BUSINESS PLAN

FOR THE

CONTROL PERIOD 2007-11

COMMERCIAL DEPARTMENT
(IP Estate New Delhi-110002)

DELHI TRANSCO LIMITED
(A Govt.of NCT of Delhi Undertaking)
Reg.Office: Shakti Sadan, Kotla Marg
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INDEX

PREFACE ……..2

CHAPTER –1 : CAPITAL INVESTMENT PLAN ……. 4-41

CHAPTER –2 : CAPITAL STRUCTURE ……...……42-45

CHAPTER 3 : O&M CHARGES …...……..……46-48

CHAPTER-4 : DEPRECIATION ….....……..… 49-50

CHAPTER –5 PERFORMANCE TARGET ……..…51-57

CHAPTER-6: NON -TARIFF INCOME & INCOME FROM OTHER BUSINESS...……. …….58-59

CHAPTER –7 : SLDC CHARGES …...……..… 60-61

ANNEXURE –I : TERMS AND CONDITIONS OF LOAN ……62-64

ANNEXURE –II ORDER OF COMMISSION ON DSIDC-BAWANA ……65-70

BUSINESS PLAN FOR THE FIRST CONTROL PERIOD OF MYT 2007-11

PREFACE

Delhi Electricity Regulatory Commission have made the regulations specifying the terms and conditions for determination of Transmission Tariff for DTL for the First Control Period of MYT (2007-11) which was notified in Delhi Gazette: extraordinary published on 30th May, 07. As per provisions of the regulations, the transmission licensee i.e. DTL is required to file for the Commission's approval, a **BUSINESS PLAN** approved by the Board of Directors for DTL. Accordingly the present business plan has been prepared for the First Control Period of MYT 2007-11which inter-alia contains:

(a) Capital Investment Plan: The Investment Plan is commensurate with load growth as projected by DTL also taking into consideration the projections made in 17th EPS and quality improvement proposed in the business plan. The investment plan also includes corresponding capitalization schedule and financing plan;

(b) The appropriate capital structure and cost of financing (interest on that) and return on equity, terms of the existing loan agreements, etc. has been furnished;

(c) Operation and Maintenance (O&M) expenses: This includes the cost estimated for the Base Year, the actual expenses incurred in the previous two years and the projected values for each year of the Control Period based upon the norms for O &M cost, including indexation and other appropriate mechanism as provided in the MYT Regulations;

(d) Depreciation: Based on the fair life of the asset and capitalization schedules for each year of the Control Period depreciation has been provided;

(e) Performance Target: A set of targets proposed for controllable items such as Availability of transmission system, transformer failure rate, and

parameters for quality of supply consistent with the Capital Investment Plan have been annexed;

(f) Proposals for Non-Tariff Income with item-wise description and details;

(g) Proposals in respect of income from Other Business.

The detailed write up for each component of the business plan is given in the subsequent chapters. The business plan has been prepared based upon the MYT regulations, Provisions of Electricity Act 2003 and other related regulations/provisions of the Law, Standard Accounting Practices and prevailing operation and maintenance norms etc.

CHAPTER 1

CAPITAL INVESTMENT PLAN

CAPITAL INVESTMENT PLAN

Govt. of National Capital Territory of Delhi (GNCTD) vide its notification dated 21st March 2003 has notified Delhi Transco Limited [DTL] as "State Transmission Utility" for National Capital Territory of Delhi [NCTD]. The functions of State Transmission Utility as provided in the Electricity Act, 2003 are being discharged by DTL for the NCTD. DTL undertakes the following functions:-

1. Transmission of Electricity through 400kV & 220kV intra-State Transmission system.
2. Discharges all functions of Planning and Co-ordination relating to intra-State transmission system with PGCIL, IPGCL, PPCL, NTPC and other generating companies supplying power to Delhi besides NRPC, CEA, Distribution Licensees and deemed Licensees namely NDPL, BRPL, BYPL, NDMC and MES etc.
3. It delivers power at 66/33KV level to NDMC, MES & DISCOMs for distribution in their respective areas by up gradation, operation and maintenance of its EHV network. Power is also supplied to DISCOMs at 11kV voltage level from existing 220kV Grid Sub-stations of DTL.

DTL is continuously improving the performance and availability of its system employing latest technology in a cost effective manner with due social concern and operations to the satisfaction of licensees and stakeholders.

The year-wise capacity addition in the 400KV and 220 KV sub-station, 400 and 220 KV transmission line and the corresponding financial outlay required for the works envisaged in the Control Period 2007-11 are given below:

YEAR	Capacity addition (in MVA)	Lines addition (in Km.)
2007-08	1160	15.91
2008-09	-	72.4
2009-10	3420	140
2010	880	15

DTL proposes to meet the fund requirements for its Capital Investment Plan during the Control Period out of the plan loan assistance to be provided by GNCTD which will constitute 70% of the cost of the projects envisaged whereas the balance 30% shall be equity for which fund requirement shall be arranged out of internal accruals/infusion of additional equity by GNCTD.

Although the works envisaged have been planned corresponding to the provisions contained in the 11th Five Year Plan of DTL, prepared as per the recommendations of Central Electricity Authority, the actual execution of works shall depend upon the availability of land for new projects to be provided by the respective development agencies, availability of right of way for the proposed new transmission lines and grant of other statutory clearances that will be required from time to time. The slippage of targets on account of causes beyond the control of DTL cannot be ruled out all together.

However, DTL's best endeavor will be to adhere to the time schedule and to ensure that all the works are completed well before time. In case of slippage, the works as also be corresponding financial liabilities shall be shifted to the subsequent years.

The Capital Investment Plan along with its annexure is placed below:-

CHAPTER-I

Details of 400KV & 220KV Sub-Stations proposed During the Control Period 2007-11

❖ **Planning Criteria:** The planning criteria detailed herein are primarily meant for long-term (10 years and above) and medium term (5 – 10 Years) perspective.

DTL system is planned on the basis of the regional self sufficiency based on the load generation balance considering the adequate interconnection capacity at appropriate points taking into account topology of the two networks, shortages due to the forced outages, diversity in weather pattern and load forecasting errors.

The requirement in respect of EHV sub station in a system such as total load catered by the sub station of a particular voltage level, its MVA capacity, number of feeders permissible etc. is considered for adoption of next higher voltage level sub station and also the number of sub stations required for meeting a particular quantum of load. Keeping these in view the following criteria has been laid down for planning an EHV sub station:

1. The maximum fault level on any new sub station bus does not exceed 80% of the rated rupturing capacity of the circuit breaker. The 20% margin is intended to take care of the increase of the short circuit level as the system grows. The rated breaking current capability for switch gear at different voltage level is taken as under:

   - 220kV – 31.5/40 kA
   - 400kV – 40kA

2. The capacity of single sub-station at different voltage level generally do not exceed 320 MVA for 220 kV Sub station and 1000 MVA for 400kV Sub-station as per CEA norms. However, in the compelling circumstances these norms are not strictly adhered to.

3. The size and number of the interconnecting transformers as well as transmission lines are being planned in such a way that the outages of any two units would not over load the remaining ICTs or transmission lines adopting (N-2) criteria.

- All the schemes prepared are based upon the rates as per latest contract awarded/purchase orders from Stores Deptt. / Prevailing market rates. Further the cost of the schemes which are proposed to be completed beyond first control period has been kept based on the present price indices, however cost as per price indices at the time of execution shall be applicable for which necessary approval will be taken from Hon'ble Commission . In the estimation of the scheme, the interest during construction i.e. IDC is considered @ 11.5% p.a., which is added to the completion cost of the scheme at the time of capitalization.
- Fund requirement for the works shall be met out of debt and equity in the ratio of 70:30. Whereas the debt requirement shall be met from Plan Loan Assistance to be provided by the GNCTD carrying out interest @ 11.5% p.a., the equity fund requirement shall be met out of internal actuarials and infusion of additional equity by GNCTD.
- The power from the up-coming 1500 MW Jhajjar coal based power station being developed by Aravali Power Corporation is also proposed to be inducted into DTL's transmission system at Mundka for which a dedicated transmission link is being planned by PGCIL.

Details of 400KV & 220Kv Sub-Stations projects proposed During the Control Period 2007-11

A) 400KV SYSTEM

1. 400/220/66 KV MUNDKA S/STN. (4x315MVA)

Central Electricity Authority have envisage establishment of 400/220KV S/Stn. at Mundka in West Delhi to meet the growing power demand in Delhi in the System Studies under the 10th plan. Besides, there have been plans of extension of Metro route in West Delhi near Mundka and DMRC have also intimated their power requirement. The establishment of this sub-station at Mundka in West Delhi will not only help in meeting the increasing power requirement in that area but will also help as a future source of in-feed point for power from Northern Grid. The proposed Transmission Lines for inducting Delhi share of upcoming 1500 MW Power Station at jhajjar is also planned to be connected to Mundka 400kV Grid Sub-station. The estimated cost of the scheme for establishment of 400/220/66KV S/Stn. with 2x315MVA and 2x160MVA Power Transformers is Rs. 177.92 crores. This project will be completed in the year 2009-10.

2. South East Delhi (Near Mandi Village) (400/220KV S/Stn)

The scheme for establishing 400/220KV S/Stn. is under finalization as per the CEA recommendation for meeting the load growth demand of the South East Delhi area to ensure the uninterrupted & quality power to the people of that area. The proposed transformation capacity at 400KV would be 2X315MVA. The tentative cost of the project is 120 crores. The project will be completed after the first control period.

3. East of Loni Road (East Delhi) (400/220KV S/Stn)

As per CEA recommendation in their system studies report, the scheme is under finalization to meet the load growth demand of the East Delhi area & to ensure the uninterrupted & quality power to the people of that area. The proposed

transformation capacity at 400KV would be 2X315MVA. The tentative cost of the project is 120 crores. The project will be completed after the first control period.

B) 220KV SYSTEMS

1. Masjid Moth

As per the system studies carried out by CEA, a scheme for ETC of 220/ 33 KV S/Stn. at Siri Fort was prepared and Contract was awarded to M/s BHEL for Turn-key execution. The cost of the scheme was Rs.18.31 Crores including 2x20MVA, 33/11KV Transformers. The site has been changed from siri Fort to Masjid Moth. M/s BHEL has been awarded the work on turnkey basis on the revised cost of Rs. 24.29 Crores (without C & R Panels, which will be supplied by BHEL on cost, plus basis and excluding the scope of 2x20MVA, 33/11Kv Transformers). This scheme has been prepared to meet the load growth demand of South Delhi and to ensure uninterrupted and quality power to the people of that area. This project will be completed in FY 2008-09.

2. Bawana DSIDC-I

This scheme had been prepared to meet the load growth demand of industries under the reallocation scheme of industries to ensure the uninterrupted & quality power to the industries at the estimated cost of Rs. 26.75 crores.

This is a deposit work and the entire cost of the project i.e. Rs. 26.75 Crores (approx.) shall be met out partly from the deposit made by the DSIDC with erstwhile DVB and the balance expenditure shall be incurred by DTL and claimed as expenses in ARR for FY 2007-08. The project will be completed by October-2007.

(3) Wazirpur Indl. Area

During the meeting held in CEA, regarding comprehensive study of transmission system of Delhi for 10th plan (2006-07), NDPL expressed the need to create 220/33KV Grid S/Stn. at Wazirpur for improvement/ strengthening of 33KV

network in Wazirpur – Ashok Vihar area and also for providing additional source of supply.

Central Electricity Authority, in its comprehensive study report on transmission system of Delhi for 10th plan (2006-07) recommended that there is a requirement of 220/33KV Grid S/Stn. for improvement of power supply to Wazirpur and Ashok Vihar Area and also to relieve critically loaded 220/33KV Grid S/Stn. at Shalimar Bagh.

In this project, we are going for world-class state of the art technology i.e. Gas Insulated Switchgear. The cost of the scheme for installing 2x160MVA Pr. Trs. is Rs. 56.54 crores (approx.). This project will be completed in the year 2010-11

(4) Electric Lane

The scheme has been prepared to meet the load growth demand of NDMC area of Delhi to ensure the uninterrupted & quality power to the people of that area. This is one of the main sources of power supply to New Delhi area.

DTL has planned a State-of-Art 220KV GIS S/Stn. at Electric Lane in the NDMC area with installed capacity of 2x160MVA. The estimated cost of the scheme is Rs. 77.18 Crores. The scheme has been revised for installing 2x100MVA Power Transformers due to constraint in the rating of 33KV GIS. This project will be executed on Turnkey basis. It will strengthen the supply system to network of NDMC area.

Tender have already been floated on 13.10.2006 and opened on 07.03.2007. This project will be completed in the year2009-10.

(5) Trauma Center (AIIMS)

DTL has planned a State-of-Art 220KV GIS S/Stn. at Trauma Center (AIIMS) in the NDMC area with installed capacity of 2x160MVA to feed Trauma Center, Lodhi Estate, Sarojini Nagar, Safdrjung Air Port, Jor Bagh, AIIMS, Kidwai Nagar, & Race Course. The estimated cost of the scheme is Rs. 78.55 Crores. The scheme has

been revised for installing 2x100MVA Power Transformers due to constraint in the rating of 33KV GIS. This project will be executed on Turnkey basis. It will strengthen the supply system to network of NDMC area.

The decision taken in the meeting taken by Secretary (power) on dated 07.06.06 that land for 220KV S/Stn. shall be handed over to DTL immediately, but the land is yet to be handed over by NDMC. Tenders have been floated on 13.10.2006 and opened on 07.03.2007. This project will be completed in the year 2009-10.

(6) Chandrawal

To off-load the existing 220kV S/Stns. namely Gopalpur, Subzi Mandi and Kashmere Gate, it was considered to establish a 220kV S/Stn. which can share the beat of the aforesaid sub-stations. Adequate space in the existing Chandrawal Workshop site is available for the establishment of 220kV GIS S/Stn. This will facilitate for improvement of the power supply by taking out more 33kV Feeders for improvement of the power supply in the NDPL area and to provide margins in the existing sub-stations to cover up the contingencies as per the Planning criterion. This will also improve the power supply in Civil Lines and University area as well as provide stable supply to Chhatrasal stadium at which some of the events of Common-Wealth Games 2010 will be held.

In this project, we are going for world-class state of the art technology i.e. Gas Insulated Switchgear in Chandrawal. The cost of the scheme with installed capacity 2x100MVA Pr. Trs. is Rs 61.80 crores (approx). This project will be completed in the year2010-11.

(7) Rohini Ph-IV & V

DDA has acquired 788 hectares of land in Rohini phase IV&V and planned to develop the same. As per the land use intimated by NDPL, the anticipated load requirement is 690MVA. Taking diversity factor the total load demand comes out to

be of the order of 400MVA. This load is likely to come up in phases in 5 years. The estimated cost of the scheme with installed capacity 2x160MVA Pr. Trs. is Rs 38.30 Crores (approx). This project will be completed in the year2010-11.

(8) Ridge Valley

The 66-33/11kV S/Stn. at Ridge Valley is a source of power supply to NDMC, MES and South Delhi areas of BSES. To meet the increased power requirements in the area, it was recommended by Central Electricity Authority to upgrade this sub-station to 220kV level. In this project, we are going for world class state of the art technology i.e. Gas Insulated Switchgear. The cost of the scheme with installed capacity of 2x160MVA Pr. Trs. is Rs.86.20 Crs. (approx.). This project will be completed in the year 2009-10.

9. Pappankalan-III

The scheme has been prepared to meet the load growth demand of the West, South-West Delhi area as well as Dwarka to ensure the uninterrupted & quality power to the people of that area. The cost of the scheme with installed capacity of 2x160MVA Pr. Trs. is Rs.26.18. Crs. (approx.). This project will be completed in the year2009-10.

(10) IGI Airport

This scheme has been prepared to meet the large power requirement of Delhi International Airport Ltd. (DIAL) , DMRC and upcoming West end Greens and other development in the area of BRPL. A 220/66Kv Grid S/Stn. would be established in the land to be provided at IGI Airport. This GIS S/Stn. would have a capacity of 2x160MVA initially. The cost of the scheme with installed capacity of 2x160MVA Pr. Trs. is Rs.120.33 Crs. (approx.). This project will be completed in the year 2009-10.

(11) Jhatikara More (2 X 160MVA)

CEA has recommended a 220KV S/Stn.at Jhatikara More in the system studies report, to meet the load growth demand of the West, West-South Delhi area to ensure the uninterrupted & quality power to the people of that area. The tentative cost is 28 crores (approx.) for installing 2x160MVA Power Transformers. This project will be completed in the year2010-11 subject to allocation of land.

(12) Bakhtawar Pur (Burari) (2 X 160MVA)

CEA has recommended a 220KV S/Stn. at Bakhtawarpur (Burari) in the system studies report, to meet the load growth demand of the North Delhi area to ensure the uninterrupted & quality power to the people of that area. The tentative cost is 28 crores (approx.) for installing 2x160MVA Power Transformers. This project will be completed in the year 2010-11 subject to allocation of land.

(13) Punjabi Bagh (GIS) (2 X 160MVA)

CEA has recommended a 220KV S/Stn. at Punjabi Bagh in the system studies report, to meet the load growth demand of the West Delhi area to ensure the uninterrupted & quality power to the people of that area. The tentative cost is 65 crores (approx.) for installing 2x160MVA Power Transformers This project will be completed in the year 2010-11 subject to allocation of land.

(14) Peera Garhi (Sultanpuri)(GIS) (2 X 160MVA)

CEA has recommended a 220KV S/Stn.at Peera Garhi in the system studies report, to meet the load growth demand of the West Delhi area to ensure the uninterrupted & quality power to the people of that area. The tentative cost is 65 crores (approx.) for installing 2x160MVA Power Transformers This project will be completed in the year 2010-11.

(15) <u>BAWANA DSIDC-II:</u>

While considering the electrification scheme for upcoming Bawana DSIDC Industrial Complex way back in the year 1998-99, the establishment of 2 Nos. 220kV

Grid Sub-station was envisaged and accordingly the plot of land for the same were identified and taken over by erstwhile DVB from DSIDC before unbundling of DVB.

DERC in its order dated 12.08.2004 in Petition No. 21/2004 filed by NDPL had decided that a joint assessment of requirement of 66kV and 220kV Grid Sub-stations for Bawana DSIDC Industrial Complex shall be made by NDPL and DTL and the report to this effect shall be submitted to the Hon'ble Commission for its approval. The said report is in final stages and may be submitted to the Commission shortly.

Pending final decision of establishment of Sub-station with the approval of the Commission, DTL has worked out tentative cost of the establishment of sub-station at Rs. 33 Crore, provision of Rs. 15 crore to be spent in the year 2010-11 for this work has been provisionally kept in the Investment Plan of DTL. However, final view shall be in lines with the decision of the Hon'ble Commission in this regard.

The Project will go beyond the control year (2007-11). In case the sub-station is established within the Investment Plan of DTL, it shall form a part of DTL Assets on completion. The work shall be taken up only after Investment Approval for this Project is accorded by the Commission.

CHAPTER-II

Details of Augmentation projects at 220Kv S/Stns. During the Control Period 2007-11

(1) Augmentation at GT/IP Extn

At present existing 2 Nos. 100 MVA power transformers at GT station switchyard are overloaded. It was envisaged for full drawl of the power from GT station to augment these transformers into 160 MVA. Accordingly, this scheme has been prepared at an estimated cost of Rs.12.5 Crores. It is projected that transformers will be commissioned by March 2008.

(2) Vasant Kunj

As per the load projections made by CEA as well as BSES, a load growth of 94MW has been anticipated in the adjoining area of Vasant Kunj. A Scheme for installation of 3rd 100MVA power transformer has accordingly been finalized, thus making the total transformation capacity of 300MVA to feed Vasant Kunj, Vasant Vihar and also adjoining areas. Two 100MVA Power transformers will be spared after commissioning of 160 MVA power transformers at IP Extn & one of the same will be utilized at Vasant Kunj. This project will be completed by March-2008

(3) Shalimar Bagh

In order to meet the load demand of the area as well as taking into consideration N-1 criteria, a scheme for installation of 3rd 100MVA power transformer has been finalized, thus making the total transformation capacity of 300MVA to feed North Delhi area. Two 100MVA Power transformers will be spared after commissioning of 160 MVA power transformers at IP Extn & one of the same will be utilized at Shalimar Bagh. The estimated cost of the scheme is Rs.3.90 Crores. This project will be completed by March-2008

(4) 4th Transformer at SOW

In order to meet the load demand of the area as well as taking into consideration N-1 criteria, a scheme for installation of 4th 160MVA power transformer is being prepared. The tentative cost is Rs. 7.5 crores. This project will be completed by 2008-09

(5) Gazipur

In order to meet the load demand of the area as well as taking into consideration N-1 criteria, a scheme for installation of 3rd 1x160MVA power transformer is under finalization, thus making the total transformation capacity of 360MVA to feed East Delhi area. The tentative cost is Rs. 7.5 crores. This project will be completed by 2009-10.

(6) Gopalpur

In order to meet the load demand of the area as well as taking into consideration N-1 criteria, a scheme for installation of 4th 1x160MVA power transformer is being prepared to feed North Delhi area. The tentative cost is Rs. 7.5 crores. This project will be completed by 2010-11.

(7) Sarita Vihar

In order to meet the load demand of the area as well as taking into consideration N-1 criteria, a scheme for installation of 3rd 160MVA power transformer is being prepared, thus making the total transformation capacity of 360MVA to feed South -East Delhi are.. The tentative cost is Rs. 7.5 crores. This project will be completed by 2009-10.

(8 Okhla

In order to meet the load demand of the area, a scheme for augmentation of existing 2 no. 50MVA with 2x100MVA Power Transformer at 220KV Okhla has been prepared. The estimated cost is Rs. 11.04 crores. This project will be completed by September-2008.

CHAPTER-III

Details of 400KV & 220Kv Transmission Links projects proposed During the Control Period 2007-11

A) 400KV SYSTEM

1. LILO Bawana to Bamnauli at Mundka (D/C)

In order to give feed to 400 KV S/Stn. at Mundka, this scheme for LILO Bawana-Bamnauli at Mundka has been prepared. The estimated cost of the scheme is Rs. 6.23 crores. This project will be completed in the year 2009-10.

2. LILO Bamnauli to Ballabhgarh at Mandi Village (S/C)

In order to give feed to 400Kv S/Stn. at Mandi Village, a scheme for LILO Bamnauli to Ballabhgarh at Mandi Village is being prepared. The tentative cost is Rs. 75 crores. This project will go beyond the year 2010-11.

3. LILO Mandola to Dadri at East of Loni Road (S/C)

In order to give feed to 400Kv S/Stn. at East of Loni road, a scheme for LILO Mandola to Dadri at East of Loni Road is under finalization. The tentative cost is Rs. 50 crores. This project will go beyond the year 2010-11.

B) 220KV SYSTEM

1. D/C U/G Maharani Bagh- Masjid Moth

The scheme for D/C U/G XLPE cable Maharani Bagh - Masjid Moth has been prepared to feed the Masjid Moth S/Stn. from Maharani Bagh 400KV S/Stn. The estimated cost of the scheme is Rs.79.06 crores. ICB tender has been floated on 11.10.2006 and has already been opened in the month of May-2007. This project will be completed in the year 2008-09.

2. Okhla to Masjid Moth

Central Electricity Authority in its studies for Transmission and Sub-transmission of Delhi for 10th Plan have now envisaged a inter-connector through S/C, U/G 1000/1200 sq. mm cable between Okhla & Masjid Moth which will introduce flexibility and facilitate exchange of power between the two Sub-Stations in contingencies conditions. The estimated cost of the scheme is Rs. 46.10 crores. This project will be completed in the year 2009-10.

3. Ridge Valley- Naraina

During the review meeting in Central Electricity Authority, it has been decided that existing 66 kV S/Stn. be upgraded to 220 kV GIS S/Stn. by DTL.

Further, a meeting was held in CEA on 23.06.2005 where CEA have conveyed the results of another system study of power system of Delhi. As per this study a S/C interconnection from Naraina to Ridge Valley and a S/C from Trauma Center (AIIMS) to Ridge Valley have been envisaged to provide optimal interconnection & double source to 220KV S/Stn. at Ridge Valley.

Thus in order to provide 220 kV feed to Ridge Valley, it has been planned to lay single circuit 1x1200 sq. mm XLPE cable from existing 220 kV S/Stn. at Naraina. The estimated cost of the scheme is Rs. 29.17 crores. This project will be completed in the year 2009-10.

4. Contingency arrangement for evacuation of power from 400/220KV Maharani Bagh S/Stn.

At present 220 KV Lodhi Road is being fed through T-off arrangements from 220 KV D/C T/L between IP Ext. to BTPS. CEA in its system studies had recommended the feed of this S/Stn. from proposed 400/220 KV S/Stn. at Maharani Bagh as well as from existing 220 KV S/Stn. at Parkstreet. Due to availability of the 220 KV bay at Maharani Bagh S/Stn. as well as to evacuate the power from Maharani Bagh S/Stn., this Contingency arrangement for evacuation of power from 400/220KV Maharani Bagh S/Stn to Lodhi Road S/Stn. has been prepared. The

estimated cost of the scheme is Rs. 5.87 crores. This project will be completed in the year 2007-08.

5. Maharani Bagh- Trauma center (AIIMS)

The scheme for D/C U/G XLPE cable has been prepared to feed the Trauma center S/Stn. from Maharani Bagh 400KV S/Stn. The estimated cost of the scheme is Rs. 93.13 crores. ICB tender have been floated on 11.10.2006 and has already been opened in May-2007. This project will be completed in the year 2009-10.

6 Maharani Bagh- Electric Lane

The scheme for D/C U/G XLPE cable has been prepared to feed the Electric Lane S/Stn. from Maharani Bagh 400KV S/Stn. The estimated cost of the scheme is Rs. 78.83 crores. ICB tender have been floated on 11.10.2006. In this project, we are going to lay 1x1200 sq.mm. XLPE cable. This project will be completed in the year 2009-10.

7. Maharani Bagh to Ghazipur(D/C U/G cum O/H)

To strengthen the system, the scheme for D/C U/G XLPE cable Maharani Bagh to Ghazipur has been prepared to feed the Ghazipur S/Stn. from Maharani Bagh 400KV S/Stn. The estimated cost of the scheme is Rs. 20.74.crores. This project will be completed in the year 2009-10.

8 S/C U/G Lodhi Road to Park Street

The scheme for S/C U/G XLPE cable from Lodhi Road to Park Street has been prepared to interlink the Lodhi Road and Park Street S/Stns. The estimated cost of the scheme is Rs.43.40 crores. This project will be completed in the year 2009-10.

9. D/C U/G Maharani Bagh to Okhla

The scheme for D/C U/G XLPE cable Maharani Bagh to Okhla has been prepared to feed the Okhla S/Stn. from Maharani Bagh 400KV S/Stn. The estimated cost of the scheme is Rs. 155.78 crores. This project will be completed in the year 2009-10.

10. D/C U/G AIIMS to Ridge Valley

The scheme for D/C U/G XLPE cable AIIMS to Ridge Valley has been prepared as a main source from Maharani Bagh 400KV S/Stn via AIIMS. The estimated cost of the scheme is Rs. 65.86 crores. This project will be completed in the year 2009-10.

11. S/C U/G Park Street to Elect. Lane

The present demand of NDMC of about 270/280MW is being fed through 220KV Park Street, I.P.Stn., Lodhi Road and I.P.Extn. S/Stn. by way of 33KV & 66KV Feeders. During comprehensive study carried out by CEA in 2003-04, NDMC had accessed anticipated peak demand of 401MW by the end of 10th plan period.

Accordingly, in order to provide additional source of supply to NDMC, Central Electricity Authority in its comprehensive study report on transmission system of Delhi 10th plan 2006-07 had recommended establishment of 2 Nos. 220KV S/Stn. at Electric Lane & Trauma Centre, which are to be connected from Maharani Bagh 400/220KV S/Stn.

Further, a meeting was held in CEA on 23.06.2005 where CEA have conveyed the results of another system study of power system of Delhi. As per this study, a single circuit interconnection from 220 kV Park Street to proposed 220 kV S/Stn. at Electric Lane has been envisaged to provide double source.

Thus in order to provide 220 kV interconnection feed to this sub-station, it has been planned to lay single circuit 1x1200 sq. mm XLPE cable from existing 220 kV S/Stn. at 220 kV Park Street to Electric lane .

Accordingly, the scheme has been conceived & formulated. The total cost of the scheme comes out to be Rs. 21.26 crores. This project will be completed in the year 2009-10.

12. S/C U/G Kashmiri Gate to Subzi Mandi

The 220KV S/Stations at Subzi Mandi & Kashmiri Gate are on single source having feed from 220KV S/Stn. Gopal Pur and 220 KV S/Stn. South Of Wazirabad respectively. Subzi Mandi 220KV S/Stn. is source of supply to the important Civil Lines area besides, Shehjada Bagh and Walled City. Similarly, 220KVS/Stn.Kasmeri Gate feeds DMRC as well as Civil Lines, and Walled City. In order to have uninterrupted supply to VIP Civil Line area which consist of Vidhan Sabha Raj Niwas & DMRC supply it is considered prudent to provide double source by interconnecting these Sub- stations in North Delhi as Single source failure may create shortage/non-availability of power in the area leading to interruption/ rotational load shedding.

Thus a scheme has been conceived & formulated for Supply, Laying, Jointing, Testing Commissioning of 220KV S/C 1x1200 sq. mm. XLPE cable from 220KV S/Stn. Kashmiri Gate to Subzi Mandi to interconnect Subzi Mandi and Kashmiri Gate S/Stns so as to create availability/flexibility of both the sources at Gopal pur as well as South of Wazirabad in the eventuality of outage of any of the sources at these Sub-Stations. The estimated cost of the scheme is Rs. 22.89 crores. This project will be completed in the year 2009-10.

13. D/C U/G Shalimar Bagh to Wazirpur Ind. Area

The scheme for D/C U/G XLPE cable from Shalimar Bagh to Wazirpur Ind. Area has been prepared to feed the proposed Wazirpur 220 Kv S/Stn. The estimated cost of the scheme is Rs. 44.62 crores. This project will be completed in the year 2010-11

14. D/C U/G LILO Gopalpur to Subzi Mandi line at Chandrawal

The scheme for laying D/C U/G XLPE cable for LILO Gopalpur to Subzi Mandi O/H transmission line at Chandrawal has been prepared to feed the proposed 220KV Chandrawal S/Stn. The estimated cost of the scheme is Rs. 32.29 crores. This project will be completed in the year 2010-11.

15. LILO D/C O/H Bamnauli to Mehrauli with U/G cable at IGI Airport

The scheme for LILO D/C O/H Bamnauli to Mehrauli line with U/G cable at IGI Airport has been prepared to feed the 220KV IGI Airport S/Stn. The estimated cost of the scheme is Rs. 172.29 crores. This project will be completed in the year 2009-10.

16. D/C O/H Bamnauli to PPK-III

The scheme for D/C O/H Bamnauli to PPK-III has been prepared to feed the PPK-III S/Stn. from Bamnauli 400KV S/Stn. The estimated cost of the scheme is Rs. 3.71 crores. This project will be completed in the year 2009-10.

17. D/C U/G Mundka to Peera Garhi

In order to provide 220 Kv feed to proposed Peera Garhi 220 Kv S/Stn., a scheme for D/C U/G XLPE cable between Mundka to Peera Garhi is being prepared . The tentative cost is 70 crores. This project will go beyond 2010-11.

18. D/C U/G Peera Garhi to Punjabi Bagh

In order to feed Punjabi Bagh S/Stn., a scheme for D/C U/G XLPE cable from Peera Garhi to Punjabi Bagh is being prepared . The tentative cost is 70 crores. This project will go beyond 2010-11.

19. D/C U/G Punjabi Bagh to Wazirpur Ind. Area

In order to provide alternate feed to Wazirpur Ind. Area S/Stn., a scheme for D/C U/G XLPE cable Punjabi Bagh to Wazirpur Ind. Area is being prepared. The tentative cost is 42 crores. This project will go beyond 2010-11.

20. LILO D/C O/H Bawana to Rohini at Rohini Ph-IV & V

In order to feed Rohini Ph-IV & V, a scheme for LILO D/C O/H Bawana to Rohini at Rohini Ph-IV & V is being prepared. The tentative cost is 2 crores. This project will be completed in the year 2011-12.

21. LILO D/C O/H Mandola to Narela at Bakhtawarpur

In order to feed 220KV Bakhtawarpur, a scheme for LILO D/C O/H Mandola to Narela at Bakhtawarpur is being prepared. The tentative cost is 10.5 crores. This project will go beyond 2010-11.

22. LILO D/C O/H Bawana to DSIDC-I at DSIDC-II

In order to feed 220KV DSIDC-II., a scheme for LILO of D/C O/H Bawana to DSIDC-I transmission line at DSIDC-II is being prepared . The tentative cost is 2 crores. This project will go beyond 2010-11.

23. LILO D/C O/H Bamnauli – Najafgarh at Jhatikara More

In order to feed 220KV Jhatikara More sub station, a scheme for LILO of D/C O/H Bamnauli – Najafgarh transmission line at Jhatikara More is being prepared. The tentative cost is 5 crores. This project will go beyond 2010-11.

Corporate Office Building

DTL has envisaged construction of Corporate Office Building at Maharani Bagh, 400KV S/Stn.site on a peace of land measuring 900 sq.mtr. The building is being designed following the provisions of ECBC and Green Building concept. The structure will be earthquake resistant. There will be provisions of recycling of waste water which will be used for horticulture and other purposes. There is provision of rain water harvesting and use of fly-ash bricks/blocks. The building will be energy efficient. The estimate cost of the building shall be around Rs.18 crore. The work will be completed by 2009-10.

CHAPTER-IV

Land Procurement & Up gradation of infrastructure & construction of corporate building*g*

The land for sub-stations are to be handed over by DDA, other land owing Agency i.e Gaon Sabha land under GNCTD, NDMC, International Airport Authority (GMR) etc. The land will be handed over to GNCTD and further to DTL and payments will be given by DTL as per DDA variant rates @ 20% per annum as licence fee for land allotted through DDA. And from other agencies payment will be given as per terms & conditions of land owing agencies and case routed through GNCTD for land allotment.

Further land as handed over needs to be protected for any encroachment, so boundary wall is essential to be constructed. At most locations in order to have proper drainage of area where land is allotted, filling is required for raising and leveling upto formation level of Plot. The civil works of S/Stn. are part of turnkey scheme for establishment of Sub-station as prepared by Planning Department. The expenditure towards construction of boundary wall besides leveling and land filling are not a part of the turnkey contracts.

Some works for infrastructure up- gradation are required to be executed in different 220KV/400KV Grids as per requirement of Construction Department, O&M Department and Security Department etc. which are also incorporated in Control Period 2007-11 with phase wise expenditure. This also includes the year wise expenditure in respect of new corporate green building and renovation of existing various buildings during the control period 2007-11.

Chapter-V

Number of Sub-Station under Transco

Details of 400/220KV S/Stn. existing in DTL

Annexure-I

A. 400KV S/Stn.

Description	Existing
400kV Sub-stations	Bawana 4x315 MVA =1260 MVA
	Bamnauli 4x315 MVA =1260 MVA
Transformation Capacity (Total)	**2520 MVA**

B. 220KV S/Stn.

S.No	EXISTING	220/66kV (1)	220/33kV (2)
1.	Gazipur	2x100=200	
2.	Geeta Colony		2x100=200
3.	Gopalpur	1x100=100	2x100=200
4.	I.P. Extn.	2x100=200	
5.	Kanjhawala	2x100=200	
6.	Kashmere Gate		2x100=200
7.	Lodhi Road		2x100=200
8.	Mehrauli	3x100=300	
9.	Najafgarh	4x100=400	
10.	Naraina		3x100=300
11.	Narela	3x100=300	
12.	Okhla	2x100=200	2x100=200 2x50=100
13.	Pappankalan-I	4x100=400	
14.	Pappankalan-II	2x100=200	
15.	Park Street	2x100=200	2x100=200
16.	Patparganj	2x100=200	2x100=200 2x50=100
17.	Rohini	4x100=400	
18.	Sarita Vihar	2x100=200	
19.	Shalimar Bagh		2x100=200
20.	S.O.W I & II	1x100=100 2x100=200	
21.	Subzi Mandi		2x100=200
22.	Vasant Kunj	2x100=200	
	Transformation capacity (TOTAL)	**4000**	**2300**

Details of 400KV & 220KV Sub-Stations projects proposed During the Control Period 2007-11

Annexure-II

S.NO.	Name of the Sub Station	Transformation Capacity (MVA)
A	**400KV S/Stn.**	
1.	Mundka	2x315
2.	South East Delhi (Near Mandi Village)	2x315
3.	East of Loni Road (East Delhi)	2x315
	TOTAL	**1890**
B	**200KV S/Stn.**	
1.	DSIDC Bawana-I	2x100=200
2.	DSIDC Bawana-II	2x160=320
3.	Masjid Moth	2x100=200
4.	Bakhtawarpur (Burari)	2x160=320
5.	Chandrawal	2x100=200
6.	Jhatikara More	2x160=320
7.	Pappankalan-III	2x160=320
8.	Punjabi Bagh	2x160=320
9.	Peera Garhi (Sultanpuri)	2x160=320
10.	Ridge Valley	2x160=320
11.	Rohini-II(Ph-IV & V)	2x160=320
12.	Trauma Centre (AIIMS)	2x100=200
13.	Elec. Lane	2x100=200
14.	Wazirpur Ind. Area	2x100=200
15.	Mundka	2x160=320
16.	IGI Air Port	2x160=320
	TOTAL	**4400**

Details of Augmentation projects at 220KV Sub-Stations proposed During the Control Period 2007-11

Annexure-III

S.NO.	Name of the Sub Station	Transformation Capacity (MVA)
	220KV S/Stn.	
1.	Gazipur	1x160=160
2.	Gopalpur	1x160=160
3.	I.P. Extn.	2x160 – 2x100=120
4.	Sarita Vihar	1x160=160
5.	Shalimar Bagh	1x100=100
6.	S.O.W	1x160=160
7.	Vasant Kunj	1X100=100
	TOTAL	**960**

Details of 400KV & 220KV Transmission Links projects proposed During the Control Period 2007-11

Annexure-IV

Sl. No.	Name of the Sub Station	Line length (KMs)
A	**400KV.**	
1.	LILO Bawana to Bamnauli at Mundka (D/C)	2X2x1
2.	LILO Bamnauli to Ballabh Garh at Mandi Village (S/C)	2x15
3.	LILO Mandola to Dadri at East of Loni Road (S/C)	2x10
B	**200KV**	
1.	D/C U/G Maharani Bagh to Masjid Moth	2x9.5
2.	S/C U/G Okhla to Masjid Moth	1x6.5
3.	LILO D/C O/H Bamnauli – Najafgarh at Jhatikara More	2x3
4.	D/C O/H Bamnauli to Papankalan-III	2x5.5
5.	Contingency Arrangement from evacuation of power from 400/220KV Maharani Bagh s/Stn. – U/G cum O/H arrangement for D/C transmission link between Maharani Bagh & Lodhi Road	O/H – 0.38 U/G – 0.05
6.	Maharani Bagh to Ghazipur D/C U/G cum O/H	O/H -8.5 Km. U/G 1.5 Km
7.	S/C U/G Ridge Valley to Naraina	1x5.4
8.	S/C U/G Lodhi Road to Park Street	1x8.5
9.	D/C U/G Maharani Bagh to Trauma Center (AIIMS)	2x11
10.	D/C U/G Maharani Bagh to Elec. Lane	2x9.5
11.	D/C U/G Maharani Bagh to Okhla	2x11
12.	D/C U/G AIIMS to Ridge Valley	2x6.6
13.	S/C U/G Park Street to Elect. Lane	1x3.8
14.	S/C U/G Kashmiri Gate to Subzi Mandi	1x4
15.	D/C U/G Shalimar Bagh to Wazirpur Ind. Area	2x1.5
16.	D/C U/G LILO Gopalpur to Subzi Mandi Line at Chandrawal	2x1.5
17.	D/C U/G Mundka to Peera Garhi	2x7
18.	D/C U/G Peera Garhi to Punjabi Bagh	2x7
19.	D/C U/G Punjabi Bagh to Wazirpur Ind. Area	2x5
20.	LILO D/C O/H Bawana to Rohini at Rohini Ph-IV & V (New)	2x1.5
21.	LILO D/C O/H Mandola to Narela at Bakhtawarpur	2x8
22.	LILO D/C O/H Bawana to DSIDC-I at DSIDC-II	2x2
23.	LILO D/C O/H Bamnauli to Mehrauli with U/G cable at IGI Airport	2x6

CAPITAL INVESTMENT PLAN

SUMMARY OF CAPITAL INVESTMENT PLAN FROM 2005-06 TO 2010-11

(Rs. in Crore)

S.NO.	Name of the Scheme	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
A	400KV Works	36.05	6.93	74.67	94.7	160.55	73.02
B	220KV Works	36.38	36.12	89.85	1145.38	540.93	345.56
C	Miscellaneous O &M capital works of 400KV & 220KV S/stns.	0	17.26	6.12	27.83	30.40	33.82
D	Up gradation of infrastructure & Construction of Corporate building	0.19	0.00	21.68	41.91	35.95	23.43
	TOTAL*	72.69	60.31	192.32	1309.82	767.83	475.83

As per form-16a

PROJECT-WISE/SCHEME-WISE CAPITAL EXPENDITURE

TRANSMISSION PROGRAMME FROM 2007-08 TO 2010-11

(Rs. in crores)

S. No.	NAME OF THE TRANSMISSION LINE & ASSOCIATED SUBSTATIONS	LENGTH OF LINE (Ckt.Kms.) / S/S. CAP. (MVA)	MATERIAL COST (Rs Crores)	COMPLETION PROGRAMME / REMARKS	YEAR WISE FUND REQUIREMENT (Rs. Crores)					
					PY 2005-06	CY 2006-07	EY 2007-08	EY 2008-09	EY 2009-10	EY 2010-11
1	2	3	4	7	8	9	10	11	12	13
I.	**400 KV LINES**									
1	LILO D/C O/H Bawana-Bamnauli at Mundka	2x2x1	5.607	Dec.-2009	0	0	0	4	1.607	0
2	LILO S/C O/H Bamnauli-Ballabgarh at Mandi Village	2x15	53	Mar-12	0	0	0	0	0	5
3	LILO D/C O/H Mandola-Dadri at East of Loni Road	2x10	40	Jan.-2012	0	0	0	0	0	5
	SUB TOTAL (II) (400kV LINES)	**0**	**98.607**		**0**	**0**	**0**	**4**	**1.607**	**10**
II.	**400 KV SUB STATIONS**									
1	Maharani Bagh (8 No. of 220KV Bays)		55.2	Mar-08			28.2	0	0	0
2	a. Establishment of 400/220/66KV S/stn. At Mundka (2x315MVA) b. Civil Cost	2x315MVA 2x160MVA	150.25 12.00	Dec.-2009			20 3.00	60 7.00	70.25 2.00	

3	a) South-East Delhi (Near Mandi Village) b) Civil Cost		120 25.00	Mar-12			0	0 10.00	20 8.00	20 7.00
4	a) East of Loni Road 400KV S/Stn. (2x315MVA) b) Civil Cost	2x315MVA	120 10.00	Jan-12			0	0 4.00	20 4.00	20 2.00
5.	Unforeseen Works for 400KV S/S		6.00		0	0	2.00	1.5	1.5	1.00
	SUB TOTAL (II) (400KV S/S)	**0**	**498.45**		**0**	**0**	**53.2**	**82.5**	**125.75**	**50**
	TOTAL (400KV S/S & LINES)		**597.05**		**0**	**0**	**53.2**	**86.5**	**127.35**	**60**
III.	**220 KV LINES**									
1	LILO D/C O/H Bawana – Najafgarh at Kanjhawala	12.4	1.48	Jan-08			0.15	0	0	0
2.	220KV D/C U/G cum O/H T/L Maharani Bagh- Sarita Vihar.	2	5.50	March,-2008			5.5	0	0	0
3.	Direct O/H feed to Gopalpur from Mandola	2x0.09	0.26	Completed in June 2007			0.26	0	0	0
4.	Interlink Gopalpur and SOW O/H at Gopalpur side.	2x.52	0.52	Completed in June 2007			0.52	0	0	0
5.	Interlinking Gopalpur and SOW O/H at South of Wazirabad side	2x1.25	1.38	2007-08			0.98	0	0	0
6.	D/C O/H Bawana – Narela at DSIDC-I(deposit work)	13.91	5.51	Oct.-2007			0.27	0	0	0

7.	220 KV D/C U/G cum O/H transmission link between 400 KV Maharani Bagh and Lodhi Road S/stn.	1.3	2.22	Sep.-2007			2.22	0	0	0
8.	D/C U/G Maharani Bagh to Masjid Moth (Siri Fort)	2x9.5	73.88	Oct.-2008			0	73.88	0	0
9.	D/C O/H Pappankalan I - Pappankalan II	2x11	2.24	Mar-09			1.62	0.62	0	0
10.	D/C U/G Maharani Bagh to Trauma Centre(AIIMS)	2x11	87.04	Oct.-2009			9	75	3.04	0
11.	S/C U/G Okhla to Masjid Moth (Sirifort)	1x6.5	41.61	Dec.-2009			0	37	4.61	0
12.	D/C O/H Bamnauli – Pappankalan-III	2x11	3.34	Jan.-2010			0	2	1.34	0
13.	D/C U/G cum O/H Maharani Bagh – Gazipur	18	17.55	Dec.-2009			0	10	7.55	0
14.	S/C U/G Ridge valley to Naraina	1x5.4	24.34	May-09			0	23	1.34	0
15.	S/C U/G from Lodhi Road to Park Street	1x8.5	38.64	March,-2010			0	35	3.64	0
16.	D/C U/G Maharani Bagh to Electric Lane	2x9.5	73.67	June,-2009			8	63	2.67	0
17.	D/C U/G Maharani Bagh to Okhla	2x11	136.87	June,-2009			0	125	11.87	0
18.	D/C U/G Ridge Valley to Trauma Centre (AIIMS)	2x6.6	58.38	May-09			0	53	3.38	0
19.	S/C U/G Kashmere Gate to Subzi Mandi	1x4	19.63	March,-2010			0	15	4.63	0
20.	D/C U/G transmission link for LILO of 220 KV D/C O/H between Bamnauli & Mehrauli at IGI	2x2x6	151.42	July,-2009			0	120	31.42	0

21.	D/C U/G Shalimar Bagh to Wazirpur Ind. Area	2x1.5	42.01	Jan.-2011			0	5	25	12.01
22.	LILO D/C U/G Gopalpur – Subzi Mandi Line at Chandrawal	2x1.5	26.94	2010-11			0	0	10	16.94
23.	LILO D/C O/H Bawana- Rohini -I at Rohini New	2x2x1.5	3.5	2010-11			0	0	0	3.5
24.	LILO D/C O/H Bamnauli – Najafgarh at Jhatikara More	2x2x3	8.44	Feb.-2012			0	0	0	5
25	D/C U/G Mundka – Sultanpuri (Peeragarhi)	2x7	59	March,-2012			0	0	10	20
26.	D/C U/G Sultanpuri Peeragarhi) – Punjabi Bagh	2x7	59	March,-2012			0	0	10	20
27.	D/C U/G Punjabi Bagh – Wazirpur	2x5	35.44	March,-2012			0	0	0	10
28.	LILO D/C O/H Mandola-Narela at Bakhtawarpur	2x8	20.25				0	0	0	2
29.	LILO D/C O/H Bawana – DSIDC-I at DSIDC-II	2x2	5.0				0	0	0	1
30.	S/C U/G Park Street to Electric Lane	1x3.8	17.74							5
	SUB TOTAL (III) (220KV LINES)		1022.8		**0**	**0**	**28.52**	**637.5**	**130.69**	**95.45**
IV.	**220 KV SUB STATIONS**									
1.	Pappankalan-II(2x100MVA) (*40.59 includes 12 crore against interest and A& G expenses)	2x100MVA	20.89	2007-08)			0	0	0	0
2.	Aug. at Shalimar Bagh (3rd 100MVAPr. Tr.)	100 MVA	3.52	Mar-08			3.52	0	0	0
3	Two no. 66KV feeder bays at Parkstreet for NDMC.		1.55	March,-2008			1.55	0	0	0

4	E.T.C of 6 Nos. Addl. 66KV feeder bays in 66 KV yard at SOW		2.91	Jul-07			0.12	0	0	0
5	ETC of 3rd 100MVA Power Tfr. & its associated 220KV & 33 KV bays & 2 nos. 33KV Addl. Bays at Naraina	100 MVA	3.52	2007-08			0.29	0	0	0
6	Balance work of 5 nos. 33 KV bays at 220 KV S/stn Park Street		9.07	2007-08			0.6			
7	E.T.C of equipments in 2 Nos. 220 KV bays at 220 KV S/stn. Kanjhawala		1.09	Dec-07			1.09			
8	2x66 KV feeder bays at Pappankalan-I		3.86	2007-08			0.46			
9.	Balance work at Kanjhawala		0.77	2007-08			0.59	0	0	0
10	Balance work of E.T.C of 220KV equipments for 220KV side of two nos. 160 MVA power transformers at G.T. Station.		1.78	Mar-08			1.78	0	0	0
11.	ETC of 2 Nos. 100MVA 220/33KV Power Transformers, 7 No. 220KV bays and 13 nos. 33KV bays at Masjid Moth	2x100MVA	24.29	March, 2009				22.64	0	0
12(a)	Aug. of 2x100MVA 66/220KV pr. Trf. At G.T./ I.P. Extn.(2 x 160 MVA	2x160MVA	11.11	2008-09				11.11	0	0
12(b)	Civil Work for 2 No. 160 MVA Pr. Trf.		0.8				0.6	0.2	0	0
13	Three no. 66KV feeder bays with automation in 66KV yard at Parkstreet (two nos. bays with equipments for DMRC & one bay without equipment)		1.40	Jun-08			0	1.40	0	0
14	Augmentation of existing two nos. 50MVA 220/33KV Transformer with 2x100MVA power Transformer at 220KV Okhla S/Stn.	2x100-2x50=100	10.03	Sep-08			0	10.03	0	0

15	Two nos. of 66KV feeder bays along with automation in 66KV yard atVasant Kunj		2.14	2008-09			0	2.14	0	0
16	Dismantling of Old 220 KV SOW S/stn-I & ETC of 5 nos. 66 KV bays at 220 KV S/stn. SOW		2.55	Oct.-2008			1	1.55	0	0
17.	ETC of additional 160MVA Power Trf. At SOW	1x160	7.17	2008-09			**0**	7.17	0	0
18.	Establishment of 220KV S/Stn with 2x160MVA Transformers at Pappankalan-III	2x160MVA	24.76	January, 2010			0	10	14.76	0
19 (a).	ETC of 220KV GIS at Ridge Valley	2x160MVA	75.53	May, 2009			5	60	10.53	0
19(b)	Civil Work for land filling, boundary wall		0.5				0.2	0.2	0.1	0
20.	Conversion of 33KV Switchyard in 33KV GIS at Lodhi Road S/Stn.	-	19.51	Oct.-2009			0	15	4.51	0
21.	Conversion of 33KV S/yard in GIS at Okhla S/Stn		17.52	Oct.-2009			0	15	2.52	0
22.	ETC of 33KV S/yard in GIS (21 Panels) at Gopalpur, S/Stn.	-	17.82	2009-10			0	15	2.82	0
23(a)	Establishment of 220/33KV GIS at Electric Lane	2x100A	72.26	2009-10 June,-2009			5	60	7.26	0

23(b)	Civil Work for land filling, boundary wall		2.5				1.5	0.3	0.7	0
24(a)	Establishment of 220/33KV GIS at Trauma Centre AIIMS(GIS)	2x100A	73.54	2009-10			5	60	8.54	0
24(b)	Civil Work for land filling, boundary wall		2.5				1.5	0.3	0.7	0
25(a)	220 KV GIS S/Stn. at IGI Airport	2x160MVA	105.45	July,-2009			0	80	25.45	0
25(b)	Civil Work for land filling, boundary wall		0.5			0	0.3	0.15	0.05	
26	1 No.220 KV GIS Feeder bays at Kashmere Gate		5.44	March,-2010			0	4	1.44	0
27.	Four nos. 220KV feeder bays with automation in 220KV yard at 220KV Okhla S/Stn.		5.05	Jun-09			0	5.05	0	0
28.	E.T.C of 2 Nos. 220 KV bays at Naraina		0.37	May-09				0.25	0.12	
29.	ETC of additional 160MVA Power Trf. At Gopalpur	1x160	7.17	2009-10		0	0	0	7.17	0

30.	ETC of additional 160MVA Power Trf. At Sarita Vihar	1x160	7.17	2009-10		0	0	0	7.17	0
31. (a)	ETC of 220KV GIS at Wazirpur Ind. Area (GIS) (2x160MVA)	2x160MVA	49.61	2010-11 Jan.-2011			0	20	20	9.61
31 (b)	Civil Work for land filling, boundary wall		0.35				0.05	0.29	0.01	0
32(a)	Establishment of 220/33KV GIS at Chandrawal (GIS) (2x160MVA)	2x100MVA	53.39	Jan.-2011			0	5	25	23.39
32(b)	Civil Work for land filling, boundary wall		0.15			0	0.05	0.05	0.05	0
33.	ETC of 3 Nos. 160MVA Pr. Trf., 7 No. 220KV bays and 9 nos. 66KV bays at Rohini New Phase-IV & V	3x160MVA	24.76	2010-11			0	5	10	9.76
34.	ETC of additional 160MVA Power Trf. At Gazipur	1x160	7.17	2010-11		0	0	0	0	7.17
35(a)	Establishment of 220KV S/Stn with 2x160MVA Transformers at Jhatikara More	2x160MVA	24.5	Feb.-2012			0	0	5	10
35(b)	Civil Work for land filling, boundary wall		5.5				0	3	2	0.5
36.	Conversion of 220KV Switchyard in 220KV GIS at Lodhi Road S/Stn.		51.49	Dec.-2011			0	0	5	25

37(a)	Establishment of 220KV S/Stn with 2x160MVA Transformers at Bakhtawarpur	2x160MVA	24.5	Jan.-2012			0	0	5	10
37(b)	Civil Work for land filling, boundary wall		5				0	2	2	1
38(a)	Establishment of 220/33KV GIS at Punjabi Bagh	2x160MVA	101.26	March,-2012			0	0	10	40
38(b)	Civil Work for land filling, boundary wall		0.75			0	0	0.4	0.1	0.25
39. (a)	Establishment of 220/66KV GIS at Peeragarhi	2x160MVA	101.26	March,-2012			0	0	5	25
39(b)	Civil Work for land filling, boundary wall		0.75			0	0	0	0.4	0.35
40(a)	Establishment of 220KV S/Stn at Bawana DSIDC-II	2x160MVA	27.84	March,-2012			0	0	0	15
40(b)	Civil Work for land filling, boundary wall		5			0	2	2	1	0
41	Provision for unforeseen works for 400/220 KV line & sub-station		20			0	5	5	5	5
42	Unforeseen Civil Capital Work in different 220KV S/Stns		14	2011-12	0	0	5	3	3	3
	SUB TOTAL (IV) (220KV SUB STATIONS)		**1065.1**		**0**	**0**	**42.20**	**427.23**	**192.4**	**185.03**
A	**TOTAL 400 KV S/Stn. Lines**		**559.05**		**0**	**0**	**53.2**	**86.5**	**127.35**	**60**
B.	**TOTAL (220KV S/Stn and lines)**		**2084.72**				**70.72**	**1063.56**	**323.09**	**280.48**

C	**Misc. Works (O&M Works)**									
1	Battery & battery charger		1.00		0.00	0.00	0.03	0.44	0.42	0.11
2	CVT & PT		3.71		0.00	0.00	0.21	0.73	1.64	1.12
3	Circuit Breakers		9.90		0.00	0.00	0.19	3.33	3.90	2.49
4	CT		6.50		0.00	0.00	0.15	0.71	3.52	2.12
5	LA		0.82		0.00	0.00	0.00	0.11	0.42	0.28
6	Isolators		7.38		0.00	0.00	0.11	0.88	4.12	2.29
7	Pr. Tx., DG Set, C&R Panel, 11 KV Panel Board		24.67		0.00	0.00	0.00	12.03	1.81	10.83
8	Purchase of T&P and replacement of conductor		15.17		0.00	0.00	0.50	1.90	7.35	5.42
9	Replacement of Relays & Meters		6.90		0.00	0.00	3.00	2.90	0.55	0.45
C	**Total (Misc O&M Capital works of 400KV & 220 KV S./stn.)**		**76.04**				**4.18**	**23.03**	**23.72**	**25.10**
D	**Computerization**		**11.62**				**3.12**	**2.31**	**2.37**	**1.98**
E	**Up gradation of Infrastructure and Construction of Corporate Building**		**96.18**				**20.50**	**37.27**	**27.08**	**11.33**
	GRAND TOTAL (A+B+C+D+E)		**2868.25**				**151.72**	**1213.84**	**503.42**	**378.89**

CHAPTER 2

CAPITAL STRUCTURE

CAPITAL STRUCTURE

1. The Capital Structure of the company as on 31st March, 2007 comprises of Equity Share Capital of Rs. 180 crore and long term loans amounting to Rs. 596 crores. Making the debt equity ratio of the company at 77:23 as on 31.3.2007. Considering the Investment Plan of the company during 2007-11 (control period), and the provisions of MYT regulations 2007 notified by DERC, the company proposes to fund the projects in the debt equity ratio 70:30. Whereas the company proposes to bring in additional equity capital up to 30% of the total Capex requirements, the balance 70% is proposed to be met through loan assistance from Government of Delhi in the form of plan loans. DTL has projected the cost of such plan loan @ 11.5% i.e. the prevailing rate of interest on such loans while determining the Annual Revenue Requirement (ARR) and for the capitalization of the assets.

   If for any reasons, petitioner is unable to manage the required equity component of fund requirement for meeting its proposed capital expenses, the shortfall shall also be met by way of seeking additional plan loan assistance from the Govt. or outside loans. Hon'ble Commission shall be apprised of the actual position at the time of truing up for the respective financial year of the control period.

2. The company was sanctioned and disbursed a loan of Rs. 3452 crore by Government of Delhi as power reform loan at the time of unbundling of DVB which was aimed to enable the company to bridge the gap between the cost of power accruing to DTL and the amount realized through sale of power by the company. As per the communication received from the GNCTD, Department of Power vide letter no. F.11(28)/2005-Power-EE1/1517 dated 04.07.07 the said loan of 3452 crore has been converted into Equity Share Capital of the company. As the purpose of sanctioning the said power return loan was to bridge the gap between the cost of power and the amount realized through Bulk Supply Tariff, the said loan has not been treated for the purpose of creation of future assets during control period. Therefore, in terms of the provisions of the MYT Regulations, the Return on Capital Employed (ROCE) has not been computed and projected on equity base of Rs. 3452

crore in the calculation of ARR. Further, the said equity capital has not been considered a part of proposed capital structure (70:30) in control period.

3. The plan loan projected to be deployed for creations of capital assets are re-payable in 16 years with one-year moratorium. The installment against the principle and the interest on the said loan are payable on annual basis. The copy of terms and the conditions of the said loan is enclosed as **Annexure- I.**

4. The company is executing a deposit work for DSIDC in Bawana against which company has already spent Rs. 42 crore, against which it had received only Rs. 34 crore from DPCL out of deposits made by DSIDC to erstwhile DVB. Hon'ble Commission while disposing the petition filed by NDPL regarding sharing of electrification cost of Bawana-DSIDC industrial complex had decided that after allocating the deposit money between NDPL and BHEL as may be ordered by DERC. Any deficit between the actual expenses incurred by DTL in completion of the works relating to establishment of 220KV Bawana-DSIDC 220KV Grid S/Stn. No.1 and the amount left with DTL out of the deposits made by DSIDC, Commission could consider allowing the said balance amount in ARR of DTL. Copy of the Commission's order No. F.11 (76)/DERC/2003-04/575 dated 12.08.06 is enclosed as **Annexure-II** for ready reference. As against the amount of Rs.34 crores available with DTL, an amount of Rs.9 crore was disbursed to NDPL and BHEL. As against the balance deposit of Rs 25 crore thus available with DTL for completion of the project after adjusting the amount paid to NDPL and BHEL in pursuance to Commission's orders referred to above, DTL is falling short of Rs. 8 crores on this account. The said balance amount is proposed to be claimed in ARR in the financial year 2007-08 as an expense of DTL.

5. In terms of the MYT regulations, company proposes to have the equity share capital of Rs. 282 crore, 314 crore, 577 crore and 621 crore in the year 2007-08, 2008-09 and 2009-10 respectively and the corresponding debt for these years have been projected at Rs. 659 cores, 731 crores, 1347 crores and 1449 crores in order to implement to business plans during control period. As stated above, any shortfall in the equity share capital from the level as projected above shall be met through

additional debt. The petitioner company shall endeavor to maintain the debt equity ratio of 70:30 as provided in the MYT regulations.

However, any deviation (though not violating the relevant provisions of MYT Regulations) in the planned capital structure due to actual working requirements in the control period shall be reported and submitted with DERC for its approval as a truing up mechanism on yearly basis.

CHAPTER 3

O & M CHARGES

O&M EXPENSES

The Commission in the MYT Regulations defined the O&M expenses as sum of :-

1. R&M Expenses
2. Employee Cost
3. Administrative and General Expenses.

R&M Cost:-

The R & M cost have been worked out by applying the formula given by the commission in its regulations. The value of K for the base year FY 2006-07 is calculated by considering actual R & M expenses of FY 2006-07 and opening level of GFA for FY 2006-07.

In addition to above, DTL is also paying annual O&M charges to PGCIL towards the cost of equipments installed and being maintained by PGCIL at its Ballabhgarh and Mandola grid S/stns. Provision for same has been made and included in the expenses of R&M. There are some R&M works which are required to be carried out at Kashmere Gate and Park Street 220KV GIS grid S/stns. by M/s ABB Ltd. who are the original suppliers of the equipment.

EMPLOYEES COST:

The employees of Delhi Transco Limited are governed by the terms and conditions of pay as applicable to Central Govt.employees. The employees are entitled for grant of additional DA installment twice in the year besides annual increment and higher pay on getting normal promotions. Large no. of vacancies in technical as well as non-technical cadre are lying vacant on account of procedural delays, as the posts are required to be filled up through Delhi Subordinate Service Selection Board. As a stop-gap arrangement, persons have been taken on contract through outside agencies. Further, as the number of new

grid S/Stns. and line sections are coming up in the control period and are likely to be commissioned in phases, additional operational and maintenance staff shall be required to be posted at the new Grid S/Stns. for routine operational duties. Increase in employees cost likely to take place between 3-8 present each year, depending upon the likely manpower position during the control period, has been taken into account. In addition to above, there may be further increase in employee cost on account of revision of pay scales of DTL employees as per the recommendation of 6th Pay Commission which may be effective retrospectively and the financial implication may come from the financial year 2007-08 onwards. Escalation in employees cost to be extent of 40% over the previous year expenses as the existing scales of pay has been considered in the financial year 2007-08. The actual impact shall be known once the recommendations of the Central Pay Commission are out and implemented. The difference between provision and actuals shall be intimated to the Hon'ble Commission at the time of truing up for the respective years.

A & G Expenses:

The projection for administrative and general expenses during the control period have been made on the basis of previous year figure expenses with the likely annual escalation @ 4 to 5 % on yearly basis.

Capitalisation of employee cost & A and G expenses:

Considering the norms adopted by CEA, the cost of employees' establishment and administrative expenses are loaded to the cost of works/schemes @ 7% of such cost/scheme (capitalized) in the year the said capital works/schemes are completed. Therefore, the total expenditure incurred towards the employees' establishment and administration have been partly capitalized as stated above and balance amount of the aforesaid expenses has been taken into account in the ARR for each respective years.

CHAPTER 4

DEPRECIATION

DEPRECIATION

1. The depreciation on the fixed assets projected to be capitalized during the control period (2007-11) has been calculated at the rates specified in the MYT Regulations using straight-line method. To determine the net block of assets as on 01.04.07, the depreciation has been notionally calculated at the rates specified as per MYT Regulations 2007 since 2002 till 31.03.2007 and difference between the accumulated depreciation as per MYT Regulations 2006 and accumulated depreciation as per Company Act up to 31.03.2007 has been adjusted in the figure of reserve and surplus in the year 2007-08.

2. The advance cost deprecation (ADD) has been determined on the basis of the formula given in the MYT Regulations works out to be nil for all the years except for the year 2010-11 for which it works to Rs.11.11 crore.

CHAPTER 5

PERFORMANCE TARGETS

PERFORMANCE TARGETS

1. TRANSMISSION SYSTEM AVAILABILITY:

1.1 Transmission Losses

A portion of the electrical energy transmitted through a transmission system is lost on account of the resistance of the conductor, and other leakages. The losses in transmission system are of technical nature, and the possibility of commercial losses in EHV transmission is rarest. The Distribution licensees draw electrical energy from DTL periphery as the energy fed at generating sources minus losses. The losses take place in following systems:

(i) Inter State System

The losses occurring in Inter-State system of CTU in transmission stations up to NCT of Delhi periphery are of the order of 4%. The losses are distributed by PGCIL among the beneficiaries on pro-rata to their drawl of energy in a month i.e. on percentage basis. The losses are added to the energy purchase only, which are paid by the buyers. These losses are, therefore, not considered by the DTL in its transmission tariff structure.

(ii) Intra-State Transmission System

Losses occurring in the transmission network of DTL are the Intra- State transmission losses. The Transmission Losses in DTL system is as under:-

Year	2003-04	2004-05	2005-06	2006-07
Transmission Losses	1.69%	1.3%	0.72%	0.83%

The transmission losses as indicated above are out of the lowest in India as the projected transmission losses of different States for the year 2006-07 as per the study conducted by CPRI on behalf of PFC are as under:-

Uttar Pradesh	:	4.74%
Uttrakhand	:	0.9%
Rajasthan	:	3.5%
Punjab	:	1.36%
Haryana+Chandigarh	:	3.78%
Himachal Pradesh	:	2%
Madhya Pradesh	:	4.7%

Factors Affecting Intra-State Transmission Losses

The Intra-State transmission losses are mainly the technical losses, quantum of which depends on:—

i. Transmission system capability, which is overall capacity considering line lengths and sub-stations.

ii. Loading on lines and sub-stations as compared to their capacity.

iii. Flow of reactive power in transmission system.

iv. System configuration depending on power injection and drawl points.

As the power injection and drawl points vary every now and then, the evaluation of losses in the system is also a dynamic process, and the losses vary with the above mentioned changes.

1.2 Controlling Factors

The transmission losses are the technical losses, and the transmission licensee has no control on the load requirement and power injections time to time. The only way to control the transmission losses in Intra-State system is to create additional transmission capacity by installing new EHV lines and sub-stations with proper planning. The creating of additional transmission capacity is highly investment oriented. The investments reflect by way of higher transmission tariff but reduction in losses.

1.3 Factors Not Controllable By DTL

There are certain factors not under control of the DTL, but contribute to higher transmission losses in its system. These are mentioned below;

(i) Incremental Losses

The demand in system increases every year. The incremental losses are in much higher percentage, as compared to the percentage of additional power handled by the system. Therefore, in case the augmentation of transmission system is not massive, it may not even be sufficient to compensate incremental losses. There may not be any tangible loss reduction.

(ii) Change in Injection & Drawl

There may be cases when the power handled in the system is same, but the losses increase on account of shift in injection/drawl point. If there is outage of a generating unit in the State, and the equivalent power is arranged from out of State source, the losses increase for same power handled with no fault of DTL.

(iii) Reactive Flow

In case the reactive drawls are not controlled at Distribution licensees, they are passed on to EHV system. The losses for transmission of same active power may be much higher if reactive flows are high.

1.4 Transmission Loss Reduction in Control Period 2007-11:

As mentioned above, it is difficult to project a tangible transmission loss reduction on account of other compensating factors such as incremental losses due to load growth on the system.

DTL envisaged the Investment Plan that will contribute to the transmission loss reduction. DTL envisages that transmission loss level in the control period 2007-11as under:-

Year	2007-08	2008-09	2009-10	2010-11
Transmission Losses	0.8% to 1.2%	0.8% to 1.2%	0.8% to 1.2%	0.8% to 1.2%

Above envisaged works may contribute to the transmission loss reduction.

Although an enthusiastic loss reduction plan has been proposed and a very optimistic goal of transmission losses, as given above, it is pertinent to mention that in case of CTU, the losses are of the order of 5% although in their case around 98% of their transmission system is on 400kV and hardly 2% is of 220kV.

The loss reduction plan is subject to timely availability of loans from funding agencies, and also timely completion of various transmission lines and sub-station projects. Particularly in case of transmission lines, delay is involved in getting forest clearance and issues related to right of way. The transmission losses are on account of active energy flow and also on account of reactive energy flow. It is presumed that the net reactive energy flow will zero at the interface point with DISCOMs who will undertake required projects to meet their requirement of reactive power at their level. It has been assumed that reactive power requirement of DISCOMs will not be requires to be met by DTL.

The loss reduction plan is based on the anticipated load growth and anticipated addition of generating capacities in the power system at identified locations. In case of any mis-match/deviations, the loss reduction plan indicated above may differ.

The projections of anticipated demand and energy requirements of future years have been made based on certain yearly loss reduction in the distribution network. In case the anticipated loss reduction from the Discoms is not available, the energy requirement will go up and will adversely reflect into above indicated loss reduction plan.

Looking to the different transmission mix and various factors discussed above, efforts would be made to keep losses of DTL at the minimum level throughout the country.

2. **TRANSFORMER FAILURE RATE:**

2.1 A Power Transformer is vital equipment in sub-station and its failure not only leads to the financial loss to the department but also resorting to the load shedding in the certain cases. Thus, it is very paramount significant that a Transformer is to give long and trouble free service and it should received a reasonable amount of attention and maintenance. A rigid system of inspection and preventive maintenance ensures long life, trouble-free service and low maintenance cost. DTL has envisaged a ambitious plan for regular inspection, testing and reconditioning of the transformer wherever necessary. The principal object of the maintenance is to maintain the insulation in good condition. Moisture, direct and excessive heat is the main cause of insulation deterioration and avoidance of these will in general keep the insulation in good condition.

2.2 Maintenance is followed by a set procedure adopted by DTL, keeping in view the maintenance suggested by the CBIP.

2.3 The following on-site testing of the transformers is carried out to minimize the failure of the transformer(s).

(i) Measurement of Insulation Resistance.

(ii) Measurement of DC Resistance.

(iii) Ratio and Polarity Test.

(iv) Measurement of no-load losses and current.

(v) Magnetic balance for exiting current test.

(vi) Di-electric strength of Oil (BDV).

(vii) Acidity Test.

(viii) Ten delta and resistivity test.

(ix) Interfacial tension test.

(x) Water contents test.

(xi) Dissolved gas analysis test.

(xii) Residual life assessment.

2.4 Due to the load growth and loading, the failure of transformers, @ one of each rating i.e. 315 MVA, 100 MVA & 20 MVA per year cannot be ruled out in spite of above mentioned maintenance schedule and timely testing of the transformer as given above. However, DTL has planned that if during routine inspection the test results are not as per the norms, the transformer shall be taken out for thorough examination/investigation and taken up for preventive maintenance to avoid failure.

CHAPTER 6

NON-TARIFF INCOME & INCOME FROM OTHER BUSINESS

NON-TARIFF INCOME

The Non-Tariff Income of the company includes income from other operational means (other than tariff income), interest on deposits, sale of scrap, disposal of dismantled assets, interest on loan and advances to the staff besides O&M charges being received from PGCIL for the 400kV Bays at Bawana etc. The Non Tariff Income during the control period has been projected on the basis of previous year figure.

INCOME FROM OTHER BUSINESS

At present DTL envisages to be carrying out the business of intra-State transmission of power only and as such income from other business has been considered as NIL during the control period 2007-11.

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CHAPTER 7

SLDC CHARGES

SEPARATION OF TRANSMISSION AND SLDC FUNCTION

In the determination of ARR, the revenues and the expenditure accrued during the Control Period are based on the Transmission Business only and do not include the SLDC functions. However, the SCADA system installed by the company against lease hire charges having paid every year to PGCIL has been shown as the assets of DTL. Maintaining the same Accounting System upto 31-03-07, the company has shown the said lease hire charges in its projections, as a expenditure during the Control Period to be met out of ARR. In case the 'SCADA' system is decided to be transferred to SLDC or DISCOMs, DTL shall be paid net book value as on the date of transfer of SCADA system by the computation of ROCE for the same have not been made in the present ARR and shall be claimed by DTL at the time of truing up. The return on capital employed (ROCE) has been projected during the control period as per the formula specified in the MYT regulations considering the weighted cost of capital on the basis of proposed capital structure at 70:30 and the current interest rate. The change in working capital during the control period has been computed on the basis of working capital base as on 31.3.2007 ignoring the power trading.