ENERGY

Delhi's electricity consumption has increased from 19666 million units in 2002 to 27234 million units in 2013. Power sector reforms and unbundling of Delhi Vidyut Board in 2002 has reduced the aggregate transmission and distribution losses from 52% to about 14%. Prior to 2002, Delhi experienced extensive power cuts and generation, transmission and distribution sector of Delhi was not in a healthy state. During the post reform period, the power situation has improved significantly and the system successfully transmitted peak load of 5653 MW last summer without any power cut. The per capita consumption of electricity of Delhi is much higher than the national average.

On the generation side, Pragati Power Station of 330MW was commissioned in a record period of 2 years in 2003. The performance of this plant is among the best power plants of the country. The first phase of Bawana power plant with a capacity of 750 MW was commissioned in 2010-11. The second phase of this 1500MW plant is almost ready for commissioning. However, there are issues with the supply of requisite quantum of gas for this power plant, which has been taken up with Ministry of Petroleum & Natural Gas.

The year wise position of Approved Plan Outlay, Revised Plan Outlay and Expenditure under this sector is as under:

[₹ in crore]

S. No.	Year	Plan Outlay	Revised Plan Outlay	Exp.
1.	2007-08	1250.00	1263.13	1256.75
2.	2008-09	1015.65	585.75	567.08
3.	2009-10	461.00	10.00	3.39
4.	2010-11	110.80	256.00	250.84
5.	2011-12	1576.00	1842.36	1833.26
6.	2012-13	859.61	1275.00	1271.61
7.	2013-14	513.00	326.00	325.99
8.	2014-15	675.00	--	--

I. Some key achievements under Annual Plan 2013-14:

Delhi Transco Limited (Power Transmission Company)

- Delhi Islanding Scheme implemented to safeguard the accidental grid failure in Delhi.
- Two major 220 KV Sub-Stations at Rohini and Wazirpur successfully commissioned.
- Transformation Capacity of 680 MVA added successfully raising the total transformation capacity to 9730 MVA.

- DTL is now connected to 765 KV Backbone grid of the country through LOOP-IN-LOOP-OUT (LILO) arrangement of 400 KV Mundka-Bamnauli at Jhatikara. Conversion of overhead line into underground cable was done.
- Ocerhead conductor passing over the Ballabgarh line (400 KV) covered into underground cable.

IPGCL/PPCL (Generation Company)

- Pragati-III Power Station of 1371.20 MW is fully commissioned for commercial operation and availability of 95.69% achieved.
- 1500 MW coal based Indira Gandhi Super Thermal Power Station at Jhajjar has been declared for commercial operation on 26.4.2013.

Plan Schemes of Power Department

- Land at Molarband, Raza Pur Khurd and Sector-16, Dwarka purchased for setting-up of 66KV Grid Stations.
- Total of 14 HT/LT electric lines got shifted in GNCT of Delhi at a cost of ₹3 crore.

II. Some major targets under Annual Plan 2014-15:

Delhi Transco Limited (Power Transmission Company)

- 400 KV GIS substation at Harsh Vihar and 220 KV GIS substation at Peeragarhi will be commissioned.
- Conversion of existing 220/33 KV AIS switchyard into GIS at Lodhi Road.
- 220 KV underground cables from Mundka to Peeragarhi and Peeragarhi to Wazirpur.
- LOOP-IN-LOOP-OUT (LILO) of 220 KV Transmission line from Najafgarh-Kanjhalwa at Mundka substation.
- 220/66 KV GIS substation at Pappankalan-II, Tughlakabad and Rajghat Power House.
- Conversion of existing 220 KV AIS into GIS located at IP Station, Subzi Mandi and Patparganj substation.
- LOOP-IN-LOOP-OUT (LILO) of Bamnauli-Naraina Transmission line at Papankalan-I, Papankalan-II and Maharani Bagh.
- Double Circuit underground cable from East of Loni to South of Wazirabad, Vasant Kunj to R.K. Puram, Okhla to Masjid Moth and Park Street to Electric lane.
- Replacement of existing 270 MW Indraprasth GTPS with 350-75 MW advanced Class Machines.
- Establishing a 350-75 MW Gas based Power Plant at the site of Rajghat Power House.
- Installation of 47 MW capcity Renewable energy source.
- Development of Mara-II Mahan Coal Block in Distt. Singrauli, MP.

A. GENCO & PPCL

1. 1500 MW Gas Based Combined Cycle Pragati-III Power Plant at Bawana:-

Annual Plan Outlay ₹14600 lakh (Loan)

There are two modules of 750MW each. Each module comprises of 2 Gas Turbines (GTs) of about 250MW each and 1 Steam Turbine Generator (STG). The power plant needs 2.8 mmscmd of gas to generate 750 MW of electricity. Its nominal capacity shall be 1371 MW. Delhi will be getting 70% of power generation from this project (10% each to Haryana & Punjab and 10% Merchant Power).

Cost of the Project:

The Cabinet vide decision No.1412 dated 02.06.2008 accorded approval for the total approved project cost of the plant of ₹5195.81 crore and funding of 30% of the project cost as equity amounting to ₹1558.74 crore (100% equity share of Delhi Government released).

₹146 crore is being proposed as Loan for Pragati- III Plant at Bawana for project cost which includes release of Retention Liabilities on completion and performance to BHEL.

Present status of the project:

- Zero Date – 30.04.2008
- Original Schedule – 2010
- GT-1 - synchronized on 11th October 2010
- GT-2 - synchronized on 09th February 2011
- GT-1 declared for Commercial Operation on 27.12.2011
- GT-2 achieve full load on 17.02.2011
- GT-2 declared COD on 16.07.2012
- STG-1 Synchronized on 03.10.2011
- STG-1 declared COD on 14.12.2012
- GT-3 achieved full load on 27.06.2012
- GT-3 declared COD on 28.10.2013
- GT-4 achieved full load on 07.05.2013
- GT-4 declared COD on 27.02.2014
- STG-2 declare COD on 27.03.2014
- 1371.2 MW Pragati –III Power Station is now available fully for commercial operation

2. 1500 MW coal based Indira Gandhi Super Thermal Power Plant at Jhajjar:-

Annual Plan Outlay ₹ 7260 lakh (Equity)

Aims and Objectives of the Scheme

Govt. of NCT of Delhi has signed a MOU with Haryana Govt. and NTPC Limited for setting up of a 1500 MW coal based power project in District Jhajjhar of Haryana by Aravali Power Co. Pvt. Ltd. (APCPL), a JV Co. of IPGCL, HPGCL & NTPC. This project is being executed by M/s NTPC Limited and the power generated will be shared equally by Delhi and Haryana states. There are 3 units of 500MW each.

Present status of the project

- Date of EFC / Cabinet Approval: 31-05-2007 & GNCTD Cabinet approval on 16-10-2006
- Year of Commencement: 2007-08
- First unit has been synchronized with the system on 10th October 2010 and commercial operation started on 5th March 2011
- Second unit commissioned on 20 Oct 2011 and achieved a full load on 05.11.11. Its commercial operation started on 21st April 2012
- Third unit declared for commercial operation on 26th April 2013

Cost of the Project

i. The Project Cost is to be shared between NTPC, Haryana Govt. and Delhi Govt. in the ratio of 50:25:25

ii. Project Cost : ₹8587.97 crore, approved by cabinet vide decision no. 1986 dated 11.2.2013

iii. Revised Project Cost : ₹ 9567.87 crore

iv. Revised Equity share of GNCTD : ₹ 717.59 crore

v. Equity already infused by GNCTD: ₹645 crore

vi. Provision of funding of balance equity of ₹72.60 crore has been made in Annual Plan 2014-15

3. New Gas Based Projects (IP, RPH, GTPS):-

Annual Plan Outlay ₹40 lakh (Capital)

Anticipated Achievement

Preparation of Pre-FR and FR for RPH and GTPS replacement projects

Proposed Target

To carry out detailed feasibility report and EIA studies

2.1 Replacement of 270 MW Gas Turbine Power Station (350-375 MW)

IPGCL has proposed replacement of existing 270 MW Indraprastha Gas Turbine power station with 350-375 MW advance Class Machines near IP Metro station with an estimated cost of ₹1320 crore. This will be comprising of two Gas Turbine of 104 MW each and one Steam Turbine Generator of 122 MW. A consultancy contract for pre-feasibility study was awarded to M/s NTPC Ltd. in May 2012. M/s NTPC has submitted the pre-feasibility report on 02.07.2013. The detailed feasibility report and EIA studies has to carry out.

2.2 Establishing a 350-375 MW Gas Based Power Plant at the site of Rajghat Power House

IPGCL has proposed of establishing a 350-375 MW gas based power plant, with an estimated project cost of ₹1320 crore at the site of 135 MW coal based Rajghat Power House, subsequent to its decommissioning. This will be comprising of two Gas Turbine of 104 MW each and one Steam Turbine Generator of 122 MW. A consultancy contract for pre-feasibility study has been awarded to M/s NTPC Ltd. in May 2012. The draft pre-feasibility report is expected shortly. After completion of pre-feasibility report the detailed feasibility report and EIA studies are to be carried out.

2.3 350 MW Gas Based Combined cycle Power Plant at the Site of Indraprastha Power Station

- It Consist two Gas Turbine and one Steam turbine.
- Estimated project cost is ₹1400 crore.

4. Development of Mara-II Mahan Coal Block in Singraulli, MP by Yamuna Coal Company Pvt. Ltd. (a JV of IPGCL & HPGCL) and setting up a 2000 MW Pit Head Coal Based Power Station for sharing of power by Delhi & Haryana

Annual Plan Outlay ₹100 lakh (Capital)

Aims and Objectives of the Scheme

To develop coal mine for fuel security and set up Coal Based Power Plant at Pit-head or elsewhere to meet the demand of power in Delhi and Haryana.

Present status of the project :

- The coal block, Mara – II Mahan in District Singraulli is allocated to the Govt. of Delhi and HPGCL
- The project is at Pre-Feasibility study stage
- Topographical Survey carried out
- The Coal reserves indicated in the Regional Exploration Report is 955 Million Tones (Grade A to Grade F)
- For preparation of Geological Report, the application for Forest Prospecting License presently available with Dy. Principal Chief Conservator of Forest (Land Management), Bhopal, Govt. of MP who has to recommend it to MoEF, GOI

- Though the coal block falls in NO-GO area, it is under review by a group of ministers and favorable decision is expected shortly
- On receiving clearance from MoEF, action will be initiated simultaneously for setting up a 2000 MW Power Plant at Pit head
- Funds are required towards payment to MECL for exploration of bore holes subject to receipt of forest prospecting permission

Physical Targets:-

- Exploration and preparation of Geological Report, thereafter, development of the Block shall be taken up
- Commencement of Drilling & Exploration of the Coal Bock (about 10 Sq. KMs in Phase-I) subject to permission from MoEF
- Detailed exploration of Coal block (12-15 months) from date of grant of permission by MoEF, GOI

Cost of the Project :

- Estimated cost - ₹12000 Crore (50% share of IPGCL)
- Equity share of GNCTD is ₹1800 Cr (i.e. 30%)

5. Renewable Energy Annual Plan Outlay ₹500 lakh (Capital)

IPGCL is carrying out renewable energy activities. In the first phase IPGCL has got DPR and tender documents prepared for setting up of 262.2 Kwp roof top solar PV plants on the roof tops of Pragati Power Station and Gas Turbine Power Station for an estimated cost of ₹5 crore. In the 2nd phase IPGCL has identified on roof tops of Bawana plant & CISF Barracks at RPH office complex for setting up solar PV plants.

Target:

- To generate 47 MW from Renewable Energy Sources.
- To establish 260 Kwp Solar PV plants on the roof top of IPGCL / PPCL.
- To generate 5 MW from Solar PV Plants on Ash Pond Area of RPH.
- To generate 1 MW from Solar PV Plants on the roof tops of Bawana Plant.

B. TRANSCO (400/200 KV Works):

Annual Plan Outlay ₹ 22000 lakh (Loan- GNCTD share) & ₹ 20000 lakh (Capital-GOI Assistance)

In the Union Budget for 2014-15, Central Govt. allocated separate fund worth ₹200 crore to the National Capital for the power sector with aims at improving the transmission network in the Capital. The move has come as a shot in the arm for the Capital's Power Department which recently faced ill-maintained transmission lines after a storm on May 30 which damaged the transmission network, resulting in frequent and prolonged power outages, even when the city was a power surplus. The Central Govt. allocated ₹200 crore to overcome problem of power transmission in Delhi.

DTL has been playing its role in establishing, upgrading, operating and maintaining the EHV (Extra High Voltage) network. In order to transmit the power being procured from other States to Delhi distribution, the transmission network is also being strengthened. At present, there are 31 sub-stations at 220KV level and 03 sub-stations at 400KV level with the total transformation capacity of around 12,830 MVA. In order to fulfill the increasing demand, new sub-stations are being added along with the augmentation and modernization of existing sub-stations. Under 400 KV system, it is proposed to establish new Sub Station at Harsh Vihar (East Loni Road) with a capacity of 630 MVA. Similarly, under 220 KV system, augmentation and new addition in capacity to the tune of 3040 MVA under the existing Sub Stations is proposed. Further, new Sub Station at Peeragarhi (200MVA), Wazipur (200 MVA), Papankalan-III (320 MVA), RPH (300 MVA), Preet Vihar (Anand Vihar) (300 MVA), Tuglakabad (200 MVA) are also being proposed.

Details of Proposed Transmission Network Projects (400/220 KV) for the Year 2014-15

S. No.	Name of the transmission line & associated substations	Line length (ckt. Kms.)/ s/s. Cap. (mva)	Estimated/ awarded cost (₹ in crore)	Remarks
1	ETC of additional 315 MVA trf. at Mundka	1x315 MVA	--	To achieve N-1 criteria in Station Capacity
2	Conversion of existing 220/33KV Switchyard into GIS at Lodhi Raod		90.98 / 55.00	To replace old, out-lived equipment with new reliable equipment and to increase station capacity
3	Conversion of Patparganj 220 / 66 / 33KV O/D switchyard into GIS		100.00	To replace old, out-lived equipment with new reliable System
4	Conversion of Subji Mandi 220KV switchyard into GIS		40.12	To replace old, out-lived equipment with new reliable System
5	Conversion of IP 220/33KV switchyard into GIS		94.52	To replace old, out-lived equipment with new reliable System
6	Conversion of 33KV O/D switchyard into GIS at Gopalpur		18.09	To replace old, out-lived equipment with new reliable System
7	Establishment of 220/66KV GIS S/Stn. at Papankalan-III	2 x 160 MVA	50.35	To meet increasing demand in this area

S. No.	Name of the transmission line & associated substations	Line length (ckt. Kms.)/ s/s. Cap. (mva)	Estimated/ awarded cost (₹ in crore)	Remarks
8	Establishment of 220/33KV GIS S/Stn. at Tughlakabad		80.00	To meet increasing demand in this area
9	Establishment of 220/33KV GIS Substation at RPH	3 x 100 MVA	77.63	To strengthen existing network/increase reliability
10	D/C U/G from East of Loni to SOW	2x11 Kms.	128.85	To strengthen existing network/increase reliability
11	S/C U/G from Okhla to Masjid Moth	1x6.5 Kms.	46.51	To strengthen existing network/increase reliability
12	S/C U/G from Kashmiri Gate to Subji Mandi	1x4 Kms.	30.78	To strengthen existing network/increase reliability
13	D/C Loop in by U/G of NJF. - Kanjhawala at Mundka (KNJ to Mundka U/G)			To strengthen existing network/increase reliability
14	S/C U/G from PPK-I to PPK-II	1x6 Kms.	48.86	To strengthen existing network/increase reliability
15	LILO Mehrauli-BTPS at Tughlakabad (MES)			To provide in-feed power to new Sub-Stn.
16	S/C U/G from Park Street to Electric Lane	1x3.8 Kms.	29.82	To strengthen existing network/increase reliability
17	D/C U/G from Kashmiri Gate to RPH	1x4 Kms.	76.00	To strengthen existing network/increase reliability
18	LILO of Bamnauli-Naraina T/L at PPK.-III			To provide in-feed power to new Sub-Stn.
19	ETC of 1x 160 MVA Trf bays at Gazipur	1X160 MVA	11.00	To meet increasing demand in this area

S. No.	Name of the transmission line & associated substations	Line length (ckt. Kms.)/ s/s. Cap. (mva)	Estimated/ awarded cost (₹ in crore)	Remarks
20	ETC of 2x220 kV & 3x66kV bay at SOW and bus bars convrsion from Twin to Quad		7.76	To strengthen Grid Sub-Station
21	3 Nos. 220 kV feeder bay at Kashmere Gate		9.31	To strengthen existing network/increase reliability
22	S/E/T/C of NIFPES for 64 no. 100 MVA Trf.		13.53	To protect transformer from damage
23	ETC of 3rd 160 mVA Trf. At Mundka	1X160 MVA	11.00	To meet increasing demand in this area
24	3rd Trf. 100 MVA 220/33kV at Ridge Valley	1x100 MVA	11.00	To achieve N-1 Criteria in Station capacity
25	ETC of 1x220kV bay at Okhla		1.00	To strengthen existing network/increase reliability
26	ETC of 6x66kV bay at Vasant Kunj		3.60	To strengthen existing network/increase reliability
27	ETC of 5x66kV bay at Mehrauli		3.00	To strengthen existing network/increase reliability
28	ETC of addl. 160 MVA Trf. At Gopalpur		11.00	To meet increasing demand in this area
29	Replacement of existing porcelain disc insulators with polymer insulators		21.00	To avoid mal-tripping of line due to fog (in winter)
30	Estbl. Of 220/33kV GIS S/Stn. at Anand Vihar	3x100 MVA	75.00	To meet increasing demand in this area
31	D/C U/G from East of Loni to Anand Vihar	2x11 Kms.	160.00	To provide in-feed power to new Sub-Stn.

S. No.	Name of the transmission line & associated substations	Line length (ckt. Kms.)/ s/s. Cap. (mva)	Estimated/ awarded cost (₹ in crore)	Remarks
32	Civil work at existing and next S/Stns.		15.00	To facilitate equipment installation at respective Station.
33	Land cost preliminary works for 220 kV GIS S/Stn at Punjabi Bagh RPH etc.		30.00	To establish new Sub-Station
34	ETC of 2x220kV GIS bay at AIIMS		4.00	To strengthen existing network/increase reliability
35	Central Control Room		30.00	To facilitate automation & coordinated control of Sub-station.
36	Automation of S/Stns. At Bamnauli & PPK.I		20.00	To replace old, out-lived equipment with new reliable System
37	Misc. O&M works		20.00	--
38	3rd 100 MVA 220/33 kV Trf. At Subzi Mandi		8.00	To meet increasing demand in this area.
39	ETC of 4th 100 MVA Trf. At Shalimar Bagh		8.00	To meet increasing demand in this area.
40	Establishment of 220kV GIS at Budella	2x160 MVA	85.00	To meet increasing demand in this area.
41	Establishment of 220/66kV GIS at R.K. Puram	2x160 MVA & 2x100 MVA	132.00	To meet increasing demand in this area.
42	D/C U/G from Peera Garhi to Budella	2x6 Kms.	80.00	To provide in-feed power to new Sub-Stn.
43	D/C U/G from Vasant Kunj to R.K. Puram	2x6 Kms.	80.00	To strengthen existing network/increase reliability
44	LILO of Ridge Valley - Trauma Center Cable for R.K. Puram	2x5 Kms.	65.00	To provide in-feed power to new Sub-Stn.

Augmentation works decided to be got done as per immediate requirement of DISCOMs, DMRC etc.

S. No.	Name of the transmission line & associated substations	Line length (ckt. Kms.)/ s/s. Cap. (mva)	Estimated/ awarded cost (₹ in crore)	Remarks
1	ETC of 1 x160MVA Tr. Bay at SOW	1x160 MVA	11.00	To strengthen existing network/increase reliability
2	4x66 kV bays at Sarita vihar		2.24	To strengthen existing network/increase reliability on requirement of Discom
3	3x66kV bays at Kanjhawala		1.98	To strengthen existing network/increase reliability on requirement of Discom
4	2x66 kV bays at Ghazipur for DMRC		1.60	To strengthen existing network/increase reliability on requirement of Discom
5	3rd 100 MVA at Masjid Moth	1x100MVA	7.89	To meet increasing demand in this area.
6	Augmentation of 2x100 MVA by 2x160 MVA at Papankalan-I		15.85	To meet increasing demand in this area.

C. POWER DEPARTMENT:

1. Payment towards land premium / land acquisition for subsequent leasing to DISCOMS

Annual Plan Outlay ₹2500 lakh (Capital)

The three Distribution Companies viz. NDPL, BRPL and BYPL have been pressing for allotment of land at concessional rate for creation of new infrastructure including Grid Stations, installation of Transformer etc. The Ministry of Urban Development, Government of India has decided followings:-

a. DDA will allot land to Government of NCT of Delhi (GNCTD) at Zonal Variant Rates for setting up of electric sub-stations, etc. by Power Distribution Companies.

b. GNCTD may in turn allow the Power Distribution Companies to set up electric sub-stations etc. on "right to use" basis and on such terms and conditions as GNCTD may enter into with Power Distribution Companies.

c. The land should be put to use only for the specific purpose of setting up of electric sub-stations etc. and in no way put up to any other use or commercially exploited. This should be specified in the allotment letter by DDA.

d. DDA will allot only the minimum required land as per norms.

Subsequently, it has been decided by the Government of Delhi that GNCTD would make payment to DDA at Zonal Variant Rate along with ground rent, as applicable. Thereafter, GNCTD would sign a license/lease agreement with the Distribution companies and would charge appropriate annual rent/ license fees from the Distribution companies. The license deed would, inter alia, involve allowing the Distribution companies to use the land on "right to use" basis and on the basis condition that the land would be used only for the purpose of expansion of the distribution network and erection of related infrastructure and not for any other work.

As the land would be initially obtained from DDA by GNCTD, initial payment has to be made by Government of Delhi. A provision of ₹25 crore is approved for 2014-15 for this scheme.

2. <u>Shifting of HT / LT Transmission Lines:-</u>

Annual Plan Outlay ₹500 lakh (Revenue)

This scheme was initiated for shifting of HT (11000V) and LT (400V) Electricity Lines posing Threat to human lives. A decision was taken by the Council of Ministers vide cabinet decision no. 1310 dated 20.11.2007 to shift such lines where it poses danger to human life and property.

A provision of ₹ 5 crore is approved for 2014-15 for this scheme.