ENERGY

Delhi was one of the few leading states to initiate power sector reforms and implement them successfully. In 2002 Delhi Vidyut Board (DVB) was unbundled to through a comprehensive restructuring with the corporatization of Transmission and Generation of power business and privatization of Distribution of power to enhance the efficiency of the sector and minimize losses. Seven companies were created i.e. three distribution companies ((BSES Rajdhani Power Ltd. (BRPL), BSES Yamuna Power Ltd.(BYPL) & North Delhi Power Ltd.(NDPL)), two generation companies ((Indra Prastha Gas Company Ltd.(IPGCL) and (Pragati Power Company Ltd.(PPCL)), one transmission company (Delhi Transmission Company Ltd.(DTL)) and one holding company namely Delhi Power Company Ltd.(DPCL). After unbundling, all the successor entities have done a good job.

Delhi Transco Ltd. (DTL) too has done a commendable job in last 9 years. The transmission losses which were 3.84% in 2002 at the time of inception, have come down to 1.38 which is one of the lowest in the country. The availability of transmission system is above 98% which perhaps is highest among all the state transmission utilities. The transmission capacity has been enhanced to more than double since unbundling and at present, it is 2835 MVA at 400 KV and 7970 MVA at 220 KV. The strategic focus of the XII FYP for DTL is to renovate and modernized the existing network using modern technology such as GIS and underground cables. Delhi is one of the first new utilities in India to operationalize SCADA and to introduce intrastate ABT metering. The concept of small grid is also being implemented to SAP enhance the overall efficiency of the organization.

The peak electricity demand has touched the level of 5150 MW in Delhi in May, 2012. The CEA estimates indicates that electricity demand may reach to around 8700 MW in Delhi by the end of the 12th Five Year Plan. The position of total power supply in Delhi from different sources- 24638 MUs, Power from Own Generation - 18.52% (4565 MUs), Power from BTPS- 16.86% (4154.923 MUs) and Power from other bilateral and sources including CPSU- 64.61% (15918 MUs).

Delhi Govt. has proposed to allocate 5.4% of the total plan size of ₹90,000 crore for 12th Five Year Plan of Govt. of Delhi for energy sector amounting to ₹4820.20 crore. This is mainly for commissioning of new power plants with a total capacity addition programme of around 3840 MW proposed by both IPGCL and PPCL, augmentation of transformation capacity through transmission lines networks and grid substations at 220/400 KV level.

Power Department has proposed to increase electricity generation capacity in Delhi from 3245 MW at present to 7085 MW by the end of the 12th Five Year Plan.

The financial position of XI Five Year Plan and XII Five Year plan for Energy Sector is as under:

[₹ in Crore]

Sector	11th Five Year Plan (2007-12)		12th Five Year Plan (2012-17)	
	Approved Outlay	Provisional Expenditure	Plan Outlay 2012-17	Plan Outlay 2012-13
Energy	5479.91	3911.33	4820.20	859.61

The detailed Plan Scheme is proposed to be implemented in Generation and Transmission sector by IPGCL, DTL and by Power Department is as under:-

A. <u>Generation Sector</u>

<u>Plan Outlay</u>
XII FYP : ₹301020 Lakh
Annual Plan 2012-13 : ₹48261 lakh

Projected Power Generation during XII FYP is 3840 MW (including Bamnauli) and the status of individual generation projects proposed to be under taken by the Companies **IPGCL and PPCL** through the following plan schemes:

1. <u>1500 MW Pragati-III Power Plant at Bawana:</u>

<u>Plan Outlay</u>
XII FYP : ₹60000.00 Lakh
AnnualPlan2012-13: ₹37761.00 Lakh

During the year 2011-12 some of the units of 1371 MW Gas based Pragati-II project at Bawana shall be commissioned. Its nominal capacity shall be 1371 MW.

The cost of the project has been reduced from ₹5196 crore to ₹4500 crore. The equity share of Delhi Government is ₹1350 crore and out of which ₹1100 crore have already been released. The balance amount of equity will be met from the interest earned and GENCO's own resources. Also the IPGCL / PPCL have tied up a loan of ₹3600 crore from PFC for this project.

<u>Present status and target of the project</u>:-

- Two Gas Turbines of 250 MW each of Bawana Gas based plant have been commissioned in Oct., 10 & Feb., 11.
- GT-1 declared for Commercial Operation on 27.12.2011.
- GT-2 achieve full load on 17.02.2011.
- STG-1 Synchronized on 03.10.2011.
- Delhi will be getting 70% of power generation from this project.
- The project is to be fully commissioned in 2012-13.

2. Pragati Power – II Bamnauli (750 MW):

Plan Outlay
XII FYP : ₹90820.00 Lakh
AnnualPlan2012-13: ₹7500.00 Lakh

Cost of the Scheme/Project is ₹3022.00 Cr. to be financed with 23.17% equity from GNCTD, 6.83% from its own sources and the balance 70% through loan from Government and Financial Institutions.

Status of the project:

Land already acquired, Environment and Other Clearances obtained, water tied up from Dwarka STP of DJB, Gas availability Committed by MoPNG, Turn Key Order placed on BHEL on 29.03.2011. ₹ 100 Crore of equity released by GNCTD upto March 2011 and ₹ 300 crore of equity released by GNCTD in Nov 2011. **Proposed Physical Targets for Annual Plan (2012-13)**:- Placement of order and commencement of works including approval of drawings etc. **Schedule:-** Year of Commencement:- 2011-12, Commissioning 2014-15 and Completion 2015-16.

3. 1500 MW Coal based Power Project at Jhajjar

There are 3 units of 500 MW each. 2 Units have been synchronized with the system. Out of which Delhi will be getting 500 MW of power. 3rd Unit is expected to be commissioned in 2012:

(i) year of commencement – 2007-08
(ii) Project Cost (Revised) - ₹7892.42 Crore
(iii) GNCTD has fully contributed its share of ₹577 Crore as equity, therefore no outlay is proposed in current financial year.

NEW SCHEME:

4. Setting up of four new generation Plants (4 Gas based Plants)

Plan Outlay
XII FYP : ₹150200.00 Lakh
Annual Plan 2012-13: ₹3000.00 Lakh

(i) Gas Based Power Plant at Kanjhawla, North – West Delhi (350 MW)

Proposed to be set up by a JV company of PPCL, DSIIDC and GAIL India. It consist two Gas Turbine and one Steam Turbine with an estimated cost of ₹1400 crore with 70:30 debt equity funding ratio.

(ii) Replacement of 270 MW Gas Turbine Power Station (330 MW)

To be set up with advanced 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.

(iii) Establishing a 330 MW Gas Based Power Plant at the site of Rajghat Power House

Proposed to be set up subsequent to its decommissioning in a module of two Gas Turbine of 104 MW each and one Steam Turbine Generator of 122 MW. Estimated project cost is ₹1320 crore.

(iv) 350 MW Gas Based Combined cycle Power Plant at the Site of Indraprastha Power Station

It Consist two Gas Turbine and one Steam turbine.

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

The coal block, Mara – II Mahan in Distt. Singraulli is allocated to the Govt. of Delhi and HPGCL. The Coal reserves indicated in the Regional Exploration Report is 955 Million Tones (Grade A to Grade F). For Preparation of Geological Report, the case is pending with MoEF to accord necessary permission for forest prospecting. 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 with an estimated Cost of ₹12000 Cr.

5. **Renewable Energy (earlier known as DREPC)**

Plan Outlay

XII FYP : ₹10000.00 Lakh
Annual Plan 2012-13: ₹2000.00 Lakh

After closure of Rajghat Power House and demerger of GTPS as Delhi Renewable Energy & Power Company will take care of the following:-

- Act as nodal agency for setting up renewable energy generation projects for Delhi.
- Act as designed agency to coordinate, regulate and enforce the provision of the Energy Conservation Act 2001.
- To coordinate and liaise with different departments/ agencies in undertaking various activities to promote energy efficiency and energy conservation.

- To prepare a state and sectoral energy data base.

- The existing Renewable Energy Management Company of Environment Department would be submerged with this company. The capital base of this company would be the funds; it will receive from the sale of Rajghat Power Plants and the transfer of the assets of the gas plant to PPCL.

- Revenue Model:- The business plan for new company, M/s Delhi Renewable Energy & Power Company is being prepared by M/s SBI Capitals for which it had been given consultancy assignment by IPGCL.

- Equity Share:- SBI Capital will submit its report of business plan by 28.02.2011 as the proposal of Department of Power is to convert IPGCL into a green company. It is not prudent that IPGCL has any kind of relation with activities directly or indirectly related to coal/ conventional sources of fuel supply. Therefore, it is suggested that subsequent to Rajghat Power House closure, merger of GTPS with PPCL, the shares from Aravali Power Project, Jhajjar and Yamuna Coal Company Limited may be held by Government of NCT of Delhi.

Target: 47 MW capacity will be installed from Renewable Energy Sources by the end of 12th Five Year Plan and 5.262 MWp Solar PV Power Plant is proposed for the FY 2012-13.

B. Transmission Sector

The Company **Delhi Transco Ltd**. i.e. the State Transmission Utility has proposed to carry out the following transmission works:

Plan Outlay
XII FYP : ₹160000.00 Lakh
Annual Plan 2012-13: ₹35000.00 Lakh

1. 400 KV SYSTEM

(i) 400/220/66 kV Sub station at East of Loni (Harsh Vihar)

For bringing power from NTPC Generating Station at Dadri and injecting it into Delhi system, the following transmission infrastructure had been envisaged during the 26th SCM of CEA held on 30th October 2008.

a. Establishment of 400/220/66 kV S/Stn. in East Delhi to be constructed by DTL.

b. A dedicated 400kV D/C Transmission Line from Dadri Generating Station to the proposed 400 kV S/Stn. in East Delhi to be constructed by M/s PGCIL on behalf of NTPC.

Accordingly, a 400/220/66kV S/stn has been conceived at Harsh Vihar in East Delhi with a transformation capacity of 3 x 315 MVA at 400 kV level and 3 x 160 MVA at 220 kV voltage level. The power shall be evacuated at 220 kV level through South of

Wazirabad and proposed Anand Vihar S/stns while at 66 kV voltage level, the following existing 66/11 kV Grids will be utilized for dispersal of about 170 MVA of power.

- 66/11 kV S/Stn. at East of Loni
- 66/11 kV S/Stn. at Yamuna Vihar
- 66/11 kV S/Stn. at Nand Nagri

The Substation was included in the previous Business Plan with scheduled completion in 2011-12, but got delayed as the part of land is under litigation. The work has already been awarded and is now scheduled for completion by 2012-13.

(ii) Upgradation of 220kV Park Street S/Stn to 400kV S/Stn

Central Delhi is very densely populated having large number of commercial areas at Connaught Place; Karol Bagh, Patel Nagar; Paharganj; Kamla Market; Ajmeri Gate etc. The load requirements have increased many folds during the past years but it has become rather impossible to get any space for creating a new 400kV or 220kV S/stn for meeting this increasing power demand. Accordingly, DTL has proposed to upgrade the existing 220 kV S/Stn. at Park Street into a 400 kV GIS S/Stn. to meet the load requirements of Central Delhi as well as the NDMC areas. The S/Stn. is proposed to be completed in the year 2016-17 at an estimated cost of ₹ 320 Crore.

(iii) 400/220kV Indoor S/Stn at Okhla

The scheme for 400/220kV Indoor S/Stn at Okhla is proposed to meet the load growth demand of the south Delhi areas. Due to large scale infrastructural developments in South Delhi, the load requirements are increasing at a very high rate but due to non availability of spare land in the area, the only alternative left is to upgrade an existing 220kV sub-station. Accordingly, DTL has proposed to upgrade the existing 220 kV S/Stn. at Okhla into a 400 kV GIS S/Stn. to meet the load requirements of South Delhi. The S/Stn. is proposed to be completed in the year 2016-17 at an estimated cost of ₹ 220 Crore.

(iv) 400 kV U/G cable from Maharani Bagh to Park Street

In order to provide in feed to the proposed 400 kV S/Stn. at Park Street, DTL proposes an underground 400 kV cable link from 400 kV Maharani Bagh S/Stn. The scheme is proposed to be completed in the year 2016-17 at an estimated cost of ₹ 250 Crore.

(v) LILO of Ballabhgarh- Dadri at Okhla-O/H

In order to provide in feed to the proposed 400 kV S/Stn. at Okhla, DTL proposes LILO of 400kV Ballabhgarh- Dadri T/L at Okhla. The scheme is proposed to be completed in the year 2016-17 at an estimated cost of ₹ 100 Crore.

2. 220 KV SYSTEM

(i) 220/66 KV SUB STATION AT ROHINI II

DDA has acquired 788 hectares of land in Rohini phase IV & V for development. As per the land use intimated by NDPL, the anticipated load requirement of the area is around 400 MVA. This load is likely to come up in phases in next 2-3 years. In order to meet this upcoming power demand, a 220/66kV S/stn in Rohini phase IV/V area with 2 x 160 MVA Transformers was conceived under Business Plan 2007-11. The awarded cost of the scheme is ₹ 36 crores. The work has already been awarded and is under execution with scheduled completion in 2012-13.

(ii) 220 kV GIS S/STN. AT WAZIRPUR

CEA had recommended a 220 kV S/Stn. at Wazirpur in its System Studies Report, to meet the growing load demand to Wazirpur and Ashok Vihar Area. Accordingly, a 220kV GIS was proposed at Wazirpur with 2 x 100 MVA power transformers. The awarded cost of the S/stn is ₹ 48.5 crores and will be completed in the year 2012-13. The scheme has been shifted in 2012-13 due to non finalization of land.

1. 220/66 kV GIS S/STN. AT PEERA GARHI

CEA had recommended a 220 kV S/Stn. at Peera Garhi in its System Studies Report, to meet the growing load demand of the West Delhi area and to ensure uninterrupted and quality power to the people of that area. Accordingly, a 220/33kV GIS has been proposed at Peera Garhi with 2 x 100 MVA power transformers. The awarded cost of the S/stn is ₹ 51 crores and will be completed in the year 2012-13.The scheme has been shifted in 2012-13 due to non finalization of land.

2. 220/66 KV S/STN. AT PAPPANKALAN III

The scheme has been prepared to meet the growing load demand of West and South-West Delhi areas; especially the Dwarka sub-city; to ensure the uninterrupted and quality power to the people of that area. The cost of the scheme with installed capacity of 2 x 160 MVA Power Transformers is ₹ 57.45 Crores (approx.). Land for this Substation is already available and will be completed in the year 2013-14.

3. 220/66 KV GIS S/STN. AT TUGHLAKABAD

To relieve the critically loaded sub station at Okhla as well as to meet the load requirements of Air Force Station/MES in Tughlakabad and South Delhi areas, a new S/Stn. at Tughlakabad/Sangam Vihar has been proposed, having the transformation capacity of 2 x 100 MVA. The tentative cost of the scheme is ₹ 80 crores (approx.). This project is scheduled to be completed in the year 2013-14.

4. 220/33 KV GIS S/STN. AT RAJGHAT POWER HOUSE (RPH)

To control the pollution level, Govt. of NCT of Delhi has decided to close the Rajghat Power House. This closure of Rajghat Power House will lead to a reduction of about 100 MW in the power availability. At present, the Walled city area along with Kamla Market, Indoor Stadium and the Delhi Sachivalaya are being fed from RPH. In order to maintain the continuity of supply to these areas, a 220/33 kV GIS S/Stn., having the transformation capacity of 3 x 100 MVA has been proposed at Rajghat Power House. The cost of the scheme is ₹ 85 crores and will be completed in the year 2013-14.

5. 220/33 KV SUB STATION AT ANAND VIHAR

This S/Stn. was also a part of Business Plan 2007-11 and was proposed for evacuation of the power from 400 kV S/Stn. at East of Loni Road with its completion extending beyond March, 2011. The S/stn will be of indoor type (GIS) having the transformation capacity of 3 x 100 MVA. The tentative cost of the S/Stn. is ₹ 85 crores and is likely to be completed in the year 2014-15.This scheme could not be completed in previous Business plan due to non-availability of Land.

6. 220/66 KV S/STN. AT SANJAY GANDHI TRANSPORT NAGAR (GIS)

To meet the power load requirement of North Delhi, a new S/Stn. at SGT Nagar having the transformation capacity of 2 x 160 MVA has been proposed. The tentative cost of the scheme is ₹ 85 crores (approx.). This project will be completed in the year 2015-16.

7. 220/66 KV S/STN. AT PUNJABI BAGH [GIS]

A huge infrastructural development has taken place near Vishal Cinema complex at Raja Garden during past few years where a large number of Malls have already come up with many more under construction. As a result, the load demand of the area has increased. There is no nearby 220kV S/Stn. with spare capacity to meet this additional load. A 220kV sub-station has therefore become necessary in this area in order to meet the load requirement of West Delhi, including Punjabi Bagh, ESI Hospital and the commercial complexes coming up at Raja Garden/Vishal Enclave. Accordingly, a new S/Stn. at Punjabi Bagh/Raja Garden having the transformation capacity of 2 x 160 MVA has been proposed. The tentative cost of the scheme is ₹ 85 crores (approx.). This project will be completed in the year 2015-16 subject to allocation of land.

8. 220/33 KV S/STN. AT CHANDRAWAL

To off-load the existing 220 kV S/Stns. at Gopalpur, Subzi Mandi and Kashmere Gate, it was considered to establish a 220 kV S/Stn. which can share the load of the aforesaid sub-stations. Adequate space in the existing Chandrawal Workshop site is available for the establishment of 220 kV GIS S/Stn. This will facilitate the improvement of the power supply in the NDPL area and will also provide margins in the existing sub-stations to cover up the contingencies as per the Planning criterion. The cost of the scheme with installed capacity 2 x 100 MVA Power Transformers is ₹ 80.00 crores (approx.) and is scheduled for commissioning in the year 2015-16.

9. 220 KV S/STN. AT BUDELLA- II S/STN. (GIS)

The area between Najafgarh and Mundka, around and beyond the Outer Ring Road is very densely populated. However, there is no 220kV substation in this belt to take care of its power requirements. The 220kV substation at Najafgarh is already saturated and itself needs some relief. Accordingly, a new S/Stn. at Budella II having the transformation capacity of 2 x 160 MVA has been proposed. The tentative cost of the scheme is ₹ 85 crores (approx.). This project will be completed in the year 2015-16. The sub-station shall be established in the spare land available in the existing 66kV grid of BRPL at Budella-II.

10. 220/66 KV SUB STATION AT WEST OF JNU

To meet the power load requirement of South Delhi, a new S/Stn. at West of JNU having the transformation capacity of 2 x 160 MVA has been proposed. This S/Stn. will relieve the critically loaded substations at Mehrauli and Vasant Kunj. The tentative cost of the scheme is ₹ 85 crores (approx.). This project will be completed in the year 2015-16.

11. 220/66 KV SUB STATION AT WALLED CITY AREA

To meet the power load requirement of walled city area and to improve the reliability of power, a new S/Stn. at Walled City Area having the transformation capacity of 2 x 100 MVA has been proposed. The tentative cost of the scheme is ₹ 80 crores (approx.). This project will be completed in the year 2015-16.

12. CONVERSION OF AIS INTO GIS

A number of 220kV substations of DTL which were commissioned in the late 70s, have out-lived their useful life as per the norms specified by the Hon'ble Commission. As such, the following substations are proposed to be converted from AIS to GIS in the phased manner.

a) Conversion of existing 220 & 66 kV yard into GIS at Lodhi Road
b) Conversion of IP 220/33 kV Switch yard at IP Station
c) Conversion of 220 kV Switch yard into GIS at Subzi Mandi
d) Conversion of 220/66/33 kV Switch yard into GIS at Okhla
e) Conversion of 220/66/33 kV Switch yard into GIS at Patparganj
f) Conversion of 33 kV Switch yard into GIS at Gopalpur

3. DETAILS OF AUGMENTATION PROJECTS AT 400KV and 220 KV SUBSTATIONS

CEA has recommended N-1 redundancy in the Transmission System however, in DTL system N-1 criteria has not been achieved yet. Main reason for this is the non availability of space in the existing substations for installing additional transformers. Accordingly, new substations have been proposed to overcome this situation in such areas. However, considering the critical loadings of existing transformers and availability of space, augmentation of Transformation capacity at following sub-stations has been proposed.

1. 1x315 MVA 400/220kV Transformer at 400kV Mundka S/Stn

At present, there are two 315MVA, 400/220kV Transformers at Mundka. However, in order to have desired redundancy in the system taking into consideration N-1 criteria, a scheme for 3rd 315 MVA Transformer has been prepared, to be commissioned in the year 2012-13. The estimated cost of the scheme is ₹ 11 Crore.

2. 1x315 MVA 400/220kV Spare Transformer at 400kV Mundka S/Stn

In the Grid Coordination committee held on 25.10.2010 it was decided to have one hot reserve of transformers at every voltage level. Since the transformer is required to be kept energized, it has been proposed to establish the spare transformer at 400/220kV Mundka sub-station alongwith associated bays. The scheme has been prepared and the estimated cost of the scheme is ₹ 15.55 Crore to be commissioned in the year 2013-14.

3. Augmentation of 2x315 MVA Transformers by 500MVA Transformer at 400kV Bamnauli S/Stn

At present there are 4 nos 315 MVA, 400/220KV transformers at Bamnauli. In order to evacuate the power of proposed generating station of PPCL at Bamnauli, it is proposed to augment 2 nos 315 MVA Transformers by 500MVA Transformer at this substation. The estimated cost of the scheme is ₹ 34 Crore and scheduled to be complete by 2015-16. The two transformers, so dismantled shall be used at Park Street or Okhla substations proposed to be upgraded to 400kV level.

4. PAPPANKALAN II

In the Grid Coordination committee held on 25.10.2010 it was decided to have one hot reserve of transformers at every voltage level. Further Grid Coordination committee advised to have one 220/66kV, 160MVA transformer also to meet any eventuality. Since the transformer is required to be kept energized, it has been proposed to establish the spare transformer at 220/66kV Pappankalan-II sub-station. The scheme has been prepared and the estimated cost of the scheme is ₹ 11 Crore to be commissioned in the year 2012-13.

5. SARITA VIHAR

Initially, a scheme for 1 no. 160 MVA power transformer at 220/66KV substation Sarita Vihar was conceived and approved by the Board of DTL. The scheme was also approved 'In Principle' by the DERC on 27.04.09. However, the 160 MVA transformer could not be transported to the substation due to the constraints of approach to the substation. In order to meet the load requirement of the area, a scheme for 100 MVA Transformer has been prepared, to be commissioned in the year 2012-13. The estimated cost of the scheme is ₹ 8 Crore.

6. GAZIPUR

In order to meet the load requirement of the area as well as taking into consideration N-1 criteria, a scheme for one no. 160 MVA additional transformer is proposed, to be commissioned in the year 2013-14. The estimated cost of the scheme is ₹ 11 Crore.

7. RIDGE VALLEY

Considering the loadings of the existing 66/33kV transformers at Ridge Valley, it has become essential to provide additional capacity at 33kV level. Accordingly, a 220/33kV, 100 MVA Transformer has been considered, to be commissioned in the year 2013-14. The estimated cost of the scheme is ₹ 11 Crore.

8. OKHLA

In order to meet the load requirement of the area as well as taking into consideration N-1 criteria, a scheme for additional 160 MVA Transformer is being prepared, to be commissioned in the year 2015-16. The estimated cost of the scheme is ₹ 11 Crore.

9. GOPALPUR

In order to meet the load requirement of the area as well as taking into consideration N-1 criteria, a scheme for 4th 160 MVA Transformer is being prepared, to be commissioned in the year 2013-14. The estimated cost of the scheme is ₹ 11 Crore.

10. SUBZI MANDI

In order to meet the load requirement of the area as well as taking into consideration N-1 criteria, a scheme for 3rd 100 MVA Transformer is being prepared, to be commissioned in the year 2014-15. The estimated cost of the scheme is ₹ 8 Crore.

11. PATPARGANJ

The 50 MVA Transformer, installed at Patparganj, has since completed its life and has been outdated. As such, a scheme for replacement of this 50 MVA Transformer with a 100 MVA Transformer is being proposed during the year 2014-15 to take care of the load requirements. The estimated cost of the scheme is ₹ 8 Crore.

12. SHALIMAR BAGH

In order to meet the load requirement of the area as well as taking into consideration N-1 criteria, a scheme for 4th 100 MVA Transformer is being prepared, to be commissioned in the year 2014-15. The estimated cost of the scheme is ₹ 8 Crore.

13. KANJAWALA

In order to meet the load requirement of the area as well as taking into consideration N-1 criteria, a scheme for additional one no. 160 MVA Transformer is being prepared, to be commissioned in the year 2015-16. The estimated cost of the scheme is ₹ 11 Crore.

These augmentation works will provide additional 1250 MVA Transformation capacity in the existing 220kV system and 1000 MVA in the 400kV system.

1. Central Control Room

DTL has also planned a separate and independent Central Control Room as per the recommendation of KEEMA for effective implementation of automation and to achieve the ultimate goal of un-manned substations. Accordingly, a provision has been kept for this central Control Room with its completion during 2014-15. The Central Control Room shall be established in the existing/new sub-station lands.

2. Replacement of exiting porcelain disc insulators with polymer insulators

NRPC in its meeting have recommended the replacement of exiting porcelain disc insulators with polymer insulators in high pollution area to avoid tripping during foggy conditions. Accordingly scheme of replacement of exiting porcelain disc insulators in the 220kV Transmission line with polymer insulators have been included in this Business plan in phased manner to be commissioned in the year 2013-14. The estimated cost of the work is ₹ 13 Crore.

DETAILS OF 220 KV TRANSMISSION LINKS PROJECTS PROPOSED DURING 12TH PLAN

1. D/C U/G FROM MUNDKA TO PEERA GARHI

The scheme for D/C U/G XLPE cable from 400 kV S/Stn. Mundka to Peera Garhi was prepared to feed proposed S/Stn. at Peera Garhi S/Stn. The scheme has already been approved by DERC. The work has been awarded at ₹ 112 Cr. The project will be completed in the year 2012-13.

2. D/C U/G FROM PEERA GARHI TO WAZIRPUR

The scheme of D/C U/G from Peeragarhi to Wazirpur was prepared to give the second feed to Wazirpur S/Stn. as well as Peera Garhi S/Stn. The scheme has already been approved by DERC. The work has been awarded at ₹ 88 Cr. The work will be completed in the year 2012-13.

3. D/C U/G CABLE FROM HARSH VIHAR (EAST OF LONI ROAD) TO SOUTH OF WAZIRABAD

To evacuate the power at 220 kV voltage level from proposed 400 kV Harsh Vihar S/Stn., a D/C U/G cable from Harsh Vihar S/Stn. to South of Wazirabad S/Stn. has been

proposed. The estimated cost of the scheme is ₹ 131.65 crores. The scheme will be completed in the year 2013-14.

4. D/C BAWANA TO ROHINI II BY U/G CUM O/H LINES

Earlier, a scheme was prepared of O/H transmission Line to Rohini II S/Stn. In some portion DDA has not allowed over head transmission line, as such this scheme has been revised, taking the disputed portion in under ground mode. The cost of the scheme is ₹ 17.43 crores and will be completed in the year 2013-14.

5. S/C U/G FROM OKHLA TO MASJID MOTH

At present, 220 kV S/Stn. Okhla is at radial mode as well as Masjid Moth S/Stn. To give the additional feeds to these S/Stns. a single circuit U/G link has been proposed between Okhla and Masjid Moth. The estimated cost of the scheme is ₹ 55.46 crores. The scheme will be completed in the year 2013-14.

6. S/C U/G CABLE FROM KASHMERE GATE TO SUBZI MANDI

At present, 220 kV S/Stns at Kashmere Gate and Subzi Mandi are at radial mode. To give the second feed to these S/Stns. a single circuit U/G interlink has been proposed between Kashmere Gate and Subzi Mandi. The estimated cost of the scheme is ₹ 27.99 crores. The scheme will be completed in the year 2013-14.

7. D/C LOOP IN BY U/G CABLE OF NAJAFGARH – KANJAWALA AT MUNDKA

For evacuation of the power at 220 kV voltage level from 400 kV S/Stn. Mundka, earlier a scheme was prepared for Loop In Loop Out of O/H Najafgarh – Kanjawala Line at Mundka. The work of Loop out portion is under execution. However the scheme of one portion i.e. Loop in could not be implemented due to ROW constraint by DDA, as such this scheme was prepared for Loop in by U/G cable. The estimated cost of the scheme is ₹ 65 crores and will be completed in the year 2013-14.

8. S/C U/G CABLE FROM PAPPANKALAN-I TO PAPPANKALAN-II

At present, 220 kV S/Stn. Pappankalan I is at radial mode as well as Pappankalan II. To give the second feed to these S/Stns. a single circuit U/G circuit has been proposed between Pappankalan I to Pappankalan II. The estimated cost of the scheme is ₹ 46.55 crores. The scheme will be completed in the year 2013-14.

9. LILO MEHRAULI – BTPS AT TUGHLAKABAD (MES)

The scheme for LILO Mehrauli – BTPS at Tughlakabad (MES) has been prepared to feed the Tughlakabad (MES) S/Stn. The estimated cost of the scheme is ₹ 20 crores. The scheme will be completed in the year 2013-14.

10. S/C U/G PARK STREET TO ELECTRIC LANE

At present, 220 kV S/Stn. Park Street is at radial mode as well as Electric Lane S/Stn. To give the additional feeds to these S/Stns. a single circuit U/G link has been proposed between Park Street and Electric Lane. The estimated cost of the scheme is ₹ 26.81 crores. The scheme will be completed in the year 2013-14.

11. S/C U/G FROM KASHMIRI GATE TO RPH

The scheme for S/C U/G XLPE cable from Kashmiri Gate to RPH has been prepared to feed the RPH S/Stn. from Kashmiri Gate. The estimated cost of the scheme is ₹ 28 crores. The scheme will be completed in the year 2013-14.

12. D/C U/G CABLE FROM HARSH VIHAR (EAST OF LONI ROAD) TO ANAND VIHAR

Vihar S/Stn., a D/C U/G cable from Harsh Vihar S/Stn. to Anand Vihar S/Stn. has been proposed To evacuate the power at 220 kV voltage level from proposed 400 kV Harsh. The estimated cost of the scheme is ₹ 105 crores. The scheme will be completed in 2014-15.

13. S/C U/G FROM RIDGE VALLEY TO VASANT KUNJ

At present, 220 kV S/Stn. Vasant Kunj is at radial mode. To give the additional feeds to this S/Stns. a single circuit U/G link has been proposed between Ridge Valley and Vasant Kunj. The estimated cost of the scheme is ₹ 69.72 crores. The scheme will be completed in the year 2015-16.

14. **S/C U/G CABLE FROM LODHI ROAD TO ELECTRIC LANE**

At present, 220 kV S/Stn. Lodhi Road is at radial mode from Maharani Bagh. To give the second feed to this S/Stn. a single circuit U/G circuit has been proposed between Lodhi Road and Electric Lane. The estimated cost of the scheme is ₹ 34.37 crores. The scheme will be completed in the year 2015-16.

15. S/C U/G CABLE FROM PAPPANKALAN III TO DIAL

At present DIAL S/Stn. is fed from Loop in Loop out Badarpur – Mehrauli Line. DIAL S/Stn. is of prime importance and is paramount, keeping in view that this S/Stn. feeds to IGI Airport as well as DMRC, as such to give the second feed to this S/Stn., a single circuit cable from Pappankalan III has been proposed for reliability concern. The cost of the scheme is ₹ 91.5 crores and will be completed in the year 2015-16.

16. D/C U/G BAWANA TO SANJAY GANDHI TRANSPORT NAGAR

The scheme for the D/C U/G XLPE cable from Bawana to Sanjay Gandhi Transport Nagar sub-station has been proposed to feed the proposed Sanjay Gandhi Transport Nagar S/Stn. The estimated cost of the scheme is ₹ 80 crores and will be completed in 2015-16.

17. LILO PEERA GARHI – WAZIRPUR AT PUNJABI BAGH

The scheme for the Loop in Loop out Peera Garhi – Wazirpur D/C U/G XLPE cable has been proposed to feed the proposed Punjabi Bagh S/Stn. The estimated cost of the scheme is ₹ 60 crores and will be completed in the year 2015-16.

18. **LILO GOPAL PUR – SUBZI MANDI AT CHANDRAWAL**

The scheme for the Loop in Loop out Gopalpuri – Subzi Mandi D/C U/G XLPE cable has been proposed to feed the proposed Chandrawal S/Stn. The estimated cost of the scheme is ₹ 30 crores and will be completed in the year 2015-16.

19. **D/C U/G CABLE FROM PEERA GARHI TO BUDELLA -II**

The scheme for the D/C U/G XLPE cable from Peera Garhi to Budella II has been proposed to feed the proposed Budella II S/Stn. The estimated cost of the scheme is ₹ 60 crores and will be completed in 2015-16.

20. D/C U/G CABLE FROM BAMNAULI TO PAPPANKALAN III

The scheme for D/C U/G XLPE cable from Bamnauli to Pappankalan III has been prepared to feed the Pappankalan III S/Stn. from Bamnauli. The estimated cost of the scheme is ₹ 65 crores. The scheme will be completed in the year 2015-16.

21. **LILO SUBZI MANDI - KASHMERE GATE AT WALLED CITY AREA S/STN**

The scheme for the LILO Subzi Mandi - Kashmere Gate at Walled city area S/Stn S/C U/G XLPE cable has been proposed to feed the proposed Walled city area S/Stn. The estimated cost of the scheme is ₹ 21 crores and will be completed in the year 2015-16.

22. LILO MEHRAULI – VASANT KUNJ AT WEST OF JNU

The scheme for the Loop in Loop out Mehrauli – Vasant Kunj D/C U/G XLPE cable has been proposed to feed the proposed West JNU S/Stn. The estimated cost of the scheme is ₹ 60 crores and will be completed in the year 2015-16.

23. D/C O/H CUM U/G MAHARANI BAGH TO GAZIPUR

The scheme was prepared for erection of D/C O/H transmission Line from Maharani Bagh to Gazipur. Some of the portion of this proposed transmission line passes through NOIDA area. NOIDA authority is not providing the permission for erection of the transmission line. As such the scheme has been shifted to 2012-13.

24. LILO of 2nd circuit of Pragati - Sarita Vihar T/L at Maharani Bagh by O/H cum U/G arrangement

Due to closing of the RPH station, the power availability to the tune of 130 MW would be reduced. To overcome this loss of 130 MW in power system of Delhi, a System Study was carried out From the system study, it reveals that load can be met from the existing

configuration with LILO of Second circuit of Pragati (I.P. Extn.) - Sarita Vihar line at Maharani Bagh Sub-station. The estimated cost of the scheme is ₹ 3.94 crores. The scheme will be completed in the year 2012-13.

25. LILO of Bamnauli- Naraina T/L at PPK-III

The scheme for LILO of Bamnauli- Naraina T/L at PPK-III has been prepared to feed the Pappankalan III S/Stn. The estimated cost of the scheme is ₹ 5 crores. The scheme will be completed in the year 2013-14.

26. Replacement Of Zebra Conductor Existing 220 Kv Lines With Ht Ls Conductor

To enhance the ampicity of the existing Zebra conductor which were commissioned in the late 70s, DTL has proposed to replace Zebra conductor into high temperature low sag conductor which will enhance the capacity of the transmission line upto two times of existing capacity, having the same towers. DTL has proposed to spend ₹ 100 crores in the phased manner for replacement of the conductor as under:

2014-15 – ₹ 10 crores
2015-16 – ₹ 50 Crores
2016-17 – ₹ 40 crores

LAND PROCUREMENT AND UPGRADATION OF THE INFRASTRUCTURE

The land for the S/Stns. is to be handed over by DDA, other land owning agencies as per the DDA variant rates. Payment will be given as per the Terms & Conditions of land owning agencies for allotment of land.

Further, to avoid any encroachment, boundary wall is essential to be constructed. At most locations, in order to have proper drainage of the area where land is allotted, filling of land is required for raising and leveling upto formation level of the plot. The civil works of the S/Stn. are part of the turn key scheme for establishment of the S/Stn. as prepared by the Planning Deptt. The expenditure towards construction of the boundary wall besides leveling and land filling are not a part of turn key contract.

DTL has also planned a Central Control Room as per the recommendation of KEEMA. The Central Control Room shall be established in the existing/new sub-station lands.

C. POWER DEPARTMENT:

1. **Acquisition of Land for augmentation of Power Infrastructure**

Plan Outlay
XII FYP : ₹ 10000.00 Lakh
Annual Plan 2012-13: ₹ 500.00 Lakh

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 ₹ 500 lakh is approved for 2012-13 for this scheme.

2. Shifting of HT / LT Transmission Lines

Plan Outlay
XII FYP : ₹ 1000.00 Lakh
Annual Plan 2012-13: ₹ 200.00 Lakh

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.