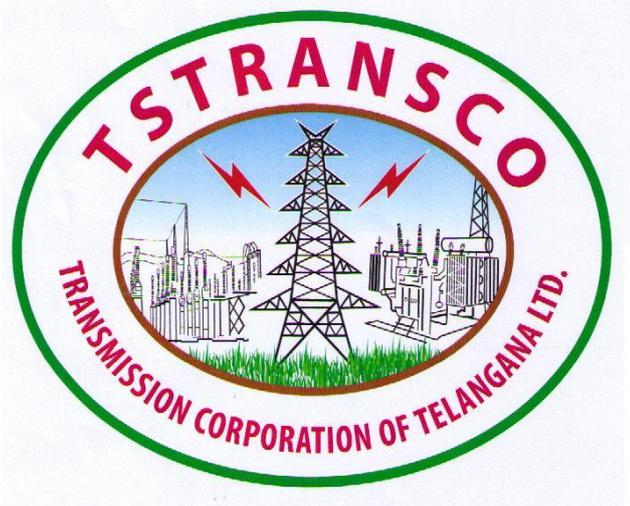


Transmission Corporation of Telangana Limited
(State Transmission Utility)



**Aggregate Revenue Requirement (ARR) and Filing for Proposed Tariff (FPT) under Multi Year Tariff Framework (MYT) for balance period of 3rd Control Period.
(FY 2017-18 and FY 2018-19)**

30th November 2016

BEFORE THE HONOURABLE TELANGANA ELECTRICITY REGULATORY COMMISSION

AT ITS OFFICE AT Vth FLOOR, SINGARENI BHAVAN, RED HILLS, HYDERABAD

FILING NO. _____/2016

CASE NO. _____/2016

In the matter of:

Filing of the Aggregate Revenue Requirement (ARR), Filing for Proposed Tariff (FPT) for the Multi-Year ARR and Tariff Framework (MYT) for the remaining part of Third Control Period (FY 2017-2019) for its Transmission Business under Section 26(5) of the Andhra Pradesh Electricity Reform Act, 1998 (hereinafter referred to as 'the Act') and under Part VII (Section 61 to Section 64) of the Electricity Act, 2003 read with the relevant APERC Guidelines and Regulations till date, by the Transmission Corporation of Telangana Limited ('TS Transco' or 'the Licensee') as the Transmission Licensee and as SLDC operator.

In the matter of:

TRANSMISSION CORPORATION OF TELANGANA LIMITED

... Applicant

AFFIDAVIT OF APPLICANT VERIFYING THE APPLICATION ACCOMPANYING FILING OF AGGREGATE REVENUE REQUIREMENTS

I, D. Prabhakar Rao, S/o D. Pashupathi Rao, working for gain at the Transmission Corporation of Telangana Limited do solemnly affirm and say as follows:

1. I am the Chairman and Managing Director of TSTransco, the licensee company operating and controlling the Transmission & SLDC business of electricity in Telangana pursuant to the license granted by the Hon'ble Commission. I am competent and duly authorized by TS Transco to affirm, swear, execute and file this affidavit in the present proceedings.

2. I have read and understood the contents of the accompanying Filing of Aggregate Revenue Requirement. The statements made in the paragraphs of the accompanying application now shown to me are true to my knowledge derived from the official records made available to me and are based on information and advice received which I believe to be true and correct.

DEPONENT

VERIFICATION:

I, the above named Deponent solemnly affirm at Hyderabad on this 30th **day of November 2016** that the contents of the above affidavit are true to my knowledge, no part of it is false and nothing material has been concealed there from.

DEPONENT

BEFORE THE HONOURABLE TELANGANA ELECTRICITY REGULATORY COMMISSION

AT ITS OFFICE AT Vth FLOOR, SINGARENI BHAVAN, RED HILLS, HYDERABAD

FILING NO. _____/2016

CASE NO. _____/2016

In the matter of:

Filing of the Aggregate Revenue Requirement (ARR), Filing for Proposed Tariff (FPT) for the Multi-Year ARR and Tariff Framework (MYT) for the remaining part of Third Control Period (FY 2017-2019) for its Transmission Business under Section 26(5) of the Andhra Pradesh Electricity Reform Act, 1998 (hereinafter referred to as 'the Act') and under Part VII (Section 61 to Section 64) of the Electricity Act, 2003 read with the relevant APERC Guidelines and Regulations till date, by the Transmission Corporation of Telangana Limited ('TSTransco' or 'the Licensee') as the Transmission Licensee and as SLDC operator.

In the matter of:

TRANSMISSION CORPORATION OF TELANGANA LIMITED

... Applicant

The Applicant respectfully submits as under: -

- With the enactment of Andhra Pradesh Reorganisation Act 2014, The Telangana State has been carved out from the undivided Andhra Pradesh State as the 29th State of the Republic India on 02.06.2014.
- The erstwhile Regulatory Commission of undivided State of Andhra Pradesh has issued Regulation no 3 of 2014 (Reorganization) Regulation, 2014 on 25.05.2014 consequent to the framing of Andhra Pradesh Reorganisation Act 2014 notified by Government of India on 01.03.2014, where in clause 3 of the regulation says that, "" All the regulations as well as their supplementary regulations/amendments , rules, orders, proceedings , guidelines , memos, notifications, other instruments issued immediately before 2nd June 2014 by the APERC for the conduct of business and

other matters shall fully and completely apply to the whole of the states of Telangana and Andhra Pradesh and shall similarly apply in relation to all matters falling within the jurisdiction of the Commission until they are altered, repealed or amended by the respective State Electricity Regulatory Commissions” .

- In accordance with the above regulation, all the regulations framed by erstwhile APERC will continue to apply for the state of Telangana. Subsequently, TSERC vide Telangana Official Gazette has issued its first regulation, Regulation no 1 of 2004 (adoption of Previously subsisting Regulations, Decisions, Directions, or Orders, Licenses and Practice of Directions) wherein clause 2 says that “ All regulations, decisions, directions or orders, all the licenses and practice directions issued by the erstwhile Andhra Pradesh Electricity Regulatory Commission (Regulatory Commission for States of Andhra Pradesh and Telangana) as in existence as on the date of the constitution of the Telangana State Electricity Regulatory Commission and in force, shall mutatis-mutandis apply in relation to the stakeholders in electricity in the Stat of Telangana including the Commission and shall continue to have effect until duly altered, repealed or amended, any of Regulation by the Commission with effect from the date of notification as per Notification issued by the Government of Telangana in G.O.Ms. no 3 Energy (Budget) Department, dt. 26-07-2014 constituting Commission”
- This filing for ARR, FPT and MYT is in accordance with the provisions of the Reform Act, the Electricity Act 2003, the License granted by the Hon’ble Commission to TSTransco on May 11, 2014 and the Guidelines and Regulations including the regulations pertaining to Transmission, SLDC, Open Access, etc., issued by the Honorable Commission till date.
- As per the Commission’s Regulations, the 3rd control period is 5 years in case of Transmission business i.e. from FY 2014-15 to FY 2018-19. Accordingly, APTRANSCO had already filed MYTs for the 3rd control period, separately for Transmission and SLDC businesses. Based on MYT submitted by APTRANSCO for 3rd control period, APERC had issued MYT for the 3rd control period (FY 2014-15 to FY 2018-19).

- Consequent upon formation of the state of Telangana and its coming into being with effect from 02.06.2014, the Government of Andhra Pradesh has established Transmission Corporation of Telangana Limited vide G.O Ms. No 25 dt. 29.05.2014. The Commission (APERC) has issued deemed license to TSTRANSCO with license no 1 of 2014 vide proceeding no APERC/Secy/160/2014 dt. 11.07.2014

On formation of TS TRANSCO, the opening balance of assets and liabilities pertaining to TS TRANSCO as on 02nd June, 2014 are yet to be finalized/notified. APTRANSCO has communicated a draft demerger plan of composite APTRANSCO. TS TRANSCO has requested certain additional information/clarifications on the draft demerger plan communicated by APTRANSCO. Despite repeated correspondence, the information is still awaited from APTRANSCO.

In the absence of separate approved ARR for TS TRANSCO, the expenditure approved for composite APTRANSCO as per the Tariff Order for 3 MYT Control period (FY 2014-15 to FY 2018-19) by Hon'ble APERC has been segregated based on power allocation ratio @53.89% to TS DISCOMs (notified by GoAP vide G.O.Ms.No.20, Dt.08.05.2014) and considered to compare with Actuals for FY 2014-15 and FY 2015-16.

Further, pending segregation of assets and liabilities of composite APTRANSCO between two entities, TS TRANSCO has compiled its provisional accounts for FY 2014-15 (02.06.2014 to 31.03.2015) and for FY 2015-16 based on the provisional opening balance of assets and liabilities as per the draft demerger plan communicated by APTRANSCO. The same are subjected to Statutory/A.G.Audit.

- TSTRansco has filed herein the ARR, FPT and MYT for the remaining part of Third control period of Two years for Transmission Businesses i.e. FY 2017-18 and FY 2018-19.
- The ARR & Tariff Order of the Hon'ble Commission dated May 09, 2014 pertaining to Transmission businesses contained a significant number of directives to be addressed by the Licensee. During the Third control period TSTRansco has been keeping the Hon'ble Commission informed regularly on the progress on each of the directives pertaining to it. Further, TSTRansco is confident of having met the Hon'ble

Commission's expectations on most of them and there are certain directives where complete or substantial compliance may not have been feasible due to operational reasons. The Licensee seeks intervention of the Hon'ble Commission on such issues and requests the Hon'ble Commission to consider these in the context of the overall performance of the Licensee during the Third control period.

- While filing the present ARR, FPT and MYT petition for Transmission businesses, TSTransco has endeavored to comply with the various applicable legal and regulatory directions and stipulations including the directions of the Hon'ble Commission in the Business Rules of the Commission, the Guidelines, prior ARR and Tariff Orders and the recent Regulations on Terms and Conditions for Determination of Tariff for Transmission of Electricity (Regulation No. 5 of 2005) dated November 30, 2005).
- Based on the information available, the Applicant has made bonafide efforts to comply with the directions of the Hon'ble Commission and discharge its obligations to the best of its abilities. However, should any further material become available in the near future, the Applicant reserves the right to file such additional information and consequently amend/revise the application.

Summary of the Filing

- **Performance Analysis:** A brief analysis of the key elements of licensee's business is as follows
 - (a) **Loss Reduction:** The licensee has improved performance in terms of transmission loss reduction from 3.59 % in FY 2013-14 to 3.13% in FY 2015-16. The licensee has undertaken a number of loss reduction measures such as system improvement, reactive compensation etc and would continue to do so with an aim to further reduce the transmission losses.
 - (b) **Transmission Network Availability:** The transmission network availability has been maintained at 99.9% in FY 2014-15 and 99.9% in FY 2015-16.

The Total Aggregate Revenue Requirement (ARR) approved by Hon'ble Commission for FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 is Rs.2074 crores, as against which actual ARR is Rs.1651 crores, thereby there is a reduction of

Rs.423 crores in ARR. Further, there is an increase in revenue to the tune of Rs.182 crores, resulted to a total surplus of Rs.605 crores. The same shall be passed on to consumers (benefit to consumer) during FY 2017-18 and FY 2018-19.

ARR Deviation – (Tariff Order vis-à-vis Actual):

(Rs. in Crores)

Particulars	FY 2014-15 (02.06.2014 to 31.03.2015)			FY 2015-16			Total		
	Tariff Order	Actuals	Deviation	Tariff Order	Actuals	Deviation	Tariff Order	Actuals	Deviation
Expenditure	542.29	544.84	2.55	793.94	719.41	-74.53	1336.23	1264.25	-71.98
O&M Costs	294.71	293.06	-1.65	385.30	386.71	1.41	680.01	679.77	-0.24
O&M Carrying Costs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation	251.59	211.22	-40.37	370.00	272.76	-97.24	621.59	483.98	-137.61
Taxes	23.71	39.56	15.85	38.63	58.49	19.86	62.35	98.05	35.70
Special Appropriation	-27.72	0.00	27.72	0.00	0.00	0.00	-27.72	0.00	27.72
Other Expenses	0.00	1.00	1.00	0.00	1.45	1.45	0.00	2.45	2.45
Less: O&M Exp. capitalized	68.75	66.02	-2.73	90.82	74.14	-16.68	159.58	140.16	-19.42
Net Expenditure	473.53	478.82	5.29	703.12	645.27	-57.85	1176.65	1124.09	-52.56
Add: Return on Capital Employed (ROCE)	341.28	206.65	-134.63	556.10	320.48	-235.62	897.38	527.13	-370.25
Gross ARR	814.81	685.47	-129.34	1259.22	965.75	-293.47	2074.03	1651.22	-422.81
Non Tariff Income	57.90	31.55	-26.35	72.90	55.74	-17.16	130.80	87.29	-43.51
Revenue from Tariff	756.91	812.08	55.17	1186.32	1356.28	169.96	1943.23	2168.36	225.13
Total Revenue	814.81	843.63	28.82	1259.22	1412.02	152.80	2074.03	2255.65	181.62
Surplus/ (Deficit)	0.00	158.16	158.16	0.00	446.27	446.27	0.00	604.43	604.43

- **Resource Plan for the remaining part of Third Control Period:** As per clause 9 of the Regulation No.5 of 2005 (Determination of Transmission Tariff), the resource plan for TSTRANSCO was filed before the Hon'ble Commission. The resource plan contains the following:

(a) Capital Investment plan

The licensee has prepared a detailed capital investment plan for the remaining part of Control Period based on generation capacity additions within the state which requires transmission evacuation.

The growth in demand of electricity at different load centers of the state during the remaining part of 3rd control period requires expansion of transmission system in the state.

The following table provides a summary of the investment plan by TSTRANSCO for each of the years of the third control period.

(Rs. Crores)

Particulars	2016-17	2017-18	2018-19
Capital Investment During the Year			
400kv Schemes	1232.22	1340.19	1622.31
220kv Schemes	1017.70	1135.98	463.81
Renovation & Modernization Improvement Schemes	50.11	50.11	50.11
Lift Irrigation Schemes	222.34	2758.63	504.00
Total Base Capital Investment	2522.38	5284.91	2640.23

(b) Loss Projection: As per the MYT framework, the licensees need to forecast a loss reduction trajectory over the five -year Control Period.

Particulars	2014-15 (Actuals)	2015-16 (Actuals)	2016-17 (Proj)	2017-18 (Proj)	2018-19 (Proj)
Target Transmission Loss Range	3.18%	3.13%	3.11 +/-0.2	3.10 +/-0.2	3.09 +/-0.2

• **Projection of ARR and Transmission Charges**

TS TRANSCO submits its Aggregate Revenue Requirement (ARR) for Transmission Charges for FY 2017-18 and FY 2018-19 as per the methodology notified by the Hon'ble Commission vide Regulation 5 of 2005. The following are the main components of ARR:

i) Operation and Maintenance (O&M) Expenses : The O&M Expenses covers the Employees Cost, Administrative & General Expenses, Repairs & Maintenance Expenses.

The O&M Expenses of the licensee are driven by the length of lines in Circuit Kilometers and No. of Sub-Station Bays. The total O&M Expenditure was allocated to Lines and Sub-Stations in the ratio of 30:70. As per the latest provisional (un audited) accounts for FY 2015-16, the Net O&M expenses are Rs.312.57 crores. Out of Rs. 312.57 crores, an amount of Rs.93.77 crores was allocated to Lines and an amount of Rs.218.80 .crores was allocated to Sub-stations. Based on the number of line length in CKM and number sub-stations bays, O&M Cost per CKM and bay was computed for FY 2015-16. For estimating the O&M Expenses for FY 2017-18 and FY 2018-19, an escalation @4.20% was adopted based on the Multi Year Tariff Order issued by the Hon'ble APERC for 3rd Control Period.

Based on the above, the following are details of O&M Expenses for FY 2017-18 and FY 2018-19:

(Rs. In Crores)

Particulars	FY 2017-18	FY 2018-19
Gross O & M Costs	605.62	661.90
Less: O & M Expenses Capitalised	131.69	94.23
Net O & M Expenses	473.93	567.68

ii) Depreciation : Depreciation is a claim towards replacement cost of fixed assets. Depreciation has been calculated for every year on all the fixed assets (excluding assets capitalized through consumer contributions during the period) capitalized upto the previous year considering the rates notified by the Ministry of Power, Govt. of India

(Rs. In Crores)

Parameter	Unit	FY 2017-18	FY 2018-19
Depreciation	Rs. Crores	568.52	740.82

iii) Taxes on Income : The income tax component on the Return on Equity @14% on 25% of Regulated Rate Base has been computed with the with the current rate of corporate tax.

(Rs. in Crores)

Particulars	2017-18	2018-19
Taxes on income	120.34	157.33

iv) Special Appropriation: Based on provisional accounts, the surplus of Rs.605 crores gained during FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 is being passed on to the consumers as a negative element during FY 2017-18 and FY 2018-19.

(Rs. in crores)

Particulars	2017-18	2018-19
Special Appropriation	(302.21)	(302.22)

v) Return on Capital Employed (ROCE) : Return on Capital Employed (ROCE) is to cover the interest charges on the debt portion towards fixed assets and Return on Equity invested by TS TRANSCO.

The licensee has prepared a detailed investment plan for FY 2017-18 and FY 2018-19 based on Resource Plan submitted to the Hon'ble TS ERC by making comprehensive analysis of Transmission Network existing in the state and load conditions/growth in the ensuing two years at 765kv/400kv/220kv and 132kv voltages.

Based on the above capital investment/asset capitalization, the following is the position of Regulated Rate Base of TS TRANSCO and Return on Capital Employed thereon for FY 2017-18 and FY 2018-19:

(Rs. in crores)

Particulars	FY 2017-18	FY 2018-19
Assets	13538.09	18919.52
OCFA Opening Balance	10397.43	13538.09
Additions to OCFA	3140.66	5381.44
Depreciation	3552.59	4293.41
Opening Balance	2984.07	3552.59
Depreciation during the Year	568.52	740.82
Consumer Contributions	3641.81	4145.81
Cons Contributions Opening Balance	913.18	3641.81
Additions to Cons Contributions	2728.63	504.00
Working Capital	74.67	81.60

Change in Rate Base	-78.24	2068.31
Regulated Rate Base	6496.60	8493.60
WACC	12.50%	12.50%
Return on Capital Employed	812.07	1061.70

vii) **Aggregate Revenue Requirement** : The net Aggregate Revenue Requirement for FY 2017-18 is Rs.1623 crores and Rs.2175 crores for FY 2018-19.

(Rs. in Crores)		
Particulars	FY 2017-18	FY 2018-19
Operation and Maintenance Charges	605.62	661.90
Depreciation	568.52	740.82
Advance Against Depreciation	0.00	0.00
Taxes on Income	120.34	157.33
Other Expenditure	0.00	0.00
Special Appropriations	-302.21	-302.22
Total Expenditure	992.27	1257.83
Less: O&M expenses capitalized	131.69	94.23
Net Expenditure	860.58	1163.61
Add: Return on Capital Employed	812.07	1061.70
Less: Non-Tariff Income (if any)	50.00	50.00
Total Revenue Requirement transferred to Retail supply business	1622.65	2175.31

viii) **Transmission Charges** : The DISCOMs have projected their Installed capacity as their Contracted Capacity. The demand from Open Access Consumers has been estimated and added to the total contracted demand of DISCOMs.

The transmission charges are computed by dividing the net ARR of each year with the total contracted capacity of the respective year. As such, the following are the transmission charges for FY 2017-18 to FY 2018-19:

(Rs. in crores)

Proposed Transmission Tariff	2017-18	2018-19
ARR of Transmission Business (Rs. Crores)	1622.65	2175.31
Transmission Contracted Capacity (MW)	14376	15021
Transmission Charges (Rs./KW/Month)	94	121

- The current ARR, FPT and MYT petition for the remaining part of Third control period being filed has been discussed and approved by the Board of Directors of TSTransco and Sri. D. Prabhakar Rao, Chairman and Managing Director of TSTransco has been authorized to execute and file the said ARR, FPT and MYT Petition on behalf of TSTransco. Accordingly, the current ARR, FPT and MYT petition is verified and signed by, and backed by the affidavit of Sri. D. Prabhakar Rao , Chairman and Managing Director.
- In the aforesaid facts and circumstances, the Applicant requests that the Hon'ble Commission:
 - (a) Take the accompanying ARR, FPT & MYT Petition of TSTransco on record;
 - (b) Grant suitable opportunity to TSTransco within a reasonable time frame to file additional material information if required;
 - (c) Grant the waivers prayed for with respect to such filing requirements as TSTRANSCO is unable to comply with at this stage, as more specifically detailed and for the reasons set out in the present ARR, FPT & MYT filing;
 - (d) Treat the filing as complete in view of substantial compliance as also the specific requests for waivers with justification placed on record;
 - (e) Consider and approve TSTransco's ARR, FPT & MYT including all requested regulatory treatments in the filing;

- (f) Pass such order, as the Hon'ble Commission may deem fit and proper in the facts and circumstances of the case.

TRANSMISSION CORPORATION OF TELANGANA LIMITED
(APPLICANT)

Through

D. PRABHAKAR RAO
CHAIRMAN AND MANAGING DIRECTOR

Place: HYDERABAD

Dated: NOVEMBER 30th, 2016

1. Introduction

With the enactment of Andhra Pradesh Reorganisation Act 2014, The Telangana State has been carved out from the undivided Andhra Pradesh State as the 29th State of the Republic India on 02.06.2014.

The erstwhile Regulatory Commission of undivided State of Andhra Pradesh has issued Regulation no 3 of 2014 (Reorganization) Regulation, 2014 on 25.05.2014 consequent to the framing of Andhra Pradesh Reorganisation Act 2014 notified by Government of India on 01.03.2014, where in clause 3 of the regulation says that, “” All the regulations as well as their supplementary regulations/amendments , rules, orders, proceedings , guidelines , memos, notifications, other instruments issued immediately before 2nd June 2014 by the APERC for the conduct of business and other matters shall fully and completely apply to the whole of the states of Telangana and Andhra Pradesh and shall similarly apply in relation to all matters falling within the jurisdiction of the Commission until they are altered, repealed or amended by the respective State Electricity Regulatory Commissions” .

In accordance with the above regulation, all the regulations framed by erstwhile APERC will continue to apply for the state of Telangana. Subsequently, TSERC vide Telangana Official Gazette has issued its first regulation, Regulation no 1 of 2004 (adoption of Previously subsisting Regulations, Decisions, Directions, or Orders, Licenses and Practice of Directions) wherein clause 2 says that “ All regulations, decisions, directions or orders, all the licenses and practice directions issued by the erstwhile Andhra Pradesh Electricity Regulatory Commission (Regulatory Commission for States of Andhra Pradesh and Telangana) as in existence as on the date of the constitution of the Telangana State Electricity Regulatory Commission and in force, shall mutatis-mutandis apply in relation to the stakeholders in electricity in the State of Telangana including the Commission and shall continue to have effect until duly altered, repealed or amended, any of Regulation by the Commission with effect from the date of notification as per Notification issued by the Government of Telangana in G.O.Ms. no 3 Energy (Budget) Department, dt. 26-07-25014 constituting Commission”

This filing for ARR, FPT and MYT is in accordance with the provisions of the Reform Act, the Electricity Act 2003, the License granted by the Hon'ble Commission

to TSTransco on May 11, 2014 and the Guidelines and Regulations including the regulations pertaining to Transmission, SLDC, Open Access, etc., issued by the Honorable Commission till date.

As per the Commission's Regulations, the 3rd control period is 5 years in case of Transmission business i.e. from FY 2014-15 to FY 2018-19. Accordingly, APTRANSCO had already filed MYTs for the 3rd control period, separately for Transmission and SLDC businesses. Based on MYT submitted by APTRANSCO for 3rd control period, APERC had issued MYT for the 3rd control period (FY 2014-15 to FY 2018-19).

Consequent upon formation of the State of Telangana and its coming into being with effect from 02.06.2014, the Government of Andhra Pradesh has established Transmission Corporation of Telangana Limited vide G.O Ms. No 25 dt. 29.05.2014. The Commission (APERC) has issued deemed license to TSTRANSCO with license no 1 of 2014 vide proceeding no APERC/Secy/160/2014 dt. 11.07.2014

TSTransco has filed herein the ARR, FPT and MYT for the remaining part of Third control period of Two years for Transmission Businesses i.e. FY 17-18 and FY 18-19.

- True-up -Analysis of Performance for FY14-15 and FY 2015-16
- Summary of Resource Plan for remaining part of Third Control Period
- Multiyear Aggregate Revenue Requirement(ARR) for the remaining part of third control period
- Transmission charges during the remaining part of third control period

2. True up Analysis of Performance for FY 2014-15 (02.06.2014 to 31.03.2015) and for FY 2015-16 :

Since formation of TS TRANSCO, TS TRANSCO has been providing Transmission System in the State of Telangana and collecting Transmission Charges from the Customers as per the Tariff Order issued by Hon'ble APERC for 3rd Multi Year Tariff Control Period (FY 2014-15 to FY 2018-19).

In the absence of separate approved ARR for TS TRANSCO, the expenditure approved for composite APTRANSCO as per the Tariff Order for 3 MYT Control period (FY 2014-15 to FY 2018-19) by Hon'ble APERC has been segregated based on power allocation ratio @53.89% to TS DISCOMs (notified by GoAP vide G.O.Ms.No.20, Dt.08.05.2014) and considered to compare with Actuals for FY 2014-15 and FY 2015-16.

Further, pending segregation of assets and liabilities of composite APTRANSCO between two entities, TS TRANSCO has compiled its provisional accounts for FY 2014-15 (02.06.2014 to 31.03.2015) and for FY 2015-16 based on the provisional opening balance of assets and liabilities as per the draft demerger plan communicated by APTRANSCO. The same are subjected to Statutory /A.G.Audit.

This True up filing is made by the Transmission Licensee, TRANSMISSION CORPORATION OF TELANGANA LIMITED (TS TRANSCO) as per Clause 17 of the Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for determination of tariff for Transmission of Electricity) Regulation No.5 of 2005 for corrections for Controllable and Uncontrollable items and as well as sharing of gains/losses for the FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 :

The licensee is submitting the following as part of the correction filings for FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16:

- Statement of variance with the Tariff Order for each item in the Aggregate Revenue Requirement and reasons for variation.
- Actual Aggregate Revenue Requirement (ARR) for each year computed based on actual investments, actual interest and other costs.
- The Surplus/Deficit for each year arrived based on actual revenue for the respective year.

i) Operation and Maintenance (O&M) Expenses : The O&M Expenses covers the Employees Cost, Administrative & General Expenses, Repairs & Maintenance Expenses.

The O&M Expenses of the licensee are driven by the length of lines in Circuit Kilometers and No. of Sub-Station Bays. The total O&M Expenditure was allocated to Lines and Sub-Stations in the ratio of 30:70.

Table 1: Variance in O&M Expenses:

(Rs. in crores)

Particulars	FY 2014-15 (02.06.2014 to 31.03.2015)			FY 2015-16			Total		
	Tariff Order	Actuals (Provl.)	Devi-ation	Tariff Order	Actuals (Provl.)	Devi-ation	Tariff Order	Actuals (Provl.)	Devi-ation
Gross O&M Costs	294.71	293.06	-1.65	385.30	386.71	1.41	680.01	679.77	-0.24
Less: O&M Expenses Capitalised	68.75	66.02	-2.73	90.82	74.14	-16.68	159.57	140.16	-19.41
Net O&M Expenses	225.96	227.04	1.08	294.48	312.57	18.09	520.44	539.61	19.17

- Net O&M Exepenses during FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 have been increased by Rs.19.17 crores.
- Main factor for increase is due to wage revision with effect from 01.04.2014.
- Pending final allocation of employees between APTRANSCO and TS TRANSCO, actuarial valuation towards employee terminal benefits could not be taken up. However, Pension & Gratuity Contribution has been provided provisionally. The actual does not include, provision towards Leave Encashment.

ii) **Depreciation** : Depreciation is a claim towards replacement cost of fixed assets. Depreciation has been calculated for every year on all the fixed assets capitalized upto the previous year considering the rates notified by the Ministry of Power, Govt. of India.

Table 2: Variance in Depreciation :

(Rs. in crores)

Particulars	FY 2014-15 (02.06.2014 to 31.03.2015)			FY 2015-16			Total		
	Tariff Order	Actuals	Devi-ation	Tariff Order	Actuals	Devi-ation	Tariff Order	Actuals	Devi-ation
Depreciation	251.59	211.22	-40.37	370.00	272.76	-97.24	621.59	483.98	-137.61

There is a decrease of Rs.138 crores towards Depreciation. This is mainly due to lesser capitalization of fixed assets than Tariff Order.

iii) **Table 3: Taxes on income :**

(Rs. in crores)

Particulars	FY 2014-15 (02.06.2014 to 31.03.2015)			FY 2015-16			Total		
	Tariff Order	Actuals	Deviation	Tariff Order	Actuals	Deviation	Tariff Order	Actuals	Deviation
Income Tax	23.71	39.56	15.85	38.63	58.49	19.86	62.35	98.05	35.70

Tax on income was calculated at current rate of corporate tax on the return on equity @14% on 25% of actual Regulated Rate Base.

iv) **Return on Capital Employed (ROCE) :** Return on Capital Employed (ROCE) is to cover the interest charges on the debt portion towards fixed assets and Return on Equity investment of TS TRANSCO.

The licensee has computed the actual Return on Capital Employed (ROCE) for FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 as per the methodology prescribed by the Hon'ble Commission vide Regulation 5 of 2005. The actual additions to the fixed assets is Rs.611 crores during FY 2014-15 (02.06.2014 to 31.03.2015) and Rs.1860 crores during FY 2015-16. The depreciation during FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 has been calculated for each year separately considering the rates notified by the Ministry of Power, Govt. of India. Return on Capital Employed (ROCE) has been calculated by adding the actual interest expenditure (Net of IDC) and Return of Equity (ROE) at @14% on 25% of Regulated Rate Base.

Table 4:

((Rs. in crores)

Particulars	FY 2014-15 (02.06.2014 to 31.03.2015)			FY 2015-16			Total		
	Tariff Order	Actuals	Deviation	Tariff Order	Actuals	Deviation	Tariff Order	Actuals	Deviation
Assets	7331.24	5366.46	-1964.78	9680.51	7225.99	-2454.52	17011.75	12592.45	-4419.30
Original Cost of Fixed Assets (OCFA)	6164.23	4755.06	-1409.17	7331.24	5366.46	-1964.78	13495.47	10121.52	-3373.95
Additions to OCFA	1167.00	611.40	-555.60	2349.28	1859.53	-489.75	3516.28	2470.93	-1045.35
Depreciation	2703.59	2334.23	-369.36	3073.59	2606.99	-466.60	5777.19	4941.22	-835.97
Opening Balance	2401.69	2123.01	-278.68	2703.59	2334.23	-369.36	5105.28	4457.24	-648.04
Depreciation during the year	301.90	211.22	-90.68	370.00	272.76	-97.24	671.91	483.98	-187.93
Consumer Contributions	1111.50	690.38	-421.12	1320.45	739.09	-581.36	2431.95	1429.47	-1002.48

Particulars	FY 2014-15 (02.06.2014 to 31.03.2015)			FY 2015-16			Total		
	Tariff Order	Actuals	Devi- ation	Tariff Order	Actuals	Devi- ation	Tariff Order	Actuals	Devi- ation
Opening Balance	813.39	671.19	-142.20	1111.50	690.38	-421.12	1924.90	1361.57	-563.33
Additions during the year	298.11	19.19	-278.92	208.95	48.71	-160.24	507.06	67.90	-439.16
Working Capital	43.60	43.52	-0.08	47.50	47.68	0.17	91.11	91.20	0.09
Change in Rate Base	283.50	190.50	-93.00	885.16	769.03	-116.13	1168.66	959.53	-209.13
Regulated Rate Base	3276.25	2194.88	-1081.37	4448.81	3158.56	-1290.25	7725.06	5353.44	-2371.63
Return on Capital Employed (RoCE)	341.28	206.65	-134.63	556.10	320.48	-235.62	897.38	527.13	-370.25

- The actual addition to the Gross Fixed Assets is lower by Rs.1045 crores. This is mainly due to delay in completion of projects.
- Return on Capital Employed (ROCE) as per the Tariff Order was considered proportionately for the period from 02.06.2014 to 31.03.2015. In respect of actual, ROCE has been calculated by adding interest on term loans at actuals plus 14% Return on Equity on 25% of Regulated Base.

v) Revenue : The following is the position of Revenue during FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 :

Table 5:

(Rs. in crores)

Particulars	FY 2014-15 (02.06.2014 to 31.03.2015)			FY 2015-16			Total		
	Tariff Order	Actuals	Devi- ation	Tariff Order	Actuals	Devi- ation	Tariff Order	Actuals	Devi- ation
Revenue from Transmission Charges	756.91	812.08	55.17	1186.32	1356.28	169.96	1943.23	2168.36	225.13
Other Income	57.90	31.55	-26.35	72.90	55.74	-17.16	130.80	87.29	-43.51
Total:	814.81	843.63	28.82	1259.22	1412.02	152.80	2074.03	2255.65	181.62

- The Actual Revenue accrued from Transmission Charges during FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 is Rs.2168 crores as against Rs.1943 crores approved by the Commission; thereby there is an increase of Rs.225 crores.

The main reason for increase is due to increase of revenue from Open Access Customers.

- Further, there is reduction of Rs.43 crores in Other Income. However, certain incomes like income on contingency reserve investments, capital contributions in proportion to depreciation on assets capitalized through consumer contributions were not taken into accounts pending information from APTRANSCO.

vi) Aggregate Revenue Requirement (ARR) and Surplus/(Deficit):

The Total Aggregate Revenue Requirement (ARR) approved by Hon'ble Commission for FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 is Rs.2074 crores, as against which actual ARR is Rs.1651 crores, thereby there is a reduction of Rs.423 crores in ARR. Further, there is an increase in revenue to the tune of Rs.182 crores, resulted to a total surplus of Rs.605 crores. The same shall be passed on to consumers (benefit to consumer) during FY 2017-18 and FY 2018-19.

Table 6: ARR Deviation – (Tariff Order vis-à-vis Actual):

(Rs. in crores)

Particulars	FY 2014-15 (02.06.2014 to 31.03.2015)			FY 2015-16			Total		
	Tariff Order	Actuals	Deviation	Tariff Order	Actuals	Deviation	Tariff Order	Actuals	Deviation
Expenditure	542.29	544.84	2.55	793.94	719.41	-74.53	1336.23	1264.25	-71.98
O&M Costs	294.71	293.06	-1.65	385.30	386.71	1.41	680.01	679.77	-0.24
O&M Carrying Costs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation	251.59	211.22	-40.37	370.00	272.76	-97.24	621.59	483.98	-137.61
Taxes	23.71	39.56	15.85	38.63	58.49	19.86	62.35	98.05	35.70
Special Appropriation	-27.72	0.00	27.72	0.00	0.00	0.00	-27.72	0.00	27.72
Other Expenses	0.00	1.00	1.00	0.00	1.45	1.45	0.00	2.45	2.45
Less: O&M Exp. Capitalized	68.75	66.02	-2.73	90.82	74.14	-16.68	159.58	140.16	-19.42
Net Expenditure	473.53	478.82	5.29	703.12	645.27	-57.85	1176.65	1124.09	-52.56
Add: Return on Capital Employed (ROCE)	341.28	206.65	-134.63	556.10	320.48	-235.62	897.38	527.13	-370.25
Gross ARR	814.81	685.47	-129.34	1259.22	965.75	-293.47	2074.03	1651.22	-422.81
Non Tariff Income	57.90	31.55	-26.35	72.90	55.74	-17.16	130.80	87.29	-43.51
Revenue from Tariff	756.91	812.08	55.17	1186.32	1356.28	169.96	1943.23	2168.36	225.13
Total Revenue	814.81	843.63	28.82	1259.22	1412.02	152.80	2074.03	2255.65	181.62
Surplus/(Deficit)	0.00	158.16	158.16	0.00	446.27	446.27	0.00	604.43	604.43

3 Resource Plan for Third Control Period

In compliance with the Clause 9 of TSERC Regulations on Terms and Conditions for Determination of Tariff for Transmission of Electricity (Regulation No. 5 of 2005) dated November 30, 2005, TSTransco already submitted the Resource Plan comprising

of Transmission load forecast and Capital Investment Plan for the rest of Third Control Period (FY2016-17 to FY2018-19).

Brief Summary of Resource Plan

3.1. Transmission Load Forecast

TSTRANSCO's Load Forecast/Investment requirement depends upon two major components:

1. Generation Capacity Additions within the state requires Transmission Evacuation of power.
2. Growth in Demand of Electricity at different load centers of the state during the Third Control Period requires expansion of Transmission system in the state.

3.1.1. Generation Capacity Additions during 3rd Control Period

Table 7: Anticipated Generation Capacity Additions.

Generation Capacity				
Additions (MW)	FY 16-17	FY 17-18	FY 18-19	Total
TSGENCO				
Hydro Plants				
Pulichintala HES	120			120
Thermal Plants				
Kothagudem thermal Station stage-7 (TSGenco)		800		800
Bhadradi TPS Manuguru (M), Khammam Dist (TSGenco) (4x270 MW)		270	810	1080
Yadadrai TPS Dameracherla (5x800 MW) (TSGenco)			800	800
Private Projects				
Thermal Power Tech (Unit - I)	269.45			269.45
Thermal Power Tech (Unit - II)	570			570
Singareni Thermal power project stage-I	1200			1200
Chattisgarh Power Purchase		1000		1000
Non-Conventional Projects	1588.70	2513.60	401.10	4503.4
Central Generating Stations				
Kudigi – I & II	226.338			226.338
Total	3974.488	4583.6	2011.1	10569.19

3.1.1. Demand Growth and System Expansion & Improvement Requirements

In order to meet the load growth in different areas of the state, TSTransco need to add the Lines and sub-stations at different voltages as enumerated in Table 8, Table 9 based on load flow studies conducted.

Table 8: 400kV & 220kV Sub-Stations to meet Load Expansion & System Improvement for the balance period of 3rd Control Period (FY2016 – 2019)

S. No.	District	KV	Location Name	Fin Year	Type
1	Khammam	400	400 kV Asupaka LI	2016-17	L
2	Medak	400	400 kV Narsapur	2016-17	G
3	Mahaboobnagar	400	400 kV Dindi	2016-17	S
4	Khammam	400	400 kV Julurupadu	2017-18	G
5	Adilabad	400	400kV Nirmal	2017-18	G
6	Ranga Reddy	400	400 kV Maheshwaram	2017-18	S
7	Ranga Reddy	400	400kV Kethireddypalli (Manikonda)	2017-18	S
8	Karimnagar	400	400kV SS Mydaram LI	2017-18	L
9	Karimnagar	400	400kV Ramadugu LI	2017-18	L
10	Karimnagar	400	400kV Tippapur LI	2017-18	L
11	Medak	400	400 kV Chandulapur LI	2017-18	L
12	Medak	400	400kV Tukkapur LI	2017-18	L
13	Karimnagar	400	400kV Yellampalli LI	2017-18	L
14	Warangal	400	400 kV Jangaon	2018-19	G
15	Nalgonda	400	400 kV Choutuppal	2018-19	G
16	Mahaboobnagar	400	400 kV Narlapur LI	2018-19	L
17	Mahaboobnagar	400	400 kV Yedula LI	2018-19	L
18	Mahaboobnagar	400	400 kV Vattam/Karvena LI	2018-19	L
19	Mahaboobnagar	400	400 kV Uddandapur LI	2018-19	L
20	Ranga Reddy	400	400 kV Ramachandrapuram	2018-19	S
21	Nalgonda	400	400kV Damacherla	2018-19	G
22	Hyderabad	220	Imblibun	2016-17	S
23	Ranga Reddy	220	Hayathnagar	2016-17	S
24	Ranga Reddy	220	Nagole	2016-17	S
25	Mahaboobnagar	220	Singotam	2016-17	S
26	Mahaboobnagar	220	220 kV features at 132 KV Kosigi	2016-17	S
27	Mahaboobnagar	220	220 kV Switching station at Thimmajipet	2016-17	S
28	Nalgonda	220	Huzurnagar	2016-17	G
29	Nalgonda	220	220 KV Features at 132 KV Sithapuram Sw.stn.	2016-17	S

S. No.	District	KV	Location Name	Fin Year	Type
30	Karimnagar	220	Sirsilla	2016-17	S
31	Mahaboobnagar	220	Kallur	2016-17	G
32	Mahaboobnagar	220	Renjal	2016-17	G
33	Warangal	220	Mahabubabad(Ayyagaripally)	2016-17	S
34	RangaReddy	220	Raidurg	2017-18	S
35	RangaReddy	220	Borampet	2017-18	G
36	Mahaboobnagar	220	Madugula	2017-18	S
37	Mahaboobnagar	220	Jadcherla	2017-18	S
38	Mahaboobnagar	220	Kothur	2017-18	S
39	Mahaboobnagar	220	Nagarkurnool	2017-18	S
40	Medak	220	Toopran	2017-18	S
41	Mahaboobnagar	220	132 KV features at 220 KV Sw.stn Thimmajipet	2017-18	S
42	Karimnagar	220	220/11kV Kaleshwaram`LI SS	2017-18	L
43	Karimnagar	220	220/11 KV Sundilla LI SS	2017-18	L
44	Karimnagar	220	220/11KV Goliwada (Yellampalli) LI SS	2017-18	L
45	RangaReddy	220	220/11KV KP Lakshmidivipalli LI SS	2017-18	L
46	Adilabad	220	Banswada	2017-18	S
47	Khammam	220	Upgradation of 132 KV Aswaraopet SS to 220 KV Level	2018-19	S
48	Khammam	220	Peddagopati	2018-19	G
49	RangaReddy	220	Kachavanisingaram	2018-19	S
50	Warangal	220	Jangoan	2018-19	G
51	Karimnagar	220	Husnabad	2018-19	G
52	Hyderabad	220	Chanchalguda	2018-19	S

Table 9: 400 kV and 220 kV Lines for the balance period of 3rd Control Period (FY 2016 – 2019)

Sl. No	FY	KV	Name of the line	IC	CKT	LINE TYPE	Line length in CKM
1	2016-17	400	LILO of 400kV Shankarpalli – Gajwel to Narsapur	G		LILO	10
2	2016-17	400	Nandiwanaparti to Shankarpalli SS	G			222
3	2016-17	400	Suryapet SS to Nandiwanaparti	G			240
4	2016-17	400	Chinna Korukondi to Suryapet SS	G			170
5	2016-17	400	LILO of one circuit of Khammam-Vizag Line at Asupaka	L		LILO	34
6	2016-17	400	Existing 400 kV Veltoor SS to Thungabhadra River Crossing	G			147
7	2016-17	400	Jaipur to Nirmal SS	G			298

Sl. No	FY	KV	Name of the line	IC	CKT	LINE TYPE	Line length in CKM
8	2016-17	400	LILO of both circuits of Mamidipalli – Srisailam Line at Dindi	S		LILO	5
9	2016-17	400	Julurupadu SS to Manuguru TPP	G			222
10	2016-17	400	Julurupadu SS to Suryapet SS	G			215
11	2016-17	400	KTPS VII stage to Julurupadu SS	G			77
12	2016-17	400	Maheswaram PGCIL to Maheswaram TSTransco	S			10
13	2016-17	400	Maheswaram PGCIL to Shankarpalli SS	S			15
14	2017-18	400	LILO of 2nd Circuit of VTS – Malkaram to Suryapet	S		LILO	7
15	2017-18	400	LILO of both Circuits of Suryapet – Shankarpally to Kethireddypalli (Manikonda) SS	S		LILO	50
16	2017-18	400	Ramadugu SS to Medaram SS (QMDC)	L			42
17	2017-18	400	Ramadugu SS to Tippapur SS (QMDC)	L			40
18	2017-18	400	LILO of both Circuits of SCCL – Gajwel Line to Ramadugu SS (QMDC)	L			72
19	2017-18	400	LILO of both Circuits of KTPP – Gajwel Line to Chandlapur SS (TMDC)	L		LILO	164
20	2017-18	400	Tippapur SS to Chandlapur SS (QMDC)	L			42
21	2017-18	400	Chandlapur SS to Tukkapur SS (TMDC)	L			60
22	2017-18	400	Narsapur SS to Tukkapur SS (TMDC)	L			140
23	2017-18	400	LILO of Both Circuits of SCCL – Ramadugu QMDC line to Yellampalli SS	L		LILO	32
24	2017-18	400	LILO of Both Circuits of Nedunuru – Telangana STPP line to Yellampalli	L		LILO	40
25	2018-19	400	Julurupadu to Jangaon	G			360
26	2018-19	400	Jangoan to Tippapur LI	G			140
27	2018-19	400	Narlapur SS to Yedula SS	L			60
28	2018-19	400	Veltoor SS to Yedula	L			100
29	2018-19	400	Yedula SS to Maheswaram SS	L			260
30	2018-19	400	Yedula SS to Vатtem SS	L			100
31	2018-19	400	LILO of Suryapet – Kethireddypalli (Manikonda) Line to Uddandapur SS	L		LILO	120
32	2018-19	400	Vатtem SS to Uddandapur SS	L			100
33	2018-19	400	Damaracherla TPP to Jangaon	G			310
34	2018-19	400	Damaracherla TPP to Maheshwaram (TS)	G			310
35	2018-19	400	Damacherla TPP to Choutuppal	G			300
36	2018-19	400	Damacherla TPP to Dindi	G			280
37	2016-17	220	Chandrayangutta -Imblibun DC Line	S	D/C		19
38	2016-17	220	Ghanapur- Malkaram DC Line LILO at Moulali SS	S	D/C	LILO	17.694
39	2016-17	220	Ghanapur- Marrisally Multicircuit	S			36
40	2016-17	220	Marrisally - Hayathnagar	S			14.44

Sl. No	FY	KV	Name of the line	IC	CKT	LINE TYPE	Line length in CKM
41	2016-17	220	Nagole Terminal Tower - Uppal DC Line	L	D/C		3.4
42	2016-17	220	LILO of Wanaparthy to Ragimanigadda to Singottam DC line	S		LILO	14
43	2016-17	220	Upper Jurala to Lower Jurala HEP DC line	G	D/C		22
44	2016-17	220	i) Parigi to Kosigi DC line ii) 2nd circuit stringing Kosigi to Maddur	S	D/C		97.5
45	2016-17	220	i) Veltoor to Thimmajipet SW STN DC line (45 km) ii) LILO of Boothpur - Kalwakurthy Circuit -I to Thimmajipet SW STN DC line (1 km) iii) LILO of Boothpur - Kalwakurthy Circuit -II to Thimmajipet SW STN DC line (1 km)	S		LILO	94
46	2016-17	220	LILO of Chillakallu -Narketpally to Huzurnagar DC line (50 km)	G		LILO	50
47	2016-17	220	Pulichinthala to Huzurnagar DC line	G	D/C		76
48	2016-17	220	LILO of Miryalaguda -Khammam to Suryapet DC line	S	D/C	LILO	60
49	2016-17	220	LILO of Chillakallu -Narketpally to Suryapet DC line	S	D/C	LILO	42
50	2016-17	220	Erection of 220kV DC line from 220kV Sub-station Durshed to the proposed 220/132kV Sub-station Siricilla	S	D/C		138
51	2016-17	220	220 KV single Moose DC line from proposed 400/220 KV Julurupadu SS to proposed 220/132/33 KV SS Kallur	G	D/C		70
52	2016-17	220	220 KV DC line from proposed 400/220 KLV SS Nirmal to Upgraded 220/132 KV Ranjal SS	G	D/C		136
53	2016-17	220	220 KV Multi Circuit LILO line to proposed 220KV SS Mahabubabad from Existing 220KV Budidampadu - Warangal DC Line (6 KM)	S	D/C		24
54	2017-18	220	LILO of Gachibowli - Shapurnagar line to Raidurg	S		LILO	8
55	2017-18	220	Kethireddypalli (Manikonda) -Kanakamamidi DC line	S	D/C		10
56	2017-18	220	Shivarampally -Asifnagar 2 nd Circuit	S			6
57	2017-18	220	Narsapur- Borampet Multicircuit (4 Ckt)	G			86
58	2017-18	220	Madugula connected lines (LILO of both Ckts of Dindi – Bonguluru to Madugula and Maheshwaram)	S		LILO	18
59	2017-18	220	Thimmajipet to Jadcherla DC line	S	D/C		40
60	2017-18	220	Durshed - Siddipet LILO to 400 kV Nadunuru DC line	G	D/C	LILO	20
61	2017-18	220	400 kV RC Puram to 220 kV Gachibowli	S			10
62	2017-18	220	400 kV RC Puram to 220 kV Raidurg	S			20
63	2017-18	220	220 kV Borampet to 220 kV Miyapur SC line	S	S/C		35
64	2017-18	220	220 kV Borampet to 220 kV Shapurnagar SC line	S	S/C		35
65	2017-18	220	Dindi to Nagarkurnool SC line	S	S/C		86
66	2017-18	220	Narsapur to Toopran DC line	S	D/C		79

Sl. No	FY	KV	Name of the line	IC	CKT	LINE TYPE	Line length in CKM
67	2017-18	220	LILO of Gajwel -Minpur to Toopran DC line	S	D/C	LILO	
68	2017-18	220	Timmajipet -Balanagar DC line	S	D/C		60
69	2017-18	220	220kV TMDC Line from 400KV Yellampalli to Goliwada	L	D/C		1
70	2017-18	220	220kV MC TMDC Line from 400KV Yellampalli to Sundilla	L	D/C		30
71	2017-18	220	220kV TMDC Line from 400KV Yellampalli to Kaleshwaram	L	D/C		60
72	2017-18	220	220Kv Dc Line from 220kV Parigi SS to Lakshmidivipalli	L	D/C		20
73	2017-18	220	220kV DC line from Maheshwaram 400/220 kV SS to Fabcity 220kV SS	L	D/C		26
74	2017-18	220	LILO of one Ckt of 220kV Mamidipally – Shadnagar at 220kV Kothur SS	S		LILO	3
75	2017-18	220	LILO of one Ckt of 220kV Shamshabad – Kethireddypalli (Manikonda) at 220kV Kothur SS	S		LILO	13
76	2017-18	220	LILO of one Ckt of 220kV Shamshabad – Yeddumailaram and 220kV Shadnagar – Shankarpally to Kethireddypalli (Manikonda) SS on MCT's	S		LILO	3
77	2017-18	220	220kV DC line from Kethireddypalli (Manikonda) SS to 132/33kV Kanakamamidi SS on Narrow based MCT's	S	D/C		5
78	2017-18	220	220kV DC line from 400kV Dichpally to 220kV Banswada	S	D/C		60
79	2018-19	220	Asupaka -Aswaraopet DC line	S	D/C		40
80	2018-19	220	LILO of KTPS - Lower Sileru -I to the Asupaka DC line	S	D/C	LILO	30
81	2018-19	220	Julurupadu to Peddagopati DC line	G	D/C		220
82	2018-19	220	LILO of Ghanapur -Hayathnagar to Kachavani singaram DC line	S	D/C	LILO	4
83	2018-19	220	LILO of Ghanapur -Chandrayan Gutta to Kachavani singaram	S		LILO	4
84	2018-19	220	LILO of 220kV Chandrayangutta – Imlibun to the proposed Chanchalguda	S		LILO	1

Table: 10 : List of 132 kV Sub-Stations Proposed for the balance period of 3rd Control Period (FY2016 – 2019)

S.No.	District	KV	Location Name	Fin Year	Type
1	Hyderabad	132	Fever Hospital	2016-17	S
2	Hyderabad	132	Moosarambagh	2016-17	S

S.No.	District	KV	Location Name	Fin Year	Type
3	Hyderabad	132	Patigadda	2016-17	S
4	Hyderabad	132	NIMS	2016-17	S
5	Hyderabad	132	Narayanaguda	2016-17	S
6	RangaReddy	132	LGM Pet	2016-17	S
7	RangaReddy	132	33 KV Features at 132 KV RTSS Vikarabad	2016-17	S
8	Medak	132	Borapatla	2016-17	S
9	Medak	132	Doulthbad	2016-17	S
10	Medak	132	Wattipally	2016-17	S
11	Medak	132	Ganeshpally	2016-17	S
12	Medak	132	Duddeda	2016-17	S
13	Medak	132	Chandulapur	2016-17	S
14	MahabubNagar	132	Srirangapur (Mogiligidda)	2016-17	S
15	MahabubNagar	132	Narayanpet	2016-17	S
16	MahabubNagar	132	Madgula	2016-17	S
17	MahabubNagar	132	Ganganpally (Alwalpad)	2016-17	S
18	Nalgonda	132	Salknoor	2016-17	S
19	Nalgonda	132	33 KV Features at 132 KV Kodandapur Switching station	2016-17	S
20	Nalgonda	132	Yerraballi	2016-17	S
21	Nalgonda	132	33 KV Features at 132 KV Ramapuram Switching station	2016-17	S
22	Nalgonda	132	Munagala	2016-17	S
23	Nalgonda	132	Munugodu	2016-17	S
24	Warangal	132	Dornakal	2016-17	S
25	Warangal	132	Gudur	2016-17	S
26	Warangal	132	Palakurthy	2016-17	S
27	Nizamabad	132	Dasnagar	2016-17	S
28	Karimnagar	132	Raikal	2016-17	S
29	Karimnagar	132	Kamanpur	2016-17	S
30	Karimnagar	132	Kachapur	2016-17	S
31	Karimnagar	132	Kathlapur	2016-17	S
32	Adilabad	132	Khanapur	2016-17	S
33	Khamman	132	NV Puram	2016-17	S
34	Khammam	132	Arempula	2016-17	S
35	Nizamabad	132	Gandimasanipet	2016-17	S
36	Warangal	132	Nellikuduru	2016-17	S
37	Khammam	132	Dubba thanda LI SS	2016-17	L
38	RangaReddy	132	M.D.Pally	2017-18	S
39	RangaReddy	132	Kandukur	2017-18	S
40	RangaReddy	132	Domarapochampally	2017-18	S

S.No.	District	KV	Location Name	Fin Year	Type
41	RangaReddy	132	Khaitalapur	2017-18	S
42	RangaReddy	132	Donthanpally	2017-18	S
43	RangaReddy	132	Ibrahimbagh	2017-18	S
44	Medak	132	Raparthly	2017-18	S
45	Nalgonda	132	Aipoor	2017-18	S
46	Nalgonda	132	Toopranpet	2017-18	S
47	Mahabubnagar	132	Kondapur	2017-18	S
48	Karimnagar	132	Malakpet LI SS	2017-18	L
49	Warangal	132	Gandiramaram LI SS	2017-18	L
50	Warangal	132	Bommakur LI SS	2017-18	L
51	Warangal	132	Rangaraopalli LI SS	2017-18	L
52	RangaReddy	132	Kanakamamidi	2017-18	S
53	Karimnagar	132	Jangapally	2018-19	S
54	Adilabad	132	Sarangapur	2018-19	S
55	Warangal	132	Regonda	2018-19	S
56	Warangal	132	Bachannapet	2018-19	S
57	Hyderabad	132	Seetharambagh	2018-19	S
58	RangaReddy	132	IDA Mallapur	2018-19	S

Table: 11 : List of 132 kV Lines Proposed for the balance period of 3rd Control Period (FY2016 – 2019)

Sl. No.	FY	KV	Name of the line	IC	CKT	LINE TYPE	Line length in CKM
1	2016-17	132	Balkampet - Patigadda SC Line	S	S/C		4.956
2	2016-17	132	Patigadda - Hussain Sagar SC Line	S	S/C		5.663
3	2016-17	132	Osmania University - Chillkalguda SC Line	S	S/C		4.2
4	2016-17	132	132 KV DC for LILO of Ghanapur - Imlibun Line to Moosarambagh	S		LILO	0.95
5	2016-17	132	Gunrock - Patigadda	S			12
6	2016-17	132	Fever Hospital - Narayanaguda SC Line	S	S/C		1.8
7	2016-17	132	Osmania University -Fever Hospital DC Line	S	D/C		10
8	2016-17	132	Erragadda - NIMS DC Line	S	D/C		13
9	2016-17	132	Malkaram - LGM Pet	S			37.54
10	2016-17	132	132 KV DC/SC line from 132/33KV Ayyagaripally SS to proposed 132/33 KV SS at Dornakal (20 KM) in Warangal Dist.	S	D/C		20
11	2016-17	132	132KV LILO line from 132KV Narsampet-Ayyagaripally to the proposed 132/33KV Gudur SS (5.18 KM) in Warangal District	S		LILO	10.36

Sl. No.	FY	KV	Name of the line	IC	CKT	LINE TYPE	Line length in CKM
12	2016-17	132	132KV DC/SC line (21.20Km) from 220KV Waddekothapally SS to proposed 132KV SS at Palakurthy	S	D/C		22.4
13	2016-17	132	Erection of 132 KV Multi CKT LILO line to 220/132 KV SS Mahabubabad.	S		LILO	8
14	2016-17	132	Erection of 132 KV DC/SC line to 220/132 KV SS Mahabubabad to the existing 132/33 KV SS at Nekkonda.	S	D/C		46
15	2016-17	132	132kv LILO line from 132kv Dichpalli-Nizamabad circuit-II to proposed 132/33kv Dasnagar SS (10.001 km)	S		LILO	20.002
16	2016-17	132	132 kv DC/SC line from Jagityal 220/132 kv SS to the proposed 132/33 kv Raikal SS. (9.75KM)	S	D/C		9.75
17	2016-17	132	132kv line with multi circuit towers from 220KV SS Manthani to AP 5 (7.3 KM) to accomodate both 132 KV DC/SC line to Kamanpur Substation & 132 KV LILO line from 132KV Manthani - Kamalapur line	S		LILO	23.5
18	2016-17	132	Erection of 132 KV DC/SC line (Normal towers) from AP 5 to proposed 132 KV Kamanpur (16.00 KM) in Karimnagar District.	S	D/C		16
19	2016-17	132	Erection of 132 KV DC/SC line from 132 KV Dharampuri SS to Luxetpet.	S	D/C		22.4
20	2016-17	132	132 kv DC/SC Line (18 km) from 220/132 kv LI SS Huzurabad (under construction) to the proposed 132 kv SS Kachapur	S	D/C		18
21	2016-17	132	132 KV DC/SC line from existing 132/33 KV Korutla SS to Proposed 132/33 KV Kathlapur SS (9.0 Km)	S	D/C		9
22	2016-17	132	132 kv DC/SC Line to proposed 132kv Khanapur SS from 220kv Nirmal SS. (42 KM)	S	D/C		42
23	2016-17	132	132 KV DC /SC line from 132/33 KV kamalapuram SS to proposed 132/33 KV SS NV Puram	S	D/C		10
24	2016-17	132	132 KV DC line to proposed 132/33 KV SS Arempula by making LILO of 2nd CKT of existing 132 KV DC line from 220/132 KV Budidampadu SS to 132/33 KV SS Khammam.	S	D/C	LILO	24
25	2016-17	132	132 KV LILO line from 132 KV Minpur to Nizamsagar line (6 Km) to proposed 132/33 KV SS Gandimasani	S		LILO	12
26	2016-17	132	132 KV DC /SC line from 132/33 KV Ayyagaripally SS to proposed 132/33 KV SS Nellikuduru	S	D/C		27
27	2016-17	132	132KV DC/SC line (9 Km) from 132KV Kusumanchi SS to proposed 132KV SS at Dubba thanda	L	D/C		10
28	2017-18	132	Fabcity -Kandukuru	S			25
29	2017-18	132	LILO of Shapurnagar - Gummadidala to Dommarapochampally DC line	S		LILO	49.2
30	2017-18	132	LILO of Shapurnagar - Bollaram to Miyapur DC line	S		LILO	9
31	2017-18	132	i) LILO of Ibrahimpatnam -Turkayamjal to Bonguluru DC line	S		LILO	16

Sl. No.	FY	KV	Name of the line	IC	CKT	LINE TYPE	Line length in CKM
32	2017-18	132	Miyapur to Khaitlapur DC line	S			15
33	2017-18	132	i) LILO of Yeddumailaram -Dharmasagar to Dothanpally ii) Parigi to Dharmasagar SC lineDC line	S		LILO	36
34	2017-18	132	Shivarampally -MD Pally DC line	S			7
35	2017-18	132	LILO of Shivarampally - Erragadda to Ibrahimbagh DC line	S		LILO	4
36	2017-18	132	Peddashankarampet - Raparthy SC line	S	S/C		16
37	2017-18	132	Doulathabad to Toopran SC line	S	S/C		25
38	2017-18	132	Ramannapet -Choutuppall SC line	S	S/C		41
39	2017-18	132	Maddur to Kondapur SC line	S	S/C		20
40	2017-18	132	Suryapet to Thungathurthy to Aipoor SC line	S	S/C		26
41	2017-18	132	132kV DC/SC Line from Raghunathapalli to Gandiramaram	L	D/C		16.6
42	2017-18	132	132kV DC/SC from Jangaon Ss to Bommakur	L	D/C		15
43	2017-18	132	132kV LILO to Rangaraopalli from 132kV Mulugu, Chelkur In Warangal line	L		LILO	1
44	2018-19	132	Aswaraopet -B.Gangaram SC line	S	S/C		30
45	2018-19	132	LILO of Ghanapur -Bandlaguda to Kachavani Singaram DC line	S	D/C	LILO	2
46	2018-19	132	LILO of Ghanapur - Moulali to Kachavani singaram DC line	S	D/C	LILO	2
47	2018-19	132	LILO of Durshed -Shanigaram to Jangapally DC line	S	D/C	LILO	28
48	2018-19	132	LILO of Nirmal -Bhainsa to Sarangapur DC line	S	D/C	LILO	28
49	2018-19	132	Chelpur -Regonda SC line	S	S/C		20
50	2018-19	132	Jangoan - Bachannapet SC line	S	S/C		18
51	2018-19	132	LILO of 132 kV Asifnagar – Shivarampally to Seetharambagh	S		LILO	3.6
52	2018-19	132	LILO of 132 kV Moulali – Ghanapur Line to IDA Mallapur	S		LILO	1.5
53	2018-19	132	Radial 132 kV feeder from 220 kV Moulali to Moulali ZTS	S			3.5
54	2018-19	132	LILO of 132 Moulali – Shapurnagar to R.P.Nilayam	S		LILO	2.4
55	2018-19	132	LILO of 132 kV Gachibowli – ISB feeder to proposed ISB substation	S		LILO	0.1
56	2018-19	132	LILO of Dharamapur Luxettepet line to the proposed Tallapet substation	S		LILO	15

3.2. Capital Investment Plan during the balance period of 3rd Control Period (FY 2016–2019):

The following capital investments are proposed for execution of 400 KV Schemes including evacuation schemes, schemes consisting of 220 & 132 Sub Stations and Lines, Lift

Irrigation Schemes and Renovation and modernization schemes during the balance period of 3rd Control Period.

Table 12: Capital Investment Plan during the balance period of Third Control Period:

(Rs. in Crores)

Particulars	2016-17	2017-18	2018-19
CWIP Opening Balance	2232.99	2000.82	4555.06
Capital Investment During the Year			
400kv Schemes	1232.22	1340.19	1622.31
220kv Schemes	1017.71	1135.98	463.81
Renovation & Modernization Improvement Schemes	50.11	50.11	50.11
Lift Irrigation Schemes	222.34	2758.63	504.00
Total Base Capital Investment	2522.38	5284.91	2640.23
Add: Interest During Construction	328.74	278.30	222.57
Add: Expenses Capitalised	88.14	131.69	94.23
Total Capital Investment during the year	2939.26	5694.91	2957.03
Assets Capitalised during the year	3171.44	3140.66	5381.44
CWIP Closing Balance	2000.82	4555.06	2130.65

4 Multi Year Aggregate Revenue Requirement for the Third Control Period

Aggregate Revenue Requirement (ARR) for Transmission Business for FY 2017-18 and FY 2018-19:

TS TRANSCO submits its Aggregate Revenue Requirement (ARR) for Transmission Charges for FY 2017-18 and FY 2018-19 as per the methodology notified by the Hon'ble Commission vide Regulation 5 of 2005. The following are the main components of ARR:

- i) **Operation and Maintenance (O&M) Expenses** : The O&M Expenses covers the Employees Cost, Administrative & General Expenses, Repairs & Maintenance Expenses.

The O&M Expenses of the licensee are driven by the length of lines in Circuit Kilometers and No. of Sub-Station Bays. The total O&M Expenditure was allocated to Lines and Sub-Stations in the ratio of 30:70. As per the latest provisional (un audited) accounts for FY 2015-16, the Net O&M expenses are Rs.312.57 crores. Out of Rs. 312.57 crores, an amount of Rs.93.77 crores was allocated to Lines and an amount of Rs.218.80 .crores was allocated to Sub-stations. Based on the number of line length in CKM and number sub-stations bays, O&M Cost per CKM and bay was computed for FY 2015-16. For estimating the O&M Expenses for FY 2017-18 and FY 2018-19 the escalation @4.20% was adopted based on the Multi Year Tariff Order issued by the Hon'ble APERC for 3rd Control Period.

Table 13:

(Rs. in crores)

Particulars	FY 2015-16 (Prov1./ Unaudited)	FY 2016-17 (Base Year)	FY 2017-18	FY 2018-19
O&M Cost (Net)	312.57			
O&M Cost (%) for Lines	30%			
O&M Cost (%) for Sub-Stations	70%			
Base Year O&M Costs for Lines (Rs. in crores)	93.77			
Base Year O&M Costs for Sub-stations (Rs. in crores)	218.80			
Lines (Circuit Kilometers)	17899			
No. of Substation Bays (Nos.)	1478			
Base Year O&M Cost for Lines (Rs./KM)	52389			
Base Year O&M Cost for Substations (Rs./Bay)	1480372			
O&M Inflation Factor for MYT Control Period (Index)		4.20%	4.20%	4.20%
O&M Cost for Lines (Rs./KM) [(Base Year * (1+Index))]		54589	56882	59271
O&M Cost for Sub-stations (Rs./Bay) [(Base Year * (1+Index))]		154254 8	160733 5	167484 3
<i>Lines (Circuit Kilometers) for the year</i>		20649	23243	27111
<i>No. of Substation Bays (Nos.) for the year</i>		1830	2126	2430
O&M Cost (Net)		395.01	473.93	567.68

Based on the above, the following are details of O&M Expenses for FY 2017-18 and FY 2018-19:

Table 13.(a)

(Rs. in crores)

Particulars	FY 2017-18	FY 2018-19
Gross O&M Costs	605.62	661.90
Less: O&M Expenses Capitalised	131.69	94.23
Net O&M Expenses	473.93	567.68

Further, it is to submit that wage revision to the employees is due w.e.f.01.04.2018. However, the impact of wage revision was not factored in the above projections. The same will be claimed separately based on actual.

- ii) **Depreciation** : Depreciation is a claim towards replacement cost of fixed assets. Depreciation has been calculated for every year on all the fixed assets (excluding assets capitalized through consumer contributions during the period) capitalized upto the previous year considering the rates notified by the Ministry of Power, Govt. of India.

Table 14:

(Rs. in crores)

Particulars	FY 2017-18	FY 2018-19
Land & land rights	0.00	0.00
Buildings	6.65	8.67
Other civil works	0.18	0.24
Plant & Machinery	344.32	448.67
Line Cable Network	212.86	277.37
Vehicles	0.35	0.45
Furniture & Fixtures	0.28	0.36
Office Equipment	3.88	5.06
Total	568.52	740.82

- iii) **Taxes on Income** : The income tax component on the Return on Equity @14% on 25% of Regulated Rate Base has been computed with the with the current rate of corporate tax.

Table 15:

(Rs. in crores)

Particulars	2017-18	2018-19
Taxes on income	120.34	157.33

- iv) **Special Appropriation:** Based on provisional/Unaudited accounts, the surplus of Rs.605 crores gained during FY 2014-15 (02.06.2014 to 31.03.2015) and FY 2015-16 is being passed on to the consumers as a negative element during FY 2017-18 and FY 2018-19.

Table 16:

(Rs. in crores)

Particulars	2017-18	2018-19
Special Appropriation	(302.21)	(302.22)

- v) **Return on Capital Employed (ROCE)** : Return on Capital Employed (ROCE) is to cover the interest charges on the debt portion towards fixed assets and Return on Equity invested by TS TRANSCO.

The licensee has prepared a detailed investment plan for FY 2017-18 and FY 2018-19 based on Resource Plan submitted to the Hon'ble TS ERC by making comprehensive analysis of Transmission Network existing in the state and load conditions/growth in the ensuing two years at 765kv/400kv/220kv and 132kv voltages. The following are the details of capital investment during FY 2017-18 and FY 2018-19:

Table 17:

(Rs. in crores)

Particulars	FY 2017-18	FY 2018-19
CWIP Opening Balance	2000.82	4555.06
Capital Investment During the Year		
400kv Schemes	1340.19	1622.31
220kv Schemes	1135.98	463.81
Renovation & Modernization Improvement Schemes	50.11	50.11
Lift Irrigation Schemes	2758.63	504.00
Total Base Capital Investment	5284.91	2640.23
Add: Interest During Construction	278.30	222.57
Add: Expenses Capitalized	131.69	94.23
Total Capital Investment during the year	5694.91	2957.03
Assets Capitalized during the year	3140.66	5381.44
CWIP Closing Balance	4555.06	2130.65

Based on the above capital investment/asset capitalization, the following is the position of Regulated Rate Base of TS TRANSCO and Return on Capital Employed thereon for FY 2017-18 and FY 2018-19:

Table 18:

(Rs. in crores)

Particulars	FY 2017-18	FY 2018-19
Assets	13538.09	18919.52
OCFA Opening Balance	10397.43	13538.09
Additions to OCFA	3140.66	5381.44
Depreciation	3552.59	4293.41
Opening Balance	2984.07	3552.59
Depreciation during the Year	568.52	740.82
Consumer Contributions	3641.81	4145.81

Cons Contributions Opening Balance	913.18	3641.81
Additions to Cons Contributions	2728.63	504.00
Working Capital	74.67	81.60
Change in Rate Base	-78.24	2068.31
Regulated Rate Base	6496.60	8493.60
WACC	12.50%	12.50%
Return on Capital Employed	812.07	1061.70

While arriving at the Return on Capital Employed (ROCE), Debt portion is considered at 75% of Regulated Rate Base (RRB) with an interest cost of 12% and Equity at 25% with a return of 14%. As such , the Weighted Average cost of Capital (WACC) worked out to 12.50%.

vi) Non-Tariff Income : The major components of other income includes interest income on staff loans and advances, income from investments, rebate on payment of suppliers bills etc., Based on the past trend, the Non-Tariff Income for FY 2017-18 and FY 2018-19 is estimated as detailed below.

Table 19:

(Rs. in crores)

Particulars	2017-18	2018-19
Interest on Staff loans and advances	0.20	0.20
Income from investments	13.00	13.00
Delayed payment charges from consumers	0.10	0.10
Misc. Receipts	36.70	36.70
Total Non-Tariff Income	50.00	50.00

vii) Aggregate Revenue Requirement : The net Aggregate Revenue Requirement for FY 2017-18 is Rs.1623 crores and Rs.2175 crores for FY 2018-19.

Table 20:

Particulars	(Rs. in Crores)	
	FY 2017-18	FY 2018-19
Operation and Maintenance Charges	605.62	661.90
Depreciation	568.52	740.82
Advance Against Depreciation	0.00	0.00
Taxes on Income	120.34	157.33
Other Expenditure	0.00	0.00
Special Appropriations	-302.21	-302.22
Total Expenditure	992.27	1257.83
Less: O&M expenses capitalized	131.69	94.23
Net Expenditure	860.59	1163.61
Add: Return on Capital Employed	812.07	1061.70
Less: Non-Tariff Income (if any)	50.00	50.00
Total Revenue Requirement transferred to Retail supply business	1622.65	2175.31

viii) Transmission Charges : The DISCOMs have projected the Installed Capacity as their Contracted Capacity. The demand from Open Access Consumers has been estimated and added to the total contracted demand of DISCOMs.

The transmission charges are computed by dividing the net ARR of each year with the total contracted capacity of the respective year. As such, the following are the transmission charges for FY 2017-18 to FY 2018-19:

Table 21:

Proposed Transmission Tariff	2017-18	2018-19
ARR of Transmission Business (Rs. Crores)	1622.65	2175.31
Transmission Contracted Capacity (MW)	14376	15021
Transmission Charges (Rs./KW/Month)	94	121

5 Target for balance period of third control period

The following table depicts the Target Transmission loss range and System Availability during each year of balance period of the third Control period. As per the Regulation No. 5 of 2005, if the actual Transmission losses go beyond the Target Transmission losses, then TSTransco will be subjected to incentive/penalty appropriately.

Table 22: Target – 3rd Control Period

Particulars	2017-18	2018-19
Target Transmission Loss Range (%)	3.10 +/-0.2	3.09 +/-0.2
Target System Availability (%)	99.9%	99.9%

The Transmission losses band projected above are exclusive of PGCIL losses. TSTRANSCO submits that the loss targets shown above are in the with the investment proposals of 3rd Control Period. Licensee submits that if there is any, change in the investment proposals approved by the Hon'ble Commission, the loss band shown above may also vary accordingly.

REPRESENTATIVE SYSTEM LOAD CURVES

1 Requirement in the Guidelines:

Representative system load curves for weekdays and weekends for various seasons (such as summer, winter and monsoon). Indicate in case if any load restriction was imposed. Also provide expected system load curves for the ensuing year and indicate the expected supply curves in each case. (Guidelines – 10a)

2 TSTRANSCO's Response:

Typical Full load details along with curves for three seasons representing Peak demand met day and Peak demand met on weekend day for the years 2014-15 to 2015-16 are as follows as Annexure 1a to 1h:

For 2014-15

Sl.No.	Season	Date
1	Typical full load day in summer	28 th March 2015
2	Typical week end day in summer	28 th March 2015
3	Typical full load day during monsoon	22 nd October 2014
4	Typical week end day in monsoon	25 th October 2014
5	Typical full load day in winter	23 rd January 2015
6	Typical week end day in winter	23 rd January 2015

For 2015-16

Sl.No.	Season	Date
1	Typical full load day in summer	3 rd April 2015
2	Typical week end day in summer	3 rd April 2015
3	Typical full load day during monsoon	16 th October 2015
4	Typical week end day in monsoon	16 th October 2015
5	Typical full load day in winter	5 th November 2015
6	Typical week end day in winter	26 th February 2016

The highest system peak demand of 6755 MW was recorded at 01:00 AM on 28-03-2015 for the FY 2014-15 w.e.f June 2014.

The highest system peak demand of 6849 MW was recorded at 11:00 AM on 16-10-2015 for 2015-16, which is 94 MW more than the previous year (2014-15) system peak of 6755 MW, recorded on 28-03-2015.

A brief analysis of system demand for all seasons of the year 2014-15, 2015-16 are furnished in the following sections:

For 2014-15

PEAK GRID DEMAND				
SEASON	Max MW	Min MW	Max Date	Min Date
SUMMER	6755	3683	28-03-2015	01-03-2015
MONSOON	6648	3936	22-10-2014	30-08-2014
WINTER	6682	3510	23-01-2015	10-02-2015

For 2015-16

PEAK GRID DEMAND				
SEASON	Max MW	Min MW	Max Date	Min Date
SUMMER	6661	3381	03-04-2015	22-06-2015
MONSOON	6849	4170	16-10-2015	03-09-2015
WINTER	6479	3870	05-11-2015	15-01-2016

3 Summer season

For 2014-15

From the daily system load curves (vide annexure 1.a) on the day when the highest system peak was recorded, it can be seen that the system peak load is continuously maintained above 5483 MW throughout the day and the maximum demand recorded was 6755 MW on March 28th 2015. The demand variation in dry summer was between 3683 MW and 6755 MW. The minimum system demand on 1st March 2015 was 3683 MW, and is the lowest recorded in this season.

For 2015-16

From the daily system load curves (vide annexure 1.a) on the day when the highest system peak was recorded, it can be seen that the system peak load is continuously maintained above 5432 MW throughout the day and the maximum demand recorded was 6661 MW on April 3rd 2015. The demand variation in dry summer was between 3381 MW and 6661 MW. The minimum system demand on 22nd June 2015 was 3381 MW, and is the lowest recorded in this season.

4 Monsoon Season

For 2014-15

From the daily system load curves (vide annexure 1.a) on the day when the highest system peak was recorded, it can be seen that the system peak load is continuously maintained above 5198 MW throughout the day and the maximum demand recorded was 6648 MW on October 22nd 2014. The demand variation in dry monsoon was between 3936 MW and 6648 MW. The minimum system demand on 30th August 2014 was 3936 MW, and is the lowest recorded in this season.

For 2015-16

From the daily system load curves (vide annexure 1.a) on the day when the highest system peak was recorded, it can be seen that the system peak load is continuously maintained above 5644 MW throughout the day and the maximum demand recorded was 6849 MW on October 16th 2015. The demand variation in dry monsoon was between 4170 MW and 6849 MW. The minimum system demand on 3rd September 2015 was 4170 MW, and is the lowest recorded in this season.

5 Winter season

For 2014-15

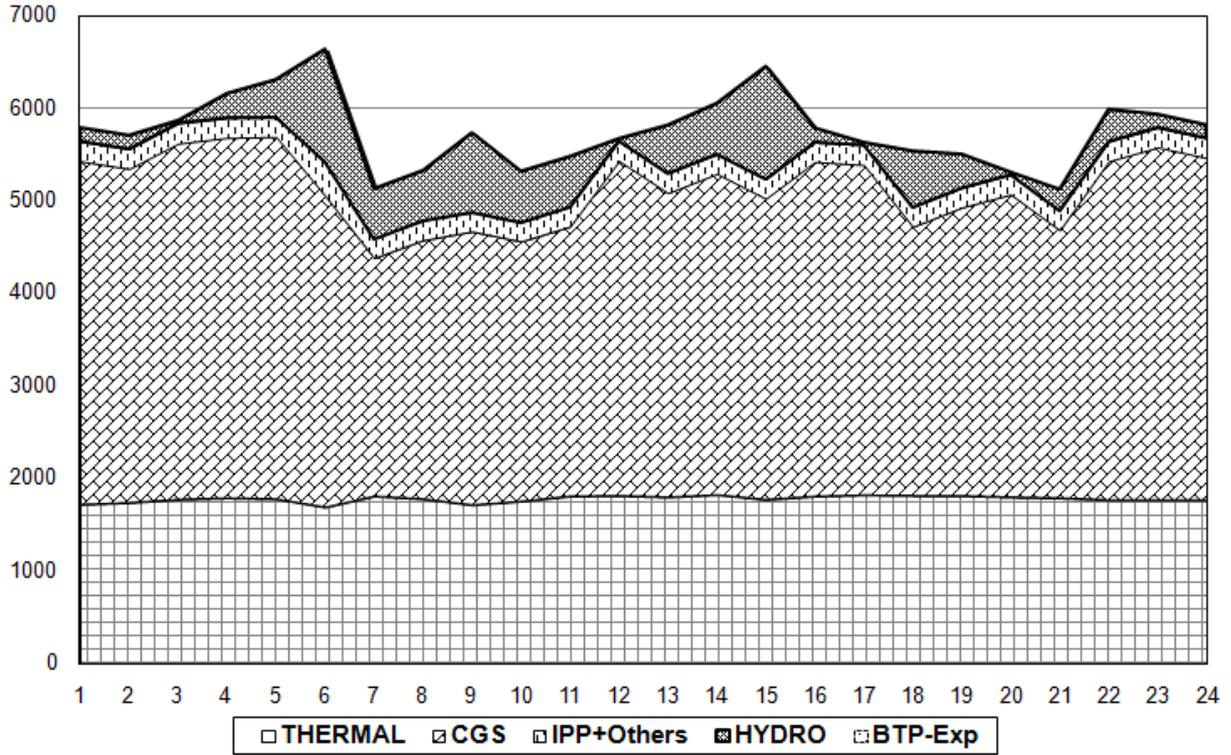
From the daily system load curves (vide annexure 1.a) on the day when the highest system peak was recorded, it can be seen that the system peak load is continuously maintained above 4448 MW throughout the day and the maximum demand recorded was 6682 MW on January 23rd 2015. The demand variation in dry winter was between 3510 MW and 6682 MW. The minimum system demand on 10th February 2015 was 3510 MW, and is the lowest recorded in this season.

For 2015-16

From the daily system load curves (vide annexure 1.a) on the day when the highest system peak was recorded, it can be seen that the system peak load is continuously maintained above 5366 MW throughout the day and the maximum demand recorded was 6479 MW on November 5th 2015. The demand variation in dry winter was between 3870 MW and 6479 MW. The minimum system demand on 15th January 2016 was 3870 MW, and is the lowest recorded in this season.

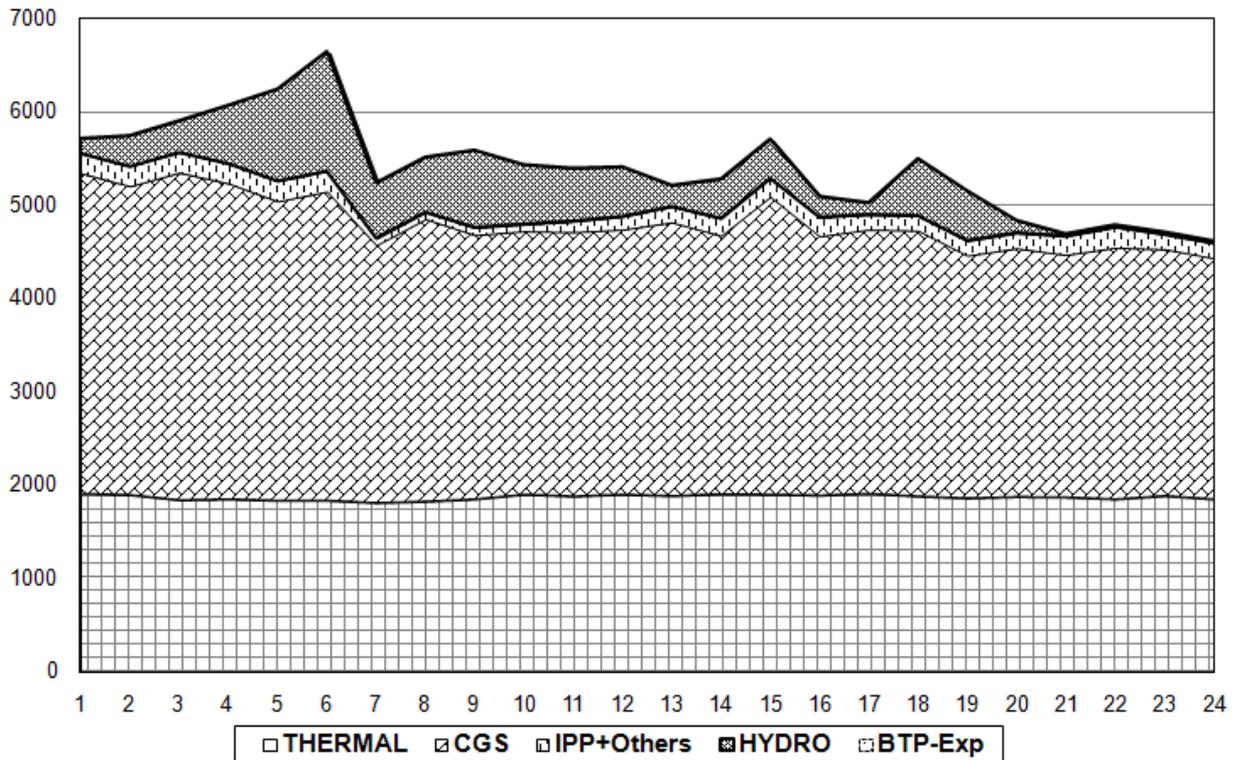
1 (a)

TS TRANSCO- L.D. CENTRE
DEMAND CURVE ON 22 OCTOBER 2014



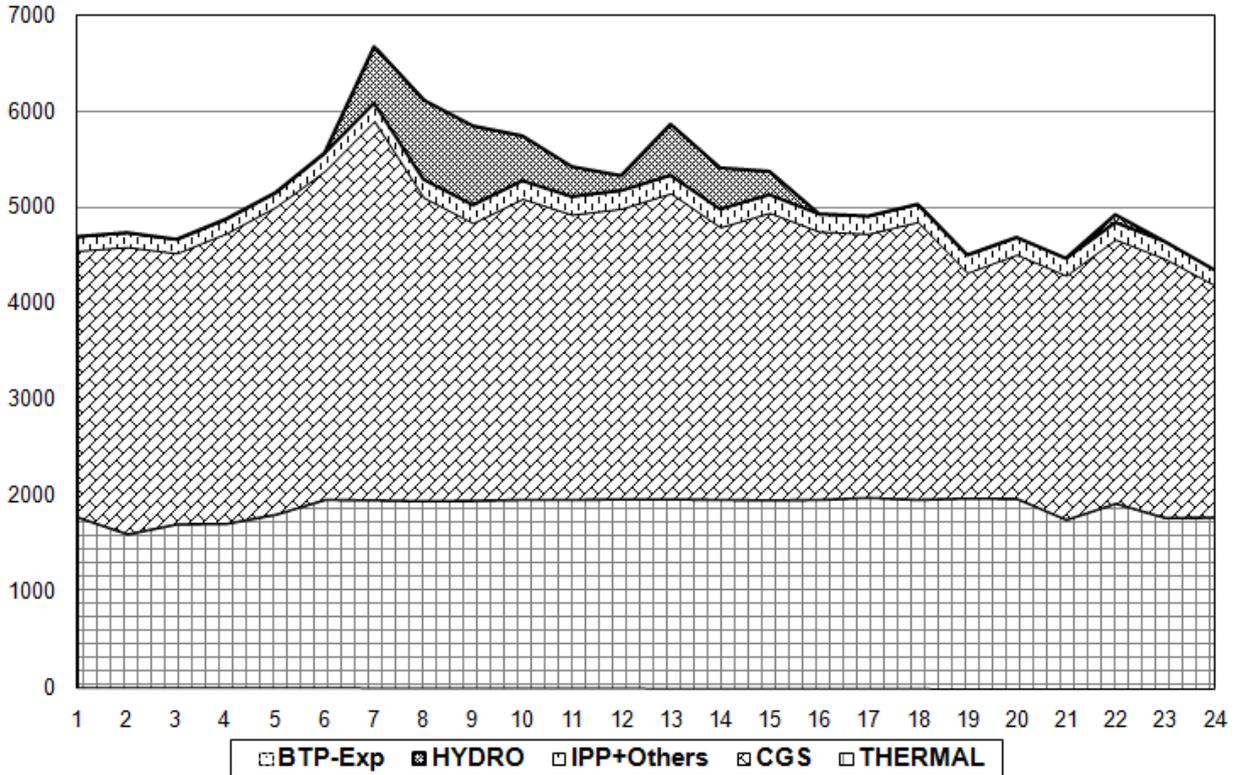
1 (b)

TS TRANSCO- L.D. CENTRE
DEMAND CURVE ON 25 OCTOBER 2014



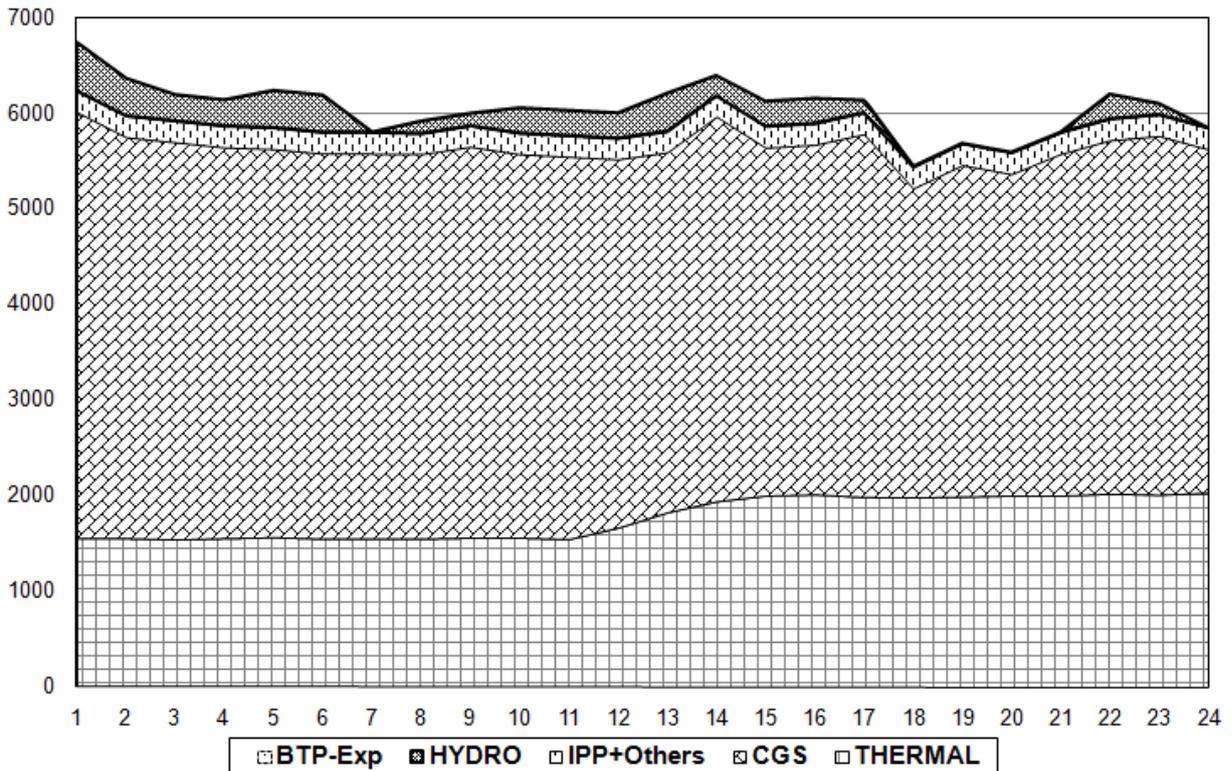
1 (c)

TS TRANSCO- L.D. CENTRE
DEMAND CURVE ON 23 JANUARY 2015



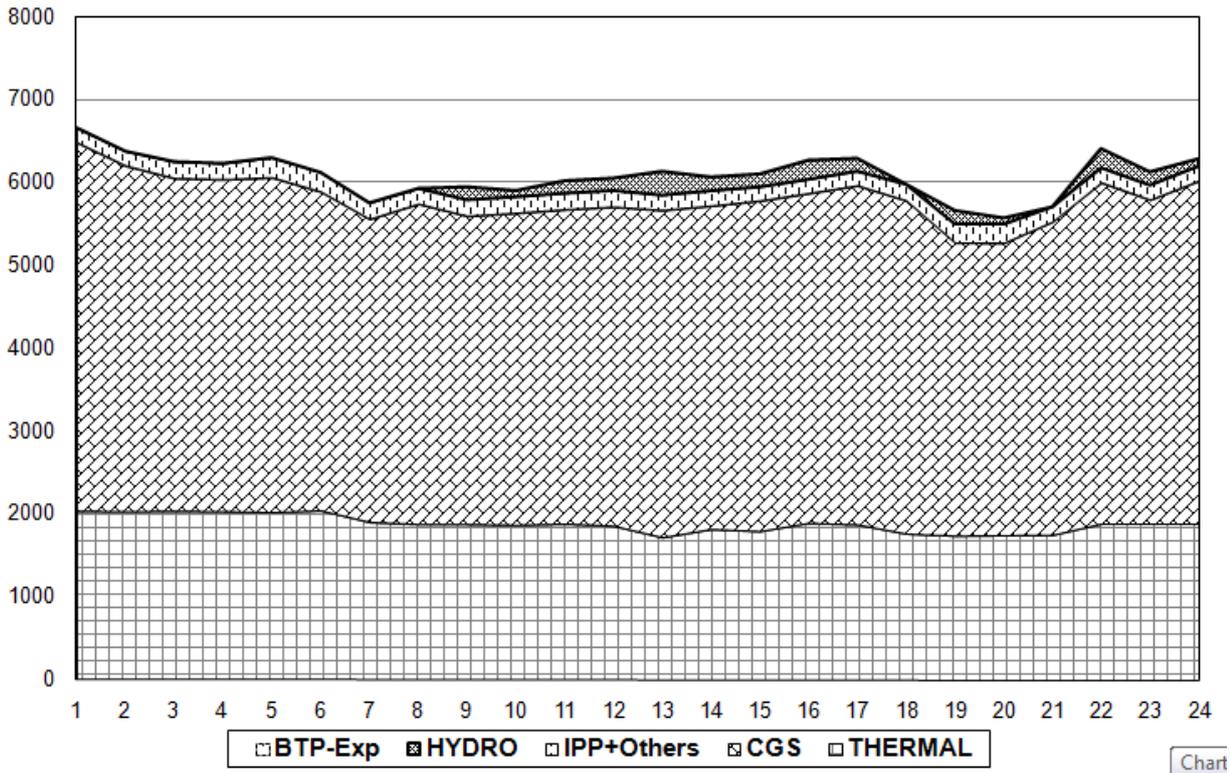
1(d)

TS TRANSCO- L.D. CENTRE
DEMAND CURVE ON 28 MARCH 2015



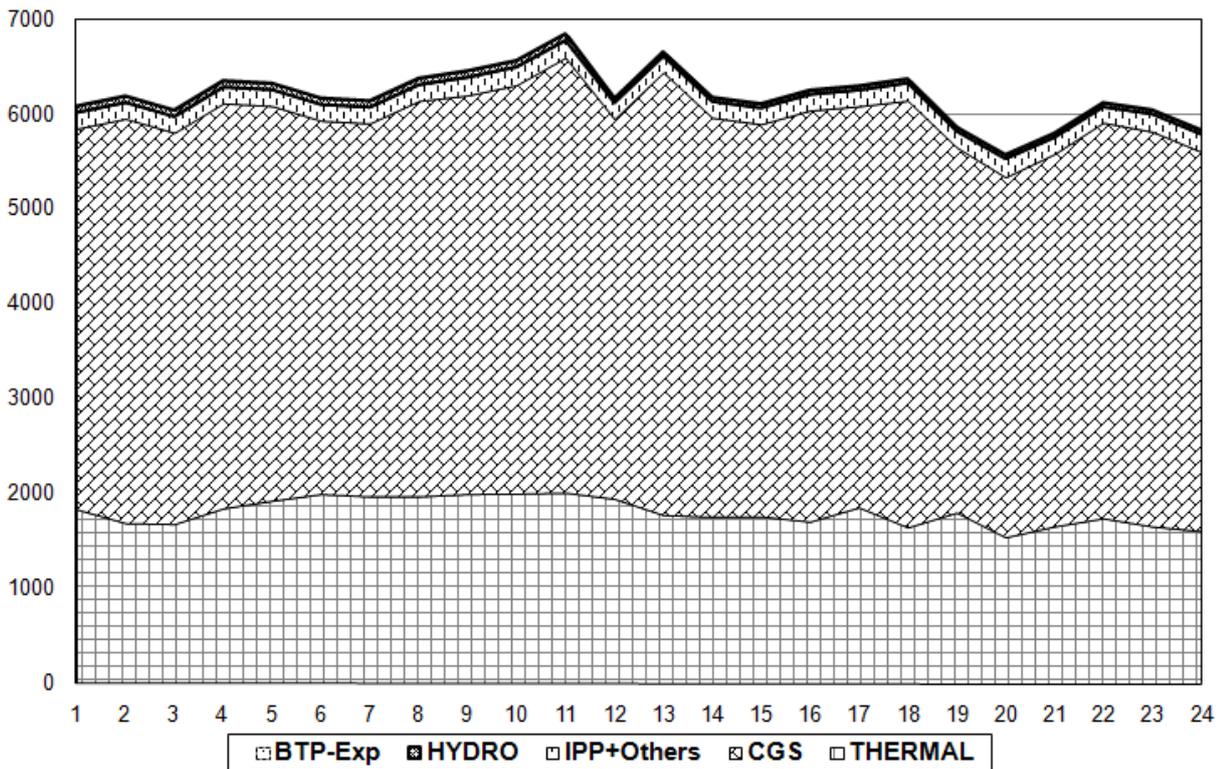
1 (e)

**TS TRANSCO- L.D. CENTRE
DEMAND CURVE ON 03 APRIL 2015**



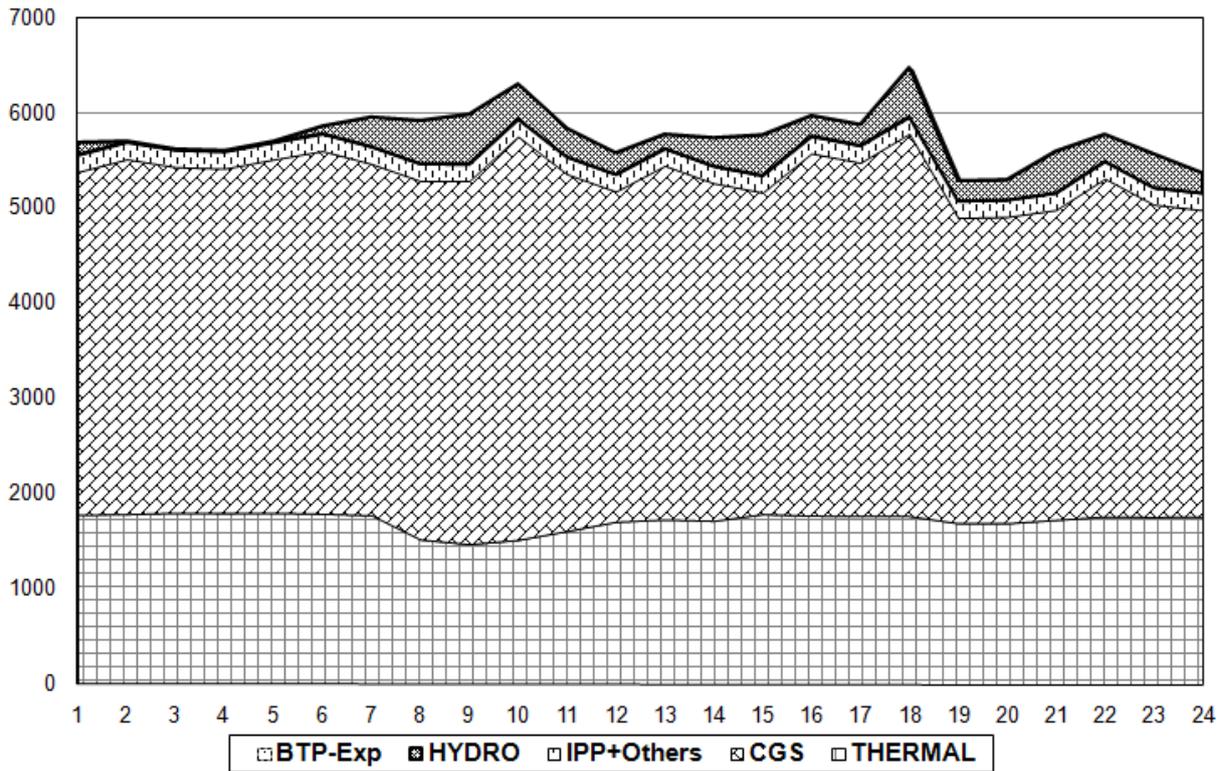
1 (f)

**TS TRANSCO- L.D. CENTRE
DEMAND CURVE ON 16 OCTOBER 2015**



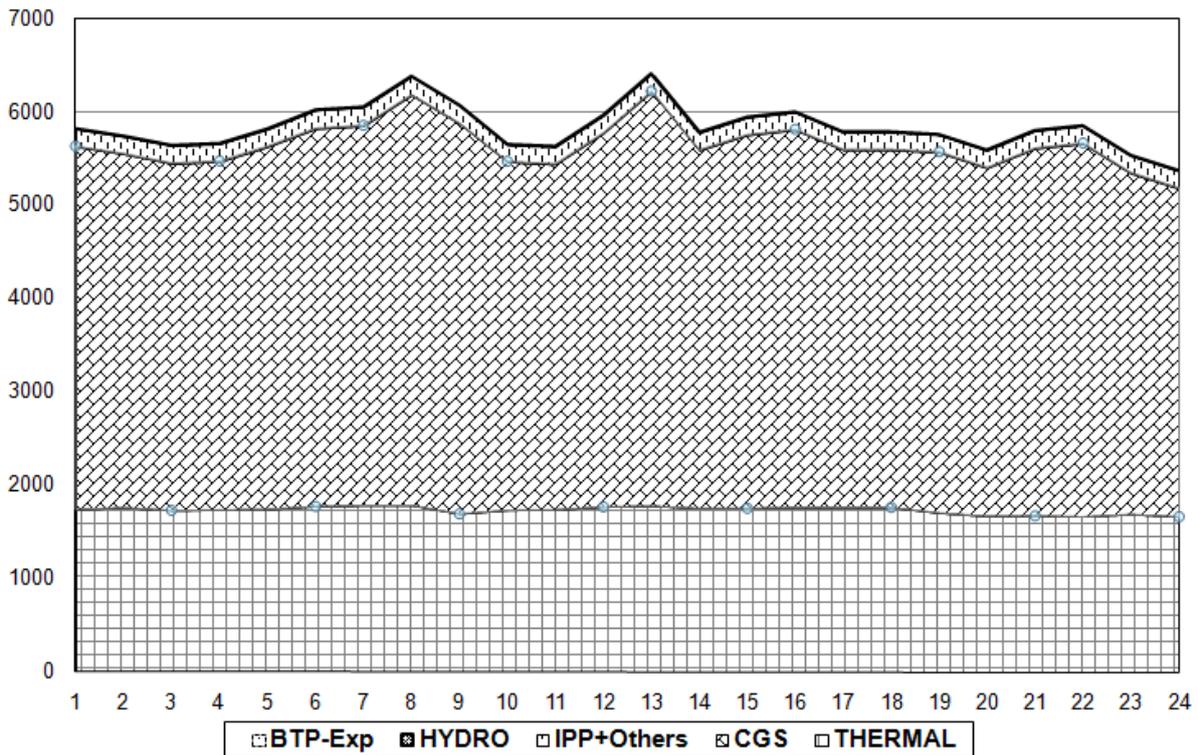
1 (g)

**TS TRANSCO-L.D. CENTRE
DEMAND CURVE ON 05 NOVEMBER 2015**



1 (h)

**TS TRANSCO-L.D. CENTRE
DEMAND CURVE ON 26 FEBRUARY - 2016**



LOAD DURATION CURVES

1. Requirement in the guidelines

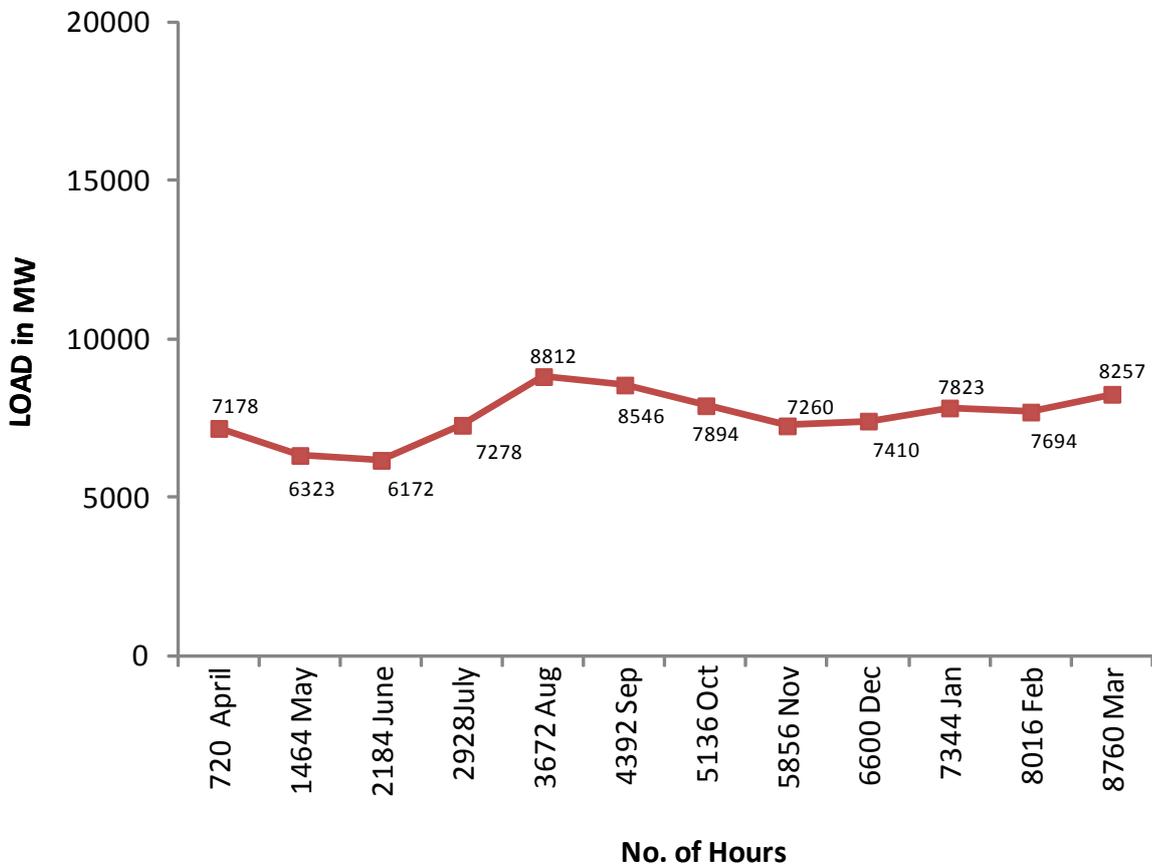
Load duration curves for the past year and current year and expected load duration curve for the ensuing year. Indicate energy unserved on the load duration curves. (Guidelines – 10b)

2. TSTRANSCO’s Response:

The current and ensuing year’s load duration curves for 3rd Control Period are enclosed in Annexure No’s 2a to 2c based on 19th EPS Load forecast data.

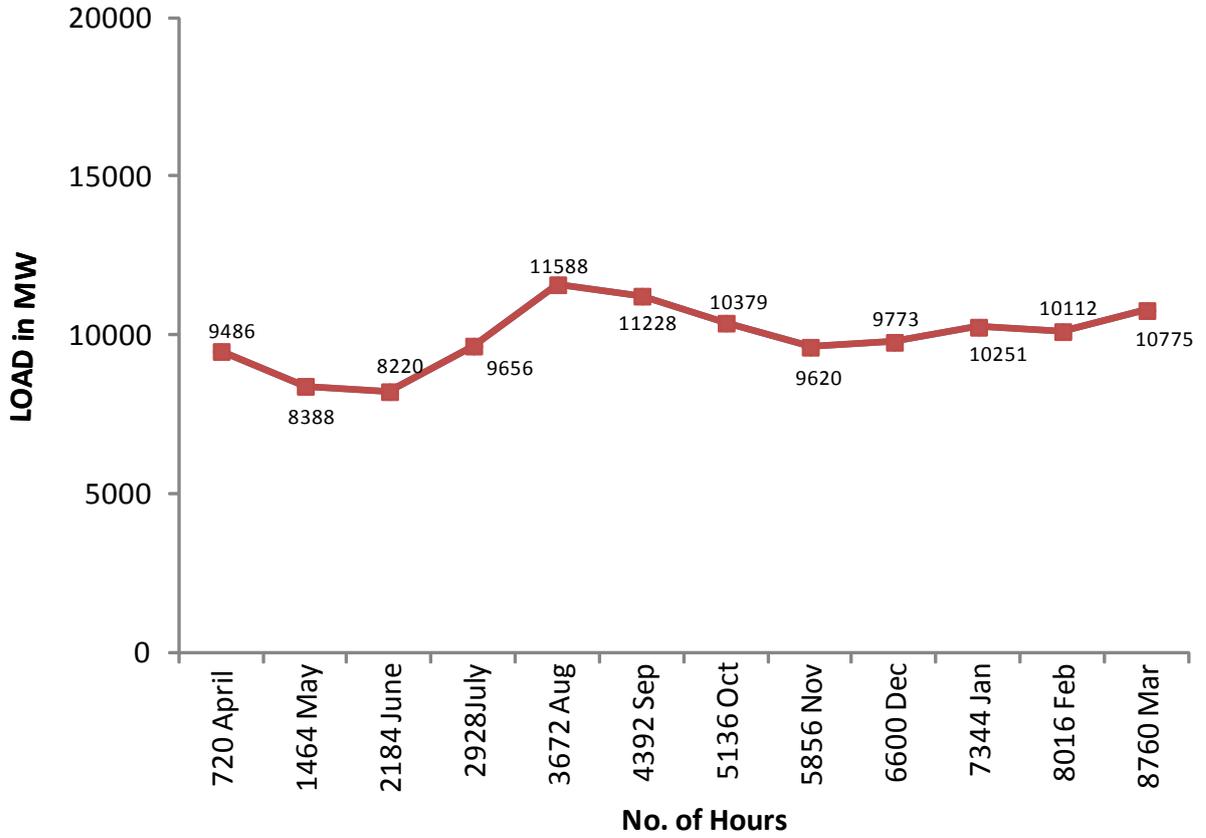
Annexure 2(a)

Load Duration Curve for the year 2016-17



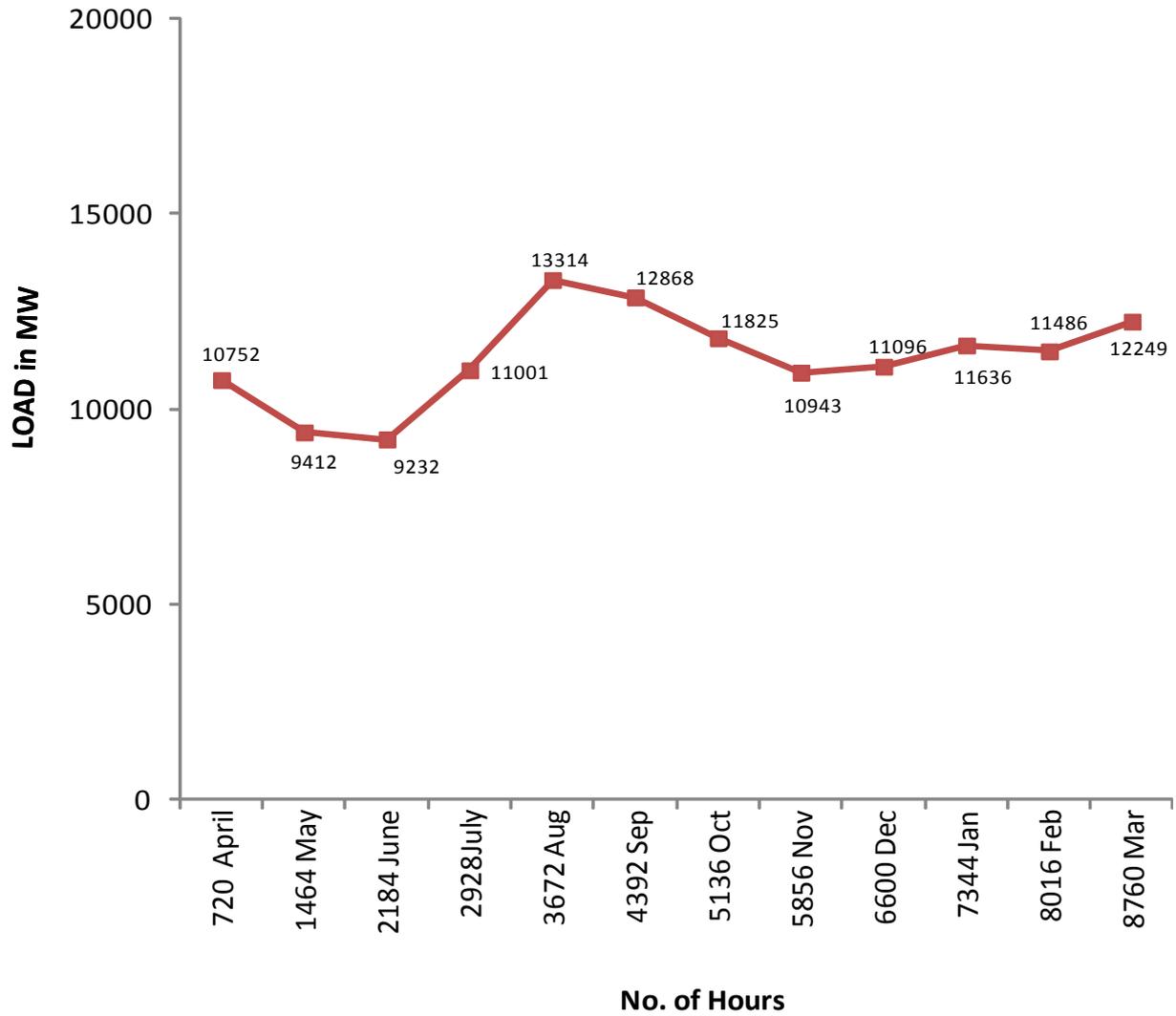
Annexure 2(b)

Load Duration Curve for the year 2017-18



Annexure 2(c)

Load Duration Curve for the year 2018-19



PLANS FOR RATIONALISATION OF EXISTING MANPOWER

1. Requirement in the Guidelines:

Plans both short term and long term for rationalization existing manpower (Guide lines-10c)

2. TSTRANSCO's Response :

Rationalization of manpower for 3rd Control Period for 2016-19 for both short term and long term plan is as follows:

- a) The Technical Committee was reconstituted to discuss and finalize the Technical issues for rationalizations of man power in TSTRANSCO vide Memo No. CGM(HRD)/MPP1/4872/Technical Committee/2014/Date:04/09/2015.
- b) A committee has been constituted for arriving norms for creation of new posts and work load norms, vide T.O.O (Per-CGM/HRD).Rt.No.202, Dt: 07/06/2016.
- c) Following measures are taken while arriving regular man power on permanent basis:
 - Details of EHT Sub-stations & Lines programmed for commissioning during the period 2016-19 are obtained and as per the Technical Committee report dt . 09.09.2005 norms, posts were evolved for the future lines & Sub-Stations.
 - Accordingly, proposals were already sent to Govt., for creation of new posts for O&M of Sub-stations & Lines programmed for commissioning during 2008-19.
 - Retirements are taken from ERP for the period 2014-19.
 - Vacancies in the initial cadres AE, Sub-Engineer, Jr. Assistant, Assistant, JLM & JAO are proposed to be filled.
 - Compassionate appointments are very meager in 2015-16 .
 - Promotions to be considered in promotional posts are taken into consideration while preparing the man power.
- d) The Following measures are taken while arriving outsourcing man power on temporary basis:
 - The Operation & Maintenance of EHT Sub-Stations and lines that are already commissioned and to be commissioned in future in TSTRANSCO, will be out-sourced where there is shortage of regular man power, till such time new posts are sanctioned.

- Non Core functions such as House Keeping, Watch and ward, Sweeper cum Gardening, Typing, and Data Entry Operators are being outsourced, where sufficient regular staff not available.
- e) Considering all the above measures, the following is the man power projections in TSTRANSCO.
- Man power projections/ MIS of the TSTRANSCO as on 31.03.2016 to 31.03.2019 (projected) is as follows.

Sl. No.	Date	Sanctioned	Filled	Vacant
1	31.03.2016	3620	1612	2008
2	31.03.2019	7061	4477	2584

PLANS TO IMPROVE TRANSMISSION SYSTEM PERFORMANCE

1. Requirement in the Guidelines

Plans to improve transmission system performance. (Guidelines –10d).

2. TSTransco's Response:

The transmission system of TSTransco as of March 31, 2016 consists of 2153.34 Circuit KMs of 400 kV lines and 6164.28 Circuit KMs of 220 kV lines and 9561.17 Circuit KMs of 132 kV lines. There are 7 Nos. 400 kV sub-stations, 60 Nos. 220 kV sub-stations and 184 Nos. 132 kV sub-stations. In addition to the above, new lines of 1699 CKM of 400kV lines, 1110 CKM of 220 kV lines, 464 CKM of 132 kV lines and new substations of 3 nos. 400kV substations, 12 nos. 220 kV substation and 37 nos. 132 kV substations expected to be added during 2016-17, thereby increasing the overall transmission efficiency which is also one of the performance indicators of the System like transmission system availability, etc.

The transmission system is continuously growing since decades, but is not able to keep abreast of the growing system requirements mainly due to various reasons such as right of way problems while construction of transmission lines and difficulties in acquisition of land for construction of Sub-stations in urban areas, resource crunch and non-availability of adequate funds. While there are no major bottlenecks faced in evacuation of power from generating stations to the load centers.

During 2014-15, a sum of Rs 1336.27 Crs. was incurred for strengthening of Transmission network, which resulted in the addition of the following assets.

400 kV lines	0 Ckm
220 kV lines	33.8 circuit km.
132 kV lines	137.91 circuit km
400 kV sub-stations	0 Nos.
220 kV sub-stations	3 Nos.
132 kV sub-stations	9 Nos.

During 2015-16, a sum of Rs 1724.49 Crs. was incurred for strengthening of Transmission network, which resulted in the addition of the following assets.

400 kV lines	490.79 Ckm
220 kV lines	267.95 Ckm
132 kV lines	276.82 Ckm
400 kV sub stations	1 Nos.
220 kV sub stations	9 Nos.
132 kV sub stations	10 Nos.

It is proposed to invest an amount of Rs. 11591.20 Crores during the balance Third Control Period i.e., from 2016 to 2019 to strengthen the Transmission System by adding the following assets which includes the XLPE cable and GIS sub-stations in the twin cities.

400 kV lines	5482 Ckm
220 kV lines	2425 Ckm
132 kV lines	1306 Ckm
400 kV sub stations	8 No's.
220 kV sub stations	22 No's.
132 kV sub stations	86 No's.

With the above strengthening measures of the Transmission system, it is expected that the transmission system would greatly improve and the voltage profile of the system will improve to a considerable extent.

LOAD PROFILES

1. Requirement in the Guidelines

Submit load profiles for sub-stations segregated by voltage levels and supplied parties.
(Guidelines – 10e).

2. TSTransco's response

Load curves for peak load days during summer, monsoon and winter seasons have been enclosed as Annexures 1(a) to 1(h). These curves represents hourly demand in MW recorded at various voltage levels, on the days of the highest system peak was recorded for the respective seasons at various representative grid sub-stations.

At this stage, TSTRANSCO has provided the above data for representative sub-stations. It is respectfully submitted that providing such data for all the sub-stations in voltage levels and supplied parties would be a very voluminous and time-consuming process. In the event that the Hon'ble Commission requires such data for any other specific sub-station, TSTRANSCO would be glad to provide such data as may be directed.

PLANS FOR DETERMINING LOAD PROFILES

1. Requirement in the Guidelines

If information in (e) above is incomplete or non-existent, submit plans for determining load profiles on grid sub-stations and to determine system peak at different voltage levels. (Guidelines – 10f)

2. TSTransco’s response

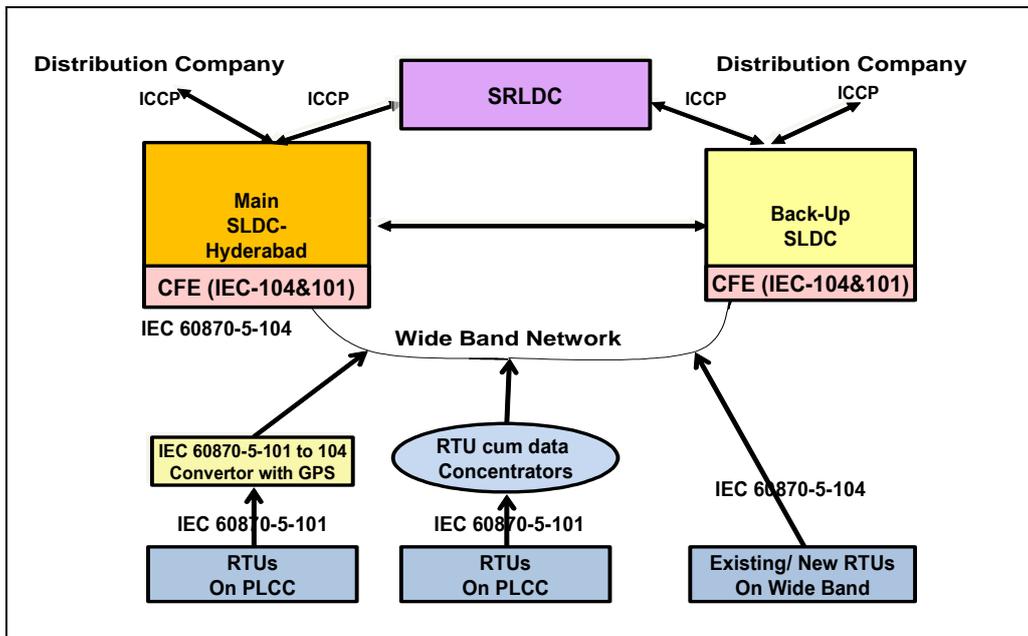
SCADA System:

The SCADA/ EMS systems which were supplied and commissioned by M/s GE Energy during 2000-03 is replaced with new SCADA system in October,2015 which is supplied and installed by M/s.GE T&D Ltd (Formerly M/s.Alstom T& D Ltd).

As per the new ULDC SCADA/EMS Up-gradation scheme, all the Existing & upcoming RTUs would report to both the control centers i.e. Main SLDC & Backup SLDC directly preferably over IEC60870-5-104 Protocol. The data from RTUs communicating over IEC 60870-5-101 Protocol will be converted to IEC 60870-5-104 Protocol by means of a Protocol Converter wherever feasible.

Both the control centers Main & Back-up will be integrated with Distribution company’s Control Centres as well as SRLDC Bangalore on ICCP link, so that in case of failure of one SLDC, the other SLDC will continue to exchange the data with SRLDC. The proposed data connectivity network is shown below.

Fig.1



Proposed Architecture of Upgraded SCADA

The Up-gradation of SCADA/EMS project consists of 7 Data Concentrator Cum Protocol Converter (DCPC's) located at all Wide band stations namely Mamidipally, Ramagundam, Warangal, Veltoor, Shankarpally, Nagarjunsagar & Malkaram. The Main SLDC is located at Vidyut Soudha, Hyderabad and Backup SLDC is under proposal.

The Backup SLDC shall be a functional replica of the Main SLDC (with minor changes) so that it can function as a full-fledged SLDC in case of any disaster. The functionality of the Backup SLDC as far as infrastructure (Hardware & Software) is concerned shall be similar to the main SLDC but shall be manned by skeletal staff 24x7x365, and shall take up full SLDC responsibilities in case of any disaster. During normal course, it shall share the duties of main SLDC also.

Each DCPC's shall receive data from nearest RTU stations using IEC 60870-5-101 protocol, process them and then transmit the real time data to SLDC through IEC 60870-5-104 protocol for monitoring, controlling, storage and reporting. All the Real time data to DCPC is received through PLCC/Fiber communication medium. Whereas the data from DCPC's to control center is received through Fiber optic communication.

Sl. No.	DCPC Location	No. of RTU's Stations
1	Malkaram	10
2	Mamidipally	16
3	Nagarjunsagar	7
4	Ramagundam	16
5	Shankarpally	16
6	Veltoor	9
7	Warangal	9
8	Vidyutsoudha (SLDC)	11

PLANS FOR CAPITAL EXPENDITURE

1. Requirement in the Guidelines.

Plans for all Capital Expenditure. (Guidelines – 10g)

2. TSTransco's Response

(I) PLANS FOR CAPITAL EXPENDITURE for 220KV and 132 KV Schemes

Capital works are being taken up for Evacuation of power from the up-coming Generating Stations, Strengthening of the Transmission System and to improve the system voltage profile and also to enhance the reliability of the system. In order to cope with the above, a number of new 220 kV & 132 kV substations are being erected with the funding from REC/PFC/JICA/Commercial Banks and Internal Funding under Normal Plan.

1. SCHEMES UNDER PFC FUNDING:

The works for erection of 220 kV Switching Station at Thimmajipet are completed and is scheduled for commissioning in Nov / Dec 2016. The works for erection of 132/33 kV substation at Gudur and 132/33 kV substation at Kamanpur are completed and commissioned.

The work in respect of 132/33 kV substation at NIMS under PFC Funding is commissioned on 25.09.2016.

2. SCHEMES UNDER REC FUNDING:

So far 1 No. 220/132/33 kV substation at Nagole & 6 Nos., under REC Funding are commissioned and 14 Nos 132/33 kV substations are programmed for completion during the year 2016-17.

3. SCHEME UNDER JICA FUNDING:

To develop the Transmission Network in the twin cities of Hyderabad & Secunderabad, so as to cope up with the load growth in the twin cities and to provide quality & reliable power supply and to avoid low voltage problem, a Scheme for erection of 3 Nos. 220 kV

substations (2 Nos. conventional & 1 No. GIS) and 5 Nos. 132 kV GIS substations along with connected XLPE UG Cable lines & bay extensions was proposed and was approved by the erstwhile APTRANSCO at an estimated cost of Rs. 1195.50 Cr. Since all the proposed substations are located in highly populated areas of the twin Cities where availability of required land and necessary clearances for takeoff for overhead transmission lines is very difficult due to the right of way problems & non availability of corridors, hence it is proposed to erect SF6 Gas Insulated Switchgear (GIS) substations and connected lines by laying of 220 kV or 132 kV Under Ground XLPE cables.

The above works are being taken with financial assistance from M/s. Japan International Co-operation Agency. The works of erection of all the substations under JICA funding are nearing completion and are proposed to be commissioned by March'2017.

4. SCHEME FUNDED BY OTHER FINANCIAL INSTITUTIONS:

- For system improvement in twin cities, a scheme was formulated for erection of 2 Nos. 132 kV GIS substations at Fever Hospital and Narayanaguda with XLPE UG cable lines and 1 No. 220 kV substation at Miyapur (Bachupalli) along with connected XLPE UG cable lines to meet the load demand of Hyderabad Metro Rail, IT Parks in and around the Miyapur. The estimated cost is Rs. 152.23 Cr. The works are nearing completion and are programmed to be commissioned by March' 2017.
- TRANSCO has approved for erection of 220/132 kV sub-station at Huzurnagar along with connected 220 kV and 132 kV lines for evacuation of power from Pulichintala and to meet Industrial loads at a total scheme cost of Rs. 52.49 Cr. The works are programmed to be completed by May'2017.
- Further, various 132 kV and 220 kV substations in 2016-17 to 2018-19 are proposed to meet the growing load demand in rural and urban areas and are being funded by various financial institutions / Banks.

Details of the proposed lines and substations pertaining to 220 kV and 132 kV Schemes during Third control period are mentioned below.

Description	FY 2016-17	FY 2017-18	FY 2018-19
220 kV lines (in CKM)	914.03	734.00	299.00
220 kV Substations	13 Nos.	6 Nos.	3 Nos.
132 kV lines (in CKM)	440.52	321.80	154.10
132 kV Substations	46 Nos.	26 Nos.	14 Nos.

(II) PLANS FOR CAPITAL EXPENDITURE FOR 400kV

1. Bhadradi Thermal Power Transmission Scheme (on going):

- The scheme consists of erection of 400/220 kV SS at Julurupadu along with the associated 400 kV & 220 kV Transmission Net Work.
- i. Erection of 400 kV Quad Moose DC Line from Manuguru TSGENCO plant Switchyard to proposed 400/220kV Julurupadu (Bommanapalli) SS – 100 kMs.
- ii. Erection of 400 kV Quad Moose DC Line from proposed 400/220kV Julurupadu (Bommanapalli) SS to existing 400kV Khammam (PGCIL) SS – 50 kMs.
- iii. Erection of 400 kV Quad Moose DC Line from proposed 400/220kV Julurupadu (Bommanapalli) SS to upcoming 400/220/132 kV Suryapeta SS – 125 kMs.
- iv. Erection of 400/220kV Julurupadu (Bommanapalli) SS with 2 x 315 MVA capacity.
- v. Erection of 400 kV Bay extensions at Suryapet 400/220 /132 kV SS

- vi. Erection of 400 kV Bay Extensions at 400 kV Khammam (PGCIL) SS.
 - vii. Erection of 220/132/33kV Kallur SS with 2 x 100 + 2 x 50 MVA capacity.
 - viii. Erection of 132/33kV Chandragonda SS with 2 x 31.5 MVA capacity.
 - ix. Erection of 220 kV Single Moose DC Line from proposed 400/220kV Julurupadu (Bommanapalli) SS to proposed 220/132/33kV Kallur SS – 70kMs.
 - x. Erection of 132 kV DC Line from proposed 220/132kV Peddagopati to existing 132/33kV SS Madira - 40kMs.
 - xi. Erection of 132 kV line with Multi-Circuit towers for making LILO of existing 132kV Budidampadu – Penubali & 132kV Thallada- Penuballi DC Line- 4 kMs.
 - xii. Erection of 132 kV DC Line from proposed 220/132kV Peddagopati to 132/33kV SS Thallada - 30kMs.
 - xiii. Erection of 132 kV Line with Multi-Circuit towers for making LILO of existing 132kV Khammam-Chilakallu DC line to proposed 220/132kV Peddagopati - 30kMs.
 - xiv. Erection of 132 kV Single Zebra DC/SC Line from proposed 220/132/33kV Kallur to proposed 132/33kV Chandragonda SS - 30kMs.
 - xv. Erection of 132kV Bay extensions at Madira 132/33kV SS.
 - xvi. Erection of 132kV Bay extensions at Tallada 132/33kV SS.
- Administrative approval is accorded vide T.O.O.(CE-Construction) Ms.No.103, Dt:05-06-2015 with an estimated cost of the scheme of Rs.1,280.73 Crores (including IDC of Rs. 101.12 Crores)
 - The revised Admin approval was issued on 29.04.16 with an estimated cost of Rs.1200.95 Crs and IDC of Rs.103.41 Crs due to change in scope of downstream works.
 - The scheme is programmed for completion during 2018-2019.

2. KTPS VII Stage (1 X800MW) Power Transmission Scheme (on going)

- The scheme consists of erection of 400/220 kV SS at Jangoan along with the associated 400 kV, 220 kV and 132 kV Transmission Net Work.
- i. Erection of 400/220kV Sub-Station at Jangaon, Warangal District with 3 X 500MVA.
 - ii. KTPS Stage – VII Switchyard to proposed 40/220/132kV Julurupadu (Bommanapalli) Sub-Station by Quad Moose DC line – 39 kms.
 - iii. 400kV Quad Moose DC line from proposed Julurupadu (Bommanapalli) (400/220/132kV SS) to proposed 400/220kV Sub-Station at Jangaon, Warangal District – 170kms.

- iv. 400kV Quad Moose DC line from proposed 400/220kV Sub-Station at Jangaon to proposed 400kV Tippapur LI SS – 70 kms.
- v. Up gradation of 132/33kV Jangaon Sub Station to 220/132/33kV Jangaon Sub Station with 2X100 MVA in Warangal Dist.
- vi. Erection of 220/132/33kV Sub-Station at Husnabad with 2 X 100MVA and 2X 50 MVA in Warangal Dist.
- vii. 220kV Single Moose DC line from proposed 400/220kV Jangaon SS to upcoming 220/132/33kV Jangaon Sub-Station – 15 kms.
- viii. 220kV Single Moose DC line from proposed 400/220kV Jangaon SS to proposed 220/132/33kV Husnabad Sub-Station – 60 kms.
- ix. 220kV Single Moose DC line from proposed 400/220kV Jangaon SS to existing 220kV Sub-Station , Bhongiri in Nalgonda. – 70 kms.
- x. Proposed 220/132/33 kV Husnabad SS to the existing 132/33kV Husnabad in Warangal Dist – 10 kms.
- xi 400kV Quad Bay Extensions at Proposed 400/220/132 kV Bommanapalli SS for Jangaon 400kV SS – 2 Nos.
- xii. 400 KV Quad Bay Extensions at Proposed 400kV Tippapur LI Sub Station for Jangaon 400 KV Sub Station.- 2 Nos.
- xiii. 220kV Bay Extensions at Bhongir 220kV SS at Nalgonda – 2 Nos.
- ix. 132kV Bay Extensions at Husnabad 132 kV SS – 2 Nos.
 - Administrative approval is accorded vide T.O.O.(CE-Construction) Ms.No.107, Dt:18.06.2015 and approximate cost of the scheme is Rs.1134.14 Crores (including IDC of Rs.101.14 Crores).
 - The revised Admin approval was issued on 24.10.16 with an estimated cost of Rs.1307.53 Crs (including IDC of Rs.82.39 Crores), due to change in line length of 400 kV line covered under Item (ii) and (iii).
 - The scheme is programmed for completion during 2018-2019.

3. Erection of 400kV Substation at Dindi in Mahaboobnagar District and connected network for 9 Hrs. Agricultural Supply During Day.

- The scheme consists of erection of 400 kV SS at existing 220 kV Dindi switching station along with the associated 400 kV and 220 kV system.
- i. 400/220kV Dindi Sub-Station – 2x315 MVA
 - ii. 400kV LILO Line of Srisailam – Mamidipally DC Line to 400kVSS Dindi. – 15 KM
 - iii. 400kV LILO Line of NagarjunaSagar – Gooty SC Line to 400kVSS Dindi. – 10 KM
 - iv. Erection of 220 kV features at 132/33 kV Sub-Station at Nagarkurnool – 2x100 MVA
 - v. 220kV DC Line from proposed 400kVSS Dindi to existing 220 kV Kondamallepally Sub-Station. - 35 KM
 - vi. 220kV DC Line from proposed 400kVSS Dindi to proposed 220 kV Nagarkurnool Sub-Station. – 43 KM
- -

- Administrative approval is accorded vide T.O.O.(CE-Projects-I) Ms.No.116, Dt:2.7.2015 with an estimated cost of Rs.379.23 Crores (including IDC of Rs.44.70 Crores).
- The revised Admin approval was issued on 19.1.16 with a estimate cost of Rs.321.54 Crs (including IDC of Rs.34.92 Crores) due to certain modification in downstream net work of 400/220kV SS at Dindi.
- The scheme is programmed for completion during 2017-2018.

4. 765kV Wardha - Hyderabad Link Transmission Scheme

- The scheme consists of erection of 400 kV Sub-station at Maheshwaram and Kethireddypalli along with the associated 400 kV and 220 kV Transmission Net Work.
 - i) 400/220kV Maheshwaram Substation – 2 x 315 MVA.
 - ii) 400kV Quad Moose DC Line from proposed Maheshwaram 400/220kV Substation to Maheshwaram 765/400kV (PGCIL) SS -1.5 KM.
 - iii) 400kV Twin Moose DC Line from proposed Maheshwaram 400/220kV Substation to Shankarpally 400 kV SS (to be established by re-alignment of the 'LILO of Srisailam – Mamidipalli at Shankarpalli' and re-instating the Srisailam – Mamidipalli 400kV DC line)-6.5 KM
 - iv) Bay extensions at Maheshwaram 765/400kV (PGCIL) SS – 2 Nos.
 - v) 400/220/132kV Kethireddypalli (Manikonda) SS – 2 x 315 MVA.
 - vi) LILO of both Circuits of Suryapeta -Shankarpally Quad Moose D/C Line to Manikonda 400/220 kV SS-25 KM.
 - vii) LILO of both circuits of 220kV Dindi- Bongulur at Proposed Maheshwaram 400/220kV SS on 220kV Multi-Circuit Towers – 10 KM.
 - viii) 220kV features at existing 132/33kV Madgula Sub Station – 2x100 MVA.
 - ix) LILO of both circuits of 220kV Dindi- Bongulur at Proposed Madgula 220kV SS on Multi Circuit Towers-4 KM.
 - x) 220kV DC line from Proposed Maheshwaram 400/220kV SS to Fabcity 220kV SS – 22 KM.
 - xi) Part of 220kV DC line from Proposed Maheshwaram 400/220kV SS to Fab city 220kV SS on Narrow based Multi Circuit Towers-4 KM.

- xii) Erection of 220kV Bays at 220/132kV Sub-station at Fab city - 2 Nos.
 - xiii) 220/132/33 kV Kothur Sub Station-2 x 160 + 2 x 80 MVA.
 - xiv) LILO of one circuit of 220kV Mamidipally - Shadnagar at Proposed Kothur 220kV SS – 3KM
 - xv) LILO of one circuit 220kV Shamshabad - proposed 400/220/132kV Kethireddypalli (Manikonda) SS at Proposed Kothur 220kV SS-13 kM.
 - xvi) LILO of one circuit of 220kV Shamshabad - Yeddumailaram and 220kV Shadnagar - Shankarpally to proposed 400/220/132kV Kethireddypalli (Manikonda) SS on 220kV Multi-Circuit Towers -3 kM.
 - xvii) Erection of 132/33kV SS Kanakamamidi with Automation Panels with all provisions of 220kV except 220kV incoming feeder Bays and 220/132kV Power Transformer Bays – 2 x 80.
 - xviii) 220kV DC line from proposed 400/220/132kV Kethireddypalli (Manikonda) SS to 132/33kV Kanakamamidi SS on 220kV Narrow Based Multi Circuit Towers – 5 kM.
 - xix) 220/132kV Sub-Station at Banswada – 2 x 100 MVA.
 - xx) 220kV DC line from 400/220kV SS Dichpally to proposed 220/132kV SS Banswada – 60 kM.
 - xxi) Erection of 220kV Bays at 400/220kV Sub-station at Dichpally - 2 Nos.
 - xxii) 220kV DC line from 400/220kV SS Dichpally to 220/132kV SS Kamareddy – 65KM
 - xxiii) Erection of 220kV Bays at 220/132kV Sub-station at Kamareddy – 2 Nos.
 - xxiv) LILO of one circuit of proposed DC line from 400/220kV SS Dichpally to proposed 220/132kV SS Banswada at proposed 220/132kV Renzal SS – 25KM
- Administrative approval is accorded vide T.O.O.(CE-Construction) Ms.No.146, Dt:5.8.2015 with an estimated cost of Rs.786.34 Crores (including IDC of Rs.90.95 Crores).
 - The revised Admin approval was issued on 4.10.16 with a estimate cost of Rs.1069.92 Crs (including IDC of Rs.97.50 Crores) due to certain modification in down stream Net Work.
 - The scheme is programmed for completion during 2018-2019.

5. 400kV Augmentation Scheme:

The scheme proposes augmentation of 315 MVA power transformer at 400 kV Dichpalli SS and Veltoor (Mahaboobnagar) SS to cater load demand and to provide uninterrupted power to Agriculture Sector 9 hrs day supply and extension of power supply to pumphouses under Telangana Water Grid Project.

- i. Augmentation of 315 MVA, 400/220 kV auto transformer at Dichpalli SS –1
No.
- ii. Augmentation of 315 MVA, 400/220 kV auto transformer at Veltoor SS – 1
No.
 - Administrative approval is accorded vide T.O.O.(CE-Projects-I) Ms.No.20, Dt:29.8.2015 with an estimated cost of Rs.58.71 Crores.
 - The scheme is programmed for completion during 2016-2017.

6. Nirmal Power Transmission Scheme

- The scheme consists of erection of 400 kV sub station at Nirmal along with associated 400 kV and 220 kV Transmission Net Work system for evacuation of Power from M/s STPP (3x600 MW) as an alternate source.
 - i. Erection of 400/220kV SS at Nirmal with 3 x 315MVA Transformers.
 - ii. Erection of 220/132kV SS at Renzal with 2x100MVA Transformers (up gradation from 132/33kV SS).
 - iii. 220/132 kV SS at Indravelly with 2x100 MVA Transformers.
 - iv. Erection of 400kV Quad Moose DC line from 400kV SCCL to the proposed 400/220kV Nirmal SS – 145 km.
 - v. Erection of 220kV DC line from the proposed 400/220kV Nirmal SS to the existing 220kV Jagityal SS – 100 km.
 - vi. Erection of 220kV DC line from the proposed 400/220kV Nirmal SS to the existing 220kV Nirmal SS – 10 km.
 - vii. Erection of 220kV DC line from the proposed 400/220kV Nirmal SS to the proposed upgraded 220/132kV Renzal SS – 100 km.
 - viii. Erection of 220kV DC line from the proposed 400/220kV Nirmal SS to the proposed 220/132kV Indravelly SS – 87 km.
 - ix. Erection of 132kV DC line from the proposed 220/132 kV Indravelly SS to the proposed 132/33kV Utnoor SS – 15 km.
 - x. Erection of 132kV DC line from the proposed 220/132kV Indravelly SS to the proposed 132/33 kV Asifabad SS on 220 kV Multi circuit towers – 74 km.
 - xi. LILO of Adilabad – Pochampad and Adilabad – Ichoda to proposed 220/132 kV Indravelly SS with multi circuit line with four ckts
 - xii. Erection of 220kV Bay Extensions at 220kV Jagityal SS – 2 Nos.
 - xiii. Erection of 220kV Bay Extensions at 220kV Nirmal SS – 2 Nos.
 - xiv. 132 kV Bay extensions – Utnoor – 2 Nos, Asifabad – 2 Nos.
 - xv. Procurement of Emergency Restoration System – 1 No.

- An Administrative approval is accorded by erstwhile APTRANSCO vide T.O.O.(CE-Construction/ 400KV) Ms.No.161, Dated. 21-08-2012 with an estimated cost of Rs. 604.34 Crores, including interest during construction (IDC).
- The first revision of Administrative approval is accorded vide T.O.O.(CE-Construction) Ms.No.6, Dt:24.03.2015 with an estimated cost of is Rs.924.19 Crores (including IDC of Rs. 70.04 Crores) due to request of M/s SCCL as they were planning to add 600 MW unit to the proposed 2x600 MW units.
- The second revision of Administrative approval was accorded due to modification in downstream net work as per Field recommendations and Revised Administrative approval is accorded vide T.O.O.(CE-Projects-I) Ms.No.18, Dt:16.05.2016 with an estimated cost of Rs.1136.34 Crores (including IDC of Rs. 60.78 Crores)
- The scheme is programmed for completion during 2018-2019.

7. Wind Power Evacuation Scheme (on going):

The scheme consists of erection of 400 kV, 220 kV and 132 kV works and most of them are being executed by APTRANSCO. A portion of 400 kV Quad DC line from Veltoor 400 kV SS to Urvakonda 400 kV SS (Interstate line-197 KM) i.e. Veltoor - Tungabhadra River Crossing Point (75 km) and connected bays at Veltoor are being taken by TSTRANSCO. The works are programmed for completion in 2016-17.

8. Jaipur Power Transmission Scheme (To evacuate power from 2x600 MW Power SCCL Plant) (on going Scheme):

- *The scheme consists of the following:*
 - (i) Erection of 400/ 220 /132 kV Substation at Narsapur (3x315 MVA and 2x100 MVA)
 - (ii) Erection of 400kV Quad Moose DC Line from Jaipur TPP – Gajwel 400kV Substation - 163 kM.
 - (iii) LILO both circuits of 400 KV Yeddumailaram (Shankarpalli) SS – Gajwel 400 kV SS to the propose Narsapur SS – 12 KM.
 - (iv) 4 Nos. 400kV Bay Extensions at Gajwel 400kV SS (2 Nos.-Quad;2 Nos.: Twin)
 - (v) Erection of Shapurnagar Extension SS with 6 Nos. 220kV Bays
 - (vi) Erection of interconnection to 220kV Shapurnagar Extension SS from Shapurnagar existing SS with Single moose with 220 KV 1000 Sqmm XLPE UG cable - 0.5 kM
 - (vii) Erection of 220kV Single moose DC line from 400kV Narsapur SS – 220kV Shapurnagar Extension SS – 35 kM

- (viii) Shifting of 220 kv Shapurnagar – Miyapur lines to the 220 KV Shapur Nagar extension SS with 220 KV 1000 Sqmm XLPE UG cable – 0.5 KM.
- (ix) Erection of shifting of 220kV Shapurnagar – Miyapur lines to the 220kV Shapurnagar Extension SS – 0.5 km
- (x) Erection of 220kV single moose line from 400kV Narsapur SS to 220kV Bachupally/Miyapur SS – 45 km (Single Moose DC).
- (xi) Erection of 132 kV DC line from proposed 400 KV Narsapur SS to existing 132 kV Gummadidala SS – 17.25 km
- (xii) Erection of LILO of 132kV Narsapur –Koudipalli SC line to proposed 400 kV Narsapur SS – 17.25 km.
- (xiii) Erection of Bay Extensions at 132 kV Gummadidala Substation – 2 Nos.

- The administrative approval was issued by erst while APTRANSCO on 23.05.2012, an estimated cost of Rs.963.07 Crore and Rs.122.30 Crore towards Interest During Construction (IDC).
- The Revised administrative approval was issued on 2.05.2014, an estimated cost of Rs.831.90 Crore (including IDC of Rs. 54.22 Crs).
- Administrative approval once again revised due to space constraint at Shapoor Nagar SS as informed by field officers and revised administrative approval was issued on 4.12.2014, an estimated cost of Rs.842.39 Crore (including IDC of Rs. 61.59 Crs)
- The scheme is programmed for completion during 2017-2018.

9. Erection of 400/220/132kV Suryapet substation, in Nalgonda District and connected network under transmission system improvement, on stand alone basis (on going).

The scheme consists the following:

- i) Erection of 400/220/132kV Substation at Suryapet- (2x315 & 2x100 MVA)
- ii) Erection of LILO of both circuits of 400kV VTS – Malkram DC line to the proposed 400/220/132kV Suryapet Substation – 10 km
- iii) Erection of 400kV Quad Moose DC line from 400/220kV Kamavarapukota SS- Suryapet 400/220/132kV SS – 212 km.
- iv) Erection of 400kV Quad Moose DC line from (Yeddumailaram) Sankarpalli SS – Proposed 400kV Suryapet SS – 240 km
- v) Erection of LILO of one Circuit of 220kV Chillakallu – Narkatpally DC line to the proposed 400/220/132kV Suryapet Substation – 21 km
- vi) Erection of LILO of (Ckt-I&II) of 220kV Khammam – Miriyalaguda DC line to the proposed 400/220/132kV Suryapet Substation – 30 km
- vii) Erection of 132kV DC line from proposed 400/220/132kV Suryapet to 132kV existing Suryapet Substation – 7 km

- viii) Erection of 132kV DC/SC line from proposed 400/220/132kV Suryapet to 132kV existing Shaligowraram Substation – 35 kM
- ix) Erection of 132kV DC/SC line from proposed 400/220/132kV Suryapet to 132kV existing Thungathurthy Substation – 30 kM
- x) Erection of 400kV (Quad) Bay Extensions at Shankarapalli SS – 2 Nos.
- x) Erection of 400kV (Twin) Bay Extensions at Suryapet SS – 4 Nos.
- xi) Erection of 132kV Bay Extensions at existing 132kV Suryapet SS – 2Nos.
- xii) Erection of 132kV Bay Extensions at existing 132kV Shaligowraram SS–1No.
- xiii) Erection of 132kV Bay Extensions at existing 132kV Thungathurthy SS – 1No.

- Administrative approval accorded vide T.O.O.(CE-Construction/400kV-II) Ms.No. 01, date: 17-01-2014. With an estimated cost of IDC as Rs.1757.36 Crore including IDC.
- Revised administrative approval was accorded vide T.O.O.(CE-Construction) Ms.No.49 Date:04-12-2014 with the total cost of the scheme including IDC as Rs.1738.03 Crores. The scheme is once again revised and revised Admn. Approval was accorded on 15.03.16 with an estimated cost of Rs.1767.48 Crs including IDC.

The scheme is programmed to be completed in 2016-17.

10.Reactor Scheme –III: (on going scheme)

- The installation of 5 Nos. 125 MVAR reactor at different 400kV Substations namely, Mamidipally, Shankarapalli, Gajwel, Malkaram, and Mahaboobnagar.
- The administrative approval was issued on 19.3.2014 an estimated cost of Rs.80.74 Crore.

The scheme is programmed for completion during 2017-18.

11.Telangana STPP-I (2X800 MW) Power Evacuation Scheme (New Scheme)

The scheme is proposed for evacuation of power from Telangana STPP Phase-I (2x800 MW)

The scheme consists of construction of 400/220/132kV Sub Station at Nedunuru, and 400/220 kV GIS SS Ramachandrapuram, alongwith associated Transmission Network.

The scheme consists of the following:

- i. Erection of 400/220/132 kV Sub-Station at Nedunuru, Karimnagar District with 2 X 500 + 2X 100 MVA.
 - ii. Erection of 400/220 kV Sub-Station at Ramachandrapuram, Ranga Reddy District with 2 X 500 MVA
 - iii. 400kV Quad Moose DC line from proposed Telangana STPP(2X800 MW) to proposed 400/220/132 kV Nedunuru SS - 60 kms
 - iv. LILO of both circuits of 400kV Upcoming Jangoan SS - 400kV Upcoming Tippapur LI SS Quad Moose DC line to proposed 400/220/132 Nedunuru SS - 30 kms
 - v. 400 kV Quad Moose DC line from proposed Telangana STPP (2X800MW) to upcoming 400 kV Narsapur SS-170 kms
 - vi. 400 kV Quad Moose DC line from upcoming 400 kV Narsapur SS to proposed 400/220kV RC Puram SS in RangaReddy District-60 kms
 - vii. LILO of 220kV Durshed - Siddipet DC line to proposed 400/220/132kV Nedunuru SS-10 kms
 - viii. 220 kV UG cable from Proposed 400kV RCPuram SS to existing 220 kv Gachibowli SS– 10 kms
 - ix. 220 kV UG cable from Proposed 400kV RCPuram SS to existing 220 kV Raidurg SS-10 kms
 - x. 220 kV Single Moose DC line from proposed 220kV Borampet SS to existing 220 kV Miyapur SS-35 kms
 - xi. 220 kV Single Moose DC line from proposed 220kV Borampet SS to existing 220 kV Shahpurnagar SS-35 kms
 - xii. 220 kV Bay Extensions at 220 kV Miyapur SS and Shapurnagar SS - 4 nos.
- The scheme is programmed is completion during 2020-21.

12. YADADRI POWER EVACUATION SCHEME:

It is proposed for evacuation of power from Yadadri Thermal Power Plant (5x800 MW).

Scheme approved by Standing committee in MOM dt:18.02.2016 with following works:

1. Erection of 400/220/132kV Choutuppall SS with 3x500MVA + 2x100MVA.
2. 400kV Quad Moose DC Line from Damaracherla Switchyard to Proposed 400/220/132 kV Choutuppall SS – 150KM
3. 400kV Quad Moose DC Line from Damaracherla Switchyard to Proposed 400/220 kV Dindi SS – 140KM
4. 400kV Quad Moose DC Line from Damaracherla Switchyard to upcoming 400/220 kV Maheshwaram (TSTRANSCO) SS – 155KM
5. 400kV Quad Moose DC Line from Damaracherla Switchyard to upcoming 400/220 kV Jangoan SS – 155KM

6. 220kV Single Moose DC line from Proposed 400/220/132kV Choutuppall SS to Upcoming 220/33kV Hayatnagar SS.
 7. Erection of 2x125MVA Bus Reactor at Damaracherla Switchyard.
- The proposed completion of the scheme is during FY 2017-2020.

(III) Plans for Capital Expenditure for Renovation and Modernization and Improvement of Existing Transmission System & Augmentation of PTR Works.

- i) The RMI Scheme for 2nd control period i.e. FY 2009-14 was prepared for procurement of substation and line material for replacement of aged / obsolete equipment.
- ii) An amount of Rs.493.09 Cr capital expenditure was projected for Renovation and Modernization of old assets (RMI schemes) in the ARR of 2nd control period (FY 2009-14) and Hon'ble commission has accorded approval for Rs.250 Cr (Rs.50.00 Cr for each of FY) in its tariff order.
- iii) The RMI Scheme for 3rd control period i.e. FY 2014-19 was prepared in united Andhra Pradesh State for procurement of substation and line material for replacement of aged / obsolete equipment.
- iv) An amount of Rs.984.58 Cr capital expenditure was projected for Renovation and Modernization of old assets (RMI schemes) in the ARR of 3rd control period (FY 2014-19) and Hon'ble commission has accorded approval for Rs.492.20 Cr in its tariff order dt.09.05.2014 (Page No.30).

Sl. No.	Financial Year	Renovation and Modernization	
		Filing	APERC approved scheme
1	2014-15	147.60	73.80
2	2015-16	196.91	98.50
3	2016-17	196.66	98.30
4	2017-18	197.02	94.40
5	2018-19	246.39	123.20
		984.58	492.20

- v) Due to implementation of RMI Scheme, outages of substation equipment have reduced, improving reliability and stability of Transmission System.

vi) In view of the above, RMI Scheme for balance 3rd Control Period for FY:2016-2019 is also prepared as a part of preparation of Resource Plan for replacement of old and obsolete equipment in phased manner which have served for more than 25 years. Based on the above, the following activities are proposed to be carried out in next 3 year plan (2016-17 to 2018-19) under RMI Scheme.

- Replacement of old & obsolete substation equipment as per Table-1.
- Replacement of old 220KV & 132KV towers, 220KV & 132KV line conductors, earth wire and total replacement of 132KV line as per Table-2.

Table-1:

List of substation equipment that have served for above 25 years and proposed for replacement under RMI scheme

Sl. No.	Name of the Sub-station equipment	Unit	400KV	220KV	132KV	33KV	11KV	Total	Proposed to replace in the RMI scheme
1	Circuit Breakers	Nos.	0	18	102	123	2	245	114
2	CTs	Nos.	0	68	247	171	0	486	244
3	PTs	Nos.	0	24	115	70	0	209	51
4	CVTs	Nos.	0	40	137	5	0	182	37
5	LAs	Nos.	0	82	423	249	0	754	310
6	Isolators	Nos.	0	78	421	336	2	837	385
7	Conductors	Km.	0	3.6	14.26	2.63	0	20.49	20.49
8	Relays	Nos.	0	5	88	82	0	175	175
9	C&R Panels PTRs	Nos.	0	0	25	9	0	34	34
10	Feeders C&R panels	Nos.	0	2	54	58	0	114	30
11	Capacitor bank	Nos.	0	0	9	23	0	32	32

Table-2:

List of line equipment that have served for above 25 years and proposed for replacement under RMI scheme

B	Lines Equipment	Unit	220KV	132KV	33KV	Total	Proposed to replace in the RMI scheme
1	Zebra ACSR Conductor	Km.	1445.22	54.8	0	1500.02	148.50
2	Panther ACSR Conductor	Km.	0	6510.41	0	6510.41	148.00
3	Moose ACSR Conductor	Km.	16.2	362.7	0	378.9	16.20
4	Panther AAAC Conductor	Km.	0	540	0	540	170.00
5	Insulators	Nos.	52114	192359	4417	248890	9931.00
6	GI steel wire	Km.	211.5	1166.5	0	1378	120.00
7	HTGS steel wire	Km.	382.1	1004.76	53.28	1440.14	175.68
8	Towers	Nos.	1484	6527	0	8011	91.00

In view of the above, the investment required for carrying out the above Renovation & Modernization schedules is consolidated:

Sl. No.	Financial Year	Proposed RMI
1	2016-17	50.12
2	2017-18	50.09
3	2018-19	50.13
Total for FY 2016-19:		150.34

System improvement will be achieved through following plans:

- Voltage optimization through reactive power compensation (Installation of Capacitor banks) at 33KV and 132KV level and reactors at 400KV level.
- Adoption of GIS technology on wide scales.
- High transmission operating voltages.
- Up Gradation of Protection System of all 220KV and 400KV Voltage level substations with numerical relay with compatible to ICE 61850 protocol.
- Replacement existing Non-ABT 0.2 class with high accuracy ABT electronic energy meters of 0.2s class.
- Installation of CC cameras at all 400KV substations for better operation & Maintenance purpose.
- Replacement of aged conductors in a phased manner, since conductor snapping and jumper failures are found to be the major causes for interruptions.
- Replacement of old and failed insulators on existing lines.
- Replacement of the conductor of overloaded lines, periodical tree cutting work to prevent falling of branches with conductor, conducting quarterly inspection of lines and timely rectification of defects noticed.
- Breakdown staff attending supply interruptions is arranged round the clock.
- Emergency vehicles are kept ready for breakdown staff round the clock to facilitate quick and timely deployment of staff and minimize the duration of interruptions.
- Safety appliances such as gloves, safety shoes, helmets, earthing rods are also provided to the breakdown staff with necessary T&P.
- Providing of Rolling Stock of important equipments like CTs, PTs, Circuit breaker spares and PTRs to meet the emergencies and reduce the downtime.
- Use of Thermo Vision cameras in EHT switchyard to detect hot spots and taking remedial actions on war foot basis.
- Use of off line signature preventive maintenance and line fault locators for locating the fault on lines during breakdowns.
- TSTRANSCO is carrying out the hot line works very effectively in the live line maintenance from 132KV to 400KV lines and substations by adopting hot stick method – using insulated sticks, bare hand technique – using conductive suit along with insulated ladder. Like replacement of damaged insulators, tightening of bolts and nuts of jumpers, shoe clamp, tension clamp and bay to bay jumpers connection etc.,

At present, some of the 220KV and 132KV EHT Substations & Transmission Lines are in service for the Last 40 years. The full life of the equipment is already completed. Hence in addition to the above, the following steps are proposed to improve the performance and monitoring.

- Renovation and Modernization Scheme is prepared for Rs. 150 Crores for procurement of substation and line materials for replacement of aged / obsolete equipment.
- Replacement of MOCB's ABCB etc., with SF6 type circuit breakers.
- Automation of the Substation for load shedding.
- Replacement of equipment with "latest state of art" making new provision as a modernization process.
- Up Grading of existing conductors with high temperature low sag conductors Viz., AL-59, INVAR, ACCC etc.,
- Dispensing off group contact breakers for PTRs with individual breakers.

BRIEF WRITE UP ON AUGMENTATION OF POWER TRANSFORMERS

- 1) Augmentation of Power Transformers works for 6 Nos. at 132KV Voltage level were taken up to meet the demand at an estimated cost of Rs. 5.46 Crores during 2014-15.
- 2) Augmentation of Power Transformers works for 23 Nos. at 220KV Voltage level and 169 Nos. at 132KV Voltage level were taken up at an estimated cost of Rs. 258.29 Crores during 2015-16 for providing 9 Hrs. agricultural supply during day time.
- 3) Augmentation of Power Transformers works for 10 Nos. at 220KV Voltage level and 34 Nos. at 132KV Voltage level were taken up at an estimated cost of Rs. 106.17 Crores during 2016-17 for providing 9 Hrs. agricultural supply during day time and also to meet the load demand in GHMC area.
- 4) Augmentation of Power Transformers works for 7 Nos. at 220KV Voltage level and 29 Nos. at 132KV Voltage level were proposed at an estimated cost of Rs. 97.47 Crores during 2017-18 for meeting the load demand.
- 5) Augmentation of Power Transformers works for 1 No. at 220KV Voltage level and 15 Nos. at 132KV Voltage level were proposed at an estimated cost of Rs. 53.31 Crores during 2018-19 for meeting the load demand.

Lift Irrigation Scheme Works taken up by TSTRANSCO
under Deposit Contribution Works :

TSTRANSCO has taken up construction of Transmission lines and Substations at 132kV, 220kV and 400kV level for extension of power supply to Pumping stations under various Lift Irrigation schemes which are funded by I&CAD Department, Govt. of Telangana.

The Transmission system established under extension of power supply to LI Schemes is included in the Transmission system of TSTRANSCO.

The year wise addition of Transmission network in respect of LI Schemes are as detailed below.

Description	2014-15	2015-16	2016-17	2017-18	2018-19
400kV Lines (CKM)	Nil	Nil	34	Nil	654
220kV Lines (CKM)	Nil	Nil	21	Nil	216
132kV Lines (CKM)	10	Nil	8	70.6	35
400kV SS	Nil	Nil	1	Nil	6
220kV SS	Nil	Nil	1	Nil	2
132kV SS	1	Nil	1	Nil	1

Details of Sub Stations and Connected Transmission Lines at 400 kV, 220 kV and 132 kV voltage levels for ongoing Lift Irrigation Scheme works taken up from FY 2016-17 to FY 2018-19:

LIS Name	Sub-Station	Line	Distance (CKM)
Indira Sagar Rudramakota LIS	Asupaka 400/220kV	400 kV TMDC line by making LILO of single circuit of 400 kV Khammam – Kalpaka line	34
Kaleswaram Lift Irrigation Project	Medaram 400/11kV GIS	400 kV QMDC line from Ramadugu to Medaram	42
	Ramadugu 400/13.8/11kV	400 kV LILO QMDC line SCCL - Gajwel line to Ramadugu SS	72
	Sundilla 400/220/11kV	400 kV LILO QMDC line of both circuits of SCCL- Ramadugu to Sundilla	24
	Annaram 220/11kV	220 kV TMDC line from Sundilla to Annaram	56
	Medigadda 220/11kV	220 kV TMDC line from Sundilla to Medigadda	160
	Malakpet 132/ 11kV	132 kV DC/SC line from Siricilla to Malakpet	15
	Tippapur 400/11kV	400 kV QMDC line from Ramadugu SS	100
		400 kV QMDC line from Chandulapur SS	42
	Chandulapur 400/ 11kV	LILO of 400 kV TMDC from KTHPP- Gajwel to Chandulapur SS	164
	Tukkapur 400/11kV	400 kV TMDC line from Narsapur	140
400 kV TMDC line from Chandulapur		60	
Dr.BRAPCSS LIS	Kanakapur 132/11kV	132 kV DC/SC line from Kosli SS to Kanakapur	20
Sripada Sagar LIS	11 kV XLPE Cable Works at 132/11 kV Gangadhara SS		
Thotapally – Gouravelly LIS	Huzurabad 220/132 kV	220 kV LILO line from Durshed – Oglapur to Huzurabad	21
	Regonda 132/11kV (Gouravelly)	132 kV DC line from Huzurabad to Regonda	63
Bhakta Ramadasu LIS	DubbaThanda 132/11kV	132 kV DC/SC line from Kusumanchi to Dubbathanda	8
JCR Godavari LIS (Warangal)	Gandiramaram 132/11kV	132 kV DC/SC line from Raghunathpally	16.6
	Rangaraopalli 132/11kV	132 kV LILO from Mulugu- Chelpur	2
	Bommakur 132/11kV	132 kV DC/SC line from Jangaon	22
LIS at Jogapur Pumping Station (Karimnagar)	Jogapur 132/11kV	132 kV DC/SC line from Mallaram	30

PERFORMANCE MEASURES

NUMBER AND DURATION OF SUPPLY INTERRUPTIONS

1. Requirement in the Guidelines:

Number and duration of supply interruptions on transmission networks, separately for 400kV, 220 kV, 132 kV. Details of steps proposed to improve performance and monitoring. (Guidelines – 11a)

2. TSTransco's Response:

Interruptions on EHT lines during 2014-15 & 2015-16

Most of the feeders have alternative supply. Hence, whenever there is any interruption to one feeder, then supply is provided from the alternate source and interrupted feeder is restored immediately by taking necessary steps. All transmission line breakdowns are logged and recorded. The data sheets maintain information such as circuit name and number, date and time of occurrence, date and time of restoration, any remedial measures taken for alternate supply, and a brief description of the cause. As the data is voluminous, and manually entered, all the log sheets have not been included in this filing. However, any data requested by the Commission can be made available as and when requested. Considering the vast extent of the transmission system and the number of transmission circuits, the average availability factor of EHT lines of TSTransco for the year 2015-2016 works out at 99.9%. The details of the line availability for the years 2014-15 & 2015-16 are shown in the tables below.

Interruptions on EHT lines during 2013-14,2014-15 & 2015-16

Year	EHT line voltage	No. of interruptions	Total time of interruptions (Hrs)	Avg. Duration Per Interruption (hrs)
2015-16	400kV	2	37:42	Beyond 2 Hrs.
	220kV	146	1785:45	Beyond 2 Hrs.
	132kV	189	2564:23	Beyond 2 Hrs.
2014-15	400kV	0	0	
	220kV	112	784:56	Beyond 2 Hrs.
	132kV	197	7856:40	Beyond 2 Hrs.
2013-14	400kV	0	0	
	220kV	178	1862:20	Beyond 2 Hrs.
	132kV	195	8954:22	Beyond 2 Hrs.

Transmission System availability during for FY2014-15 and 2015-16:

Sl. No.	Financial year	Transmission System availability in percentage
1	2014-15	99.9%
2	2015-16	99.9%

Target System availability for FY2016-17 to FY 2018-19:

Sl. No.	Financial year	Target System availability in percentage
1	2016-17	99.9%
2	2017-18	99.9%
3	2018-19	99.9%

Steps implemented /proposed to improve performance and monitoring:

The following steps have been implemented to improve the performance and monitoring.

- Replacement of aged conductors in a phased manner, since conductor snapping and jumper failures are found to be the major causes for interruptions.
- Replacement of old and failed insulators on existing lines.
- Reinforcement of the conductor of overloaded lines, periodical tree cutting work to prevent falling of branches on conductors, conducting quarterly inspection of lines and timely rectification of defects noticed.
- Breakdown staff attending supply interruptions is arranged round the clock.
- Emergency vehicles are kept ready for breakdown staff round the clock to facilitate quick and timely deployment of staff and minimize the duration of interruptions.
- Safety appliances such as gloves, safety shoes, helmets, earthing rods are also provided to the breakdown staff with necessary T&P.
- Providing of Rolling Stock of important equipments like CTs, PTs, Circuit breaker spares and Power Transformers to meet the emergencies and reduce the downtime.
- Use of Thermo vision cameras in EHT switchyard to detect hot spots and taking remedial actions.

- Use of off line signature preventive maintenance and line fault locators for locating the fault on lines during breakdowns.
- TSTRANSCO is carrying out the hot line works very effectively in the live line maintenance from 132kV to 400kV lines and substations by adopting hot stick method - using insulated sticks, bare hand technique – using conductive suit along with insulated ladder. Like replacement of damaged insulators, tightening of bolts and nuts of jumpers, shoe clamp, tension clamp and bay to bay jumpers connection etc.,

At present, some of the 220kV and 132kV EHT Substations & Transmission Lines are in service for the last 40 years. The full life of the equipment is already completed. Hence in addition to the above the following steps are proposed to improve the performance and monitoring:

- Renovation and Modernization Scheme is prepared for Rs. 150 Crores for procurement of Substation and line materials for replacement of aged / obsolete equipment.
- Replacement of MOCB's, ABCB etc., with SF6 type circuit breakers.
- Automation of the Substation for load shedding
- Replacement of equipment with "latest state of art" making new provision as a modernization process.
- Upgrading of existing conductors with high temperature low sag conductors i.e. ACCC Conductor etc.
- Telangana Government has taken decision to provide 9 Hrs Agricultural Supply during day time in Telangana State. Hence, accordingly TSTRANSCO has taken steps for augmentation of existing Power Transformer capacity in Substations and Strengthening of lines.
- For meeting the 9hrs. agricultural load during day time, the Power Transformer strengthening is arrived at 5100 MVA at 132/33 KV level. For meeting the additional load on transmission lines, Load flow studies were carried out and 23 Nos. 132 KV feeders were identified to be overloaded. Out of the 23 Lines, 12 Lines are in rural areas and 11 Lines in GHMC area. For avoiding over loading of these lines, either newlines are to be constructed or existing lines are to be strengthened by replacing the conductors with high capacity conductors.
- Constructing of new lines will take substantially longer time (more than 2 years) as it involves preliminary survey, preparation of line profiles, administrative approvals, funding arrangements, check survey, procurement of towers, conductor, hardware etc., erection of towers and stringing of conductor requiring tackling of ROW problems.
- Replacement of existing conductors, that have served for more than 20 years, with high performance HTLS (High Temperature Low Sag) conductors appears prudent as it is

economically beneficial considering the quantum of capacity enhancement, reduction of losses at higher power transfer (2 lines with ACSR conductor will have more losses than the single conductor with high capacity) in spite of marginally higher initial investment in comparison with construction of new lines that are involved with more uncertainties.

- Tenders were called for Strengthening of the following 5Nos 132KV overloaded lines by replacing the existing ACSR conductor with HTLS conductor (i.e., ACCC conductor) and works are under progress.

Sl. No.	Name of the Transmission Line	(CKM)	Status of Works
1	132 KV Halia - Nagarjuna Sagar Line	27	Completed
2	132 KV Dichpally - Janakampet Line	32	Completed
3	132 KV Aleru - Bhongiri Line	57	Completed
4	132 KV Warangal - Janagaon Line	65	Work commenced
5	132 KV Nalgonda - Narketpalli I & II) Line	33	Work commenced

- Strengthening of following 5 Nos 132KV lines (overloaded) lines by replacing the existing ACSR conductor with HTLS conductor (i.e. ACCC conductor) will be taken up shortly.

Sl. No.	Name of the Transmission Line	Length of the line CKM)
1	132KV Dichpally- Jankampet Line upto 132 KV Renzal SS	14
2	132 KV Narketpally – Rammanapet DC Line	34
3	132KV Shapurnagar-Medchal DC line	28
4	132 KV line from 220KV Medchal SS to 132 KV Medchal SS	2
5	132 KV Chandrayanagutta-Jubilee Hills DC Line	76

Major Grid Disturbances occurred during the year 2014-15:

- Nil –

Major Grid Disturbances occurred during the year 2015-16:

1) Grid Breaker trippings at 220KV Ghanapur on 21.05.2015 @ 19:40Hrs.

Incident:-

- At 19:40Hrs.on 21.05.2015, the R-Phase CT of the 220kV Bus coupler on bus-2 got blasted at 220kV Ghanapur creating bus fault on 220kV Bus-2.
- The bus fault on 220kV bus-2 got cleared with tripping of all the 220kv feeders, 400/220KV, 315MVA ICTs and 220/132kV, 160/100MVA Power Transformers connected to bus-1 and bus-2 on operation of 220kV bus bar protection including bus coupler.
- Due to the above trippings, there was an interruption to partial loads of Hyderabad city.

2) Grid Breaker trippings at 220KV Mahaboobnagar on 21.05.2015 @ 20:30Hrs.

Incident:-

- At 20:30Hrs.on 21.05.2015, the B-Phase CT of the 220kV Bus coupler on bus-1 got blasted at 220kV Mahaboobnagar creating bus fault on 220kV Bus-1.
- The bus fault on 220kV bus-1 got cleared with tripping of all the 220kv feeders and 220/132kV Power Transformers connected to bus-1 and bus-2 on operation of 220kV bus bar protection including bus coupler.
- Due to the above trippings, there was an interruption to partial loads of 132/33KV Mahaboobnagar, Puttapahad and Marikal substations.

3) Grid Breaker trippings at 220KV RSS(Malyalapally) on 21.05.2015 @ 23:32Hrs.

Incident:-

- At 23:32Hrs.on 21.05.2015, the B-Phase CT of the 220kV Bus coupler on bus-2 got blasted at 220kV RSS creating bus fault on 220kV Bus-2.

- The bus fault on 220kV bus-2 got cleared with tripping of all the 220kv feeders, 400/220KV, 3Nos. ICTs and 220/132kV, 2Nos. Power Transformers connected to bus-1 and bus-2 on operation of 220kV bus bar protection including bus coupler.
- Due to the above trippings, there was an interruption to load of 220kV Nirmal Substation.

4) Grid Breaker trippings at 400KV Srisailam Left Bank on 18.08.2015 @ 15:25Hrs.

Incident:-

- At 15:25Hrs.on 18.08.2015, the B-Phase line CT of 400KV Srisailam Left Bank-Sattenapalli-2 at Srisailam Left Bank blasted causing Non-directional sensitive earth fault protection to operate on Mamidipally-2 and Kurnool lines at Srisailam Left Bank end and sending Direct Trip to remote ends.
- Prior to occurrence of fault, 400kv Srisailam Left Bank-Mamdipally-1 and 400kv Srisailam Left Bank-Sattenapalli-1 were out of service due to over voltage conditions and also there was no generation at Srisailam Left Bank.
- Fault is cleared by tripping of the feeders connected to 400kv Srisailam Left Bank.

5) Grid Breaker trippings at 220KV RSS(Malyalapally) on 10.03.2016 @ 18:41Hrs.

Incident:-

- At 18:41Hrs on 10.03.2016, the R-Phase CT of 220kV RSS-NTPC-1 line blasted at RSS creating bus fault at RSS.
- Prior to occurrence of fault, Bus Bar Protection at 220kV RSS was taken out of service for replacement of central processing unit due to problem in communication port. As Bus Bar Protection was out of service, remote end feeders tripped on operation of Zone-2 protection.
- Fault is cleared by tripping of the feeders and PTR's connected to 220kV RSS.

PERIODS WHEN VOLTAGE AND FREQUENCY WAS BEYOND PRESCRIBED LIMITS

1. Requirement in the Guidelines

Periods when voltage and/or frequency was beyond the prescribed limits on Transmission (400 kV, 220 kV, 132 kV) networks. Details of steps proposed to improve performance and monitoring. (Guidelines – 11b).

2. TSTransco's Response:

Frequency

TSTransco is one of the constituent members of the Southern Regional Grid and operates in synchronism with the power grids of the other southern states of Karnataka, Tamilnadu, Pondicherry, Kerala and a part of Goa. The system frequency is monitored by the Southern Regional Load Dispatch Center (SRLDC) located at Bangalore. As per the operating principles laid down by SRLDC, all constituent members are expected to maintain system frequency as near as possible to 50 Hz.

The details of frequency duration, maximum and minimum frequency experienced during 2014-15 & 2015-16 are shown below.

Southern Region frequency during 2014-15

Month	AVERAGE	MAXIMUM		MINIMUM	
	Hz	Hz	Date	Hz	Date
Apr-14	49.94	50.53	20th	49.49	26th
May-14	49.97	50.56	30th	49.41	20th
Jun-14	49.92	50.65	12th	49.32	27th
Jul-14	49.93	50.36	23rd	49.42	25th
Aug-14	49.92	50.34	26th	49.36	1st
Sep-14	49.95	50.37	1st	49.35	9th
Oct-14	49.96	50.49	2nd	49.53	7th
Nov-14	50.00	50.42	16th	49.58	27th
Dec-14	49.98	50.58	15th	49.54	30th
Jan-15	50.00	50.56	1st	49.55	15th
Feb-15	50.00	50.55	17th	49.58	17th
Mar-15	49.99	50.54	1st	49.52	3rd
YEAR	49.963	50.65	12-jun-14	49.32	27-Jun-14

Percentage of time when frequency was between:

MONTH	<49.7 Hz	49.70 Hz - 49.90 Hz	49.90 Hz - 50.05 Hz	50.05 Hz - 50.20 Hz	>50.20 Hz
Apr-14	0.00	0.00	36.04	50.50	13.46
May-14	1.46	25.42	51.54	19.66	1.92
Jun-14	6.25	34.43	43.93	14.36	1.04
Jul-14	4.37	33.75	34.06	27.36	0.46
Aug-14	4.55	36.66	47.85	10.62	0.32
Sep-14	2.06	29.12	54.60	13.85	0.38
Oct-14	1.62	25.57	52.38	19.73	0.70
Nov-14	0.43	16.54	54.17	27.19	1.66
Dec-14	1.35	24.61	48.23	23.25	2.56
Jan-15	0.79	19.28	54.24	22.95	2.75
Feb-15	0.29	13.89	61.39	23.31	1.13
Mar-15	0.54	17.68	58.86	21.50	1.42
AVERAGE	1.975	23.079	49.774	22.856	2.316

Southern Region frequency during 2015-16

Month	AVERAGE	MAXIMUM		MINIMUM	
	Hz	Hz	Date	Hz	Date
Apr-15	49.99	50.55	25th	49.50	7th
May-15	49.98	50.55	19th	49.19	24th
Jun-15	50.01	50.53	13th	49.56	26th
Jul-15	49.99	50.33	26th	49.56	28th
Aug-15	49.97	50.27	12th	49.55	3rd
Sep-15	49.94	50.33	20th	49.36	4th
Oct-15	49.98	50.33	17th	49.62	1st
Nov-15	49.99	50.28	13th	49.64	21st
Dec-15	49.98	50.32	30th	49.58	6th
Jan-16	50.00	50.39	16th	49.77	26th
Feb-16	50.00	50.39	19th	49.80	14th
Mar-16	49.99	50.35	18th	49.76	7th
YEAR	49.985	50.55	25-04-15 19-05-15	49.19	24-May-15

Percentage of time when frequency was between:

MONTH	<49.7 Hz	49.70 Hz - 49.90 Hz	49.90 Hz - 50.05 Hz	50.05 Hz- 50.20 Hz	>50.20 Hz
Apr-15	0.68	15.97	60.11	22.21	1.03
May-15	0.53	17.55	64.13	17.12	0.68
Jun-15	0.13	10.21	64.44	24.01	1.21
Jul-15	0.13	11.84	70.12	17.62	0.28
Aug-15	0.20	17.22	69.45	13.06	0.06
Sep-15	0.70	31.31	57.87	9.98	0.14
Oct-15	0.04	15.27	68.33	16.16	0.19
Nov-15	0.04	12.53	66.23	21.00	0.20
Dec-15	0.08	17.33	64.87	17.42	0.29
Jan-16	0.00	11.45	68.63	19.60	0.32
Feb-16	0.00	6.91	71.29	21.55	0.24
Mar-16	0.00	10.79	69.49	19.56	0.15
AVERAGE	0.210	14.865	66.246	18.274	0.399

VOLTAGES OF TS SYSTEM FOR 2014-15

Voltages recorded at some of the Generating Stations, Grid sub-stations and Tail-end sub-stations on 28.03.2015, the date on which the State peak demand met i.e 6755 MW are as tabulated below.

Station Voltages at Generating Stations On 28-03-2015

(Voltage in kV)

Sl. No.	STATION NAME	00:00hrs	08:00hrs	19:00hrs	Max	Min
1	KOTHAGUDEM	230	229	231	232	227
2	NAGARJUNASAGAR	224	222	224	225	220
3	RAMAGUNDAM-B	132	132	132	132	132

Station Voltages at Generating Stations on 28-03-2015:

400 kV Substations

(Voltage in kV)

Sl. No.	STATION NAME	00:00hrs	08:00hrs	19:00hrs	Max	Min
1	RAMAGUNDAM	411	411	410	412	407
2	GHANAPUR	410	410	408	413	405
3	KHAMMAM	412	411	411	415	407
4	MAMMIDIPALLY	410	410	409	412	405
5	SRISAILAM	420	419	417	421	414
6	MAHABOORNAGAR	404	413	416	404	0.00

220 kV Voltages at Major Grid Sub-Stations On 28-03-2015:

(Voltage in kV)

Sl. No.	STATION NAME	00:00hrs	08:00hrs	19:00hrs	Max	Min
1	DICHPALLI	218	220	220	224	212
2	BHIMGAL	226	228	227	233	221
3	SIDDIPET	217	224	222	228	210
4	YEDDUMYLARAM	223	224	221	226	215
5	MAHABOORNAGAR	217	213	224	226	212
6	CHANDRAYANGUTTA	222	223	218	225	217
7	SHAPURNAGAR	224	224	222	225	219
8	GACHIBOWLI	223	223	220	224	217
9	MOULAALI	224	224	221	225	219
10	GHANAPUR	225	224	222	225	220
11	KALWAKURTHY	218	215	224	227	214
12	MINPUR	209	215	214	217	204
13	NARKETPALLY	222	222	221	222	214
14	MEDCHAL	223	224	221	225	218
15	BHONGIR	233	233	231	234	228
16	DURSHED	220	219	220	223	215
17	KHAMMAM	193	190	192	194	188
18	MALAYALAPALLY	220	220	220	220	220
19	MANUGURU	199	196	199	200	194
20	MIRIYALAGUDA	205	203	205	206	198
21	NIRMAL	215	209	212	214	199

22	SITHARAMPATNAM	229	227	229	231	225
23	WADDEKOTHAPALLY	233	232	231	233	227
24	WARANGAL	224	222	224	225	220
25	MALKARAM	227	226	224	228	222

VOLTAGES OF TS SYSTEM FOR 2015-16

Voltages recorded at some of the Generating Stations, Grid sub-stations and Tail-end sub-stations on 16.10.2015, the date on which the State peak demand met i.e 6849 MW are as tabulated below.

Station Voltages at Generating Stations On 16-10-2015

(Voltage in kV)

SI. No.	STATION NAME	00:00hrs	08:00hrs	19:00hrs	Min	Max
1	KTPS-VI	414.07	414.07	409.32	406.67	414.07
2	SRISAILAM LBPH	424.34	417.31	422.58	415.55	426.1
3	N'SAGAR LCPH	139.38	139.38	139.38	139.38	139.38
4	N'SAGAR MAIN PH	229.4	225.56	226.28	222.09	229.83
5	JURALA	226.64	220.2	229.5	218	230
6	LOWER JURALA	225.7	218.7	226.77	218.04	229.7

Station Voltages at Generating Stations on 16-10-2015:

(Voltage in kV)

SI. No.	STATION NAME	00:00hrs	08:00hrs	19:00hrs	Min	Max
1	MALKARAM	425.39	421.39	423.3	408.2	427.3
2	MAMIDIPALLY	414.38	408.52	412.15	400.9	417.89
3	DICHPALLY 400	224	220	226	216	233
4	BHUPALPALLY	419	414	418.2	408	424
5	GAJWEL	417.53	414.66	415.89	403.26	424.77
6	SHANKERPALLY	416.81	414.65	415.41	401.76	421.46
7	MAHBOOBNAGAR 400	419.59	410.44	421.78	408.16	425.06
8	KTPS-V	227.28	225.67	227.28	223.73	229.86
9	KTPS	231.12	228.86	230.79	226.6	233.37

220 kV, 132 kV Voltages at Major Grid Sub-Stations On 16-10.2015:

(Voltage in kV)

Sl. No.	STATION NAME	00:00hrs	08:00hrs	19:00hrs	Min	Max
1.	BHONGIR	237.59	233.4	234.17	224.38	238.56
2.	GHANAPUR	228.54	225.32	224.18	218.23	229.83
3.	MEDCHAL	226.6	223.7	223.7	215.65	227.89
4.	MOULALI	228.86	225.64	224.39	217.58	229.83
5.	NARKETPALLY	227.57	224.35	224.35	215	228.22
6.	SHAPURNAGAR	228.54	224.99	224.67	216.94	229.83
7.	BUDIDAMPAD	194.06	190.84	193.61	187.29	196.96
8.	CHANDRAYANAGUTTA	223.7	220.48	218.23	213.07	226.28
9.	DINDI	227.57	222.09	228.32	221.13	231.44
10.	GACHIBOWLI	227.25	224.03	223.7	215.65	228.86
11.	HIAL	221.45	217.26	217.58	210.49	223.06
12.	KALWAKURTHY	223.7	217.58	224.99	216.62	228.22
13.	NAVABHARAT NEW	233.97	231.31	232.89	227.22	236.43
14.	SHAMSHABAD	231.8	227.1	228.5	220.4	233.9
15.	SIVARAMPALLY	224.35	221.13	220.8	212.43	226.28
16.	CHALAKURTHY SWS	229.45	226.14	226.31	221.16	229.86
17.	MIRYALAGUDA	204.37	204.37	207.59	204.37	211.14
18.	BELLAMPALLI	230	230	230	230	230
19.	BHIMGAL	219.52	215.33	221.13	210.49	227.57
20.	DICHPALLY 220	219.19	215.65	221.86	211.14	228.22
21.	DURSHED	221.45	216.94	222.09	214.04	227.25
22.	JAGITYAL	263.96	258.18	263.96	256.89	263.96
23.	MEDARAM	228.81	223.84	228.8	221.95	234.33
24.	MALAYALAPALLY	0.72	0.72	0.4	0.4	0.72
25.	NIRMAL	183.75	165.7	176.98	133.16	190.51
26.	SIDDIPET	220.16	216.62	223.7	211.78	229.5
27.	VEMANUR	226.08	218.04	224.24	215.1	231.68
28.	KAMAREDDY	221.48	220.26	225.45	211	230
29.	MINPUR	211.78	214.04	219.52	200.5	224.67
30.	SHADNAGAR	229.35	225.1	226.6	217	231.9

Sl. No.	STATION NAME	00:00hrs	08:00hrs	19:00hrs	Min	Max
31.	TANDUR	263.66	263.96	263.96	262.69	263.96
32.	YEDDUMAILARAM	237.4	230.15	237.92	228.86	239.49
33.	MAHBOOBNAGAR 220	224.99	218.87	226.88	216.94	229.5
34.	WANAPARTHY	227.8	221.9	229.8	219	232.2
35.	MANUGURU	205.66	205.66	209.53	205.66	212.75
36.	SEETHARAMPATNAM	229.5	227.57	229.18	225.32	231.76
37.	WADDEKOTHAPALLY	223.06	219.19	221.77	212.1	225.32
38.	WARANGAL	225.96	221.45	226.28	218.87	230.15
39.	RAMACHANDRAPURAM	125.47	125.47	125.47	125.47	125.47
40.	ERRAGADDA	134.55	133.39	130.3	127.01	136.1
41.	JUBLI HILLS	133.2	131.27	127.4	124.31	135.71
42.	INDIAN CEMENT	135.25	135.25	137.88	135.25	139.88
43.	MYHOME POWER	134.7	134.7	138.33	134.7	139.75
44.	ORIENT CEMENT	136.8	134.21	135.99	132.04	139.6
45.	POCHAMPAD	130.62	123	132.9	122.6	137.1
46.	ENRICH SOLAR	131.75	133.84	133.25	122.42	136.18
47.	NAVABHARAT OLD	133.57	133.57	133.57	133.57	133.57

ACCIDENTS

1. Requirement in the Guidelines

Number of reported fatal and non-fatal accidents, differentiating between accidents involving humans and those involving animals. An analysis of steps to reduce such accidents must also be provided. (Guidelines - 11c)

2. TSTransco's response

3 Nos of Fatal accidents reported in the Transmission system during 2014-15. In 2015-16, 2 nos Non-fatal and 2 nos fatal accidents are reported.

TSTransco constantly reviews the existing safety practices and procedures with an endeavor to minimize and achieve a zero accident record. The statistics for 2014-15 to 2015-16 are shown in the Table-I, II and reasons for causing the accidents are summarized in Table-III.

Table-I:

ACCIDENTS	2014-15	2015-16	Total
FATAL			
Humans	3	2	5
Animals/Others	0	0	0
NON FATAL			
Humans	0	2	2
Animals/Others	0	0	0

Table-II:

a. Details of Accidents recorded on EHT System in TSTRANSCO for FY 2014-15

ACCIDENTS	Hyderabad Metro Zone	Hyderabad Rural Zone	Warangal Zone	Total
FATAL				
Human	-	-	3	3
Animals/Others	-	-	-	-
NON FATAL				
Human	-	-	-	-
Animals/Others	-	-	-	-

b. Details of Accidents recorded on EHT System in TSTRANSCO for FY 2015-16

ACCIDENTS FATAL	Hyderabad Metro Zone	Hyderabad Rural Zone	Warangal Zone	Total
Human	2	-	-	2
Animals/Others	-	-	-	-
NON FATAL				
Human	1	-	1	2
Animals/Others	-	-	-	-

Table-III:

Reasons for causing the above accidents are summarized below.

Information regarding accidents occurred during the FY 2014-15

Sl. No.	Name of the Circle	Date	Place at which accident occurred	Type			Reasons
				Dept./ Non-Dept.	Fatal / Non-fatal	Human/ Others	
WARANGAL ZONE							
1	SE/OMC/ Nizamabad	4/11/2014	Near Achaipally Village	Non-Dept.	Fatal	Human: 1. Jinka Sailu 2. Besta Balaraju 3. Arekela Anjaiah	Due to touching of "PEER" (on account celebration of MUHARRAM festival) to 132KV Minpur-Nizamsagar Ckt-II between Loc.No.40 and 41

Information regarding accidents occurred during the FY 2015-16

Sl. No.	Name of the Circle	Date	Place at which accident occurred	Type			Reasons
				Dept./ Non-Dept.	Fatal / Non-fatal	Human / Others	
HYDERABAD-METRO ZONE							
1	SE/Metro-Central	06.02.2016 @ 11:15 Hrs.	132KV SS Jubilee Hills	Non-Departmental	Non-Fatal	Human	While attending maintenance work on 33KV NIMS feeder breaker at 132KV SS Jubilee Hills Non-departmental/ Non fatal accident occurred on 06.02.2016 @ 11:15 Hrs and 2 Nos. contract labour of M/s KMR Projects got electrocuted. The 2 Nos. contract labour Sri. D. Piroji & Sri. Rajgonda suddenly got electrocuted and fallen down with burns.

Sl. No.	Name of the Circle	Date	Place at which accident occurred	Type			Reasons
				Dept./ Non-Dept.	Fatal / Non-fatal	Human / Others	
2	SE/OMC/ Metro-West	05-09-2015 at 13.25 hours	132/33KV SS Parigi	Non - Departmental	Fatal	Human	Sri S.Narasimha Raju, S/o.Sri Chukkaiah was employed by M/s.Vidyut Consultants, Hyd for carrying out manning and O&M works under skilled category. Abutting 132/33KV SS Parigi, one number 220/132KV Sub-station is under construction. The 132KV Parigi - Tandur and 132KV Parigi - Vikarabad feeders are on two sides of the DC line and the DC line is fowling with the 132KV yard of the 220/132KV Sub-station Parigi under construction. Hence, these fowling locations are proposed to be diverted to facilitate completion of the 220/132KV Sub-station, for the purpose, for dismantling of the existing line and restringing on to the new towers, a shutdown was planned by construction wing from 08.00 hours to 18.00 hours on 05.09.2015 on 132KV Parigi - Vikarabad feeder. Simultaneously, during this same shutdown period, general maintenance works were also planned. General maintenance of line isolator was also planned. At around 13.25 hours, some loud noise was heard and learnt that Sri S.Narasimha Raju met with fatal accident due to induction at 132KV Vikarabad bus-isolator and died on the spot.

Sl. No.	Name of the Circle	Date	Place at which accident occurred	Type			Reasons
				Dept./ Non-Dept.	Fatal / Non-fatal	Human/ Others	
3	SE/OMC/ Metro-East	25.04.2015	Container Corportion of India Ltd., Sanathnagar, R.R. Dist.	Non Dept.	Fatal	Human	As per the instructions of higher authorities the CBD Malkaram Gang was spared to the ADE/CBD/ Erragadda on emergency currently under the jurisdiction of SE/OMC /Metro-West/Hyd and while carrying out the rectification works of damaged conductor of 132 KV Shapurnagar - SRT feeder a fatal accident occurred to Sri. V. Harish (Non-departmental). Sri V. Harish, after finishing of the work and while coming down from the tower accidentally slipped from the tower and fallen on the ground. Immediately he was taken to the nearby Remedy Multi Speciality Hospital, Kukatpally by 14:20 Hrs. The Doctors started emergency treatment. The message was conveyed to the higher authorities and proprietor K. Narasimha of M/s KRN Infracon Pvt. Ltd. At around 16:00 Hrs the doctors declared that he was dead.

Sl. No.	Name of the Circle	Date	Place at which accident occurred	Type			Reasons
				Dept./ Non-Dept.	Fatal / Non-fatal	Human / Others	
WARANGAL ZONE							
1	SE/OMC/ Khammam	05.03.2016	Palvoncha	Non-Departmental	Non Fatal	Human	Non Electrical accident. 1 No. CBD Gang man (Contract labour) fallen from bottom conductor of 220KV line due to Snapping of Rope while getting down after completion of work under LC

Main reasons for Accidents and Remedial action to reduce accidents:

The fatal and Non-fatal accidents occurred for human beings mainly due to the induction to the adjacent live parts and slipping from the structure while carrying out the maintenance works due to anxiety/ confusion.

Remedial action to reduce accidents:

For any lapse, suitable prompt action is taken against the concerned public or staff to discourage their negligence or casual approach.

The concerned superior staff takes deterrent action against all the erring field staff who fails to take safety precautions while working on lines and also ensure that adequate quantity of safety appliances are made available to all the concerned staff members. Safety training courses are regularly conducted.

Schedules for preventive maintenance of all CTs and PTs in the EHT substations are given preventive maintenance schedules are also generated from the ERP system. It is also proposed to replace all aged CTs and PTs & PTRs sets with new sets through renovation and modernization schemes.

Classes are being conducted for the workmen on payday or any suitable working day to enlighten them on safety measures and to avoid electrical accidents by proper utilization of safety devices and precautions as per the safety rules.

Preventive steps:

- Standard construction practice is ensured whenever new lines are laid and energized.
- Clearances for O/H lines as specified in IE rules 77, 78, 79, 80 and 81 to be strictly maintained and verified at the time of statutory inspections of lines & sub-stations, before charging.
- Cradle Guards are provided under the O/H lines as required under IE Rules Nos. 66 and 91, regarding safety and protective devices, in order to render the lines electrically harmless in case it breaks.
- All metal supports of O/H lines and attached metallic fittings are permanently earthed as per I.E. Rule No.90.
- Danger Boards to be affixed wherever necessary in the local language.
- Anti-climbing devices to be provided to prevent people from scaling towers or poles.

DEFECTIVE METERS

1. Requirement in the Guidelines

Number of inadequate or defective meters. Programme and phasing of investment for replacement. (Guidelines – 11d)

2. TSTransco's response

TSTransco is the sole Transmission licensee in Telangana State and receives power from various generation sources such as TSGENCO, Central generating stations, IPPs, and captive units, and the power is utilized by the Two Distribution companies and other OA users. Extensive metering facilities are already in existence at these interface points. The present status of interface meter points with breakup is listed below.

Status of 0.2/0.5 class interface metering points as on 31.05.2016

Sl. No.	DISCOM	Metering Point Type	Sub category	No. of Metering Points			Category Total	DISCOM Total
				0.2 class	0.5 class	Total		
1	TSSPDCL	PTR LVs	132/11kV	1	1	2	257	435
2	TSSPDCL		132/33kV	217	35	252		
3	TSSPDCL		220/33kV	2	0	2		
4	TSSPDCL		132/66kV	1	0	1		
5	TSSPDCL	EHT Consumers	220kV Industrial	8	0	8	78	
6	TSSPDCL		132kV Industrial	59	3	62		
7	TSSPDCL		132kV Rly. Traction	8	0	8		
8	TSSPDCL	G-D	--	2	2	4	4	
9	TSSPDCL	D-D	--	4	5	9	9	
10	TSSPDCL	PDs (33kV, 11kV)	--	87	0	87	87	
11	TSNPDCL	PTR LVs	132/11kV	0	0	0	195	304
12	TSNPDCL		132/33kV	188	5	193		
13	TSNPDCL		220/33kV, 220/11kV	2	0	2		
14	TSNPDCL		132/66kV	0	0	0		
15	TSNPDCL	EHT Consumers	220kV Industrial	20	0	20	72	
16	TSNPDCL		132kV Industrial	36	2	38		
17	TSNPDCL		132kV Rly. Traction	10	4	14		
18	TSNPDCL	G-D	--	6	2	8	8	
19	TSNPDCL	D-D	--	3	11	14	14	
20	TSNPDCL	PDs (33kV, 11kV)	--	15	0	15	15	
T-D SUB-TOTAL:				669	70	739	739	739

G - T					
Sl. No.	Metering Point Type	No. of Metering Points			Category Total
		0.2 class	0.5 class	Total	
1	TSGENCO -TSTRANSCO	56	0	56	167
2	PGCIL/CGS	26	0	26	
3	INTER-STATE	49	0	49	
4	CPPs	20	0	20	
5	IPPs	2	0	2	
6	132kV EHT PDs	14	0	14	
G-T SUB-TOTAL:		167	0	167	167

OVERALL SUMMARY					
Sl. No.	Metering Point Type	No. of Metering Points			
		0.2 class	0.5 class	Total	
1	T - D	669	70	739	
2	G - T	166	0	166	
GRAND TOTAL:		835	70	905	

NOTE: The boundary points taken in CPPs (G-T) is also included in EHT consumers (T-D)

Regulatory Forms

Form 1.0 Revenue Requirement

(Rs. in Crores)

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Operation and Maintenance Charges		483.15	605.62	661.90
Depreciation		377.08	568.52	740.82
Advance Against Depreciation				
Taxes on Income		97.24	120.34	157.33
Other Expenditure		0.00	0.00	0.00
Special Appropriations			-302.21	-302.22
Total Expenditure		957.47	992.27	1257.83
Less: O&M expenses capitalized		88.14	131.69	94.23
Net Expenditure		869.33	860.58	1163.61
Add: Return on Capital Employed		656.20	812.07	1061.70
Less: Non-Tariff Income (if any)		50.00	50.00	50.00
Total Revenue Requirement transferred to Retail supply business		1475.53	1622.65	2175.31

Form 1a - Regulated Rate Base

This form pertains to the rate base calculation

(Rs. in Crores)

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Assets		10397.43	13538.09	18919.52
OCFA Opening Balance		7225.99	10397.43	13538.09
Additions to OCFA		3171.44	3140.66	5381.44
Depreciation		2984.07	3552.59	4293.41
Opening Balance		2606.99	2984.07	3552.59
Depreciation during the Year		377.08	568.52	740.82
Consumer Contributions		913.18	3641.81	4145.81
Cons Contributions Opening Balance		739.09	913.18	3641.81
Additions to Cons Contributions		174.09	2728.63	504.00
Working Capital		59.57	74.67	81.60
Change in Rate Base		1310.13	-78.24	2068.31
Regulated Rate Base		5249.61	6496.60	8493.60

Form 1b - Capital Structure

This form pertains to the calculation of the Weighted Average Cost of capital

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Capital Structure				
Debt Percent		75%	75%	75%
Equity percent		25%	25%	25%
Cost of Funds				
Cost of Debt percent		12%	12%	12%
Return on Equity percent		14%	14%	14%
WACC		12.50%	12.50%	12.50%

Form 1c - Revenue

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Capacity (MW)		13410	14376	15021
TS SPDCL		9460	9756	10211
TS NPDCL		3949	4619	4809
Others (Third Party /Open Access)		1	1	1
Transmission Charges (Rs/kW/month)		91.69	94.06	120.68
Revenue (Rs. in Crores)		1475.53	1622.65	2175.31

Form 1.1(i) - BALANCE SHEET

(Rs. in crores)

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
ASSETS:				
Gross Fixed Assets		10397.43	13538.09	18919.52
Less: Accumulated Depreciation		2984.07	3552.59	4293.41
Net Fixed Assets		7413.35	9985.50	14626.11
Capital Expenditure-in-progress		2000.82	4555.06	2130.65
Assets not in use		0.00	0.00	0.00
Investments		398.30	398.30	398.30
Current Assets		1875.15	1845.15	1845.15
Stocks		196.51	196.51	196.51
Receivables		483.27	483.27	483.27
Cash and Bank balances		45.32	45.32	45.32
Loans & Advances		1033.10	1003.10	1003.10
Other receivables		116.95	116.95	116.95
Miscellaneous Expenditure		157.00	157.00	157.00
Others		2.60	2.60	2.60
Total Assets		11847.22	16943.61	19159.82
LIABILITIES:				
Equity		324.83	324.83	324.83
Reserves		156.32	156.32	156.32
Indian Loans		5881.08	7934.72	9489.49
Foreign Loans		0.00	0.00	0.00
Other working capital borrowings		0.00	0.00	0.00
Current Liabilities		3620.22	3706.96	3567.12
Contributions & Grants		913.18	3641.81	4145.81
Payment due on Capital Liabilities		36.50	36.50	36.50
Surplus/(Deficit)		915.09	1142.47	1439.74
Total Liabilities		11847.22	16943.61	19159.82

Form 1.1 a - GROSS FIXED ASSETS
2016-17 (Base Year)

(Rs. in crores)

Asset Particulars	D Link	At the beginning of the year	Additions during the year	Adjustment & deductions	At the end of the year	Remarks
Land & land rights		19.13	9.51		28.64	
Buildings		105.60	53.91		159.51	
Intangible Assets		0.00			0.00	
Hydraulic Works		0.00			0.00	
Other civil works		8.85	3.17		12.02	
Plant & Machinery		3316.49	1522.29	0.00	4838.78	
Plant and Machinery - 400 kV		0.00			0.00	
Plant and Machinery - 220 kV		0.00			0.00	
Plant and Machinery - 132 kV		0.00			0.00	
Others		0.00			0.00	
Material Handling Equipments		0.00			0.00	
Construction Equipments		0.00			0.00	
Miscellaneous Equipments		0.00			0.00	
Others		0.00			0.00	
Line Cable Network		3748.88	1569.86	0.00	5318.74	
Line Cable Network - 400kV		0.00			0.00	
Line Cable Network - 220kV		0.00			0.00	
Line Cable Network - 132kV		0.00			0.00	
Others		0.00			0.00	
Vehicles		1.11	0.63		1.74	
Furniture & Fixtures		1.38	0.63		2.01	
Office Equipment		24.55	11.42		35.97	
Fully Depreciated Fixed Assets		0.00			0.00	
Others		0.00			0.00	
Spare Units/ Service units		0.00			0.00	
Total		7225.99	3171.44	0.00	10397.43	

2017-18

(Rs. in crores)

Asset Particulars	D Link	At the beginning of the year	Additions during the year	Adjustment & deductions	At the end of the year	Remarks
Land & land rights		28.64	9.42		38.07	
Buildings		159.51	53.39		212.91	
Intangible Assets		0.00			0.00	
Hydraulic Works		0.00			0.00	
Other civil works		12.02	3.14		15.16	
Plant & Machinery		4838.78	1507.52	0.00	6346.30	
Plant and Machinery - 400 kV		0.00			0.00	
Plant and Machinery - 220 kV		0.00			0.00	
Plant and Machinery - 132 kV		0.00			0.00	
Others		0.00			0.00	
Material Handling Equipments		0.00			0.00	
Construction Equipments		0.00			0.00	
Miscellaneous Equipments		0.00			0.00	
Others		0.00			0.00	
Line Cable Network		5318.74	1554.63	0.00	6873.37	
Line Cable Network - 400kV		0.00			0.00	
Line Cable Network - 220kV		0.00			0.00	
Line Cable Network - 132kV		0.00			0.00	
Others		0.00			0.00	
Vehicles		1.74	0.63		2.37	
Furniture & Fixtures		2.01	0.63		2.64	
Office Equipment		35.97	11.31		47.27	
Fully Depreciated Fixed Assets		0.00			0.00	
Others		0.00			0.00	
Spare Units/ Service units		0.00			0.00	
Total		10397.43	3140.66	0.00	13538.09	

2018-19

(Rs. in crores)

Asset Particulars	D Link	At the beginning of the year	Additions during the year	Adjustment & deductions	At the end of the year	Remarks
Land & land rights		38.07	16.14		54.21	
Buildings		212.91	91.48		304.39	
Intangible Assets		0.00			0.00	
Hydraulic Works		0.00			0.00	
Other civil works		15.16	5.38		20.54	
Plant & Machinery		6346.30	2583.09	0.00	8929.39	
Plant and Machinery - 400 kV		0.00			0.00	
Plant and Machinery - 220 kV		0.00			0.00	
Plant and Machinery - 132 kV		0.00			0.00	
Others		0.00			0.00	
Material Handling Equipments		0.00			0.00	
Construction Equipments		0.00			0.00	
Miscellaneous Equipments		0.00			0.00	
Others		0.00			0.00	
Line Cable Network		6873.37	2663.81	0.00	9537.18	
Line Cable Network - 400kV		0.00			0.00	
Line Cable Network - 220kV		0.00			0.00	
Line Cable Network - 132kV		0.00			0.00	
Others		0.00			0.00	
Vehicles		2.37	1.08		3.45	
Furniture & Fixtures		2.64	1.08		3.72	
Office Equipment		47.27	19.37		66.65	
Fully Depreciated Fixed Assets		0.00			0.00	
Others		0.00			0.00	
Spare Units/ Service units		0.00			0.00	
Total		13538.09	5381.44	0.00	18919.52	

Form 1.1 b - ACCUMULATED DEPRECIATION

Please fill in the required details pertaining to each year

2016-17 (Base Year)

(Rs. in crores)

Asset Particulars	Balance of accumulated depreciation at the beginning of the year	Balance of arrears of depreciation at the beginning of the year	Additions during the year				Withdrawals during the year	Balance of accumulated depreciation at the end of the year	Balance of arrears of depreciation at the end of the year	Remarks
			Rate of depreciation	Depreciation provided for the year	Arrears of depreciation written off during the year	Total				
Land & land rights	0.00			0.00		0.00		0.00		
Buildings	30.50			4.41		4.41		34.91		
Intangible Assets	0.00			0.00		0.00		0.00		
Hydraulic Works	0.00			0.00		0.00		0.00		
Other civil works	0.84			0.12		0.12		0.96		
Plant & Machinery	1578.90			228.38		228.38		1807.28		
Plant and Machinery - 400 kV	0.00			0.00		0.00		0.00		
Plant and Machinery - 220 kV	0.00			0.00		0.00		0.00		
Plant and Machinery - 132 kV	0.00			0.00		0.00		0.00		
	0.00			0.00		0.00		0.00		
Material Handling Equipments	0.00			0.00		0.00		0.00		
Construction Equipments	0.00			0.00		0.00		0.00		
Miscellaneous Equipments	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Line Cable Network	976.08			141.18		141.18		1117.26		
Line Cable Network - 400kV	0.00			0.00		0.00		0.00		
Line Cable Network - 220kV	0.00			0.00		0.00		0.00		
Line Cable Network - 132kV	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Vehicles	1.59			0.23		0.23		1.82		
Furniture & Fixtures	1.27			0.18		0.18		1.45		
Office Equipment	17.81			2.58		2.58		20.39		
Fully Depreciated Fixed Assets	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Spare Units/ Service units	0.00			0.00		0.00		0.00		
Grand Total	2606.99	0.00		377.08	0.00	377.08	0.00	2984.07	0.00	

2017-18

(Rs. in crores)

Asset Particulars	Balance of accumulated depreciation at the beginning of the year	Balance of arrears of depreciation at the beginning of the year	Additions during the year				Withdrawals during the year	Balance of accumulated depreciation at the end of the year	Balance of arrears of depreciation at the end of the year	Remarks
			Rate of depreciation	Depreciation provided for the year	Arrears of depreciation written off during the year	Total				
Land & land rights	0.00			0.00		0.00		0.00		
Buildings	34.91			6.65		6.65		41.56		
Intangible Assets	0.00			0.00		0.00		0.00		
Hydraulic Works	0.00			0.00		0.00		0.00		
Other civil works	0.96			0.18		0.18		1.14		
Plant & Machinery	1807.28			344.32		344.32		2151.59		
Plant and Machinery - 400 kV	0.00			0.00		0.00		0.00		
Plant and Machinery - 220 kV	0.00			0.00		0.00		0.00		
Plant and Machinery - 132 kV	0.00			0.00		0.00		0.00		
	0.00			0.00		0.00		0.00		
Material Handling Equipments	0.00			0.00		0.00		0.00		
Construction Equipments	0.00			0.00		0.00		0.00		
Miscellaneous Equipments	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Line Cable Network	1117.26			212.86		212.86		1330.12		
Line Cable Network - 400kV	0.00			0.00		0.00		0.00		
Line Cable Network - 220kV	0.00			0.00		0.00		0.00		
Line Cable Network - 132kV	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Vehicles	1.82			0.35		0.35		2.17		
Furniture & Fixtures	1.45			0.28		0.28		1.73		
Office Equipment	20.39			3.88		3.88		24.27		
Fully Depreciated Fixed Assets	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Spare Units/ Service units	0.00			0.00		0.00		0.00		
Grand Total	2984.07	0.00		568.52	0.00	568.52	0.00	3552.59	0.00	

2018-19

(Rs. in crores)

Asset Particulars	Balance of accumulated depreciation at the beginning of the year	Balance of arrears of depreciation at the beginning of the year	Additions during the year				Withdrawals during the year	Balance of accumulated depreciation at the end of the year	Balance of arrears of depreciation at the end of the year	Remarks
			Rate of depreciation	Depreciation provided for the year	Arrears of depreciation written off during the year	Total				
Land & land rights	0.00			0.00		0.00		0.00		
Buildings	41.56			8.67		8.67		50.23		
Intangible Assets	0.00			0.00		0.00		0.00		
Hydraulic Works	0.00			0.00		0.00		0.00		
Other civil works	1.14			0.24		0.24		1.38		
Plant & Machinery	2151.59			448.67		448.67		2600.27		
Plant and Machinery - 400 kV	0.00			0.00		0.00		0.00		
Plant and Machinery - 220 kV	0.00			0.00		0.00		0.00		
Plant and Machinery - 132 kV	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Material Handling Equipments	0.00			0.00		0.00		0.00		
Construction Equipments	0.00			0.00		0.00		0.00		
Miscellaneous Equipments	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Line Cable Network	1330.12			277.37		277.37		1607.49		
Line Cable Network - 400kV	0.00			0.00		0.00		0.00		
Line Cable Network - 220kV	0.00			0.00		0.00		0.00		
Line Cable Network - 132kV	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Vehicles	2.17			0.45		0.45		2.62		
Furniture & Fixtures	1.73			0.36		0.36		2.09		
Office Equipment	24.27			5.06		5.06		29.33		
Fully Depreciated Fixed Assets	0.00			0.00		0.00		0.00		
Others	0.00			0.00		0.00		0.00		
Spare Units/ Service units	0.00			0.00		0.00		0.00		
Grand Total	3552.59	0.00		740.82	0.00	740.82	0.00	4293.41	0.00	

Form 1.1 c - Capital Work in Progress

This form pertains to the Capital Work in Progress

(Rs. in crores)

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Opening balance of CWIP		2232.99	2000.82	4555.06
Add: New Investment*		2522.38	5284.91	2640.23
Add: Capitalisation*				
(i) Interest During Construction		328.74	278.30	222.57
(ii) Expenses Capitalised		88.14	131.69	94.23
Total (i)+(ii) :		416.88	410.00	316.80
Less : Investment Capitalised		3171.44	3140.66	5381.44
Closing balance of CWIP		2000.82	4555.06	2130.65

400KV SCHEMES

Form 1.1d: INVESTMENT PLAN

Base Year:2016-17

(Rs. in Crores.)

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING						Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual							
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs. Cr.)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs. Cr.)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs. Cr.)	IDC Incurred	Other expense incurred	
	APT/TS/SCCL(Jaipur)-Evacuation-400kV Quad D/C /F-INVST-42/2013	Jaipur Power Transmission Scheme		Mar'13	Mar'18	780.80	-	61.59	-	-	-	842.39			898.49	11.15%	3 yrs	10 yrs	REC	70.91	9.07					111.06					
	APT/TS/400/F-INVST-66/2006	Ring main Transmission Scheme		Aug'07	Mar'17	446.77	-	35.41	-	-	-	482.18			374.90	12.25%	0.00%	12 yrs	PFC	11.18	0.56					10.29					
	APT/TS/400kV Suryapet/F-INVST-28/2014	Erection of 400/220/132kV SS at Suryapet-associated 400kV Quad DC lines-Transmission system Improvement		Jul'13	Mar'17	1,622.68	-	144.80	-	-	-	1767.48			1572.43	11.15%	3 Yrs	10 yrs	REC	108.62	62.80					579.09					
	APT/TS/400kV-4th ICT Mamidipalli & 3rd ICT Gajwel/F-INVST-26/2013 dated 24.09.2012	Erection of 4th ICT Mamidipalli & 3rd ICT Gajwel		Jan'13	Mar'17	48.60	-	-	-	-	-	48.60			48.60	10.75%	3 Yrs	12 yrs	PFC	0.08	3.58					29.96					
	APT/TS/400kV & 220kV Wind-Evacuation - Phase-I/F-INVST-23/2014 (Phase -I)	Wind Power Transmission Scheme		Mar'13	Mar'17	525.37	-	-	-	-	-	525.37			225.13	11.15%	3 Yrs	10 yrs	REC	62.12	16.90					172.31					
	TST / TS / 400kV Dindi Substation /Trans. improvement scheme /Invest. Appoval No.16/15, Dt.02.01.2016	Erection of 400kV Dindi Sub-station in Mahboob Nagar		Nov'15	Mar'18	286.62	-	34.92	-	-	-	321.54			273.55	10.75%	3 Yrs	10 yrs after expiry of 3 yrs of Mort.	REC	86.39	5.48					88.89					
	TST / TS / KTPS VII STAGE (1x800MW)/POWER TRANSMISSION/INVEST. APPROVAL/05/15, Dt.30.09.2015	Erection of 400/220kV SS at Jangaon and connected network for Power evacuation from KTPS 1x800Mw, VII stage		Jul'15	Dec'18	1,225.15	-	82.39	-	-	-	1307.54			937.63	10.75%	11 yrs	15 yrs from the date of 1st disb. (incl. mort)	PFC	65.18	4.78					72.39					
	TST/TS/765 KV HYDERABAD – WARDHA/ INVEST/ APPROVAL/10/15, Dt.11.11.2015.	765kV Wardha –Hyderabad Link Transmission scheme- Erection of 400kV Sub-stations at Maheswaram and Manikonda with connected transmission network		Nov'15	Mar'18	972.42	-	97.50	-	-	-	1069.92			665.73	10.75%	11 yrs	15 yrs from the date of 1st disb. (incl. mort)	PFC	137.07	9.59					148.41					

TRANSMISSION (220kV & 132kV)

Form 1.1d: INVESTMENT PLAN

Base Year:2016-17

Rs. In Crores

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks						
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual												
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr.)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred		Other expense incurred	Percentage capitalisation				
-	APT/TS/132/F-INVST-37/2003	132/33 KV SS Khanapur with connected lines		Dec'2010	May'2016	26.01	-	-	-	-	-	26.01	-	-	16.00	12.00%	2 Yrs	10 Yrs	Uco Bank	2.00	0.18					0.00				10.77						
-	APT/TS/132/F-INVST-53/2005	132/33 KV SS leeza in Mahaboobnagra District with connected lines		Jan'2005	Dec'2016	16.54	-	-	-	-	-	16.54	-	-	0.00	-	-	-	-		0.10	0.02					0.00					0.27				
SI06DISINC		Erection of 132/33 KV SS at Disincherla in Nalgonda district along with connected 132 kV line (TOO No.06, dt.04.04.2006)		Apr'2006	Dec'2016	9.30	-	-	-	-	-	9.30	-	-	0.00	-	-	-	-		0.10	0.01					0.00					0.15				
SI0813CHIN		Erection of 132/33 KV SS at Chintal along with connected 132 & 33 KV lines.		Sep'2008	Jan'2017	16.11	-	-	-	-	-	16.11	-	-	0.00	-	-	-	-		0.50	0.05					0.00					0.78				
DC15SRPNNA		Diversion of 220 kV KTPS Nunna - SRPM line for KTPS VII Stage		Aug'2015	Sep'2016	6.89	-	-	-	-	-	6.89	-	-	0.00	-	-	-	-		0.50	0.22					0.00					4.54				
SI07GSIBIC	APT/TS/220-132 GIS HYD /F-INVST- 99/2009	Erection of various 220 kV & 132 kV GIS substations and connecting XLPE UG cable lines in and around Hyderabad metropolitan city with JBIC funding Gunrock 220 kV SS.		-	Nov'2012	348.97	-	-	-	-	-	348.97	-	-	348.97	12.00%	-	-	JICA	0.00	0.00					0.00						0.00				
		B) Hayatnagar 220 kV SS		Feb'2013	Mar'2017	221.00	-	-	-	-	-	221.00	-	-	221.00	12.00%	-	-	JICA	3.75	0.00					0.00					3.75					
		c) Imlibun 220 kV SS		Jun'2013	Mar'2017	281.29	-	-	-	-	-	281.29	-	-	281.29	12.00%	-	-	JICA	8.97	0.00					0.00					8.97					
		D) Moosarambagh 132 kV SS		Mar'2015	Mar'2017	39.83	-	-	-	-	-	39.83	-	-	39.83	12.00%	-	-	JICA	2.87	0.00					0.00					2.87					
		E) Balkampet 132 kV SS		-	Mar'2017	63.82	-	-	-	-	-	63.82	-	-	63.82	12.00%	-	-	JICA	1.26	0.00					0.00					1.26					
		F) Erragadda 220 kV SS		-	Mar'2017	224.00	-	-	-	-	-	224.00	-	-	224.00	12.00%	-	-	PFC	5.41	62.69					0.00					68.11					
		G) Osmania University (Chilakaguda) 220 kV SS		-	Mar'2017	301.45	-	-	-	-	-	301.45	-	-	301.45	12.00%	-	-	PFC	0.55	0.00					0.00					0.55					
		H) Bachupalli(Miyapur) 220 kV SS		-	Mar'2017	125.58	-	-	-	-	-	125.58	-	-	125.58	12.00%	-	-	JICA	0.00	0.00					0.00					0.00					
		I) Narayanaguda 132 kV SS		-	Jun'2013	Mar'2017	34.65	-	-	-	-	34.65	-	-	34.65	12.00%	-	-	JICA	8.10	0.00					0.00					8.10					
		J) Fever Hospital 132 kV SS		-	Nov'2010	Mar'2017	49.37	-	-	-	-	49.37	-	-	49.37	12.00%	-	-	JICA	2.00	0.00					0.00					2.00					
K) Pattigadda 132 kV SS		-	Apr'2015	Mar'2017	224.41	-	-	-	-	224.41	-	-	224.41	12.00%	-	-	JICA	5.26	0.00					0.00					5.26							
SI10NARMET	F-INVST 09/2010	132 kV SS Narmetta & connected lines		Aug'2014	Mar'2017	18.68	-	-	-	-	-	18.68	-	-	-	12.00%	2 Yrs	10 Yrs	Uco Bank	7.76	0.66					0.00					10.02					
SI08GNTPI3	APT/TS/132KV SS-Guntipally/F-INVST-17/2010	132 kV SS Guntipally & Connected Lines		Sep'2010	Mar'2017	13.60	-	-	-	-	-	13.60	-	-	-	-	-	-		0.10	0.01					0.00					0.12					
SI10MANTNI	APT/TS/220/132 kV - Manthani/ F-INVST - 01/2011	220 kV SS Manthani & connected lines		Dec'2013	Feb'2017	55.21	-	-	-	-	-	55.21	-	-	49.66	10.95%	2 Yrs	10 Yrs	Uco Bank	13.81	0.89					0.00					52.11					
PE10IURA25	APT/TS/Lower Jurala-Evac / F-INVST - 06/2011	Transmission system for evacuation power from the forth coming Lower Jurala Hydro Electric Station (6x40 MW)		Feb'2014	Apr'2016	18.00	-	-	-	-	-	18.00	-	-	18.00	10.95%	2 Yrs	10 Yrs	Uco Bank	8.00	0.45					0.00					8.55					
SI0813AMCH	APT/TS/132 kV SS Amarchinta / F-INVST - 08/2011	132 kV SS at Amarchinta along with connected 132 kV DC/SC Line from Jurala SS - Amarchinta SS		Dec'2010	Jun'2017	15.55	-	-	-	-	-	15.55	-	-	15.55	10.95%	2 Yrs	10 Yrs	Uco Bank	4.28	1.10					0.00					12.38					
SI08SINGXR	APT/TS/220/33 kV-Singotam X Roads / F-INVST - 20/2011	Erection of 220/33 kV SS at Singotam 'X' Roads, instead of erection of 132/33 kV substation at Singotam 'X' Roads, Kollapur Mandal in Mahabubnagar district along with connected lines		Apr'2015	Sep'2016	21.17	-	-	-	-	-	21.17	-	-	21.17	12.00%	2 Yrs	10 Yrs	SYB	8.25	0.56					0.00					15.91					
SI10BORAPA	APT/TS/132 kV SS - Borabatla / F-INVST - 24/2011	132 kV SS at Borabatla in Medak District along with connected Lines		Aug'2011	Dec'2016	15.40	-	-	-	-	-	15.40	-	-	15.40	10.00%	2 Yrs	10 Yrs	SYB	7.00	0.51					0.00					9.63					

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks					
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual											
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr.)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred		Other expense incurred	Percentage capitalisation			
SI15ASWARA	TST/TS/ 132/33 kV Aswaraopet SS Up-Gradation to 220/132 kV / F-INVST- 7/2015	Up-Gradation of 132/33 kV SS Aswaraopet to 220/132 kV SS		Dec'2016	Apr'2018	52.82	-	-	-	-	-	52.82	-	-	-	-	-	-	-	10.00	0.60					0.00					10.60				
SI14TOOPRA	TST/TS/132 kV SS- 220 kV Toopran, 132 kV Ganeshpally & 132 kV Duddeda SS / F-INVST-07/2015	220/132/33 kV Substation at Toopran in Medak District along with connected lines		Jan'2016	Dec'2017	76.78	-	-	-	-	-	76.78	-	-	57.20	0.00%	-	-	-	10.00	0.60					0.00					10.60				
SI14GANESH	TST/TS/132 kV SS- 220 kV Toopran, 132 kV Ganeshpally & 132 kV Duddeda SS / F-INVST-07/2015	132/33 kV Substation at Ganeshpally in Medak District along with connected lines		Jul'2015	Jun'2016	21.03	-	-	-	-	-	21.03	-	-	-	-	-	-	-	11.00	0.42					0.00					20.06				
SI14DUDEDED	TST/TS/132 kV SS- 220 kV Toopran, 132 kV Ganeshpally & 132 kV Duddeda SS / F-INVST-07/2015	132/33 kV Substation at Duddeda in Medak District along with connected lines		Jul'2015	Sep'2016	24.60	-	-	-	-	-	24.60	-	-	-	-	-	-	-	16.00	0.81					0.00					22.42				
SI13SIRCIL	TST/TS/220/132kV SS Sircilla / F-INVST- 8/2015	220/132 kV Substation at Sircilla along with connected lines in Karimnagar district		Dec'2015	Dec'2016	87.30	-	-	-	-	-	87.30	-	-	60.00	-	-	-	REC	35.00	4.06					0.00					66.62				
SI15IBRAHI	TST/TS/132/33kV SS Ibrahimbagh / F-INVST-11/2015	132/33 kV Substation at Ibrahimbagh along with connected lines		Jan'2017	Mar'2018	32.17	-	-	-	-	-	32.17	-	-	-	-	-	-	-	4.00	0.24					0.00					4.24				
SI12AREMPL	TST/TS/132/33kV SS Arempula / F-INVST-12/2015	132kV Arempula & connected lines		Jun'2016	Mar'2017	21.53	-	-	-	-	-	21.53	-	-	21.53	10.75%	2 Yrs	10 Yrs	TMB	16.00	0.96					0.00					16.96				
SI12MUNAGA	TST/TS/132/33kV SS Munagala / F-INVST-13/2015	132kV SS Munagala(V&M) & connected lines		Jun'2016	Mar'2017	35.54	-	-	-	-	-	35.54	-	-	30.95	-	-	-	REC	20.00	1.20					0.00					21.24				
SI15RSSLNS	TST/TS/ 220 kV 2nd circuit / RSS to Nirmal SS and RSS to Jagityal SS / F-INVST- 15/2015	220 kV 2nd circuit stringing on 220 kV RSS - Jagityal and 220 kV RSS - Nirmal		Nov'2015	Mar'2017	46.40	-	-	-	-	-	46.40	-	-	0.38	-	-	-	-	15.00	3.62					0.00					41.26				
SI11RAIDUR	TST/TS/ 220/132 kV SS Raidurg / F-INVST-1/2016 (Outdoor)	220/132 kV SS at Raidurg in Ranga Reddy district		Dec'2016	Dec'2017	158.60	-	-	-	-	-	158.60	-	-	-	-	-	-	-	5.00	0.30					0.00					5.30				
-	TST/TS /132/33 kV SS Aipoor , Nalgonda /F-INVST- 01/2016-17	132/33 kV SS at Aipoor in Nalgonda district		Jan'2017	Jan'2018	21.32	-	-	-	-	-	21.32	-	-	-	-	-	-	-	1.00	0.06					0.00					1.06				
SI13AYYAGA	TST/TS / 220/132 kV SS Ayyagaripally, Mahabubabad /F-INVST-03/16 - 2016-17	220/132 kV SS at Ayyagaripally in Mahaboobabad in Warangal district		Mar'2016	Jul'2017	78.33	-	-	-	-	-	78.33	-	-	68.91	-	-	-	REC	30.00	1.83					0.00					32.04				
SI12MDPALL	TST/TS/132kV / MD Pally, Kattedan /F-INVST-03/2016	132 kV SS MD Pally (Kattedan) & connected lines		Aug'2015	Apr'2017	38.02	-	-	-	-	-	38.02	-	-	33.86	12.00%	3 Yrs	15 Yrs	PFC	15.00	0.92					0.00					16.08				
SI13KACHAP	TST/TS/132kV / Kachapur SS/F-INVST-17/2016	132/33kV SS Kachapur & connected lines		Sep'2015	Mar'2017	21.53	-	-	-	-	-	21.53	-	-	21.53	12.00%	3 Yrs	10 Yrs	REC	12.00	1.31					0.00					18.26				
-	TST/TS/ 220 kV Pedagogopati SS / Investment approval No. 19/16-2016	Erection of 220/132/33 kV SS at Pedagogopati in Khammam district		Jan'2017	Apr'2018	124.44	-	-	-	-	-	124.44	-	-	-	-	-	-	-	25.00	1.50					0.00					26.50				
SI12RMPM33	TOO / CE/Const-I/ MS No.182 Dated 10.09.2012	33 kV features in proposed 132 kV Switching station at Ramapuram (Ckoramandal Cements) in Nalgonda district		Sep'2015	Jun'2016	4.18	-	-	-	-	-	4.18	-	-	-	10.90%	2 Yrs	10 Yrs	TMB	2.00	0.09					0.00					3.95				
SI12GANGAD	Normal Plan	33 kV features at Gangadhara 132/11 kV Lift irrigation substation in Karimnagar district		Nov'2016	Mar'2017	4.18	-	-	-	-	-	4.18	-	-	7.51	10.75%	3 Yrs	12 Yrs	REC	4.00	0.24					0.00					4.24				

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															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr.)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred		Other expense incurred	Percentage capitalisation	
SI12INKP33	Normal Plan	erection of 33 kV features at Jankampet 132/11 kV Lift irrigation substation in Nizamabad district		Nov'2016	Mar'2017	4.18	-	-	-	-	-	4.18	-	-	-	12.00%	3 Yrs	10 Yrs	REC	4.00	0.24			0.00				4.24					
SI12BAGE33	Normal Plan	33 kV features at Bagepally 132/11 kV Lift irrigation substation in Nizamabad district		Nov'2016	Mar'2017	4.18	-	-	-	-	-	4.18	-	-	-	12.00%	3 Yrs	12 Yrs	NABARD	4.00	0.24			0.00				4.24					
SI12LNALMP	Normal Plan (T.O.O NO. 284, DT. 20.12.2012	erection of 132 kV LILO line from existing 132 kV APC Kurnool – Gadwal line to 132/33 kV Alampur substation in Mahaboobnagar district		Mar'2014	Dec'2016	7.61	-	-	-	-	-	7.61	-	-	-	-	-	-	-	1.00	0.54			0.00				7.05					
SI0813JDCH	-	132/33 kV SS Jadcherla & connected lines		-	Mar'2017	11.10	-	-	-	-	-	11.10	-	-	-	12.00%	3 Yrs	10 Yrs	REC	0.10	1.00			0.00				9.44					
SI15NARAYA	TST/TS/132/33 kV SS - Narayanpet, Mahaboobnagar / Investment Approval No.5/16, 2016-17	132/33 kV Substation at Narayanpet in Mahaboobnagar District		Jul'2016	Jun'2018	21.23	-	-	-	-	-	21.23	-	-	21.23	-	-	-	-	6.00	0.36			0.00				6.36					
SI16KACHAV	Approval awaited	220/132/33 kV SS at Kachavani Singaram in Ghatkesar Mandal of Ranga Reddy district		Mar'2017	Jun'2018	46.04	-	-	-	-	-	46.04	-	-	-	-	-	-	-	0.30	0.02			0.00				0.32					
-	Approval awaited	132/33 kV Sub-Station at Regonda in Warangal District.		Dec'2016	Apr'2018	22.11	-	-	-	-	-	22.11	-	-	-	-	-	-	-	2.00	0.12			0.00				2.12					
-	TST/TS/ 220132/33 kV / Substation, Borampet RR District/ INVST- No. 07/16 - 2016-17	220/132/33 kV Substation at Borampet in Ranga Reddy district		Dec'2016	Dec'2017	212.20	-	-	-	-	-	212.20	-	-	-	-	-	-	-	15.00	0.90			0.00				15.90					
-	TOO / CE/Trans/ MS No.88, Dated 30.06.2016	132/33 kV Substation at Kotagiri in Nizamabad District.		Mar'2017	Mar'2018	15.05	-	-	-	-	-	15.05	-	-	-	-	-	-	-	2.00	0.12			0.00				2.12					
SI15CHANDU	TOO / CE/Trans/ MS No.2 Dated 04.02.2015	132/33 kV Substation at Chandulapur Village of Chinnakodur Mandal in Medak District along with connected lines		Apr'2016	Mar'2017	18.25	-	-	-	-	-	18.25	-	-	-	-	-	-	-	12.51	0.75			0.00				13.26					
SI15L2DHAR	TOO / CE/Trans/ MS No.72 Dated 17.04.2015	Providing second source of supply to 132/33 kV Sub-Station, Dharmapuri in Karimnagar District		Nov'2016	March'2017	4.60	-	-	-	-	-	4.60	-	-	-	-	-	-	-	4.00	0.24			0.00				4.24					
SI11WADAPA	TOO / CE/Trans/ MS No.106 Dated 17.06.2015	Shifting of 132 kV SS at Wadapally by erection of 132 kV SS at Wadapally (New) in place of existing Wadapally SS and 132 kV LILO arrangements to 132/33 kV SS Wadapally (NEW) in Nalgonda district.		Apr'2013	Jun'2016	11.41	-	-	-	-	-	11.41	-	-	5.00	-	-	-	REC	4.00	0.24			0.00				10.32					
SI15LNHZRB	TOO / CE/Trans/ MS No. 136 Dated 27.07.2015	Erection of 132 kV line for making LILO of both of the circuits of existing 132 KV Husnabad-Huzurabad DC line at 220/132 kV LI Substation Huzurabad and Erection of 1 No. 100 MVA additional PTR at 220/132 kV LI SS, Huzurabad with equipment totalling to 2 X 100 MVA.		Sep'2016	Jul'2017	18.00	-	-	-	-	-	18.00	-	-	-	-	-	-	-	10.00	0.60			0.00				10.60					
SI15LNIRIZ	TOO / CE/Trans/ MS No. 137 Dated 29.07.2015	132 kV line from 220 kV Jurala Sub-Station to 132 kV Ieeza Sub-Station under the program of providing 9.00 Hrs agricultural supply during day time.		Jan'2017	Dec'2017	16.54	-	-	-	-	-	16.54	-	-	-	-	-	-	-	1.00	0.06			0.00				1.06					
SI15JANGAP	TOO / CE/Trans/ MS No. 140 Dated 30.07.2015	132/33 kV Sub-Station at Jangapally of Bejjanki Mandal in Karimnagar District.		Mar'2017	Apr'2018	19.79	-	-	-	-	-	19.79	-	-	0.17	-	-	-	-	0.50	0.03			0.00				0.53					

Form 1.1d: INVESTMENT PLAN

Base Year:2016-17

ANNEXURE-IV (c)
RENOVATION & MODERNISATION SCHEME
 This form captures investments as planned and actually incurred
 Please fill in the required details pertaining to each year

(Rs. in crores)

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks				
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual										
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred		Other expense incurred	Percentage capitalisation		
	Renovation, Modernisation & Improvement (RMI)	Replacement of 220 KV Circuit Breakers 1 Nos., 132 KV Circuit Breakers 20 Nos. and 33 KV Circuit Breakers 17 Nos.	Renovation, Modernisation, improvement, replacement of aged & obsolete equipments and strengthening works	Apr'2016	Mar'2017	3.17			Inclusive	Inclusive	0.05	3.22			3.17	10.75%	2 Years	10 Years	REC	3.22	0.19		100%	3.22				100%	3.22				100%	
		Replacement of 220 KV CTs 8 Nos., 132 KV CTs 40 Nos. and 33 KV CTs 33 Nos.	-do-	Apr'2016	Mar'2017	2.20			Inclusive	Inclusive	0.03	2.23			2.20	10.75%	2 Years	10 Years	REC	2.23	0.13		100%	2.23				100%	2.23				100%	
		Replacement of 220 KV PTs 2 Nos., 132 KV PTs 8 Nos. and 33 KV PTs 7 Nos.	-do-	Apr'2016	Mar'2017	0.31			Inclusive	Inclusive	0.00	0.31			0.31	10.75%	2 Years	10 Years	REC	0.31	0.02		100%	0.31				100%	0.31				100%	
		Replacement of 220 KV CVTs 3 Nos., 132 KV CVTs 7 Nos. and 33 KV CVTs 2 Nos.	-do-	Apr'2016	Mar'2017	0.33			Inclusive	Inclusive	0.00	0.33			0.33	10.75%	2 Years	10 Years	REC	0.33	0.02		100%	0.33				100%	0.33				100%	
		Replacement of 220 KV LAs 7 Nos., 132 KV LAs 50 Nos. and 33 KV LAs 47 Nos.	-do-	Apr'2016	Mar'2017	0.37			Inclusive	Inclusive	0.01	0.38			0.37	10.75%	2 Years	10 Years	REC	0.38	0.02		100%	0.38				100%	0.38				100%	
		Replacement of 220 KV Isolators 15 Nos., 132 KV Isolators 60 Nos. and 33 KV Isolators 53 Nos.	-do-	Apr'2016	Mar'2017	1.58			Inclusive	Inclusive	0.02	1.60			1.58	10.75%	2 Years	10 Years	REC	1.60	0.10		100%	1.60				100%	1.60				100%	
		Replacement of 220 KV Conductors (For Bus strining) 1 Km., 132 KV Conductors (For Bus strining) 5 Km., and 33 KV Conductors (For Bus strining) 1 Km.	-do-	Apr'2016	Mar'2017	0.53			Inclusive	Inclusive	0.01	0.54			0.53	10.75%	2 Years	10 Years	REC	0.54	0.03		100%	0.54				100%	0.54				100%	
		Replacement of 220 KV Relays 2 Nos., 132 KV Relays 29 Nos. and 33 KV Relays 27 Nos.	-do-	Apr'2016	Mar'2017	0.24			Inclusive	Inclusive	0.00	0.24			0.24	10.75%	2 Years	10 Years	REC	0.24	0.01		100%	0.24				100%	0.24				100%	
		Replacement of 132 KV PTR C&R Panels 8 Nos. and 33 KV PTR C&R Panels 3 Nos.	-do-	Apr'2016	Mar'2017	1.04			Inclusive	Inclusive	0.02	1.06			1.04	10.75%	2 Years	10 Years	REC	1.06	0.06		100%	1.06				100%	1.06				100%	
		Replacement of 220 KV Feeders C&R panels 1 Nos., 132 KV Feeders C&R panels 3 Nos. and 33 KV Feeders C&R panels 6 Nos.	-do-	Apr'2016	Mar'2017	0.84			Inclusive	Inclusive	0.01	0.85			0.84	10.75%	2 Years	10 Years	REC	0.85	0.05		100%	0.85				100%	0.85				100%	
		Replacement of 132 KV Capacitor bank 3 Nos. and 33 KV Capacitor bank 8 Nos.	-do-	Apr'2016	Mar'2017	1.13			Inclusive	Inclusive	0.02	1.15			1.13	10.75%	2 Years	10 Years	REC	1.15	0.07		100%	1.15				100%	1.15				100%	
		Replacement of 220 KV Zebra ACSR Conductor 31.23 Km., 132 KV Zebra ACSR Conductor 18.27 Km.	-do-	Apr'2016	Mar'2017	7.34			Inclusive	Inclusive	0.11	7.45			7.34	10.75%	2 Years	10 Years	REC	7.45	0.45		100%	7.45				100%	7.45				100%	
		Replacement of 132 KV Panther ACSR Conductor 49.33 Km.	-do-	Apr'2016	Mar'2017	9.24			Inclusive	Inclusive	0.14	9.38			9.24	10.75%	2 Years	10 Years	REC	9.38	0.56		100%	9.38				100%	9.38				100%	
		Replacement of 220 KV Moose ACSR Conductor 5.4 Km.	-do-	Apr'2016	Mar'2017	1.41			Inclusive	Inclusive	0.02	1.43			1.41	10.75%	2 Years	10 Years	REC	1.43	0.09		100%	1.43				100%	1.43				100%	
		Replacement of 132 KV Panther AAAC Conductor 56.67 Km.	-do-	Apr'2016	Mar'2017	14.78			Inclusive	Inclusive	0.23	15.00			14.78	10.75%	2 Years	10 Years	REC	15.00	0.90		100%	15.00				100%	15.00				100%	

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks		
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual								
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred		Other expense incurred	Percentage capitalisation
		Replacement of 220 KV Insulators 1371 Nos., 132 KV Insulators 1466 Nos. and 33 KV Insulators 472 Nos.	-do-	Apr'2016	Mar'2017	0.12			Inclusive	Inclusive	0.00	0.12			0.12	10.75%	2 Years	10 Years	REC	0.12	0.01		100%	0.12			100%	0.12			100%	
		Replacement of 220 KV GI steel wire 10 Km., 132 KV GI steel wire 30 Km.	-do-	Apr'2016	Mar'2017	0.42			Inclusive	Inclusive	0.01	0.43			0.42	10.75%	2 Years	10 Years	REC	0.43	0.03		100%	0.43			100%	0.43			100%	
		Replacement of 220 KV HTGS steel wire 10.7 Km., 132 KV HTGS steel wire 30.1 Km. and 33 KV HTGS steel wire 17.76 Km.	-do-	Apr'2016	Mar'2017	0.42			Inclusive	Inclusive	0.01	0.43			0.42	10.75%	2 Years	10 Years	REC	0.43	0.03		100%	0.43			100%	0.43			100%	
		Replacement of 220 KV Towers 5 Nos., and 132 KV Towers 26 Nos.	-do-	Apr'2016	Mar'2017	3.90			Inclusive	Inclusive	0.06	3.96			3.90	10.75%	2 Years	10 Years	REC	3.96	0.24		100%	3.96			100%	3.96			100%	
			GRAND TOTAL			49.36						50.11								50.11	3.01			50.11				50.11				

LIFT IRRIGATION SCHEMES

Form 1.1d: INVESTMENT PLAN

Base Year:2016-17

Rs. in Crores

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks			
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual									
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred		Other expense incurred	Percentage capitalisation	
	Bulk Load/DC Works	Godavari LIS	Extension of power supply to Lift Irrigation project taken up by Govt. of TS	Apr-06	Mar-16	442.55						442.55			345.55					Govt. of TS Grants	0.00				0.00				9.31				
	Bulk Load/DC Works	Sripada sagar LIS	-do-	Nov-08	Mar-16	189.36						189.36			106.94					Govt. of TS Grants	1.80				1.80				1.80				
	Bulk Load/DC Works	Koilsagar Lift Irrigation Scheme	-do-	-	Mar-16															Govt. of TS Grants								1.08					
	Bulk Load/DC Works	Thotapally Reservoir to Gouravelly Reservoir LIS (220/132kV Huzurabad SS and CL)	-do-	Feb-14	Mar-16	69.70						69.70								Govt. of TS Grants	2.00				2.00				19.70				
	Bulk Load/DC Works	Indirasagar Rudrammakota LIS	-do-	Aug-14	Mar-17	290.00						290.00			145.00					Govt. of TS Grants	40.54				40.54				118.21				
	Bulk Load/DC Works	Kaleshwaram Lift Irrigation Project	-do-	Aug-16	Mar-17	3283.88						3283.88			3283.88					Govt. of TS Grants	150.00				150.00				150.00				
	Bulk Load/DC Works	Bhaktha Ramadasu Lift Irrigation Scheme	-do-	Jul-16	Mar-17	30.84						30.84			30.84					Govt. of TS Grants	24.09				24.09				24.09				
	Bulk Load/DC Works	AMRP LLC Lift Irrigation Project at Puliathanda	-do-	Jan-16	Dec-16	3.91						3.91			3.91					Govt. of TS Grants	3.91				3.91				3.91				
		Grand Total				4310.24						4310.24			3985.82						222.34				222.34				328.10				

TRANSMISSION (220kV & 132kV)

Form 1.1d: INVESTMENT PLAN

Base Year:2017-18

Rs. In Crores

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks			
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contigency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual									
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr.)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred		Other expense incurred	Percentage capitalisation	
SI0813AMCH	APT/TS/132 kV SS Amarchinta / F-INVST - 08/2011	132 kV SS at Amarchinta along with connected 132 kV DC/SC Line from Jurala SS - Amarchinta SS		Dec'2010	Jun'2017	15.55	-	-	-	-	-	15.55			15.55	10.95	2 Yrs	10 Yrs	Uco Bank	1.00	0.35			1.00				1.35					
PE10MAGA27	APT/TS/132kv -Makthal-Gadwal LILO-Invst-2/2012	Laying of LILO of 2nd Ckt Makthal-Gadwal to 220kV Jurala SS (TOO 350, dt. 27.11.2010)		Dec'2016	Oct'2017	7.61	-	-	-	-	-	7.61			7.61	10.75%	2 yrs	10 Yrs	REC	1.50	0.60			1.00				8.03					
SI10NVPJURA	APT/TS/132kv SS-N.V.Puram/F-INVST-11/2012	132kv ss N.V.Puram & connected lines		Aug'2016	Feb'2018	18.01	-	-	-	-	-	18.01			10.55	12.00	3 Yrs	10 Yrs	REC	7.00	1.47			1.00				18.53					
SI10LGMPT	APT/TS/132kv SS- LGM Peta/F-INVST-17/2012 (Revised approval awaited)	132KV SS LGM Pet & connected lines		Sep'2011	Apr'2017	35.51	-	-	-	-	-	35.51			14.79	10.95	2 Yrs	10 Yrs	Uco Bank	7.00	1.55			1.00				35.97					
SI10TOOPRA	APT/TS/132kv SS-Toopranpet/F-INVST-21/2012	132 kV SS Toopranpet & connected lines		Dec'2016	Dec'2017	18.50	-	-	-	-	-	18.50			18.50	12.00	-	-	REC	17.00	0.81			1.00				18.32					
SI10NIM132	-	132 kV SS NIMS & connected lines		Aug'2014	Jun'2017	85.36	-	-	-	-	-	85.36			85.36	12.00	3 Yrs	10 Yrs	PFC	1.00	0.00			1.00				1.00					
SI11DONTA	APT/TS/132 kV SS - Donthanpalli/F-INVST - 6/2013	132kv SS Donthanpally & connected lines		Oct'2016	Aug'2017	30.80	-	-	-	-	-	30.80			23.28	12.00	3 Yrs	10 Yrs	REC	15.00	0.88			1.00				30.88					
SI11YELDUR	APT/TS/132 kV SS -Yeldurthy/F-INVST - 7/2013	132 kV SS Yeldurthy & connected lines		Aug'2016	Aug'2017	17.89	-	-	-	-	-	17.89			17.27	10.75	3 Yrs	12 Yrs	NABARD	15.00	0.48			1.00				17.50					
SI12LYEDM	APT/TS/ 132 / Yeddumailaram - Pashamailaram / F-INVST-27 /2013	132 kV DC/SC interlinking lines between substations 220 kV Yeddumailaram - 132 kV Pashamailaram (TOO 61, dt. Dt. 25.05.2016)		Dec'2016	Dec'2017	9.31	-	-	-	-	-	9.31			9.31	10.75%	2 yrs	10 Yrs	REC	8.50	0.57			1.00				9.58					
SI11HUZURN	APT/TS/220/132kV - Huzurnagar/F-INVST-01/2014	220/132kV SS Huzurnagar & connected lines		Feb'2016	May'2017	52.49	-	-	-	-	-	52.49			52.49	12.00	3 Yrs	15 Yrs	PFC	10.00	0.66			1.00				48.44					
SI14KHAITA	APT/TS/132kVSSKhaitalapur / F-INVST-4/2014	Erection of 132/33 kV Substation at Khaitalapur along with connected lines		Jul'2016	May'2017	66.04	-	-	-	-	-	66.04			59.09	-	-	-	REC	58.00	0.65			1.00				62.15					
SI11NIMMAP	APT/TS/132 kV SS -Nimmapalli/ F-INVST -06/2014	132kV SS Nimmapally & connected lines		Dec'2016	Sep'2017	25.35	-	-	-	-	-	25.35			37.10	12.00	3 Yrs	12 Yrs	NABARD	18.00	0.78			1.00				22.84					
SI11NELLIK	APT/TS/132kV SS-Nellikuduru/F-INVST-07/2014	132kV SS Nellikuduru & connected lines		Jun'2016	Jun'2017	21.21	-	-	-	-	-	21.21			17.85	12.00	3 Yrs	10 Yrs	REC	5.00	0.37			1.00				5.37					
SI12INAVOL	APT/TS/132kV SS-Inavole/ F-INVST-15/2014	132kV SS Inavole & connected lines		Sep'2016	Jul'2017	24.11	-	-	-	-	-	24.11			24.11	12.00	3 Yrs	10 Yrs	REC	16.00	0.56			1.00				22.56					
SI13DOMMAR	TST/TS/132kV SS/ Dommarapochampalli /F-INVST-04/2015	132KV Dommarapochampally & connected lines		Aug'2014	Jul'2017	28.72	-	-	-	-	-	28.72			32.35	12.00	3 Yrs	10 Yrs	REC	25.00	0.52			1.00				26.21					
SI13KANDUK	TST/TS/132 kV SS-Kandukuru/ F-INVST-05/2015	132 kV SS Kandukuru & connected lines		Sep'2016	Jul'2017	22.75	-	-	-	-	-	22.75			22.75	10.75%	2 yrs	10 Yrs	REC	6.00	0.72			1.00				21.73					
SI15ASWARA	TST/TS/ 132/33 kV Aswaraopet SS Up-Gradation to 220/132 kV / F-INVST- 7/2015	Up-Gradation of 132/33 kV SS Aswaraopet to 220/132 kV SS		Jan'2017	Apr'2018	52.82	-	-	-	-	-	52.82			52.82	10.75%	2 yrs	10 Yrs	REC	25.00	2.70			1.00				37.70					
SI14TOOPRA	TST/TS/132 kV SS- 220 kV Toopran, 132 kV Ganeshpally & 132 kV Duddeda SS / F-INVST-07/2015	220/132/33 kV Substation at Toopran in Medak District along with connected lines		Jan'2016	Dec'2017	76.78	-	-	-	-	-	76.78			57.20	10.75%	2 yrs	10 Yrs	REC	40.00	2.70			1.00				52.70					
SI15IBRAHI	TST/TS/132/33kV SS Ibrahimbagh / F-INVST- 11/2015	132/33 kV Substation at Ibrahimbagh along with connected lines		Jan'2017	Mar'2018	37.17	-	-	-	-	-	37.17			37.17	10.75%	2 yrs	10 Yrs	REC	25.00	1.97			1.00				30.97					
SI15LNHZRB	TOO / CE/Trans/ MS No. 136 Dated 27.07.2015	Erection of 132 kV line for making LILO of both of the circuits of existing 132 KV Husnabad-Huzurabad DC line at 220/132 kV LI Substation Huzurabad and Erection of 1 No. 100 MVA additional PTR at 220/132 kV LI SS, Huzurabad with equipment totalling to 2 X 100 MVA.		Sep'2016	Jul'2017	18.00	-	-	-	-	-	18.00			18.00	10.75%	2 yrs	10 Yrs	REC	5.00	0.37			1.00				5.37					
SI11RAIDUR	TST/TS/ 220/132 kV SS Raidurg / F-INVST- 1/2016	220/132 kV SS at Raidurg in Ranga Reddy district		Dec'2016	Dec'2017	158.60	-	-	-	-	-	158.60			158.60	10.75%	2 yrs	10 Yrs	REC	100.00	4.95			1.00				114.95					
	TST/TS /132/33 kV SS Aipoor , Nalgonda /F-INVST- 01/2016-17	132/33 kV SS at Aipoor in Nalgonda district		Jan'2017	Jan'2018	21.32	-	-	-	-	-	21.32			21.32	10.75%	2 yrs	10 Yrs	REC	18.00	1.00			1.00				20.00					

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															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr.)	Proposed IDC	Proposed other expenses	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred		Other expense incurred	Percentage capitalisation		
SI13AYYAGA	TST/TS / 220/132 kV SS Ayyagaripally, Mahabubabad /F-INVST- 03/16 - 2016-17	220/132 kV SS at Ayyagaripally in Mahaboobabad in Warangal district		Mar'2016	Jul'2017	78.33	-	-	-	-	-	78.33			68.91	-	-	-	REC	20.00	1.19					1.00				21.19				
SI12MDPALL	TST/TS/132kV / MD Pally, Kattedan /F-INVST- 03/2016	132 kV SS MD Pally (Kattedan) & connected lines		Aug'2015	Apr'2017	38.02	-	-	-	-	-	38.02			33.86	12.00	3 Yrs	15 Yrs	PFC	15.00	0.00					1.00				35.16				
SI15NARAYA	TST/TS/132/33 kV SS - Narayanpet, Mahaboobnagar / Investment Approval No.5/16, 2016-17	132/33 kV Substation at Narayanpet in Mahaboobnagar District		Jul'2016	Jun'2018	21.23	-	-	-	-	-	21.23			21.23	10.75%	2 yrs	10 Yrs	REC	10.00	1.32					1.00				11.32				
-	TST/TS/ 220 kV Pedagogati SS / Investment approval No. 19/16-2016	Erection of 220/132/33 kV SS at Pedagogati in Khammam district		Jan'2017	Apr'2018	124.44	-	-	-	-	-	124.44			124.44	10.75%	2 yrs	10 Yrs	REC	50.00	6.00					1.00				81.00				
SI16KACHAV	Approval awaited	220/132/33 kV SS at Kachavani Singaram in Ghatkesar Mandal of Ranga Reddy district		Mar'2017	Jun'2018	46.04	-	-	-	-	-	46.04			46.04	10.75%	2 yrs	10 Yrs	REC	20.00	1.24					1.00				21.54				
-	Approval awaited	132/33 kV Sub-Station at Regonda in Warangal District.		Apr'2017	Apr'2018	22.11	-	-	-	-	-	22.11			22.11	10.75%	2 yrs	10 Yrs	REC	15.00	1.14					1.00				18.14				
-	TST/TS/ 220/132/33 kV / Substation, Borampet RR District/ INVST- No. 07/16 - 2016-17	220/132/33 kV Substation at Borampet in Ranga Reddy district		Dec'2016	Dec'2017	212.20	-	-	-	-	-	212.20			212.20	10.75%	2 yrs	10 Yrs	REC	150.00	8.10					1.00				173.10				
-	TOO / CE/Trans/ MS No.88, Dated 30.06.2016	132/33 kV Substation at Kotagiri in Nizamabad District.		Mar'2017	Mar'2018	15.05	-	-	-	-	-	15.05			15.05	10.75%	2 yrs	10 Yrs	REC	12.00	0.96					1.00				14.96				
SI15LNRIZ	TOO / CE/Trans/ MS No. 137 Dated 29.07.2015	132 kV line from 220 kV Jurala Sub-Station to 132 kV Ileeza Sub-Station under the program of providing 9.00 Hrs agricultural supply during day time.		Jan'2017	Dec'2017	16.54	-	-	-	-	-	16.54			16.54	10.75%	2 yrs	10 Yrs	REC	14.00	0.72					1.00				15.72				
SI15JANGAP	TOO / CE/Trans/ MS No. 140 Dated 30.07.2015	132/33 kV Sub-Station at Jangapally of Bejjanki Mandal in Karimnagar District.		Mar'2017	Apr'2018	19.79	-	-	-	-	-	19.79			0.17	10.75%	2 yrs	10 Yrs	REC	14.00	0.90					1.00				15.40				
-	TOO / CE/Trans/ MS No. 158 Dated 22.08.2015	Erection of 132 kV lines for making LILO of (i) 2nd Circuit of 132kV Warangal – Shapur Nagar DC line at 132kV SS Jangaon and (ii) 2nd Circuit of 132kV Warangal – Shapur Nagar DC line at 132kV SS Kolanpak		Mar'2017	Dec'2017	8.38	-	-	-	-	-	8.38			8.38	10.75%	2 yrs	10 Yrs	REC	3.00	0.59					1.00				8.59				
SI15L2DMKD	TOO / CE/Trans/ MS No. 162 Dated 26.08.2015	Stringing of 2nd circuit from 220/132 KV Kamareddy SS to 132 KVSS Domakonda and from 132 KVSS Domakonda to 132 KVSS Biknur under the program for providing 9.00 Hrs Day Time Supply for Agriculture		Mar'2017	Dec'2017	8.55	-	-	-	-	-	8.55			0.07	10.75%	2 yrs	10 Yrs	REC	5.00	0.50					1.00				8.50				
SI15LNBANS	TOO / CE/Trans/ MS No. 163 Dated 26.08.2015	Erection of 132 kV DC line for making LILO of one circuit of existing 132kV DC line from 132 KV SS Jakora to 132 KV SS Bichkunda at 132/33 kV SS Banskuda under the program for providing 9.00 Hrs Day Time Supply for Agriculture		Nov'2016	May'2017	8.00	-	-	-	-	-	8.00			0.07	10.75%	2 yrs	10 Yrs	REC	5.00	0.11					1.00				8.11				
SI15VELLAR	TOO / CE/Trans/ MS No. 173 Dated 7.09.2015	Erection of 132/33 kV Sub-Station at Gandimasani of Yellareddy Constituency in Nizamabad District.		Jul'2016	Aug'2017	15.89	-	-	-	-	-	15.89			0.13	10.75%	2 yrs	10 Yrs	REC	4.00	0.55					1.00				4.55				
SI15L2CNKT	TOO / CE/Trans/ MS No. 210 Dated 6.11.2015	Providing of alternate supply to 132 /33 kV SS Chennur and 132/33 kV SS Kataram from 220/132 kV SS, Manthani under the program for providing 9.00 Hrs Day Time Supply for Agriculture.		Mar'2017	Sep'2017	12.13	-	-	-	-	-	12.13			12.13	10.75%	2 yrs	10 Yrs	REC	2.00	0.54					1.00				2.54				
-	TOO / CE/Trans/ MS No. 231 Dated 21.12.2015	Erection of 132/33 kV Sub-Station at Sarangapur along with connected lines in Adilabad District.		Mar'2017	Apr'2018	19.93	-	-	-	-	-	19.93			19.93	10.75%	2 yrs	10 Yrs	REC	10.00	1.08					1.00				15.08				
-	TOO / CE/Trans/ MS No.62 Dated 25.04.2016	(i) 33 kV features at the existing 220 kV Switching Station, Nagaram, (ii) 33 kV Features at existing 220/11 kV LI Sub-Station, Bheemghanpur & (iii) 33 kV Features at existing 132/11 kV LI Sub-Station, Dharmasagar of Warangal District.		Jan'2017	Sep'2017	18.92	-	-	-	-	-	18.92			18.92	10.75%	2 yrs	10 Yrs	REC	8.00	0.72					1.00				8.72				
-	TOO / CE/Trans/ MS No.76 Dated 25.05.2016	132/33 kV Substation at Bachannapet in Warangal District		Apr'2017	May'2018	19.38	-	-	-	-	-	19.38			19.38	10.75%	2 yrs	10 Yrs	REC	12.00	0.72					1.00				12.72				

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks			
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contigency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual									
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr.)	Proposed IDC	Proposed other expenses	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred		Other expense incurred	Percentage capitalisation	
-	NORMAL PLAN	132/33 kV Substation at PTO, Petlaburz, Hyderabad District		Apr'2017	Mar'2018	100.00	-	-	-	-	-	100.00			100.00	10.75%	2 yrs	10 Yrs	REC	40.00	2.39			1.00				42.39					
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at Sitarambagh(GIS), Hyderabad district.		Jun'2017	May'2018	66.00	-	-	-	-	-	66.00			66.00	10.75%	2 yrs	10 Yrs	REC	25.00	1.50			1.00				26.50					
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at IDA Mallapur.		Jun'2017	May'2018	55.00	-	-	-	-	-	55.00			55.00	10.75%	2 yrs	10 Yrs	REC	18.00	1.08			1.00				19.08					
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at Moulali ZTS.		Jun'2017	May'2018	55.00	-	-	-	-	-	55.00			55.00	10.75%	2 yrs	10 Yrs	REC	20.00	1.20			1.00				21.20					
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at RP Nilayam(GIS).		Jun'2017	May'2018	54.00	-	-	-	-	-	54.00			54.00	10.75%	2 yrs	10 Yrs	REC	20.00	1.20			1.00				21.20					
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at Indian School of Business (ISB).		Jun'2017	May'2018	15.00	-	-	-	-	-	15.00			15.00	10.75%	2 yrs	10 Yrs	REC	8.00	0.48			1.00				8.48					
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at Tallapet		Jun'2017	May'2018	16.80	-	-	-	-	-	16.80			16.80	10.75%	2 yrs	10 Yrs	REC	6.00	0.36			1.00				6.36					
-	NORMAL PLAN	Erection of 220/33 kV Sub-Station at Chanchalguda		Jun'2017	May'2018	60.00	-	-	-	-	-	60.00			60.00	10.75%	2 yrs	10 Yrs	REC	30.00	1.80			1.00				31.80					
-	-	Augmentation of PTRs at various substations and strengthening of transmission lines		Apr'2017	Mar'2018	242.60	-	-	-	-	-	242.60			242.60	10.75%	2 yrs	10 Yrs	REC	175.98	10.53			1.00				186.51					
			GRAND TOTAL			2213.22						2213.22								1135.98	71.57			49.00				1451.99					

Form 1.1d: INVESTMENT PLAN

Base Year:2017-18

ANNEXURE-IV (c)
RENOVATION & MODERNISATION SCHEME
This form captures investments as planned and actually incurred
Please fill in the required details pertaining to each year

(Rs. in crores)

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks				
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MON-YY)	Project Completion date (DD-MON-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year				Annual				Annual											
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred		Other expense incurred	Percentage capitalisation		
	Renovation, Modernisation & Improvement (RMI)	Replacement of 220 KV Circuit Breakers 1 Nos., 132 KV Circuit Breakers 20 Nos. and 33 KV Circuit Breakers 17 Nos.	Renovation, Modernisation, improvement, replacement of aged & obsolete equipments and strengthening works	Apr'2017	Mar'2018	3.17			Inclusive	Inclusive	0.05	3.22			3.17	10.75%	2 Years	10 Years	REC	3.22	0.19		100%	3.22				100%	3.22				100%	
		Replacement of 220 KV CTs 7 Nos., 132 KV CTs 41 Nos. and 33 KV CTs 33 Nos.	-do-	Apr'2017	Mar'2018	2.20			Inclusive	Inclusive	0.03	2.23			2.20	10.75%	2 Years	10 Years	REC	2.23	0.13		100%	2.23				100%	2.23				100%	
		Replacement of 220 KV PTs 2 Nos., 132 KV PTs 9 Nos. and 33 KV PTs 8 Nos.	-do-	Apr'2017	Mar'2018	0.31			Inclusive	Inclusive	0.00	0.31			0.31	10.75%	2 Years	10 Years	REC	0.31	0.02		100%	0.31				100%	0.31				100%	
		Replacement of 220 KV CVTs 4 Nos., 132 KV CVTs 6 Nos. and 33 KV CVTs 1 Nos.	-do-	Apr'2017	Mar'2018	0.33			Inclusive	Inclusive	0.00	0.33			0.33	10.75%	2 Years	10 Years	REC	0.33	0.02		100%	0.33				100%	0.33				100%	
		Replacement of 220 KV LAs 8 Nos., 132 KV LAs 50 Nos. and 33 KV LAs 47 Nos.	-do-	Apr'2017	Mar'2018	0.37			Inclusive	Inclusive	0.01	0.38			0.37	10.75%	2 Years	10 Years	REC	0.38	0.02		100%	0.38				100%	0.38				100%	
		Replacement of 220 KV Isolators 15 Nos., 132 KV Isolators 61 Nos. and 33 KV Isolators 53 Nos.	-do-	Apr'2017	Mar'2018	1.58			Inclusive	Inclusive	0.02	1.60			1.58	10.75%	2 Years	10 Years	REC	1.60	0.10		100%	1.60				100%	1.60				100%	
		Replacement of 220 KV Conductors (For Bus strining) 1.6 Km., 132 KV Conductors (For Bus strining) 4.26 Km. and 33 KV Conductors (For Bus strining) 0.63 Km.	-do-	Apr'2017	Mar'2018	0.53			Inclusive	Inclusive	0.01	0.54			0.53	10.75%	2 Years	10 Years	REC	0.54	0.03		100%	0.54				100%	0.54				100%	
		Replacement of 220 KV Relays 1 Nos., 132 KV Relays 30 Nos. and 33 KV Relays 28 Nos.	-do-	Apr'2017	Mar'2018	0.24			Inclusive	Inclusive	0.00	0.24			0.24	10.75%	2 Years	10 Years	REC	0.24	0.01		100%	0.24				100%	0.24				100%	
		Replacement of 132 KV C&R Panels PTRs 9 Nos. and 33 KV C&R Panels PTRs 3 Nos.	-do-	Apr'2017	Mar'2018	1.04			Inclusive	Inclusive	0.02	1.06			1.04	10.75%	2 Years	10 Years	REC	1.06	0.06		100%	1.06				100%	1.06				100%	
		Replacement of 132 KV Feeders C&R panels 3 Nos. and 33 KV Feeders C&R panels 7 Nos.	-do-	Apr'2017	Mar'2018	0.84			Inclusive	Inclusive	0.01	0.85			0.84	10.75%	2 Years	10 Years	REC	0.85	0.05		100%	0.85				100%	0.85				100%	
		Replacement of 132 KV Capacitor bank 3 Nos. and 33 KV Capacitor bank 7 Nos.	-do-	Apr'2017	Mar'2018	1.13			Inclusive	Inclusive	0.02	1.15			1.13	10.75%	2 Years	10 Years	REC	1.15	0.07		100%	1.15				100%	1.15				100%	
		Replacement of 220 KV Zebra ACSR Conductor 31.23 Km., and 132 KV Zebra ACSR Conductor 18.27 Km.	-do-	Apr'2017	Mar'2018	7.34			Inclusive	Inclusive	0.11	7.45			7.34	10.75%	2 Years	10 Years	REC	7.45	0.45		100%	7.45				100%	7.45				100%	

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks		
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MON-YY)	Project Completion date (DD-MON-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year				Annual				Annual									
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred		Other expense incurred	Percentage capitalisation
		Replacement of 132 KV Panther ACSR Conductor 49.33 Km.	-do-	Apr'2017	Mar'2018	9.24			Inclusive	Inclusive	0.14	9.38			9.24	10.75%	2 Years	10 Years	REC	9.38	0.56		100%	9.38			100%	9.38			100%	
		Replacement of 220 KV Moose ACSR Conductor 5.4 Km.,	-do-	Apr'2017	Mar'2018	1.41			Inclusive	Inclusive	0.02	1.43			1.41	10.75%	2 Years	10 Years	REC	1.43	0.09		100%	1.43			100%	1.43			100%	
		Replacement of 132 KV Panther ACSR Conductor 56.67 Km.	-do-	Apr'2017	Mar'2018	14.78			Inclusive	Inclusive	0.23	15.00			14.78	10.75%	2 Years	10 Years	REC	15.00	0.90		100%	15.00			100%	15.00			100%	
		Replacement of 220 KV Insulators 1371 Nos., 132 KV Insulators 1466 Nos. and 33 KV Insulators 472 Nos.	-do-	Apr'2017	Mar'2018	0.12			Inclusive	Inclusive	0.00	0.12			0.12	10.75%	2 Years	10 Years	REC	0.12	0.01		100%	0.12			100%	0.12			100%	
		Replacement of 220 KV GI steel wire 10 Km., 132 KV GI steel wire 30 Km.	-do-	Apr'2017	Mar'2018	0.42			Inclusive	Inclusive	0.01	0.43			0.42	10.75%	2 Years	10 Years	REC	0.43	0.03		100%	0.43			100%	0.43			100%	
		Replacement of 220 KV HTGS steel wire 10.7 Km., 132 KV HTGS steel wire 30.1 Km. and 33 KV HTGS steel wire 17.76 Km.	-do-	Apr'2017	Mar'2018	0.42			Inclusive	Inclusive	0.01	0.43			0.42	10.75%	2 Years	10 Years	REC	0.43	0.03		100%	0.43			100%	0.43			100%	
		Replacement of 220 KV Towers 5 Nos., and 132 KV Towers 26 Nos.	-do-	Apr'2017	Mar'2018	3.90			Inclusive	Inclusive	0.06	3.96			3.90	10.75%	2 Years	10 Years	REC	3.96	0.24		100%	3.96			100%	3.96			100%	
			GRAND TOTAL			49.36						50.11								50.11	3.01			50.11								

LIFT IRRIGATION SCHEMES

Form 1.1d: INVESTMENT PLAN

Base Year:2017-18

Rs. in Crores

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks			
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual									
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred		Other expense incurred	Percentage capitalisation	
	Bulk Load/DC Works	Godavari LIS (Gandiramaram, Bommakuru, Rangaraopalli)	Extension of power supply to Lift Irrigation project taken up by Govt. of TS	Apr-06	Mar-18	442.55						442.55							Govt. of TS Grants	60.00				60.00				60.00					
	Bulk Load/DC Works	Kaleshwaram Lift Irrigation Project (Medaram, Ramadugu, Sundilla, Medigadda, Annaram, Tippapur, Chandlapur, Tukkapur)	-do-	Aug-16	Mar-19	3283.88						3283.88							Govt. of TS Grants	2650.00				2650.00				2800.00					
	Bulk Load/DC Works	Lift Irrigation Scheme at Jogapur	-do-	Dec-16	Aug-18	45.12						45.12							Govt. of TS Grants	38.63				38.63				38.63					
	Bulk Load/DC Works	Dr. BRAPCSS LIS (Kanakapur)	-do-	Dec-16	Mar-19	31.00						31.00							Govt. of TS Grants	10.00				10.00				10.00					
		Grand Total				3802.55						3802.55								2758.63				2758.63				2908.63					

TRANSMISSION (220kV & 132kV)

Form 1.1d: INVESTMENT PLAN

Base Year:2018-19

Rs. in Crores

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks					
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contigency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual											
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr.)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr.)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs. Cr.)	IDC Incurred		Other expense incurred	Percentage capitalisation			
SI15ASWARA	TST/TS/ 132/33 kV Aswaraopet SS Up-Gradation to 220/132 kV / F-INVST- 7/2015	Up-Gradation of 132/33 kV SS Aswaraopet to 220/132 kV SS		Jan'2017	Apr'2018	52.82	-	-	-	-	-	52.82	-	-	5282.00	10.75%	2 yrs	10 Yrs	REC	12.00	0.40					12.00					47.40				
SI15NARAYA	TST/TS/132/33 kV SS - Narayanpet, Mahaboobnagar / Investment Approval No.5/16, 2016-17	132/33 kV Substation at Narayanpet in Mahaboobnagar District		Jul'2016	Jun'2018	21.23	-	-	-	-	-	21.23	-	-	2123.00	10.75%	2 yrs	10 Yrs	REC	0.00	0.47					0.00					0.47				
-	TST/TS/ 220 kV Pedagogoti SS / Investment approval No. 19/16-2016	Erection of 220/132/33 kV SS at Pedagogoti in Khammam district		Jan'2017	Apr'2018	124.44	-	-	-	-	-	124.44	-	-	12444.00	10.75%	2 yrs	10 Yrs	REC	7.00	0.76					7.00					122.76				
SI16KACHAV	Approval awaited	220/132/33 kV SS at Kachavani Singaram in Ghatkesar Mandal of Ranga Reddy district		Mar'2017	June'2018	46.04	-	-	-	-	-	46.04	-	-	4604.00	10.75%	2 yrs	10 Yrs	REC	20.00	0.90					20.00					46.20				
-	Approval awaited	132/33 kV Sub-Station at Regonda in Warangal District.		Dec'2016	Apr'2018	22.11	-	-	-	-	-	22.11	-	-	2211.00	10.75%	2 yrs	10 Yrs	REC	3.00	0.18					3.00					20.18				
SI15JANGAP	TOO / CE/Trans/ MS No. 140 Dated 30.07.2015	132/33 kV Sub-Station at Jangapally of Bejjanki Mandal in Karimnagar District.		Mar'2017	Apr'2018	19.79	-	-	-	-	-	19.79	-	-	1979.00	10.75%	2 yrs	10 Yrs	REC	4.50	0.16					4.50					19.16				
-	TOO / CE/Trans/ MS No. 231 Dated 21.12.2015	Erection of 132/33 kV Sub-Station at Sarangapur along with connected lines in Adilabad District.		Jan'2017	Apr'2018	19.93	-	-	-	-	-	19.93	-	-	1993.00	10.75%	2 yrs	10 Yrs	REC	5.00	0.16					5.00					19.16				
-	TOO / CE/Trans/ MS No.76 Dated 25.05.2016	132/33 kV Substation at Bachannapet in Warangal District		Apr'2017	May'2018	19.38	-	-	-	-	-	19.38	-	-	1938.00	10.75%	2 yrs	10 Yrs	REC	7.00	0.31					7.00					19.31				
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at Sitarambagh(GIS), Hyderabad district.		Jun'2017	May'2018	66.00	-	-	-	-	-	66.00	-	-	6600.00	10.75%	2 yrs	10 Yrs	REC	40.00	0.90					40.00					65.90				
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at IDA Mallapur.		Jun'2017	May'2018	55.00	-	-	-	-	-	55.00	-	-	5500.00	10.75%	2 yrs	10 Yrs	REC	18.00	0.54					18.00					53.54				
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at Moulali ZTS.		Jun'2017	May'2018	55.00	-	-	-	-	-	55.00	-	-	5500.00	10.75%	2 yrs	10 Yrs	REC	30.00	0.70					30.00					50.70				
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at RP Nilayam(GIS).		Jun'2017	May'2018	54.00	-	-	-	-	-	54.00	-	-	5400.00	10.75%	2 yrs	10 Yrs	REC	28.00	0.68					28.00					48.68				
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at Indian School of Business (ISB).		Jun'2017	May'2018	15.00	-	-	-	-	-	15.00	-	-	1500.00	10.75%	2 yrs	10 Yrs	REC	7.00	0.23					7.00					15.23				
-	NORMAL PLAN	Erection of 132/33 kV Sub-Station at Tallapet		Jun'2017	May'2018	16.80	-	-	-	-	-	16.80	-	-	1680.00	10.75%	2 yrs	10 Yrs	REC	10.00	0.22					10.00					16.22				
-	NORMAL PLAN	Erection of 220/33 kV Sub-Station at Chanchalguda		Jun'2017	May'2018	60.00	-	-	-	-	-	60.00	-	-	6000.00	10.75%	2 yrs	10 Yrs	REC	43.00	1.03					43.00					74.03				
-	NORMAL PLAN	Substations proposed to match the load demand due to Unforeseen growth in Commercial, Residential in view of Urbanisation and Industrial development		-	-	100.00	-	-	-	-	-	100.00	-	-	10000.00	10.75%	2 yrs	10 Yrs	REC	100.00	6.00					100.00					106.00				
-	-	Augmentation of PTRs at various substations and strengthening of transmission lines		Apr'2018	Mar'2019	107.38	-	-	-	-	-	107.38	-	-	10738.08	10.75%	2 yrs	10 Yrs	REC	129.31	7.74					129.31					137.05				
			GRAND TOTAL			854.92						854.92									463.81	21.38				463.81					861.99				

Form 1.1d: INVESTMENT PLAN

ANNEXURE-IV (c)
RENOVATION & MODERNISATION SCHEME
 This form captures investments as planned and actually incurred
 Please fill in the required details pertaining to each year

Base Year:2018-19

(Rs. in crores)

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING						Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks			
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YYYY)	Project Completion date (DD-MM-YYYY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual										
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred		Percentage capitalisation		
	Renovation, Modernisation & Improvement (RMI)	Replacement of 220 KV Circuit Breakers 1 Nos., 132 KV Circuit Breakers 20 Nos. and 33 KV Circuit Breakers 17 Nos.	Renovation, Modernisation, improvement, replacement of aged & obsolete equipments and strengthening works	Apr'2018	Mar'2019	3.17			Inclusive	Inclusive	0.05	3.22			3.17	10.75%	2 Years	10 Years	REC	3.22	0.19		100%	3.22				100%	3.22				100%	
		Replacement of 220 KV CTs 8 Nos., 132 KV CTs 40 Nos. and 33 KV CTs 33 Nos.	-do-	Apr'2018	Mar'2019	2.20			Inclusive	Inclusive	0.03	2.23			2.20	10.75%	2 Years	10 Years	REC	2.23	0.13		100%	2.23				100%	2.23				100%	
		Replacement of 220 KV PTs 2 Nos., 132 KV PTs 8 Nos. and 33 KV PTs 7 Nos.	-do-	Apr'2018	Mar'2019	0.31			Inclusive	Inclusive	0.00	0.31			0.31	10.75%	2 Years	10 Years	REC	0.31	0.02		100%	0.31				100%	0.31				100%	
		Replacement of 220 KV CVTs 3 Nos., 132 KV CVTs 7 Nos. and 33 KV CVTs 2 Nos.	-do-	Apr'2018	Mar'2019	0.33			Inclusive	Inclusive	0.00	0.33			0.33	10.75%	2 Years	10 Years	REC	0.33	0.02		100%	0.33				100%	0.33				100%	
		Replacement of 220 KV LAs 7 Nos., 132 KV LAs 50 Nos. and 33 KV LAs 47 Nos.	-do-	Apr'2018	Mar'2019	0.37			Inclusive	Inclusive	0.01	0.38			0.37	10.75%	2 Years	10 Years	REC	0.38	0.02		100%	0.38				100%	0.38				100%	
		Replacement of 220 KV Isolators 15 Nos., 132 KV Isolators 60 Nos. and 33 KV Isolators 53 Nos.	-do-	Apr'2018	Mar'2019	1.58			Inclusive	Inclusive	0.02	1.60			1.58	10.75%	2 Years	10 Years	REC	1.60	0.10		100%	1.60				100%	1.60				100%	
		Replacement of 220 KV Conductors (For Bus strining) 1 Km., 132 KV Conductors (For Bus strining) 5 Km. and 33 KV Conductors (For Bus strining) 1 Km.	-do-	Apr'2018	Mar'2019	0.53			Inclusive	Inclusive	0.01	0.54			0.53	10.75%	2 Years	10 Years	REC	0.54	0.03		100%	0.54				100%	0.54				100%	
		Replacement of 220 KV Relays 2 Nos., 132 KV Relays 29 Nos. and 33 KV Relays 27 Nos.	-do-	Apr'2018	Mar'2019	0.24			Inclusive	Inclusive	0.00	0.24			0.24	10.75%	2 Years	10 Years	REC	0.24	0.01		100%	0.24				100%	0.24				100%	
		Replacement of 132 KV C&R Panels PTRs 8 Nos. and 33 KV C&R Panels PTRs 3 Nos.	-do-	Apr'2018	Mar'2019	1.04			Inclusive	Inclusive	0.02	1.06			1.04	10.75%	2 Years	10 Years	REC	1.06	0.06		100%	1.06				100%	1.06				100%	
		Replacement of 220 KV Feeders C&R panels 1 Nos., 132 KV Feeders C&R panels 3 Nos. and 33 KV Feeders C&R panels 6 Nos.	-do-	Apr'2018	Mar'2019	0.84			Inclusive	Inclusive	0.01	0.85			0.84	10.75%	2 Years	10 Years	REC	0.85	0.05		100%	0.85				100%	0.85				100%	
		Replacement of 132 KV Capacitor bank 3 Nos. and 33 KV Capacitor bank 8 Nos.	-do-	Apr'2018	Mar'2019	1.13			Inclusive	Inclusive	0.02	1.15			1.13	10.75%	2 Years	10 Years	REC	1.15	0.07		100%	1.15				100%	1.15				100%	

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks			
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YYYY)	Project Completion date (DD-MM-YYYY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year					Annual				Annual									
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred		Other expense incurred	Percentage capitalisation	
		Replacement of 220 KV Zebra ACSR Conductor 31.23 Km., and 132 KV Zebra ACSR Conductor 18.27 Km.	-do-	Apr'2018	Mar'2019	7.34			Inclusive	Inclusive	0.11	7.45			7.34	10.75%	2 Years	10 Years	REC	7.45	0.45		100%	7.45			100%	7.45			100%		
		Replacement of 132 KV Panther ACSR Conductor 49.33 Km.	-do-	Apr'2018	Mar'2019	9.24			Inclusive	Inclusive	0.14	9.38			9.24	10.75%	2 Years	10 Years	REC	9.38	0.56		100%	9.38			100%	9.38			100%		
		Replacement of 220 KV Moose ACSR Conductor 5.4 Km.	-do-	Apr'2018	Mar'2019	1.41			Inclusive	Inclusive	0.02	1.43			1.41	10.75%	2 Years	10 Years	REC	1.43	0.09		100%	1.43			100%	1.43			100%		
		Replacement of 132 KV Panther AAAC Conductor 56.67 Km.	-do-	Apr'2018	Mar'2019	14.78			Inclusive	Inclusive	0.23	15.00			14.78	10.75%	2 Years	10 Years	REC	15.00	0.90		100%	15.00			100%	15.00			100%		
		Replacement of 220 KV Insulators 1371 Nos., 132 KV Insulators 1466 Nos. and 33 KV Insulators 472 Nos.	-do-	Apr'2018	Mar'2019	0.13			Inclusive	Inclusive	0.00	0.13			0.13	10.75%	2 Years	10 Years	REC	0.13	0.01		100%	0.13			100%	0.13			100%		
		Replacement of 220 KV GI steel wire 10 Km., and 132 KV GI steel wire 30 Km.	-do-	Apr'2018	Mar'2019	0.41			Inclusive	Inclusive	0.01	0.42			0.41	10.75%	2 Years	10 Years	REC	0.42	0.03		100%	0.42			100%	0.42			100%		
		Replacement of 220 KV HTGS steel wire 10.7 Km., 132 KV HTGS steel wire 30.1 Km. and 33 KV HTGS steel wire 17.76 Km.	-do-	Apr'2018	Mar'2019	0.42			Inclusive	Inclusive	0.01	0.43			0.42	10.75%	2 Years	10 Years	REC	0.43	0.03		100%	0.43			100%	0.43			100%		
		Replacement of 220 KV Towers 5 Nos., 132 KV Towers 26 Nos.	-do-	Apr'2018	Mar'2019	3.90			Inclusive	Inclusive	0.06	3.96			3.90	10.75%	2 Years	10 Years	REC	3.96	0.24		100%	3.96			100%	3.96			100%		
			GRAND TOTAL			49.36						50.11								50.11	3.01			50.11				50.11					

LIFT IRRIGATION SCHEMES

Form 1.1d: INVESTMENT PLAN

Base Year:2018-19

Rs. in Crores

Code	Project Details					PLANNED CAPITAL EXPENDITURE							SOURCE OF FINANCING					Investments proposed for the year				Investments incurred in the year				Cumulative progress (Year on year)				Remarks			
	Project Code*	Project Title	Project Purpose**	Project Start Date (DD-MM-YY)	Project Completion date (DD-MM-YY)	Base Cost	Contingency	IDC	Duties	Taxes	Expense capitalised	TOTAL COST	Internal Accrual Component of capex in year	Equity Component of capex in year	Debt Component of capex in year				Annual				Annual										
															Loan Amount	Interest Rate	Moratorium Period	Repayment Period	Loan Source	Proposed investment in the year (Rs Cr)	Proposed IDC	Proposed other expense	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred	Other expense incurred	Percentage capitalisation	Actual investment in the year (Rs Cr)	IDC Incurred		Other expense incurred	Percentage capitalisation	
	Bulk Load/DC Work	Kaleshwaram Lift Irrigation Project (Ramadugu, Medaram, Subdilla, Medigadda, Annaram, Tippapur, Chandlapur, Tukkapur)	Extension of power supply to Lift Irrigation project taken up by Govt. of TS	Aug-14	Mar-19	3283.88						3283.88			3283.62					Govt. of TS Grants	483.00				483.00				3283.00				
	Bulk Load/	Dr. BRAPCSS LIS (Kanakapur)	-do-	Dec-16	Mar-19	31.00						31.00			31.00					Govt. of TS Grants	21.00				21.00				31.00				
		Grand Total				3314.88						3314.88			3314.62						504.00				504.00				3314.00				

Form 1.1(e) - Voltage wise asset base

This form refers to the gross and net asset base calculation

(Rs. in crores)

Particulars*	D Link	2016-17 (Base Year)	2017-18	2018-19
Gross Fixed Assets		Waiver Requested		
400 kV				
220 kV				
132 kV				
Accumulated Depreciation				
400 kV				
220 kV				
132 kV				
Net Fixed Assets				
400 kV				
220 kV				
132 kV				

2016-17 (Base Year)

Amount in Rs. Crores

Loan Type	Account Code	Loan Agency (Source of Loan)	Loan Code*	Related Project Code	Year of incurring loan	Moratorium Period (in years)	Tenure of Loan (in years)	Rate of Interest	Balance at the beginning of the year	Amount received during the year	Amount redeemed during the year	Balance outstanding at the end of the year	Interest Expense incurred during the year	Interest Expense paid till end of the year	Interest payment defaulted on	Principle payment defaulted on	Remarks
Secured Loans:																	
Bonds																	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Debentures																	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Funds from State Government																	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Other Secured Loans																	
	53.301	REC	Term Loan			2-3 Years	12-13 Years	8.00% to 14.50%	1900.07	1158.84	40.07	3018.84	257.17	257.17	0.00	0.00	
	53.710	PFC	Term Loan			2-3 Years	12-15 Years	9.50% to 14.25%	834.71	1054.02	146.33	1742.40	143.92	143.92	0.00	0.00	
	53.722	Federal Bank	Term Loan			1 Year	10 Years	10.75%	1.98		0.84	1.14	0.14	0.14	0.00	0.00	
	53.723	Canara Bank	Term Loan			1 Year	10 Years	10.25%	0.00			0.00	0.00	0.00	0.00	0.00	
	53.765	Oriental Bank of Commerce	Term Loan			2 Years	10 Years	11.25%	39.30	6.83	6.00	40.13	4.71	4.71	0.00	0.00	
	53.745	Andhra Bank	Term Loan			3 Years	10 Years	11.25%	0.00			0.00	0.00	0.00	0.00	0.00	
	53.746	Syndicate Bank	Term Loan			2 Years	10 Years	10.25%	10.12	21.22	2.25	29.09	2.91	2.91	0.00	0.00	
	53.755	Karur Vysya Bank	Term Loan			2 Years	10 Years	11.25%	20.26	16.47	5.96	30.77	2.42	2.42	0.00	0.00	
	53.756	Bank of Baroda	Term Loan			1-3 Years	10 Years	11.15%	80.45	26.88	26.05	81.28	8.35	8.35	0.00	0.00	
	53.764	Bank of Maharashtra	Term Loan			2 Years	10 Years	11.00%	0.00			0.00	0.00	0.00	0.00	0.00	
	53.766	Punjab & Sind Bank	Term Loan			2 Years	10 Years	11.00%	19.76		5.98	13.78	1.66	1.66	0.00	0.00	
	53.767	Allahabad Bank	Term Loan			2 Years	10 Years	11.15%	8.00	10.50	2.98	15.52	1.08	1.08	0.00	0.00	
	73.768	Bank of Rajasthan	Term Loan			2 Years	10 Years	11.15%	8.48		2.22	6.26	0.83	0.83	0.00	0.00	
	53.769	Karnataka Bank Ltd.	Term Loan			2 Years	10 Years	11.15%	9.65		2.90	6.75	0.92	0.92	0.00	0.00	
	53.770	Corporation Bank	Term Loan			2 Years	10 Years	11.25%	3.68		1.10	2.58	0.35	0.35	0.00	0.00	
	53.771	Union Bank of India	Term Loan			2 Years	10 Years	11.15%	3.83		0.96	2.87	0.39	0.39	0.00	0.00	
	53.775	UCO Bank	Term Loan			2 Years	10 Years	11.25%	52.13	52.11	10.67	93.57	6.70	6.70	0.00	0.00	
	53.531	NABARD	Term Loan			3 Years	10 Years	10.75%	77.41		3.15	74.26	7.83	7.83	0.00	0.00	
	53.776	South Indian Bank	Term Loan			2 Years	10 Years	11.50%	20.73	6.00	2.83	23.90	2.40	2.40	0.00	0.00	
	53.777	Tamilnadu Mercantile Bank	Term Loan			1-2 Years	10 Years	11.75%	7.94	10.69	1.94	16.69	1.69	1.69	0.00	0.00	
	53.778	Dena Bank	Term Loan			2 Years	10 Years	11.25%	28.65	2.22	3.04	27.83	3.14	3.14	0.00	0.00	
									3127.15	2365.78	265.27	5227.66	446.61	446.61	0.00	0.00	
									3127.15	2365.78	265.27	5227.66	446.61	446.61	0.00	0.00	
Unsecured Loans:																	
Bonds																	
		APSEB Bonds 2008							0.00			0.00		0.00	0.00	0.00	
		APSEB Bonds 2009							0.00			0.00		0.00	0.00	0.00	
		APTRANSCO Vidyut Bonds							0.00			0.00		0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Debentures																	
									0.00			0.00		0.00	0.00	0.00	
									0.00			0.00		0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Funds from State Government																	
	54.200	Govt. of Telangana	Term			1 Year	15 Years	9.50% - 10.25%	702.06		48.64	653.42	68.13	68.13	0.00	0.00	
									0.00			0.00		0.00	0.00	0.00	
									702.06	0.00	48.64	653.42	68.13	68.13	0.00	0.00	
Other Secured Loans																	
	52.501	LIC							0.00			0.00		0.00	0.00	0.00	
	53.610	VLC							0.00			0.00		0.00	0.00	0.00	
		Other Finance Charges										0.00		0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
									702.06	0.00	48.64	653.42	68.13	68.13	0.00	0.00	
									3829.21	2365.78	313.91	5881.08	514.74	514.74	0.00	0.00	

2017-18

Amount in Rs. Crores

Loan Type	Account Code	Loan Agency (Source of Loan)	Loan Code*	Related Project Code	Year of incurring loan	Moratorium Period (in years)	Tenure of Loan (in years)	Rate of Interest	Balance at the beginning of the year	Amount received during the year	Amount redeemed during the year	Balance outstanding at the end of the year	Interest Expense incurred during the year	Interest Expense paid till end of the year	Interest payment defaulted on	Principle payment defaulted on	Remarks
Secured Loans:																	
Bonds																	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Debentures																	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Funds from State Government																	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00			0.00	0.00	0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Other Secured Loans																	
	53.301	REC	Term Loan			2-3 Years	12-13 Years	8.00% to 14.50%	3018.84	993.79	118.99	3893.64	354.71	354.71	0.00	0.00	
	53.710	PFC	Term Loan			2-3 Years	12-15 Years	9.50% to 14.25%	1742.40	1263.79	175.65	2830.54	266.67	266.67	0.00	0.00	
	53.722	Federal Bank	Term Loan			1 Year	10 Years	10.75%	1.14		0.82	0.32	0.05	0.05	0.00	0.00	
	53.723	Canara Bank	Term Loan			1 Year	10 Years	10.25%	0.00		0.00	0.00	0.00	0.00	0.00	0.00	
	53.765	Oriental Bank of Commerce	Term Loan			2 Years	10 Years	11.25%	40.13		6.29	33.84	4.30	4.30	0.00	0.00	
	53.745	Andhra Bank	Term Loan			3 Years	10 Years	11.25%	0.00		0.00	0.00	0.00	0.00	0.00	0.00	
	53.746	Syndicate Bank	Term Loan			2 Years	10 Years	10.25%	29.09		4.68	24.41	5.55	5.55	0.00	0.00	
	53.755	Karur Vysya Bank	Term Loan			2 Years	10 Years	11.25%	30.77	5.00	9.02	26.75	3.25	3.25	0.00	0.00	
	53.756	Bank of Baroda	Term Loan			1-3 Years	10 Years	11.15%	81.28	29.50	31.23	79.55	9.24	9.24	0.00	0.00	
	53.764	Bank of Maharashtra	Term Loan			2 Years	10 Years	11.00%	0.00		0.00	0.00	0.00	0.00	0.00	0.00	
	53.766	Punjab & Sind Bank	Term Loan			2 Years	10 Years	11.00%	13.78		5.99	7.79	1.14	1.14	0.00	0.00	
	53.767	Allahabad Bank	Term Loan			2 Years	10 Years	11.15%	15.52	15.50	9.34	21.68	1.85	1.85	0.00	0.00	
	73.768	Bank of Rajasthan	Term Loan			2 Years	10 Years	11.15%	6.26		2.21	4.05	0.55	0.55	0.00	0.00	
	53.769	Karnataka Bank Ltd.	Term Loan			2 Years	10 Years	11.15%	6.75		2.90	3.85	0.61	0.61	0.00	0.00	
	53.770	Corporation Bank	Term Loan			2 Years	10 Years	11.25%	2.58		1.11	1.47	0.23	0.23	0.00	0.00	
	53.771	Union Bank of India	Term Loan			2 Years	10 Years	11.15%	2.87		0.96	1.91	0.27	0.27	0.00	0.00	
	53.775	UCO Bank	Term Loan			2 Years	10 Years	11.25%	93.57	217.00	38.04	272.53	21.50	21.50	0.00	0.00	
	53.531	NABARD	Term Loan			3 Years	10 Years	10.75%	74.26		6.34	67.92	3.46	3.46	0.00	0.00	
	53.776	South Indian Bank	Term Loan			2 Years	10 Years	11.50%	23.90		3.45	20.45	2.22	2.22	0.00	0.00	
	53.777	Tamilnadu Mercantile Bank	Term Loan			1-2 Years	10 Years	11.75%	16.69		2.18	14.51	1.71	1.71	0.00	0.00	
		Dena Bank	Term Loan			2 Years	10 Years	11.25%	27.83		3.10	24.73	2.89	2.89	0.00	0.00	
									5227.66	2524.58	422.30	7329.94	680.20	680.20	0.00	0.00	
									5227.66	2524.58	422.30	7329.94	680.20	680.20	0.00	0.00	
Unsecured Loans:																	
Bonds																	
		APSEB Bonds 2008							0.00			0.00			0.00	0.00	
		APSEB Bonds 2009							0.00			0.00			0.00	0.00	
		APTRANSCO Vidyut Bonds							0.00			0.00			0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Debentures																	
									0.00			0.00			0.00	0.00	
									0.00			0.00			0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Funds from State Government																	
	54.200	Govt. of Telangana	Term			1 Year	15 Years	9.50% - 10.25%	653.42		48.64	604.78	63.42	63.42	0.00	0.00	
									0.00			0.00			0.00	0.00	
									653.42	0.00	48.64	604.78	63.42	63.42	0.00	0.00	
Other Secured Loans																	
	52.501	LIC							0.00			0.00			0.00	0.00	
	53.610	VLC							0.00			0.00			0.00	0.00	
		Other Finance Charges							0.00			0.00			0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
									653.42	0.00	48.64	604.78	63.42	63.42	0.00	0.00	
									5881.08	2524.58	470.94	7934.72	743.62	743.62	0.00	0.00	

2018-19

Amount in Rs. Crores

Loan Type	Account Code	Loan Agency (Source of Loan)	Loan Code*	Related Project Code	Year of incurring loan	Moratorium Period (in years)	Tenure of Loan (in years)	Rate of Interest	Balance at the beginning of the year	Amount received during the year	Amount redeemed during the year	Balance outstanding at the end of the year	Interest Expense incurred during the year	Interest Expense paid till end of the year	Interest payment defaulted on	Principle payment defaulted on	Remarks
Secured Loans:																	
Bonds																	
									0.00			0.00			0.00	0.00	
									0.00			0.00			0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Debentures																	
									0.00			0.00			0.00	0.00	
									0.00			0.00			0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Funds from State Government																	
									0.00			0.00			0.00	0.00	
									0.00			0.00			0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Other Secured Loans																	
	53.301	REC	Term Loan			2-3 Years	12-13 Years	8.00% to 14.50%	3893.64	529.83	166.41	4257.06	429.53	429.53	0.00	0.00	
	53.710	PFC	Term Loan			2-3 Years	12-15 Years	9.50% to 14.25%	2830.54	1568.48	214.73	4184.29	427.12	427.12	0.00	0.00	
	53.722	Federal Bank	Term Loan			1 Year	10 Years	10.75%	0.32			0.32	0.00	0.00	0.00	0.00	
	53.723	Canara Bank	Term Loan			1 Year	10 Years	10.25%	0.00			0.00	0.00	0.00	0.00	0.00	
	53.765	Oriental Bank of Commerce	Term Loan			2 Years	10 Years	11.25%	33.84		6.29	27.55	3.60	3.60	0.00	0.00	
	53.745	Andhra Bank	Term Loan			3 Years	10 Years	11.25%	0.00			0.00	0.00	0.00	0.00	0.00	
	53.746	Syndicate Bank	Term Loan			2 Years	10 Years	10.25%	24.41		4.68	19.73	2.00	2.00	0.00	0.00	
	53.755	Karur Vysya Bank	Term Loan			2 Years	10 Years	11.25%	26.75		9.02	17.73	2.26	2.26	0.00	0.00	
	53.756	Bank of Baroda	Term Loan			1-3 Years	10 Years	11.15%	79.55	4.50	38.11	45.94	7.41	7.41	0.00	0.00	
	53.764	Bank of Maharashtra	Term Loan			2 Years	10 Years	11.00%	0.00			0.00	0.00	0.00	0.00	0.00	
	53.766	Punjab & Sind Bank	Term Loan			2 Years	10 Years	11.00%	7.79		5.99	1.80	0.52	0.52	0.00	0.00	
	53.767	Allahabad Bank	Term Loan			2 Years	10 Years	11.15%	21.68		12.66	9.02	1.40	1.40	0.00	0.00	
	73.768	Bank of Rajasthan	Term Loan			2 Years	10 Years	11.15%	4.05		2.21	1.84	0.32	0.32	0.00	0.00	
	53.769	Karnataka Bank Ltd.	Term Loan			2 Years	10 Years	11.15%	3.85		2.90	0.95	0.28	0.28	0.00	0.00	
	53.770	Corporation Bank	Term Loan			2 Years	10 Years	11.25%	1.47		1.11	0.36	0.11	0.11	0.00	0.00	
	53.771	Union Bank of India	Term Loan			2 Years	10 Years	11.15%	1.91		0.96	0.95	0.16	0.16	0.00	0.00	
	53.775	UCO Bank	Term Loan			2 Years	10 Years	11.25%	272.53	20.00	39.26	253.27	29.45	29.45	0.00	0.00	
	53.531	NABARD	Term Loan			3 Years	10 Years	10.75%	67.92		6.34	61.58	5.86	5.86	0.00	0.00	
	53.776	South Indian Bank	Term Loan			2 Years	10 Years	11.50%	20.45		3.45	17.00	1.87	1.87	0.00	0.00	
	53.777	Tamilnadu Mercantile Bank	Term Loan			1-2 Years	10 Years	11.75%	14.51		2.18	12.33	1.47	1.47	0.00	0.00	
		Dena Bank	Term Loan			2 Years	10 Years	11.25%	24.73		3.10	21.63	2.55	2.55	0.00	0.00	
									7329.94	2122.81	519.40	8933.35	915.91	915.91	0.00	0.00	
									7329.94	2122.81	519.40	8933.35	915.91	915.91	0.00	0.00	
Unsecured Loans:																	
Bonds																	
		APSEB Bonds 2008							0.00			0.00		0.00	0.00	0.00	
		APSEB Bonds 2009							0.00			0.00		0.00	0.00	0.00	
		APTRANSCO Vidyut Bonds							0.00			0.00		0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Debentures																	
									0.00			0.00		0.00	0.00	0.00	
									0.00			0.00		0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Funds from State Government																	
	54.200	Govt. of Telangana	Term			1 Year	15 Years	9.50% - 10.25%	604.78		48.64	556.14	58.70	58.70	0.00	0.00	
									0.00			0.00		0.00	0.00	0.00	
									604.78	0.00	48.64	556.14	58.70	58.70	0.00	0.00	
Other Secured Loans																	
	52.501	LIC							0.00			0.00		0.00	0.00	0.00	
	53.610	VLC							0.00			0.00		0.00	0.00	0.00	
		Other Finance Charges							0.00			0.00		0.00	0.00	0.00	
									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
									604.78	0.00	48.64	556.14	58.70	58.70	0.00	0.00	
									7934.72	2122.81	568.04	9489.49	974.61	974.61	0.00	0.00	

Form1.1 g(i) - New Loans

Please fill in the required details pertaining to each year

2016-17 (Base Year)**Amount in Rs. Crores**

Particulars	Amount	Purpose	Status	Agency	Agreed Interest Rate	Moratorium Period (Years)	Repayment period (Years)	Remarks
Augmentation of PTRs at various Sub-Stations and Strengthening of Transmission Lines	104.00	Augmentation	Proposed for tie up	PFC	10.75%	3 Years	10 Years	
400kv Sub-Station at Dindi, Mahaboobnagar	91.86	System Improvement	Tied up	REC	10.75%	3 Years	10 Years	
Renovation and Modernisation Schemes	53.11	Renovation and Modernisation	To be tied up	REC	10.75%	3 Years	10 Years	
Total	248.97							

2017-18

Amount in Rs. Crores

Particulars	Amount	Purpose	Status	Agency	Agreed Interest Rate	Moratorium Period (Years)	Repayment period (Years)	Remarks
Augmentation of PTRs at various Sub-stations and Strengthening of Transmission Lines	121.38	Augmentation	To be tied up	PFC	10.75%	3 years	10 years	
132/33 kV SS at PTO Petlaburze Hyderabad	42.39	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Erection of 220 kV SS at Chanchalguda Hyderabad	32.11	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Erection of 132/33 kV SS at Sitarambagh (GIS) Hyderabad	26.50	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Erection of 132/33 KV ss at IDA Mallapur	18.63	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Erection of 132/33 KV ss at Moulali ZTS	20.00	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Augmentation of PTRs at various Sub-stations and Strengthening of Transmission Lines 17-18	186.51	Augmentation	To be tied up	REC	10.75%	3 years	10 years	
Erection of 132/33 KV SS at Indian School of Business (ISB)	8.46	System Improvement	To be tied up	REC	10.75%	3 years	10 years	
Yadadri Power Evacuation Scheme	205.73	Power Evacuation	To be tied up	PFC	10.75%	3 years	10 years	
Telangana STPP-I Power Evacuation Scheme	151.98	Power Evacuation	To be tied up	PFC	10.75%	3 years	10 years	
400 KV Sub-station at DINDI Mahabubnagar	92.23	System Improvement	Tied up	REC	10.75%	3 years	10 years	
Renovation and Modernisation Schemes	53.11	Renn. & Modernisation	Tied up	REC	10.75%	3 years	10 years	
Total	959.03							

2018-19

Amount in Rs. Crores

Particulars	Amount	Purpose	Status	Agency	Agreed Interest Rate	Moratorium Period (Years)	Repayment period (Years)	Remarks
Erection of 220 kV SS at Chanchalguda Hyderabad	43.00	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Erection of 132/33 kV SS at Sitarambagh (GIS) Hyderabad	20.84	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Erection of 132/33 KV ss at IDA Mallapur	18.00	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Erection of 132/33 KV ss at Moulali ZTS	30.00	System Improvement	To be tied up	PFC	10.75%	3 years	10 years	
Augmentation of PTRs at various Sub-stations and Strengthening of Transmission Lines 18-19	137.05	Augmentation	To be tied up	REC	10.75%	3 years	10 years	
Erection of 132/33 KV SS at Indian School of Business (ISB)	7.23	System Improvement	To be tied up	REC	10.75%	3 years	10 years	
Substations proposed to match the load demand due to unforeseen growth in Commercial, Residential in view of Urbanisation and Industrial Development	38.72	System Improvement	To be tied up	REC	10.75%	3 years	10 years	
Yadadri Power Evacuation Scheme	447.47	Power Evacuation	To be tied up	PFC	10.75%	3 years	10 years	
Telangana STPP-I Power Evacuation Scheme	430.12	Power Evacuation	To be tied up	PFC	10.75%	3 years	10 years	
Renovation and Modernisation Schemes	53.11	Renovation and Modernisation	To be tied up	REC	10.75%	3 years	10 years	
Total	1225.54							

Form 1.1h - FOREIGN CURRENCY LOANS & CREDIT

This form pertains to the Total Foreign Currency Loans and Debentures

2016-17 (Base Year)

Amount in Rs. Crores

Loan Type	Loan Agency (Source of Loan)	Year of Sanction (DD-MM-YY)	Reason for incurring Loan*	Related Project Code	Tenure of Loan (in years)	Currency of Loan	Amount sanctioned (in FCY)	Initial Exchange Rate	Current Exchange Rate	Moratorium Period (in years)	Rate of Interest	Balance at the beginning of the year	Amount received during the year	Amount redeemed during the year	Balance outstanding at the end of the year	Interest Expense incurred during the year	Interest Expense paid till end of the year	Interest payment defaulted on	Principle payment defaulted on	Pcode	Loan Code	Remarks
Secured Loans																						
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Unsecured Loans																						
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					

2017-18

Amount in Rs. Crores

Loan Type	Loan Agency (Source of Loan)	Year of Sanction (DD-MM-YY)	Reason for incurring Loan*	Related Project Code	Tenure of Loan (in years)	Currency of Loan	Amount sanctioned (in FCY)	Initial Exchange Rate	Current Exchange Rate	Moratorium Period (in years)	Rate of Interest	Balance at the beginning of the year	Amount received during the year	Amount redeemed during the year	Balance outstanding at the end of the year	Interest Expense incurred during the year	Interest Expense paid till end of the year	Interest payment defaulted on	Principle payment defaulted on	Pcode	Loan Code	Remarks
Secured Loans																						
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Unsecured Loans																						
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					

2018-19

Amount in Rs. Crores

Loan Type	Loan Agency (Source of Loan)	Year of Sanction (DD-MM-YY)	Reason for incurring Loan*	Related Project Code	Tenure of Loan (in years)	Currency of Loan	Amount sanctioned (in FCY)	Initial Exchange Rate	Current Exchange Rate	Moratorium Period (in years)	Rate of Interest	Balance at the beginning of the year	Amount received during the year	Amount redeemed during the year	Balance outstanding at the end of the year	Interest Expense incurred during the year	Interest Expense paid till end of the year	Interest payment defaulted on	Principle payment defaulted on	Pcode	Loan Code	Remarks
Secured Loans																						
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Unsecured Loans																						
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					

Form 1.1j - CURRENT ASSETS

This form refers to the total current assets

(Rs. in crores)

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Material Stock and Related Accounts		196.51	196.51	196.51
Sundry Debtors		483.27	483.27	483.27
Cash and Bank Balances		45.32	45.32	45.32
Loans and Advances		1033.10	1003.10	1003.10
Other Current Assets		116.95	116.95	116.95
Grand Total:		1875.15	1845.15	1845.15

Form 1.1k - CURRENT LIABILITIES

This form refers to the total current liabilities in a par (Rs. in crores)

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Liabilities for Capital Works		310.22	310.22	310.22
Liability for O&M Supplies		52.63	52.63	52.63
Staff Related Liabilities		33.57	33.57	33.57
Trust related liabilities		503.94	503.94	503.94
Deferred Tax Liability		114.37	114.37	114.37
Other Liabilities and Provisions		2605.49	2692.23	2552.39
Grand Total:		3620.22	3706.96	3567.12

Form 1.1m - Discom Contracts

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
TS SPDCL				
Contracted Demand (MW)		9460	9756	10211
TS NPDCL				
Contracted Demand (MW)		3949	4619	4809
OTHERS				
Contracted Demand (MW)		1	1	1
		13410	14376	15021

Form 1.1n - RESERVES

This form pertains to the total reserves in a particular year

(Rs. in crores)

PARTICULARS	D Link	2016-17 (Base Year)	2017-18	2018-19
Foreign Exchange variation Reserve		0.00	0.00	0.00
Capital Reserve		143.49	143.49	143.49
Contingency Reserve		30.43	30.43	30.43
Others		-17.60	-17.60	-17.60
Retained surplus		915.09	1142.47	1439.74
Grand Total:		1071.41	1298.79	1596.06

Form : 1.2 - Cash Flow Statement

(Rs. in crores)

Cash Flows from Operating Activities	D Link	2016-17 (Base Year)	2017-18	2018-19
Net Profit before Tax		280.98	347.72	454.61
Adjustments for depreciation		377.08	568.52	740.82
Adjustments for foreign exchange loss/(gain)		0.00	0.00	0.00
Provision for diminution in value of investments		0.00	0.00	0.00
Interest Expense		514.74	743.62	974.61
Adjustment for employee terminal benefits		0.00	0.00	0.00
Operating income before working capital charges		1172.80	1659.86	2170.04
Decrease / (Increase) in trade and other receivables		152.48	30.00	0.00
Decrease / (Increase) in inventories		0.00	0.00	0.00
Decrease / (Increase) in miscellaneous expenditure not written off		0.00	0.00	0.00
Increase/(Decrease) in trade payables		0.00	86.74	-139.84
Interest Paid		-514.74	-743.62	-974.61
Provision for Income Tax		-97.24	-120.34	-157.33
Extraordinary gain/(loss)		0.00	0.00	0.00
Cash generated from operations		713.30	912.64	898.26
Cash Flows from Investing Activities				
Acquisition of subsidiary		0.00	0.00	0.00
Purchase of Fixed Assets (Including Interest capitalised)		2939.26	5694.91	2957.03
Reserves in Government Bonds		0.00	0.00	0.00
Interest received		0.00	0.00	0.00
Dividends received		0.00	0.00	0.00
Purchase of Other Investment Activities		0.00	0.00	0.00
Sale of Other Investment Activities		0.00	0.00	0.00
Increase /(Decrease) in liability for Capital works		0.00	0.00	0.00
Accumulated interest on investments through contingency reserve		0.00	0.00	0.00
Net cash used in (from) investment activities		2939.26	5694.91	2957.03
Cash Flows from Financing Activities				
Proceeds from issuance of share capital		0.00	0.00	0.00
Proceeds from Long Term Debt		2365.78	2524.58	2122.81
Repayment of Long Term Debt		313.91	470.94	568.04
Proceeds from Govt. Subsidies and Grants		174.09	2728.63	504.00
Payment of financial lease liabilities		0.00	0.00	0.00
Dividends paid		0.00	0.00	0.00
Net cash from (used in) financing activities		2225.96	4782.27	2058.77
Net Change in Cash Equivalents				
Cash and Cash Equivalents at Beginning of Year		45.32	45.32	45.32
Cash and Cash Equivalents at End of Year		45.32	45.32	45.32

Form 1.3a - Operation and Maintenance Expenses

This form pertains to the Operation and Maintenance Expenses during a particular year

2016-17 (Base Year)

(Rs. in crores)

Code	Particulars	D-Link	Amount	Remarks
10001	O&M Expenses (Net)		395.01	
10014	Line Length ckt-km		20649	
10011	Number of Substations		1830	
10025	O&M Expenses per Line Length		57389	
10026	O&M Expenses per Sub Station		1510958	

2017-18

(Rs. in crores)

Code	Particulars	D-Link	Amount	Remarks
10001	O&M Expenses (Net)		473.93	
10014	Line Length ckt-km		23243	
10011	Number of Substations		2126	
10025	O&M Expenses per Line Length		61171	
10026	O&M Expenses per Sub Station		1560448	

2018-19

(Rs. in crores)

Code	Particulars	D-Link	Amount	Remarks
10001	O&M Expenses (Net)		567.68	
10014	Line Length ckt-km		27111	
10011	Number of Substations		2430	
10025	O&M Expenses per Line Length		62817	
10026	O&M Expenses per Sub Station		1635283	

Form 1.3(i) - WORKING CAPITAL

(Rs. in crores)

PARTICULARS	D Link	2016-17 (Base Year)	2017-18	2018-19
O&M expenses		483.15	605.62	661.90
45 Days O&M Expenses		59.57	74.67	81.60

Form 1.3i - Other Expenses

(Rs. in crores)

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Special appropriations (debt redemption obligation, etc)			-302.21	-302.22
Other Debits		0.00	0.00	0.00
Prior Period Items		0.00	0.00	0.00
TOTAL OTHER EXPENSES		0.00	-302.21	-302.22

Form 3.3 - Transmission Losses

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Lower Value of the Band		2.91	2.90	2.89
Average Transmission Loss		3.11	3.10	3.09
Upper Value of the Band		3.31	3.30	3.29

Form 7.0 - Consumer Contributions and Grants

This form pertains to the Contribution and Grants in a particular year

2016-17 (Base Year)

Rs. in crores

Particulars	D Link	Opening Balance at the beginning of the year	Additions during the year	Deductions during the year	Closing Balance at the End of the Year	Remarks
Consumer Contributions & Grants		739.09	174.09		913.18	
Total		739.09	174.09	0.00	913.18	

2017-18

Rs. in crores

Particulars	D Link	Opening Balance at the beginning of the year	Additions during the year	Deductions during the year	Closing Balance at the End of the Year	Remarks
Consumer Contributions & Grants		913.18	2728.63		3641.81	
Total		913.18	2728.63	0.00	3641.81	

2018-19

Rs. in crores

Particulars	D Link	Opening Balance at the beginning of the year	Additions during the year	Deductions during the year	Closing Balance at the End of the Year	Remarks
Consumer Contributions & Grants		3641.81	504.00		4145.81	
Total		3641.81	504.00	0.00	4145.81	

Form 8**Revenue Surplus / (deficit) at current tariffs**

(Rs. in crores)

Items of Non - Tariff Income (Rs. Crs.)	D Link	2016-17 (Base Year)	2017-18	2018-19
Aggregate Revenue Requirement		1475.53	1622.65	2175.31
Revenue from current tariffs		1470.17	1645.25	1702.30
Revenue Surplus/(Deficit) at current tariffs		(5.37)	22.60	(473.01)

Form 9**Revenue Surplus / (deficit) at Proposed tariffs**

(Rs. in crores)

	D Link	2016-17 (Base Year)	2017-18	2018-19
Aggregate Revenue Requirement		1475.53	1622.65	2175.31
Revenue from proposed tariffs		1475.53	1622.65	2175.31
Revenue Surplus / (deficit) at proposed tariffs		0.00	0.00	0.00

Form 10 - Non Tariff Income

This form captures the Total Non-tariff income during a particular year

(Rs. in crores)

Particulars	D Link	2016-17 (Base Year)	2017-18	2018-19
Interest on Staff loans and advances		0.20	0.20	0.20
Income from investments		13.00	13.00	13.00
Interest on Contingency Reserve investments		0.00	0.00	0.00
Delayed payment charges from consumers		0.10	0.10	0.10
Misc. Receipts		36.70	36.70	36.70
Total Non-Tariff Income		50.00	50.00	50.00

ANNEXURE-D1

CONTRACTED CAPACITIES FOR THE CONTROL PERIOD IN MW

Generating Station/Source	Total Capacity	TSDISCOMS Share		TSSPDCL	TSNPDCL	TSSPDCL	TSNPDCL
		2017-18	2018-19	2017-18	2017-18	2018-19	2018-19
VTPS I	383.25	206.53	206.53	145.71	60.82	145.71	60.82
VTPS II	383.25	206.53	206.53	145.71	60.82	145.71	60.82
VTPS III	383.25	206.53	206.53	145.71	60.82	145.71	60.82
VTPS IV	462.50	249.24	249.24	175.84	73.40	175.84	73.40
RTPP I	382.20	205.97	205.97	145.31	60.66	145.31	60.66
RTPP II	382.20	205.97	205.97	145.31	60.66	145.31	60.66
RTPP III	191.10	102.98	102.98	72.66	30.33	72.66	30.33
KTPS A	216.72	116.79	116.79	82.40	34.39	82.40	34.39
KTPS B	216.72	116.79	116.79	82.40	34.39	82.40	34.39
KTPS C	216.72	116.79	116.79	82.40	34.39	82.40	34.39
KTPS D	455.00	245.20	245.20	172.99	72.21	172.99	72.21
KTPS VI	462.50	249.24	249.24	175.84	73.40	175.84	73.40
RTS B	56.88	30.65	30.65	21.63	9.03	21.63	9.03
KTPP I	462.50	249.24	249.24	175.84	73.40	175.84	73.40
KTPP II	555.00	555.00	555.00	391.55	163.45	391.55	163.45
KTPS VII	760.00	0.00	760.00	0.00	0.00	536.18	223.82
Total Thermal	5969.79	3063.47	3823.47	2161.28	902.19	2697.46	1126.01
Manchkund PH AP share	83.16	44.81	44.81	31.62	13.20	31.62	13.20
Tungabhadra PH AP share	57.02	30.73	30.73	21.68	9.05	21.68	9.05
SSLM LCPH	891.00	891.00	891.00	628.60	262.40	628.60	262.40
NSPH	807.44	807.44	807.44	569.65	237.79	569.65	237.79
NSLCPH	59.40	59.40	59.40	41.91	17.49	41.91	17.49
Pochampad PH	26.73	26.73	26.73	18.86	7.87	18.86	7.87
Nizamsagar PH	9.90	9.90	9.90	6.98	2.92	6.98	2.92
Singur	14.85	14.85	14.85	10.48	4.37	10.48	4.37
Priyadarshini Jurala HES	231.66	231.66	231.66	163.44	68.22	163.44	68.22
Pochampad II	8.91	8.91	8.91	6.29	2.62	6.29	2.62
Lower Jurala HE	237.60	237.60	237.60	167.63	69.97	167.63	69.97
Pulichintala	118.80	118.80	118.80	83.81	34.99	83.81	34.99
Total Hydro	2546.47	2481.83	2481.83	1750.93	730.90	1750.93	730.90
Total Genco	8516.26	5545.30	6305.30	3912.21	1633.09	4448.39	1856.91
NTPC(SR) Ramagundam U1-U6	629.78	339.39	339.39	239.44	99.95	239.44	99.95
NTPC(SR) Ramagundam U7	158.58	85.46	85.46	60.29	25.17	60.29	25.17
NLC TS-II Stage-I	103.93	56.01	56.01	39.51	16.49	39.51	16.49
NLC TS-II Stage-II	183.93	99.12	99.12	69.93	29.19	69.93	29.19
NPC-MAPS	38.99	21.01	21.01	14.82	6.19	14.82	6.19
Talcher Stage 2	374.00	201.55	201.55	142.19	59.36	142.19	59.36
NTPC-Simhadri Stage I	940.00	506.57	506.57	357.38	149.18	357.38	149.18
NTPC-Simhadri Stage II	432.49	233.07	233.07	164.43	68.64	164.43	68.64
Kaiga (Nuclear) Plant I & II	121.37	65.41	65.41	46.14	19.26	46.14	19.26
Kaiga (Nuclear) Plant III & IV	128.54	69.27	69.27	48.87	20.40	48.87	20.40
Vallur Thermal Power Plant	206.87	111.48	111.48	78.65	32.83	78.65	32.83
Kalpakkam	116.16	62.60	62.60	44.16	18.44	44.16	18.44
Tuticorn	234.23	126.23	126.23	89.05	37.17	89.05	37.17
Kudgi I & II	703.12	378.91	378.91	267.32	111.59	267.32	111.59
Neyveli	104.60	56.37	56.37	39.77	16.60	39.77	16.60
Total Central Sector	4476.59	2412.43	2412.43	1701.97	710.46	1701.97	710.46

Generating Station/Source	Total Capacity	TSDISCOMS Share		TSSPDCL	TSNPDC	TSSPDCL	TSNPDC
		2017-18	2018-19	2017-18	2017-18	2018-19	2018-19
APGPCL-I	15.60	6.67	6.67	4.71	1.96	4.71	1.96
APGPCL-II	41.72	17.84	17.84	12.59	5.25	12.59	5.25
Total Joint Sector	57.32	24.51	24.51	17.29	7.22	17.29	7.22
BSES	213.40	115.00	0.00	81.13	33.87	0.00	0.00
GVK Extension	213.40	115.00	115.00	81.13	33.87	81.13	33.87
Vemagiri	358.90	193.41	193.41	136.45	56.96	136.45	56.96
Gowthami	450.08	242.55	242.55	171.12	71.43	171.12	71.43
Konaseema	430.76	232.14	232.14	163.77	68.36	163.77	68.36
Total IPPs	1666.54	898.10	783.10	633.61	264.49	552.48	230.62
Singareni TPP	1128.00	1128.00	1128.00	795.80	332.20	795.80	332.20
Chhattisgarh Power	1000.00	1000.00	1000.00	705.50	294.50	705.50	294.50
Thermal Power Tech I	500.00	269.45	269.45	190.10	79.35	190.10	79.35
Thermal Power Tech	570.00	570.00	570.00	402.14	167.87	402.14	167.87
Total Others	3198.00	2967.45	2967.45	2093.54	873.91	2093.54	873.91
Bagasse	42.00	42.00	42.00	0.00	42.00	0.00	42.00
Bio Mass	24.00	24.00	24.00	0.00	24.00	0.00	24.00
Municipal/Industrial Waste	8.00	8.00	8.00	0.00	8.00	0.00	8.00
Mini Hydel	7.00	7.00	7.00	0.00	7.00	0.00	7.00
Solar	2346.00	2346.00	2346.00	1297.00	1049.00	1297.00	1049.00
Wind	100.80	100.80	100.80	100.80	0.00	100.80	0.00
Total Non Conventional	2527.80	2527.80	2527.80	1397.80	1130.00	1397.80	1130.00
Discom Total		14375.59	15020.59	9756.42	4619.17	10211.46	4809.13
Open Access				1.00		1.00	
Grand Total				14376.59		15021.59	