	65.37	83.01	88.27	88.14	91.53

Source:Delhi Transco Ltd.

10. The comparative picture of Plant Load Factor is indicated below:

Statement 11.5

COMPARATIVE PLANT LOAD FACTOR (IN % AGE)

YEAR	DELHI	ALL INDIA
End of 2002- 03	51.03	72.02
End of 2003-04	59.1	72.7
End of 2004-05	65.5	74.8
End of 2005-06	56.8	75.1
End of 2006-07	67.8	76.8

Source : Planning Commission, GOI & Delhi Transco Ltd.

TRANSMISSION AND DISTRIBUTION (T&D) SYSTEM

11. 400 KV System

400 KV D/C Ring Main around Delhi has been completed which has a capacity of over 4000 MW. The completion of 400 KV ring has greatly facilitated injection of larger quantity of power required for Delhi. Transmission capacity at existing 400 KV S/Stn. Bamnauli is being augmented by installation of 4th 315 MVA Power Transformer at Bamnauli. The transformation capacity of DTL at existing 400 KV S/Stn. is 2520 MVA. In addition new 400/220 KV Grid S/Stn. at Maharani Bagh and Mundka are coming up. The work of Maharani Bagh S/Stn. is already in progress which is being carried out by PGCIL. For 400 KV Mundka S/Stn., is being set up . The completion of these Substations will reinforce the Power Supply System in South West and North West Delhi.

220 KV System

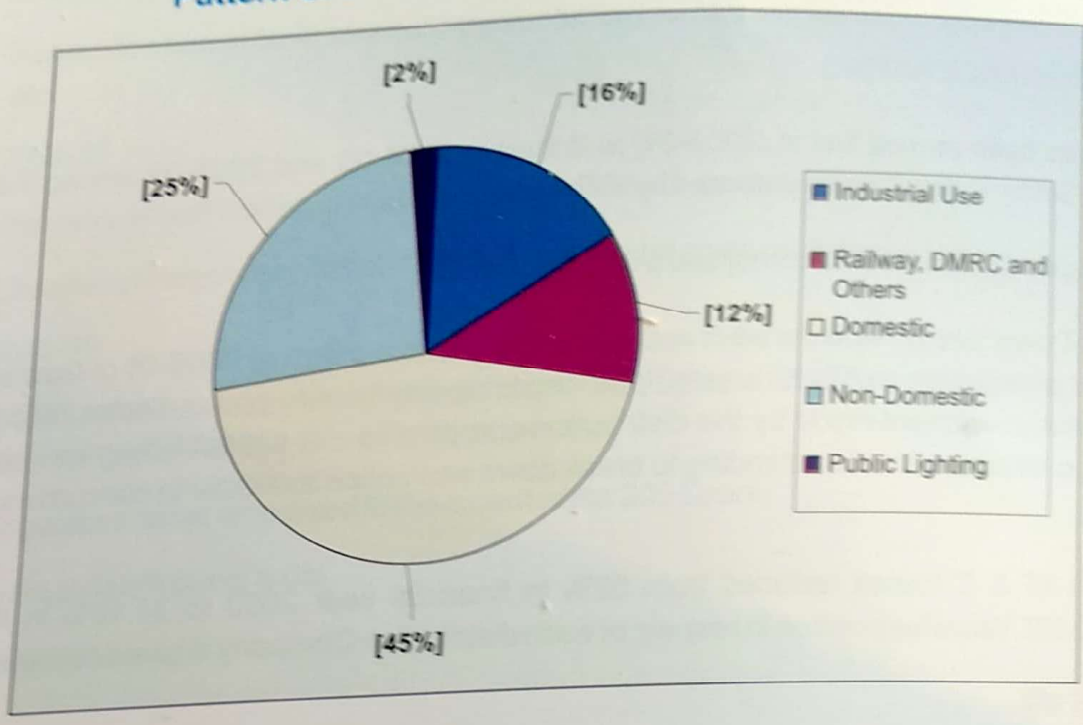
During the year 2006-07, 300 MVA transformer capacity was augmented at 220 KV Sub-Station i.e. Rohini (4th Tr.), Naraina (3rd Tr.) and Papankalan-II(2nd Tr.). One transmission link was energized i.e. Bamnauli to Papankalan-II.

The Transmission losses of Delhi Transco Ltd have been reduced from 3.84% during 2002-03 to 1.69% in 2003-04, 1.30% in 2004-05 and further to 0.89% in 2006-07.

14. Details regarding number of consumers and pattern of consumption are at Table 11.2 a number of electricity consumers has increased from 17.03 lakh in 1990-91 to 28.38 la

Chart 11.4

Pattern of Electricity Consumption in Delhi in 2007



15. The Government took the following steps towards power sector reforms:-

1. Delhi Electricity Regulatory Commission (DERC) was set up and made functional from

2. Delhi Electricity Reforms Act, 2000 was notified in March 2001. It provides for the con Electricity Regulatory Commission, unbundling of DVB into separate Generation, and increasing avenues for participation of Private Sector

7. The Cabinet approved the report of Core Committee which had obtained acceptable bids after protected negotiations.

8. The Share Holding Agreement was signed with successful bidders.

9. Transfer Scheme was operationalized and management of Discoms was handed over to private distribution companies on 30th June, 2002.

PERFORMANCE RATING

16. Delhi has been ranked first in (2003-04) and third in 2004-05 and 2005-06 among the states in Power Sector Rating "report-prepared by ICRA and CRISIL.

Aggregate Technical & Commercial (AT & C) Losses:

17. Delhi's Power Sector Reforms were appreciated in Economic Survey 2005-06 of Govt of India in the context of reduction in ATadC losses, load shedding payment to power Sector utilities for power purchase, investment made by the distribution compamles for capital Schemes improvement in average response time for attending to break down and option available to consumers for payment of bills.,

Overall AT & C losses reduced from 52% in financial year 2000 to 31.10% in financial year 2006-2007. Yearwise position in respect of each distribution Company is given at Statement 11.6

Statement 11.6

In percentage (%)

Distribution Company	Opening levels of AT & C loss		2002-03	2003-04	2004-05	2005-06	2006-07
BYPL	57.2	Target	56.45	54.7	50.7	44.65	39.95
		Achievement	61.89	54.29	50.12	43.88	39.03
BRPL	48.1	Target	47.55	46	42.7	36.70	31.10
		Achievement	47.4	45.06	40.64	35.53	30.80
NDPL	48.01	Target	47.6	45.35	40.85	35.35	31.10
		Achievement	47.79	44.86	33.79	26.52	23.54

Salient Features of Tariff Orders issued by DERC

18. **FY 2002-03 & FY 2003-04**

- Increase in average retail tariffs by around 5% to bridge revenue gap consolidated sector revenue gap of Rs.92 Crore.
- Rationalization of tariff structure by abolishing meter rent, minimum charges, misuse charges etc.

FY 2004-05

- Increase in tariff limited to 10% (average) to avoid a tariff shock
- Creation of Regulatory Asset of Rs.696 crore to be given on deferred basis.

FY 2005-06

- Quantum of regulatory asset revised from Rs.696 Crore to Rs.548 Crore on the basis of actual revenue gap of Rs.548 Crore for FY 2004-05.
- Regulatory Asset amortized to the extent of Rs.205 Crore.
- Average tariff hike of 6.6%.

19. **Tariff increase**

[In Percentage]

	FY 2002 -03	FY 2003 -04	FY 2004 -05	FY 2005 -06	FY 2006 -07
Projected Tariff increase	10.00	10.00	10.00	5.0 0	3.00
Actual Tariff increase	5.00		10.00	6.60	NIL

20. **Investments made by DISCOMs (Rs In Crore)**

Discoms	FY 2002 -03	FY 2003 -04	FY 2004 -05	FY 2005 -06	FY 2006 -07
BRPL	52	70	922	504	274
BYPL	36	72	416	345	289
NDPL	49	287	338	431	209

Concerns of consumers

21.
- Committees set up by DERC – random study found only 0.5% meters defective
- Special meter testing drive organized by DISCOMs – 0.72% of meters found fast
- BSES DISCOMs initiated independent third party review of meters by CPRI- meters found to be correct.
- NDPL consumers given choice to buy meters from the approved ISI vendors
- DISCOMs have put in place grievance redressal mechanisms
- DISCOMs taking several steps to provide better consumer services
- Advance information on planned shutdowns, Advance Payment Schemes, setting up of call centers, load up gradation camps.

Public Grievances Cell:-

22. Public Grievances Cell has acquitted itself well and has been able to earn faith of the consumers in the grievances redressal system relating to power. In the last one year the Cell has received 16322 grievances to date, out of which 14629 have been resolved with a resolution percentage of 89.63.

Energy Conservation

23. Delhi Govt. is committed to promote energy conservation and efficient use of energy in Delhi by demand side management. **Energy Conservation and the efficient use of energy** has been given top priority. Delhi Govt. through it's designated nodal agency i.e. Delhi Transco Ltd. is promoting the use of solar energy, use of CFL and energy efficient lighting etc. by making it mandatory in Govt. Depts/Govt. buildings/hospitals. Following major initiatives are being taken in this regard

i. **Establishment of independent Energy Efficient and Renewable Energy Management Centre in Delhi.**

An independent Energy Efficiency & Renewable energy Management Centre has been set up to crate synergy between Industry, Consumers, Manufactures and institutions to give a new directions to the energy conservation movement and to create awareness about energy efficiency and renewable energy resources.

ii. **For promoting Energy Conservation measures, Government has issued following directions under Section 18 of the Energy Conservation Act, 2001 for:-**

i. Mandatory use of Solar Water Heating System

ii. Mandatory use of ISI marked Motor Pump sets, Power Capacitor, Foot/Reflex valves etc. in Agriculture side

iii. Mandatory use of CFL and Electronic Chokes in Government Buildings and Government aided institutions, Boards, Corporation

iv. Promotion of CFLs in place of incandescent bulbs is done through DISCOMSs.

v. Incentive of Rs.6000 to each domestic category consumer is being given for installation of Solar Water Heating System

vi. GNCTD has approved a scheme in Nov'07 for giving incentive to all non-commercial institutions like colleges, hostels, charitable institutions etc @ Rs. 6000 per every 100 1pd Solar Water Heating System subject to maximum Rs. 6000 for 1000 1pd SWHS

iii. Green Building

A Green Building is under construction for DTL at 400 KV Maharani Bagh Grid S/Stn plot. The building is likely to be completed within a period of 2-3 years at an estimated expenditure of about Rs. 3 Crore along with permanent exhibition complex on energy saving/conservation techniques.

i. **Awareness programmes** are being carried out through media and press stressing the need for energy conservation and campaigning the tips of energy conservation.

ii. **Energy Audit of buildings** has been envisaged to be done initially in respect of few public sector buildings/Government buildings as a pilot to promote and encourage the Electricity savings in such Buildings.

iii. A Data Base of various categories of consumers shall be created along with their energy consumption, type of activities and the potential for energy saving.

iv. An Action Plan for energy conservation in Delhi is under preparation by a High Level Committee constituted under the chairmanship of Chief secretary in association with eminent institutions such as TERI, USAID, PHDCCI etc.