BEFORE THE HON'BLE

TAMIL NADU ELECTRICITY REGULATORY COMMISSION, CHENNAI

FILING OF THE PETITION FOR FINAL TRUE-UP OF FY 2010-11, PROVISIONAL TRUE-UP OF FY 2011-12, ANNUAL PERFORMANCE REVIEW OF FY 2012-13

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MULTI YEAR TARIFF PETITION FOR FY 2013-14 TO FY 2015-16 ALONG WITH TARIFF DETERMINATION FOR FY 2013-14 UNDER TNERC (TERMS AND CONDITIONS FOR DETERMINATION OF TARIFF) REGULATIONS, 2005 AND TNERC (MULTI YEAR TARIFF FRAMEWORK) REGULATIONS, 2009 AMMENDED FROM TIME TO TIME

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UNDER PART VII (SECTION 61 TO SECTION 64) OF THE ELECTRICITY ACT, 2003 READ WITH THE RELEVANT GUIDELINES

FILED BY
TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LIMITED (TANGEDCO)
CHENNAI

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List of Abbreviations

Sr. No	Abbreviations	Descriptions
1.	A&G	Administrative and General
2.	AC	Auxiliary Consumption
3.	APR	Annual Performance Review
4.	ARR	Aggregate Revenue Requirement
5.	AS	Accounting Standard
6.	BBGTPS	Basin Bridge Gas Turbine Power Station
7.	CAGR	Compound Annual Growth Rate
8.	CAPEX	Capital Expenditure
9.	CERC	Central Electricity Regulatory Commission
10.	CGS	Central Generating Station
11.	CoS	Cost of Supply/ Service
12.	CPPs	Captive Power Plants
13.	Crs	Crores
14.	CWIP	Capital Work in Progress
15.	DF	Distribution Franchisee
16.	Discom	Distribution Companies
17.	DPS	Delayed Payment Surcharge
18.	DS	Domestic Service
19.	DSHT	Domestic Service High Tension
20.	DSM	Demand Side Management
21.	DTC	Distribution Transformer
22.	EA/The Act	The Electricity Act 2003
23.	ECL	Eastern Coal Fields Ltd
24.	ETPS	Ennore Thermal Power Station
25.	F&A	Finance & Accounts
26.	FY	Financial Year
27.	GFA	Gross Fixed Assets
28.	G.O.	Government Order
29.	GoI	Government of India
30.	GoTN	Government of Tamil Nadu
31.	HR	Human Resource
32.	HRA	House Rent Allowance
33.	HT	High Tension
34.	HEP	Hydro Electric Power
35.	IPP	Independent Power Producers
36.	KGTPS	Kuttalam Gas Turbine Power Station
37.	KV	Kilo Volt

Sr. No	Abbreviations	Descriptions
38.	kVA	Kilo Volt Ampere
39.	kVAh	Kilo Volt Ampere Hour
40.	kW	Kilo Watt
41.	kWh	Kilo Watt Hour
42.	LF	Load Factor
43.	LT	Low Tension
44.	MCL	Mahanadhi Coal Fields Ltd
45.	MD	Maximum Demand
46.	MOD	Merit Order Despatch
47.	MoP	Ministry of Power
48.	MOU	Memorandum of Understanding
49.	MTPS	Mettur Thermal Power Station
50.	MU	Million Units (Million kWh)
51.	MVA	Mega Volt Ampere
52.	MW	Mega Watt
53.	MYT	Multi Year Tariff
54.	NCTPS	North Chennai Thermal Power Station
55.	NEP	National Electricity Policy
56.	NTP	National Tariff Policy
57.	NTPC	National Thermal Power Corporation
58.	O&M	Operation & Maintenance
59.	PAF	Plant Availability Factor
60.	PF	Provident Fund
61.	PFC	Power finance Corporation
62.	PLF	Plant Load Factor
63.	PLR	Prime Lending Rate
64.	PPA	Power Purchase Agreement
65.	PSD	Power Service Division
66.	REC	Rural Electrification Corporation
67.	R&M	Repair and Maintenance
68.	ROE	Return on Equity
69.	RPO	Renewable Purchase Obligation
70.	Rs	Rupees
71.	SBI	State Bank of India
72.	SLM	Straight Line Method
73.	SHR	Station Heat Rate
74.	T&D	Transmission and Distribution
75.	TNEB	Tamil Nadu Electricity Board
76.	TANGEDCO	Tamil Nadu Generation and Distribution Corporation Limited

Sr. No	Abbreviations	Descriptions
77.	TANTRANSCO	Tamil Nadu Transmission Corporation Limited
78.	TKGTPS	Thirumakottai Gas Turbine Power Station
79.	TNERC	Tamil Nadu Electricity Regulatory Commission
80.	TTPS	Tuticorin Thermal Power Station
81.	VGTPS	Valuthur Gas Turbine Power Station
82.	w.e.f	With effect from
83.	Y-o-Y	Year on Year

BEFORE THE TAMIL NADU ELECTRICITY REGULATORY COMMISSION

CHENNAI

Filing No:

Case No:

IN THE MATTER OF Filing of Petition for Final True Up of FY 2010-11, Provisional True Up of FY 2011-12, Annual Performance Review of FY 2012-13 and Aggregate Revenue Requirement for second control period FY 2013-14 to FY 2015-16 and Tariff Determination for FY 2013-14 under TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005 and of MYT under TNERC (Multi Year Tariff Framework) Regulations, 2009 amended from time to time along with other guidelines and directions issued by the TNERC AND under Part VII (Section 61 to Section 64) of the Electricity Act, 2003 read with the relevant Guidelines.

AND

IN THE MATTER OF Tamil Nadu Generation and Distribution Corporation Limited,

144, Anna Salai,

Chennai 600 002

PETITIONER

THE APPLICANT NAMED ABOVE RESPECTFULLY SHOWETH UNDER

1. OVERVIEW OF TANGEDCO

1.1 Preamble

1.1.1 This section presents the background and reasons for filing of this Petition.

1.2 Background

1.2.1 Tamil Nadu Electricity Board (TNEB) came into existence on 1st July 1957 and has been in the business of generation, transmission and distribution of electricity in the state of Tamil Nadu. The Electricity Act 2003 mandates unbundling of State Electricity Boards under section 131.

1.2.2 In accordance with the above mandate the Government of Tamil Nadu (GOTN) had given in principle approval for the re-organization of TNEB by establishing a holding company, named TNEB Ltd and two subsidiary companies, namely Tamil Nadu Transmission Corporation Limited (TANTRANSCO) and Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) vide G.O.Ms.No.114 Energy (B2) Department dated 8th October 2008 with the stipulation that the aforementioned companies shall be fully owned by Government.

1.2.3 Based on the approval of Memorandum of Association and Articles of Association of TANGEDCO and TNEB Limited by the Government of Tamil Nadu vide G.O.Ms.No.94 Energy (B2) Department dated 16th Nov 2009, Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) and TNEB Limited was incorporated on 1st Dec 2009 with an authorized share capital of Rs. 5.00 Crores and paid up capital of Rs. 5.00 Lakhs each for TANGEDCO and TNEB Limited. The Certificates of commencement of business have been obtained for the TANGEDCO on 16th Mar 2010 and for TNEB Ltd on 12th Mar 2010 respectively.

1.2.4 The proposal for Assets Transfer and Employee transfer called as Tamil Nadu Electricity Board (Reorganization and Reforms) Transfer Scheme 2010 has been notified by Government of Tamil Nadu vide G.O. (Ms).No.100 Energy (B2) Department dated 19th Oct 2010 with the effective date of implementation as 1st Nov 2010. Based on the above notification TNEB has been re-organized from 1st Nov 2010.

1.2.5 As per the Transfer Scheme the Provisional period for transfer of Assets is 1 year and for transfer of employees is 3 years. From 1st Nov 2010 onwards all the employees of the erstwhile TNEB shall stand transferred to and absorbed in TANGEDCO on a provisional basis and assigned to the services of the relevant transferee.

1.2.6 Subsequently, as per the request of TNEB Limited, the second provisional transfer scheme was notified by the State Government vide G.O. (Ms.) No.2, Energy (B2) department, dated 2nd January 2012 with amendment in the restructuring of Balance Sheet of TNEB for the successor entities i.e. TANGEDCO and TANTRANSCO, considering the audited balance sheet of TNEB for FY 2009-10 and it had extended the provisional time for final transfer of assets and liabilities to the successor entities of erstwhile TNEB up to 31st Oct 2012.

1.2.7 TNEB Ltd in its 22nd Board meeting held on 27th Sep 2012 approved the proposal to seek 6 months time extension i.e. up to 30th April 2013 for final transfer of assets and liabilities to successor entities of erstwhile TNEB and the same has been addressed to the GoTN for approval and notification.

1.2.8 Starting with a modest installed capacity of 156 MW (Mega Watt) on 1st July 1957, the Board's own generating capacity and capacity in its command has grown to 10,780 MW as on 31st March 2012. TANGEDCO has an even mix of the various generating capacities such as 2970 MW of coal based four thermal stations, 516 MW from the five Gas Turbine Stations and 2223 MW from 42 Hydro Stations. In addition, there is an infirm power of 17 MW from Wind Farms. Besides, the Board has a share of 2911 MW from Central Generating Stations, 749 MW of non conventional energy schemes, 214 MW of CPPs and 1180 MW of Independent Power Projects. The peak demand reached 11283 MW on 26th June 2012 and the maximum daily consumption was 248.189 MU on 24th July 2012.

1.2.9 In fulfilling its obligations over the last five decades, TANGEDCO has also been an effective tool for the Government in implementing its policies and fulfilling social obligations relating to agriculture and other weaker sections of the society that require positive support and special attention of the Government. This approach has been adopted in some states, with reduced tariff by providing tariff subsidy to certain consumer segments.

1.3 Provisional Transfer Scheme

1.3.1 In terms of the Transfer Scheme notification dated 02nd January 2012, the Government of Tamil Nadu had assigned the Assets and Liabilities (as on 31.03.2010) to TANGEDCO on a Provisional basis and hence the transaction for 7 months i.e. from 1st April 2010 to 30th October 2010, doesnt get reflected in the opening balance sheet of the TANGEDCO as specified in the Transfer Scheme. The notified copy of Transfer Scheme is attached as per Annexure 1.

1.3.2 Impact of Provisional Balance Sheet:

a. According to Rule 9 (1) of Transfer Scheme, 2010 issued on 19th October 2010, the transfer of assets and liabilities under the scheme is provisional and will be made final upon the expiry of 12 months from the effective date of transfer.
b. The date was extended vide notification dated 3rd January 2012 for additional 1 year i.e. upto 31st October 2012 for final transfer of assets and liabilities to successor entities of erstwhile TNEB.
c. As on the date of filing of this petition, TANGEDCO and TANTRANSCO has sought permission for extension of 6 months i.e. up to 30.04.2013 for final transfer of assets and liabilities to successor entities of erstwhile TNEB and the same has been addressed to the GoTN for approval and notification.
d. In the absence of availability of opening balances based on the final Notification of Government of Tamil Nadu, as per transfer scheme, TANGEDCO has considered the opening balance as per the provisional transfer scheme notified on 2nd January 2012.
   i. The GFA (Gross Fixed Assets) of Rs. 23,805.92 Crores, as per transfer scheme, has been considered as opening balance as on 1st November 2010.
   ii. For the purpose of Return on Equity, Equity Capital of Rs. 2547.76 Crores has been considered as per the second provisional transfer scheme. The RoE has been calculated based on the opening balance as notified for the transmission business.
   iii. Long Term Loan has been considered as Rs. 15,065 Crores in line with the notified balance sheet and interest is calculated on the actual basis which was accrued from 1st November 2010 to 31st March 2011. Some of the generic loans such as bonds, loan from HUDCO, LIC, Tamil Nadu Power fin and Medium Term Loan availed by erstwhile TNEB and has been considered as the long term loan of TANGEDCO.
   iv. TANGEDCO submits that the opening balance sheet as per second provisional transfer scheme has been considered for the calculation of ARR in the given tariff petition.
   v. TANGEDCO submits that once the final transfer scheme is notified by the State Government, the revision in the opening balance of Fixed Assets, Loan and equity may be allowed which will have a resultant effect on the Depreciation, Interest on Loan and equity. It is submitted to allow such expenses with retrospective effect and allow adjusting in the ARR in the ensuing tariff petition to be filed by TANGEDCO.

1.4 Financial Restructuring Plan (FRP)

1.4.1 TANGEDCO has formulated a Financial Restructuring Plan (FRP) to enable a turn around and long term viability of the state utility. The key findings of the Financial Restructuring Plan (FRP) prepared are as follows.

The eligible amount of short term liabilities worked out for financial restructuring of TANGEDCO is Rs. 24,422 Crores as on 31st March 2012.

The 50% of the above eligible amount of short term liabilities i.e. Rs. 12,211 Crores is to be taken over by the State Government and the balance have to be restructured by banks and financial institutions.

TANGEDCO would issue bonds to the participating lenders backed by State Government guarantee. The State Government will take over the liability over next five years by issuance of special securities in favor of participating lenders in the phased manner keeping the fiscal space available till the entire loan is taken over by the State Government.

The current year (FY 2012-13) loss has been worked out to be Rs. 8183 Crores as per the projected Business Plan for next 10 years. As per FRP scheme, the banks would provide 70% of the current year loss as afresh financial assistance to TANGEDCO for the year FY 2012-13 and the balance 30% would be provided by State government as subsidy to TANGEDCO.

1.5 Operational performance of TANGEDCO

1.5.1 The State of Tamil Nadu does not have its own coal resource and has to source its requirements partly from the Eastern Coal Fields Ltd. (ECL) and Mahanadhi Coal Fields Ltd. (MCL) mines situated in West Bengal and Orissa respectively & partly by import. The coal transportation is being undertaken through rail-cum-sea-cum rail route resulting in huge transportation expenditure. TANGEDCO at its end is trying to tap other power sources viz hydel potential has been tapped to its fullest potential. Tamil Nadu has a friendly policy for encouraging non-conventional sources of power such as the wind, co-generation etc. Tamil Nadu has the largest wind power capacity of about 6970 MW as on 31st March 2012. However, besides being infirm in nature, this power is available mostly during June to September. Apart from this, the State has seven independent Power Producers (IPP) plants in operation in the State.

1.5.2 TANGECO is making continuous efforts to add generation capacity, in spite of constraints on its financial resources. During the year 2010-11, 4 MW in Periyar Vaigai SHEP I and 36 MW share of TANGEDCO in Kaiga APS totalling 40 MW have been added. The energy requirement of the State has been growing at a rate of 8 - 10% every year. The increasing demand is sought to be met by power purchase from central generating stations such as NLC and joint venture project at Vallur and Tuticorin to be implemented along with NTPC and NLC respectively.

1.5.3 TANGEDCO owns and operates an extensive network of distribution consisting of 1.56 Lakhs Ckt.kms of Distribution Network and 5.67 lakhs kms of LT lines as on 31st March 2012. It also owns and operates majority of the generation assets in the state and is buyer of power from the Government of India owned (Central) generating stations and private producers in the state. It also owns 1320 substations and 2, 12,921 distribution transformers besides other assets as on 31st March 2012. TANGEDCO is also making continuous efforts towards strengthening the distribution networks to reduce the technical losses in the system. As a part of the R-APDRP programme, schemes to strengthen the exiting T&D systems have also been undertaken with the support of Government of India.

2. OVERALL APPROACH FOR PRESENT FILING

2.1 Present Approach

2.1.1 The Hon'ble Commission on 03rd August 2005 notified the TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005. In the said Regulation, the Commission specified that the licensee has to file the Aggregate Revenue Requirement (ARR) on or before 30th November of each year in the format prescribed, containing the details of the expected aggregate revenue that the licensee is permitted to recover at the prevailing tariff and the estimated expenditure. In line with the same, TANGEDCO is filing its ARR and Tariff Petition for consideration of the Hon'ble Commission in the formats laid down for providing information relating to past, current and future performance.

2.1.2 Further, as per TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005 the application for determination of tariff for the existing Generating Stations shall be accompanied by information in the formats provided by the Hon'ble Commission for the previous years, current year and ensuing years. Thus, TANGEDCO is filing the petition for True-up for both the generation and distribution businesses.

2.1.3 As per TNERC Tariff MYT Regulation, MYT petition for a licensee shall be on the basis of the business plan approved by the Hon'ble Commission. As per the Amendment to Tamil Nadu Electricity Regulatory Commission Terms and conditions for determination of tariff for intra state transmission / Distribution of Electricity under MYT framework Regulations 2009 dated 28th November 2012, the control period is defined as:

"(i) Control Period: The control period under the MYT framework shall be for duration of 3 years. The year preceding the first year of the control period shall be the base year."

Based on the above amendment, the control period for TANTRANSCO will be from FY 2013-14 to FY 2015-16.

2.1.4 In line with the same, TANGEDCO is filing its MYT Petition for the Control Period (FY 2013-14 to FY 2015-16) and Tariff Determination for consideration of the Hon'ble Commission in the formats laid down for providing information relating to past, current and future performance.

2.1.5 TANGEDCO has filed the present petition for approval of the Annual Revenue Requirement (ARR) for the Control Period and Determination of Tariff for FY 2013-14. This Petition also includes final True-up for FY 2010-11 based on audited accounts for 5 months, provisional True-up for FY 2011-12 based upon provisional accounts. For the Annual Performance Review of FY 2012-13, TANGEDCO has considered estimated figures for the entire year of FY 2012-13. The figures for ARR for FY 2013-14 are considered on the basis of escalation on figures of FY 2012-13 whereas the estimated figures for the control period are done on basis of projections on the base year i.e. FY 2011-12.

2.2 Data/Information for ARR-APR

2.2.1 This petition contains the truing-up of the ARR of FY 2010-11, figures of which are based upon the audited annual accounts for 5 months annexed to this petition. The APR of FY 2012-13 is based upon the estimation for the entire year. The ARR for FY 2013-14 has been projected based on the past performance and expected growth in each of the cost element and revenue for the ensuing year. TANGEDCO has studied the past trends and other internal and external developments to estimate the projections for FY 2013-14.

2.2.2 The ARR for FY 2013-14 indicated in the given petition, is exclusive of Foreign Exchange Rate Variation (if applicable), any statutory taxes, levies, duties, cess, filing fees or any other kind of imposition(s) and/ or other surcharges etc. whatsoever imposed/ charged by any Government (Central/State) and/ or any other local bodies/ authorities/regulatory authorities in relation to generation and distribution of electricity, environmental protection, and/ or in respect of any of its installation associated with the Generation and Distribution system and the same shall be borne and additionally paid by the beneficiaries to the applicant and the same shall be charged in the monthly bills raised by the petitioner on the beneficiaries. The applicant shall also claim the filing fee in the same manner.

2.3 Regulatory Framework

2.3.1 TANGEDCO has considered norms as specified by TNERC Tariff Regulations 2005. However certain deviation has been considered with a justification for the purpose of this petition and it is submitted to approve the same.

2.4 Summary of Assumptions

2.4.1 TANGEDCO has premised its tariff petition while projecting its revenue requirements on the following:

a. The provisional figures of FY 2011-12 have been considered for creation of baseline data against various heads.
b. The relevant Judgments of Hon'ble Appellate Tribunal have been referred to while projection of some of the heads if any.

c. Escalation Factors have been considered for projecting certain expenses on a realistic basis.

d. In the tariff order dated 30th March 2012, the Hon'ble Commission has approved the figures for a whole year for each component. Since the company has started its operation from 1st November 2010 and was in operation for 5 months only, the approved figures are re-calculated on a proportionate basis.

e. The figures mention in each of the tables is the amount in **Rs. Crores** unless otherwise specified.

f. TANGECO submits that there has been no cost of generation (variable as well as fixed) considered for own wind generating stations i.e. Tirunelveli Wind and Udumalpet. However the net generation due to these wind mills has been considered in total power purchase cost with a transfer price mechanism of Rs. 2.75 /unit as defined by the Hon'ble Commission in tariff order dated 30th March 2012.

g. The T&D loss calculated for entire control period is both with and without consideration of wheeling units during the respective years.

h. TANGEDCO would like to submit that the Planning Commission, Government of India has constituted an Expert Group to suggest measures to improve the financial health of Distribution Utilities. The Financial Restructuring Plan prepared by the TANGEDCO has been approved by the Government of Tamil Nadu and a miscellaneous petition has been filed with the Hon'ble Commission seeking in principle approval of Financial Restructuring Plan on 18th December 2012. The Hon'ble Commission has approved the same on 31st December 2012 and the restructuring of loan is under process. The impact of the same has not been considered in the current petition.

3. FINAL TRUE UP FOR FY 2010-11 AND PROVISIONAL TRUE UP FOR FY 2011-12

3.1 Preamble

3.1.1 This section outlines the performance of TANGEDCO for last five months of FY 2010-11 (1st November 2010 to 31st March 2011) and entire year of FY 2011-12. TANGEDCO hereby submits Final True up of FY 2010-11 comparing actual audited figures for FY 2010-11 with those approved by Hon'ble Commission vide tariff order dated 30th March 2012. TANGEDCO also submits Provisional True Up for FY 2011-12 based on provisional figures of FY 2011-12.

3.2 Principles for Final True Up FY 2010-11 and Provisional True Up FY 2011-12

3.2.1 A comparison of the figures projected by TANGEDCO in its previous petition, approved by the Hon'ble Commission and figures based on audited accounts are shown in the table under relevant sections discussed herein:

3.3 Operational Performance Parameters – Generation

3.3.1 This section outlines actual operational performance parameters of generation function of TANGEDCO in order to derive variable cost of own generation, as compared to that approved by Hon'ble TNERC in tariff order dated 30th March 2012.

3.3.2 The operational parameters like Plant Availability Factor (PAF), Plant Load Factor (PLF) Station Heat Rate (SHR), Auxiliary Consumption (AC), Specific Oil Consumption etc, achieved during five months of FY 2010-11 and FY 2011-12 have been discussed in detail in subsequent section. For the purpose of examination of performance of TANGEDCO, a comparison has been made between values approved by the Hon'ble Commission with the actual values achieved. The reasons for deviations for operational parameters, if any, have been discussed simultaneously in the respective section.

3.3.3 The actual operating parameters derived during the year are dependent of present condition of the machine. The present operating conditions of the machine is a function of following factors.

- ✓ Operation and Maintenance carried out in the plant since commissioning
- ✓ Degradation due to ageing
- ✓ Water Chemistry
- ✓ Conditions of the Auxiliaries
- ✓ Overloading and Partial Loading of machines
- ✓ Number of Start/Stop
- ✓ Temperatures and Pressures Stress-Machines have been subjected to

- ✓ Automation of C&I
- ✓ Condenser Vacuum

3.3.4 Justification for Proposed Operational Parameters

a) Aging

- ✓ There are frequent tube failures due to erosion in the old aged machines, which may be caused by poor quality of coal and other constraints. Heat transfer gets affected due to various reasons and SHR increases. Auxiliary Consumption & Sp. Oil Consumption increases due to low load/partial load operation because of some technical constraints. Also due to many other reasons like vibrations, eccentricity, high bearing temperature cause failure of the respective auxiliary and cause deterioration in performance parameters due to frequent start/stops. It happens in older machines mainly, and newer machine hardly get affected by such reasons and hence, their performance is found near to or at par with the normative values.

b) Design Constraints

- ✓ It is submitted that the operational performance parameters for generating stations defined by the Hon'ble Commission in TNERC (Terms and Conditions of Tariff) Regulations, 2005 are based on the norms specified in CERC Tariff Regulations, which in turn is based on design specifications of NTPC Power Plants. Most of the NTPC power plants are available in the sets of 500 MW units due to which there is a higher possibility of achieving target performance parameters as specified in the Regulations.
- ✓ It is further submitted that the most of the existing plants of TANGEDCO are available in sets of 110 MW to 210 MW. The units being old and small in size, it becomes very difficult to achieve the target performance parameters as specified in the Tariff Regulations. It is therefore submitted that the actual performance parameters as submitted in the present petition may kindly be approved.

c) Reasons for low performance of Ennore Thermal Power Station (ETPS)

- ✓ All the Units at Ennore Thermal Power Station (ETPS) are operated under lesser load due to chloride ingress owing to usage of contaminated cooling water, low condenser vacuum, condenser tube failure, boiler tube punctures, turbine vibration, rotor blade failure, etc. Being an old station, outages occur in various equipments due to various reasons which have decreased the power generation.
- ✓ The Ennore Thermal Power Station has not achieved the full load capacity since inception and average Plant Load Factor is also less than 60% due to design deficiency in 110 MW Units.

- ✓ The major constraint in achieving higher and sustained generation with reduced outages of the Units at Ennore Thermal Power Station is the highly contaminated cooling water (i.e.) the sea water available at Ennore creek.
- ✓ Since contaminated cooling water is being used for the condenser cooling, the cooling water corrodes the condenser tubes resulting in abnormal condenser tube failures. Once the tube fails, the chloride in the cooling water mixes up with the De Mineralized water resulting in scale formation in Boiler tubes and salt deposits on Turbine blades.
- ✓ This results in frequent failures of Boiler tubes, high axial shift in turbine and high vibration of turbine rotors resulting in frequent blade failures. As the quality of cooling water available is very poor, the condenser tubes are renewed periodically besides carrying out repair in turbine rotors.
- ✓ In **Units-I&II (60 MW Boiler),**the Boiler tube leakages were analyzed and observed that the tube leakages were mainly due to flue gas erosion on account of high ash content in the coal. In order to prevent tubes from erosion, shrouds and griddling bands were provided. Subsequently the tube leakages have reduced.
- ✓ **Units III & IV (110 MW Boilers)** have served for more than 9 years after R&M works. Due to ageing and flue gas ducts erosion, punctures occurred in the R.H. bends. R.H. bends were renewed partially during AOH period in 2008-09 & 2009-10. Balance RH bends have been programmed to be renewed during the forthcoming AOH periods.
- ✓ **In Unit-V (110 MW)** during R&M period, only partial pressure parts were renewed (platen S.H. and Cold Reheater tubes). Other areas i.e. Water walls, Economizer, Ceiling Super heater, Hot Reheater & Exit Super heater were not renewed. Boiler has served more than 1,50,000 hrs. Of service and entire boiler replacement was not done during R&M as carried out in other units 1 to 4. Hence Boiler tube leakages occur frequently. Subsequently RLA study was carried out during 2009. Based on the RLA study reports, repair works are proposed to be carried out during forthcoming capital overhaul. However the weak boiler tubes are being replaced during every overhaul.
- ✓ Since ETPS is having low capacity Units which have already served their life and having perennial cooling water problem, frequent forced outages occur resulting in low generation.
- ✓ However rectification works are being taken up then and there to reduce the forced outages in order to improve the generation and Plant Load Factor.

d) Reasons for high Specific Oil Consumption at Tuticorin Thermal Power Station (TTPS)

- ✓ The Specific Oil Consumption in respect of Units IV & V during the years from 2006-07 to 2010-11 was within the TNERC norms of 2.0 ml/KWHr but in respect of Units I, II & III, it is higher mainly on account of Bunker choke up due to the Trapezoidal design of Coal Bunkers. During rainy days both at loading port & at TTPS, the choking up of Bunker is very acute and more furnace oil has to be used in order to overcome this problem.
- ✓ The Units I, II & III Boilers of TTPS are designed for 5950 KCals of coal with Ash content of around 19% and since they are fed with much inferior quality of coal i.e. with very high Ash content of more than 40%, full load could not be achieved even after maximum loading of 5 mills. This necessitated additional Fuel oil firing to improve the generation to meet the Grid demand. Nearly 3000 to 5000 KL of furnace oil per year has been used in Units I, II & III to overcome this problem. The above problem is much less in Units IV & V Boilers since they are designed for low Calorific Value of coal.
- ✓ More quantity of Vizag coal which has low GCV with high ash & moisture content is received at TTPS which causes Boiler Tube punctures at an average of 24 Nos. per year which also leads to higher furnace oil consumption.
- ✓ The ID Fan Impellers in Unit III are getting eroded frequently and need replacement due to non availability of 7 Nos. ESP fields since Jan '09 resulting in partial load operations & Unit tripping which in turn increases furnace oil consumption.
- ✓ The designed milling capacity of Coal mills installed in the Units I, II & III is 33.8 T/Hr with 7.5% moisture and 19% ash. When the mills are fed with coal moisture content >10% and ash content > 35%, the milling capacity gets reduced and also the wear & tear of mills are on higher side causing frequent outages of mills and higher Fuel oil consumption.
- ✓ The Specific Oil Consumption during the year 2010-11 is 5.44 ml/KWHr which is very high mainly due to peculiar, sticky and slushy coal received during the months of Nov '10 & Dec '10 which has never happened at TTPS before. Removal of this choke up was very tough, time consuming, risky and laborious. Great efforts were put forth with very much difficulty to feed this type of coal and to keep the Units I, II & III in service. Each bunker took nearly 4 to 5 days for complete removal of this choke up. This was made possible only due to cutting in lieu of oil guns or otherwise it would have taken nearly one month to clear the mill choke up in Units I, II & III which would have led to shutdown of the Units I, II & III thereby affecting the Grid critically.

3.4 Plant Load Factor (PLF)

3.4.1 The table given below outlines the actual plant load factor achieved by TANGEDCO generating stations for FY 2010-11 and FY 2011-12.

Table 1: Plant Load Factor (%)

Sr. No.	Power Station	FY 10 - 11		FY 11-12	
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	35.42%	35.40%	25.81%	22.65%
2	Tuticorin TPS	77.33%	77.30%	84.87%	85.57%
3	Mettur TPS	82.42%	82.42%	92.40%	92.77%
4	North Chennai TPS	81.74%	81.74%	87.54%	84.81%
5	Tirumakottai GTPS	68.74%	68.74%	64.55%	74.47%
6	Kuttalam GTPS	19.29%	19.51%	72.45%	46.58%
7	Basin Bridge GTPS	4.93%	4.93%	5.71%	2.81%
8	Valuthur Unit-I	67.54%	67.59%	67.29%	78.94%
9	Valuthur Unit-II	0.00%	0.00%	55.22%	56.16%
10	Erode HEP	25.00%	28.36%	25.00%	29.74%
11	Kadamparai HEP	25.00%	28.36%	25.00%	29.74%
12	Kundah HEP	25.00%	28.36%	25.00%	29.74%
13	Tirunelveli HEP	25.00%	28.36%	25.00%	29.74%

3.4.2 Ennore TPS: It is submitted that all the Units at Ennore Thermal Power Station (ETPS) have already served their useful life and on completion of major R&M works, the above Units of ETPS have served further for more than 5-10 years. The Units are proposed to be de-commissioned in a phased manner.

- ✓ **Unit-I**, The load was restricted to around 35 MW due to salt deposits on the Turbine blades, high Curtis pressure, Chloride problem. Complete replacement of Condenser Tubes with Aluminium Brass material has been carried out during the Annual Overhaul in Sep.-Nov. '11.
- ✓ **In Unit-II,** The load was restricted to around 35 MW due to high Turbine vibration and Chloride ingress.
- ✓ **In Unit-III,** The Unit was under forced shut down from 23rd March 2011 due to LP Rotor blade failure. After attending to the above problem, the Unit was synchronized on 28th June 2011 but was taken off bars immediately due to High Ejector Chloride and Low condenser vacuum. In order to improve the vacuum and to overcome the chloride problem to the extent feasible, Jet water and air cleaning in the condenser was carried out and the Unit was synchronized again on 14th July 2011, but again had to be taken off bars on the same day due to high chloride and Turbine LP Rotor failure. Rectification woks are under progress.

- ✓ **In Unit-IV,** The load was restricted due to O2 crash, Low vacuum, Turbine Vibration due to aged Rotors, etc. The Unit was under shutdown from 05th October 2011 due to failure of TG set Bearings and MP rotor 20th stage moving blades. Rectification works were entrusted to M/s BHEL and on completion of the works the Unit was put back into service on 17th April 2012.
- ✓ **Unit-V**, The load was restricted to around 60 MW due to partial shaving of LP Rotor blades, Reheated pressure limitation, Boiler tube Leak, etc. Further the Unit is under prolonged shutdown from 03rd March 2012 due to frequent Boiler tube punctures and the Boiler is under assessment.

3.4.3 NCTPS: Following are the reasons for low PLF achieved by NCTPS during FY 2011-12

- ✓ **Unit I**, The unit was taken off Bars on 21st January 2012 due to Hydrogen gas leakage in the Generator Stator water system. On inspection, leakage was observed in the Stator bars - Top Bars: 2 nos (No: 12 & 15) & Bottom Bars: 7 Nos (9, 37, 44, 48, 52, 56 & 60); in Bottom Bar No: 52, one out of the 14 conductors was plugged and all other bars were changed. On completion of the works, the Unit was put back into service on 19th March 2012.
- ✓ **Unit II**, The unit was hand tripped on 20th February 2012 for Emergency Shut down due to Turbine Axial shift high on Positive side. Heavy pitting marks were observed on axial keys. Axial Keys were therefore changed. On completion of the works, the Unit was put back into service on 03rd March 2012.

3.4.4 KGTPS: The unit at KGTPS was under shut down from 18th July 2010 to 26th May 2011 due to removal of Gas Turbine Generator stator for replacement of failed stator at VGTPS-I/Ramnad. This decision was taken to avoid Minimum Guaranteed Off-Take charges (MGO) payable at Valuthur for non-utilization of gas at Ramnad Zone, since diversion of gas to nearby power plants is not feasible due to 100% gas availability at Ramnad Zone. Whereas diversion of gas to nearby power plants is possible at Kuttalam as the gas availability is 80%.

3.4.5 BBGTPS: Generation projection of 60 MU was made for the year 2011-12. Based on the same PLF of 5.71% was approved by TNERC. Naphtha is being used as fuel for BBGTPS. As the cost of the fuel is very high, the station is being operated as per the direction of the LD centre based on Grid demand. However, the units are being operated under Synchronous Condenser Mode to improve the voltage profile of the Grid. Due to the above reason, the actual generation was 29.57 MU only. Hence PLF was less.

3.5 Auxiliary Consumption

3.5.1 The table given below outlines the actual and approved auxiliary consumption achieved by TANGEDCO generating stations for FY 2010-11 and FY 2011-12.

Table 2: Auxiliary Consumption (%)

Sr. No.	Power Station	FY 10 - 11		FY 11-12	
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	15.78%	15.78%	16.32%	16.70%
2	Tuticorin TPS	8.31%	8.28%	10.11%	7.98%
3	Mettur TPS	8.51%	8.30%	8.31%	8.26%
4	North Chennai TPS	8.89%	8.70%	4.35%	8.36%
5	Tirumakottai GTPS	6.19%	6.87%	6.00%	6.50%
6	Kuttalam GTPS	6.83%	7.28%	6.67%	7.32%
7	Basin Bridge GTPS	0.62%	0.65%	0.30%	0.57%
8	Valuthur Unit-I	5.52%	5.90%	5.87%	7.00%
9	Valuthur Unit-II	0.00%	0.00%	5.84%	7.00%
10	Erode HEP	0.00%	0.53%	0.00%	0.51%
11	Kadamparai HEP	0.00%	-14.48%	0.00%	-5.48%
12	Kundah HEP	0.00%	0.53%	0.00%	0.51%
13	Tirunelveli HEP	0.00%	0.53%	0.00%	0.51%

3.5.2 As seen from the above table auxiliary consumption achieved by TANGEDCO generating plants is in line with auxiliary consumption approved by Hon'ble Commission in tariff order dated 30th March 2012.

3.6 Station Heat Rate (SHR)

3.6.1 The table given below outlines the approved and actual station heat rate achieved by TANGEDCO generating stations for FY 2010-11 and FY 2011-12.

Table 3: Station Heat Rate (kCal/kWh)

Sr. No.	Power Station	FY 10 - 11		FY 11-12	
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	3,200	3,304	3,200	3,905
2	Tuticorin TPS	2,500	2,901	2,453	2,646
3	Mettur TPS	2,500	2,523	2,500	2,549
4	North Chennai TPS	2,466	2,533	2,393	2,480
5	Tirumakottai GTPS	1,845	1,847	1,850	1,898
6	Kuttalam GTPS	1,850	1,888	1,850	1,871
7	Basin Bridge GTPS	3,230	3,133	3,219	3,221
8	Valuthur Unit-I	1,790	1,874	1,850	1,725
9	Valuthur Unit-II	-	-	1,850	1,833

3.6.2 Reasons for Deviation

- ✓ Ennore TPS : At ETPS, due to prolonged service of the Units of lower capacity and partial load operations, the performance gets reduced resulting in increased Heat rate.

- ✓ Tuticorin TPS :
  - ➢ The first three units of TTPS are running for more than 30 years i.e. exceeding their life period. Because of this ageing and degradation effect, maintaining station heat rate of 2453 Kcal/Khwr is impractical and could not be achieved. It will be justifiable to give consideration for this ageing factor since annual maintenance and overhaul activities will not recoup its original heat rate. (Ageing effect as per CEA 0.2 % per year of designed unit heat rate).
  - ➢ In addition to this, Unit I, II and III Boilers had been designed for a coal of GCV 5950 KCals and ash content of less than 20% and Unit IV & V Boilers had been designed for a coal of GCV 3855 KCals and ash content of 40.4 %. But at present the ash content of coal received at TTPS is around 40%.
  - ➢ Usage of high ash content and inferior coal than designed one lead to increase in gas flow in Boiler which in turn leads to high exit flue gas temperature. So Boiler efficiency decreases.
  - ➢ Operational problem & constraints like part load operation due to LDC load reduction increase the Station Heat Rate.
  - ➢ Due to high ash, mill fitness could not be maintained which leads to unburnt bottom & fly ash losses.
  - ➢ During rainy season, both at TTPS and at loading port, more wet coal is received which increases the Boiler losses.
  - ➢ At TTPS, due to the receipt of poor quality of coal (low CV), more fuel oil has been consumed to maintain higher load to meet the Grid demand and hence the Overall Heat Rate has increased with respect to TNERC norms. Generally, due to usage of lesser calorific value of coal with very high ash content of more than 40% at TTPS, more ash is generated which deposits over the Boiler tubes resulting in increased Heat Rate.

- ✓ Mettur TPS: The variations from the TNERC Norms are due to the Calorific value of coal received and the ageing factor of the Station. In respect of MTPS, though the Heat Rate varies to the maximum of about 1.2%, for the past five years, considering the ageing factor, Calorific Value of coal received nowadays affects the station heat rate of MTPS. Therefore, the Hon'ble TNERC is requested to revise the Station Heat Rate as submitted in this petition.

- ✓ North Chennai TPS : The variation in Station Heat Rate with respect to TNERC Norms is due to higher heat requirements, variation in coal quality and wet coal.
  - ➢ The Hon'ble TNERC has fixed the norms for Station Heat Rate for new thermal Stations as 2500 Kcal/KWHr as per Regulation 2005. While being so, the Units I, II & III of NCTPS which were commissioned during 1994, 1995 & 1996 respectively, the Heat Rate has been fixed as 2466 Kcal/KWHr only.
  - ➢ Considering the ageing factor and the Calorific Value of coal received, the Hon'ble TNERC is requested to revise the Station Heat rate of NCTPS to **2500 KCal/KWHr**.

- ✓ Tirumakottai GTPS: During FY 2010-11, the gas availability was 70-75% the plant was operated under part load. Hence heat rate was slightly higher. During FY 2011-12 the gas availability was 70-75% up to Oct'2011, following which a slight improvement in gas supply (80%) was observed. Further, due to replacement of damaged condenser tubes in Steam Turbine Generator for 55 days the plant was operated under open cycle (Gas Turbine was alone in operation). Hence the heat rate was higher.

- ✓ Kuttalam GTPS: The heat rate was more than the norms in Kuttalam Gas Turbine Power Station, since the unit was shut down from 18th July 2010 to 26th May 2011 due to release of generator stator for replacement at Valuthur Gas Turbine Power Station (VGTPS) and further for the rest of the period up to 31st March 2012 the unit was running at part load.

- ✓ BBGTPS: In Basin Bridge Gas station, Naphtha is being used as main fuel. HSD is being used for starting and stopping purpose to avoid accident due to presence of unburnt Naphtha if any, during starting & stopping. As this station is being operated intermittently depending upon the Grid demand, consumption of HSD is increased based on the number of starts & stops. Hence heat rate was slightly higher during FY 2011-12.

- ✓ Valuthur Unit I: During FY 2010-11 the actual heat rate is slightly higher due to various minor outages in Steam Turbine Generator thereby the unit was operated under open cycle.

- ✓ Valuthur Unit II: The unit was re commissioned on 7th May 2011 after long breakdown from 9th January 2010 due to heavy damages in GT rotor. Even after re commissioning, full load could not be reached due to vibration problems. The vibration problems were sorted by OEM. Leakage in STG was also attended. The unit was brought into its full capacity only on 18th August 2011. Hence the heat rate could not be maintained within the norms prescribed.

3.6.3 Hence, the plant wise station heat rate as submitted by TANGEDCO in the above table may kindly be approved.

3.7 Specific Oil Consumption

3.7.1 The table given below outlines the approved and actual specific oil consumption achieved by TANGEDCO generating stations for FY 2010-11 and FY 2011-12.

Table 4: Specific Oil Consumption (ml/kWh)

Sr. No.	Power Station	FY 10 - 11		FY 11-12	
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	12.00	12.20	10.00	10.60
2	Tuticorin TPS	2.00	5.95	2.00	1.97
3	Mettur TPS	2.00	0.98	2.00	0.52
4	North Chennai TPS	2.00	1.10	2.00	0.73

3.7.2 It may be noted that the Specific Oil Consumption is calculated in terms of percentage of total calorific requirement of the power generating unit and has relation with the size of the generating unit. For the lower size units the Specific Oil Consumption remains higher as compared to larger size power generating units, because certain amount of Specific Oil consumption remains fixed irrespective of the size of the generating unit.

3.8 Fuel Related Parameters

3.8.1 The table below summaries actual value of weighted average Gross Calorific Value of primary fuels recorded by TANGEDCO during FY 2010-11 and FY 2011-12 along with approved GCV for primary fuel as per last tariff order.

Table 5: Gross Calorific Value-Thermal Stations (kCal/kg) (kCal/scm)

Sr. No.	Power Station	FY 10 - 11		FY 11-12	
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	3,088	2,822	3,088	3,213
2	Tuticorin TPS	3,485	3,210	3,485	3,486
3	Mettur TPS	3,525	3,048	3,525	3,562
4	North Chennai TPS	3,728	3,459	3,728	3,768
5	Tirumakottai GTPS	10,000	10,000	10,000	10,000
6	Kuttalam GTPS	10,000	10,000	10,000	10,000
7	Basin Bridge GTPS	10,572	10,572	10,572	10,972
		10,249	10,249	10,249	10,249
8	Valuthur Unit-I	10,000	10,000	10,000	11,000
9	Valuthur Unit-II	-		10,000	11,000

3.8.2 The summary of actual primary fuel prices for FY 2010-11 and FY 2011-12 along with approved values is shown in following table.

Table 6: Price of Primary Fuel-Thermal Stations (Rs. /MT) (Rs. /SCM)

Sr. No.	Power Station	FY 10 - 11		FY 11-12	
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	2,278	2,552	2,261	2,507
2	Tuticorin TPS	3,130	3,022	3,814	4,057
3	Mettur TPS	3,084	3,071	3,395	4,196
4	North Chennai TPS	2,559	2,559	2,939	3,188
				-	-
5	Tirumakottai GTPS	8.55	7.25	8.55	8.45
6	Kuttalam GTPS	8.55	7.32	8.55	8.55
7	Basin Bridge GTPS	33.44	54.26	40.44	39.28
		37.60		82.50	56.89
8	Valuthur Unit-I	8.55	8.25	8.93	8.00
9	Valuthur Unit-II	-		8.93	8.00

3.8.3 The variable cost parameters are submitted above and it is requested that any variation in price of fuel may kindly be approved.

3.9 Net Generation

3.9.1 Based on plant load factor and auxiliary consumption discussed in aforesaid sections, the net generation for TANGEDCO stations for FY 2010-11 and FY 2011-12 has been indicated below.

Table 7: Net Generation (in MUs)

Sr. No.	Power Station	FY 10 - 11		FY 11-12	
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	490	505	851	744
2	Tuticorin TPS	2,718	2,648	7,018	7,262
3	Mettur TPS	2,312	2,402	6,234	6,279
4	North Chennai TPS	1,713	1,868	4,621	4,301
				-	-
5	Tirumakottai GTPS	254	271	650	660
6	Kuttalam GTPS	65	-	457	383
7	Basin Bridge GTPS	22	39	44	29
8	Valuthur Unit-I	221	302	666	613
9	Valuthur Unit-II	-	-	428	414
				-	-
10	Erode HEP	522	507	1,304	1,416
11	Kadamparai HEP	-	-	-	-
12	Kundah HEP	959	1,012	2,397	2,455
13	Tirunelveli HEP	400	366	1,000	952
				-	-
14	Wind	5	1	11	12

3.9.2 As seen from the table above there is no net generation for Kuttalam Gas Station recorded during the last five months of FY 2010-11. The unit was shut down from 18th July 2010 to 26th May 2011 due to release of generator stator for replacement at Valuthur Gas Turbine Power Station (VGTPS) and further for the rest of the period up to 31st March 2012 the unit was running at part load.

3.9.3 Valuthur Unit II was recommissioned on 7th May 2011 after long breakdown from 9th January 2010 due to heavy damages in GT rotor. The unit was brought in to its full capacity only on 18th August 2011, hence there has been no generation recorded during FY 2010-11.

3.10 Computation of Fuel Expenses for FY 2010-11 and FY 2011-12

3.10.1 Based on actual operating and fuel related parameters recorded by TANGEDCO during FY 2010-11 and FY 2011-12, plantwise variable cost arrived are tabulated below.

Table 8: Variable Cost for FY 2010-11 and FY 2011-12

Rs. Crores

Sr. No.	Power Station	FY 2010-11	FY 2010-11	FY 2011-12	FY 2011-12
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	149	201	266	313
2	Tuticorin TPS	676	822	2,130	2,473
3	Mettur TPS	561	672	1,669	2,066
4	North Chennai TPS	326	389	940	995
				-	-
5	Tirumakottai GTPS	45	44	114	120
6	Kuttalam GTPS	14	-	85	73
7	Basin Bridge GTPS	22	63	55	49
8	Valuthur Unit-I	37	53	119	86
9	Valuthur Unit-II	-	-	77	59
				-	-
10	Erode HEP	-	-	0	0
11	Kadamparai HEP	0	0	0	0
12	Kundah HEP	0	0	0	0
13	Tirunelveli HEP	0	1	0	3
	Total	**1,830**	**2,245**	**5,456**	**6,239**

3.10.2 Based on operating parameters and actual fuel cost, energy charges for FY 2010-11 for TANGEDCO's power stations are indicated below.

Table 9: Variable Cost per Unit for FY 2010-11 and FY 2011-12 (Rs. /kWh)

Sr. No.	Power Station	FY 2010-11	FY 2010-11	FY 2011-12	FY 2011-12
		Approved	Actuals	Approved	Actuals
1	Ennore TPS	3.12	3.98	3.19	4.21
2	Tuticorin TPS	2.49	3.11	3.04	3.41
3	Mettur TPS	2.43	2.80	2.68	3.29
4	North Chennai TPS	1.91	2.08	2.04	2.31
5	Tirumakottai GTPS	1.87	1.61	1.76	1.82
6	Kuttalam GTPS	2.79	-	1.85	1.91
7	Basin Bridge GTPS	10.28	16.19	12.35	16.80
8	Valuthur Unit-I	1.70	1.76	1.78	1.41
9	Valuthur Unit-II	-	-	1.76	1.43

3.10.3 TANGEDCO hereby submits that the approved fuel cost is considered as per last tariff order dated 30th March 2012. TANGEDCO submits that as per the review order dated 4th December 2012, the Hon'ble Commission vide paragraph no. 6.25 of the order has observed that there was an error in calculation of variable cost of various thermal generating station and the difference needs to be recovered through Fuel adjustment mechanism or at time of true-up mechanism. In line with the specified order, the financial impact of the review order dated 4th December 2012 has not been considered while filing this petition and same needs to be addressed at the time of finalization of the tariff order.

3.11 Summary of Variable Cost for FY 2010-11 and FY 2011-12

3.11.1 The following table shows the summary of Variable Cost for FY 2010-11 and FY 2011-12.

Table 10: Summary of Variable Cost for FY 2010-11

Sr. No.	Power Station	FY 2010-11				
		Gross Generation (in MUs)	Auxilliary Consumption (in MUs)	Net Generation (in MUs)	Variable Cost (in Crores)	Varible Cost (Per Unit)
1	Ennore TPS	600	95	505	201	3.98
2	Tuticorin TPS	2,887	239	2,648	822	3.11
3	Mettur TPS	2,620	217	2,402	672	2.80
4	North Chennai TPS	2,046	178	1,868	389	2.08
5	Tirumakottai GTPS	291	20	271	44	1.61
6	Kuttalam GTPS	-	-	-	-	
7	Basin Bridge GTPS	39	0	39	63	16.19
8	Valuthur Unit-I	320	19	302	53	1.76
9	Valuthur Unit-II	-	-	-	-	
10	Erode HEP	510	3	507	-	-
11	Kadamparai HEP	-	-	-	0	
12	Kundah HEP	1,018	5	1,012	0	0.00
13	Tirunelveli HEP	368	2	366	1	0.03
14	Wind	1	-	1	-	-
	Total	**10,700**	**778**	**9,922**	**2,245**	

Table 11: Summary of Variable Cost for FY 2011-12

Sr. No.	Power Station	FY 2011-12				
		Gross Generation (in MUs)	Auxilliary Consumption (in MUs)	Net Generation (in MUs)	Variable Cost (in Crores)	Varible Cost (Per Unit)
1	Ennore TPS	894	149	744	313	4.21
2	Tuticorin TPS	7,892	630	7,262	2,473	3.41
3	Mettur TPS	6,845	565	6,279	2,066	3.29
4	North Chennai TPS	4,693	392	4,301	995	2.31
				-		
5	Tirumakottai GTPS	706	46	660	120	1.82
6	Kuttalam GTPS	413	30	383	73	1.91
7	Basin Bridge GTPS	30	0	29	49	16.80
8	Valuthur Unit-I	659	46	613	86	1.41
9	Valuthur Unit-II	446	31	414	59	1.43
				-		
10	Erode HEP	1,424	7	1,416	0	0.00
11	Kadamparai HEP	-	-	-	0	
12	Kundah HEP	2,467	13	2,455	0	0.00
13	Tirunelveli HEP	957	5	952	3	0.03
				-		
14	Wind	12	-	12	-	-
	Total	**27,436**	**1,915**	**25,521**	**6,239**	

3.12 Capital Expenditure and Capitalization

3.12.1 TANGEDCO submits that the expenditure incurred in each of the power station is on account of regular repairs and maintenance works like replacement of worn-out machinery, damaged equipments, transformers, boilers, generators, stators, auxiliary equipments, etc which are necessary works to be carried out for effective and efficient working of the power station.

3.12.2 TANGEDCO also submits that the expenditure incurred for the distribution function during the respective years is on account of regular operational and maintenance works carried out during the respective years which were necessary for efficient working of the distribution system.

3.12.3 The works carried out for the distribution function are mainly on account of addition of LT and HT lines, distribution transformers, services rendered during the respective years and works carried out under RGGVY scheme.

3.12.4 The expenditure recorded in FY 2010-11 is for the last five months of FY 2010-11 i.e. from 1st Nov 2010 to 31st March 2010 after formation of TANGEDCO as a separate entity.

3.12.5 TANGEDCO submits that the additional expenditure incurred is in line with the clause 19 of the TNERC Tariff Regulations which have been incurred for efficient and successful operation of the Generating Station and Distribution function.,

Table 12: Capital Expenditure for FY 2010-11 and FY 2011-12

Rs. Crores

Sr. No.	Praticulars	Capital Expenditure	
		FY 2010-11	FY 2011-12
1	Enore TPS	0.61	1.00
2	Tuticorin TPS	4.31	3.70
3	Mettur TPS	1.04	-
4	NCTPS	626.20	0.05
5	BBGTPS	-	-
6	KGTPS	14.51	0.02
7	TKGTPS	-	-
8	VGTPS	2.71	-
9	Erode	0.65	26.86
10	Kadamparai	0.08	-
11	Kundah	5.42	0.01
12	Tirunelveli	0.88	1.07
	Total Generation	**656.41**	**32.70**
	Total Distribution	**746.27**	**3,525.94**
	Total Capital Expenditure	**1,402.68**	**3,558.64**

Table 13: Capitalization for FY 2010-11 and FY 2011-12

Rs. Crores

Sr. No.	Praticulars	Capitalization	
		FY 2010-11	FY 2011-12
	Thermal	**69.05**	**82.64**
1	Enore TPS	-	0.18
2	Tuticorin TPS	11.16	7.85
3	Mettur TPS	56.04	15.29
4	NCTPS	1.85	59.31
	Gas	**2.41**	**-**
5	BBGTPS	2.33	-
6	KGTPS	-	-
7	TKGTPS	0.09	-
8	VGTPS	-	-
	Hydro	**23.44**	**8.80**
9	Erode	0.56	0.86
10	Kadamparai	0.02	0.25
11	Kundah	5.41	3.15
12	Tirunelveli	17.45	4.53
	Total Generation	**94.90**	**91.44**
	Total Distribution	**316.20**	**566.20**
	Total Capitalization	**411.10**	**657.64**

3.13 Fixed Cost for FY 2010-11 and FY 2011-12

3.13.1 TANGEDCO has determined actual fixed cost for its generating station on the basis of TNERC (Terms & Conditions of Tariff) Regulation, 2005 and annual audited accounts for FY 2010-11 and provisional accounts of FY 2011-12.

3.13.2 The fixed cost for generating plants for FY 2010-11 and FY 2011-12 categorized under the following heads may kindly be allowed.

- ✓ Depreciation
- ✓ Interest and Finance Charges
- ✓ Return on Equity
- ✓ Operation and Maintenance Expenses
- ✓ Interest on Working Capital
- ✓ Other Debits

3.14 Depreciation

3.14.1 TANGEDCO submits that the opening gross block for each of the generating plant and for distribution function for FY 2010-11 (5 months) is considered in line with the provisional transfer scheme notified by the Government of Tamil Nadu vide notification dated 2nd January 2012.

3.14.2 The additions and deductions during the year are considered actual as per audited figures during the period for FY 2010-11 and provisional additions during the year for FY 2011-12.

3.14.3 The depreciation claimed during the year is based on the average depreciation rates computed based on the audited accounts for FY 2010-11 and provisional accounts for FY 2011-12.

3.14.4 The depreciation considered for FY 2010-11 and FY 2011-12 is in line with the audited accounts for FY 2010-11 and provisional accounts for FY 2011-12 respectively. It is submitted that the depreciation rate considered in annual accounts are in line with the TNERC Tariff Regulations and has been calculated only on the opening balance of GFA.

3.14.5 Based on the opening gross block and capital additions during the year. The actual depreciation for generation function for 5 months of FY 2010-11 is **Rs. 138.74 Crores** and **Rs. 334.16 Crores** for FY 2011-12.

3.14.6 The table below shows the comparison of actual plant wise depreciation for FY 2010-11 and FY 2011-12 with that of approved in last tariff order for generation function.

Table 14: Depreciation for FY 2010-11 and FY 2011-12 - Generation

Rs. Crores

Sr. No	Power Station	FY 2010-11		FY 2011-12	
		Approved	Actual	Approved	Actual
1	Ennore TPS	17.99	15.77	31.54	37.79
2	Tuticorin TPS	21.34	27.12	53.90	64.49
3	Mettur TPS	15.67	14.29	39.70	36.04
4	North Chennai TPS	25.63	25.77	63.30	61.66
5	Tirumakottai GTPS	8.42	6.66	19.36	15.90
6	Kuttalam GTPS	1.76	5.17	15.86	12.32
7	Basin Bridge GTPS	12.50	8.26	30.00	19.81
8	Valuthur GTPS	10.88	8.00	41.27	19.11
				-	-
9	Erode HEP	5.86	8.49	14.11	20.36
10	Kadamparai HEP	3.71	4.40	8.90	10.52
11	Kundah HEP	9.33	10.46	22.50	25.16
12	Tirunelveli HEP	2.83	4.35	9.40	10.99
	Grand Total	**135.92**	**138.74**	**349.84**	**334.16**

3.14.7 The table below shows the comparison of actual depreciation for FY 2010-11 as per audited accounts and FY 2011-12 as per provisional accounts with that of approved in last tariff order for distribution function.

3.14.8 The actual depreciation for 5 months of FY 2010-11 and provisional depreciation for FY 2011-12 for distribution function is **Rs. 114.86 Crores** and **Rs. 284.11 Crores** respectively as per derived in the table given below.

Table 15: Depreciation for FY 2010-11 and FY 2011-12 - Distribution

Rs. Crores

Sr. No.	Particulars	Reference	FY 2010-11	FY 2010-11	FY 2011-12	FY 2011-12
			Aprroved	Actuals	Aprroved	Actuals
1	Gross Block in Beginning of the year	B/S	7,810.53	13,575.07	8,407.54	13,839.59
2	Additions during the Year (Net)	B/S	597.01	316.20	1,080.94	566.20
3	Deductions	B/S		51.68		16.15
4	Closing Balance		8,407.54	13,839.59	9,488.48	14,389.64
5	Depreciation for the Year	Based on Average Rate of Depreciation	95.42	114.86	254.05	284.11
6	Average Rate of Depreciation	Based on Tariff Order	2.93%	2.03%	3.02%	2.05%

3.14.9 As per Regulation 24 of TNERC (Terms and Conditions for Determination of Tariff) Regulations – 2005, TANGEDCO is entitled eligible to claim advance against depreciation which is equivalent to the difference between the depreciation claimed and the repayments made during the year. However TANGEDCO would like to submit that since the loans of erstwhile TNEB has been bifurcated to the successor companies on the provisional basis and the FRP is also in process; TANGEDCO is not claiming the Advance against Depreciation in the present petition. However it is submitted to allow Advance against Depreciation considering the retrospective effect, once the Financial Restructuring Plan and final transfer scheme is finalized.

3.15 Interest on Loan and Other Finance Charges

3.15.1 The table below shows the comparison of actual plantwise interest on loan for FY 2010-11 and FY 2011-12 with that of approved in last tariff order for generation function.

Table 16: Interest and Finance Charges FY 2010-11 and FY 2011-12 - Generation

Rs. Crores

Sr. No	Power Station	FY 2010-11		FY 2011-12	
		Approved	Actual	Approved	Actual
1	Ennore TPS	2.42	15.06	4.38	41.50
2	Tuticorin TPS	5.85	67.73	15.30	146.08
3	Mettur TPS	3.25	29.28	8.50	89.46
4	North Chennai TPS	6.42	89.16	16.50	249.07
				-	-
5	Tirumakottai GTPS	1.46	27.86	3.48	74.73
6	Kuttalam GTPS	0.30	21.39	2.83	57.51
7	Basin Bridge GTPS	1.75	27.59	4.40	77.30
8	Valuthur GTPS	1.67	34.72	6.61	93.38
9	Erode HEP	2.15	31.73	5.37	80.03
10	Kadamparai HEP	1.13	5.40	2.90	17.42
11	Kundah HEP	3.04	7.50	7.60	46.01
12	Tirunelveli HEP	0.96	17.00	3.30	41.68
		-	-	-	-
	Grand Total	**30.40**	**374.41**	**81.17**	**1,014.16**

3.15.2 The table below shows the actual interest on loan for 5 months of FY 2010-11 and provisional interest on loan for FY 2011-12 for distribution function.

Table 17: Interest and Finance Charges FY 2010-11 and FY 2011-12 - Distribution

Rs. Crores

Sr. No.	Particulars	FY 2010-11		FY 2011-12	
		Approved	Actuals	Approved	Actuals
1	Opening Loans	16,471.00	6,830.26	24,057.00	8,967.56
2	Loan Additions during the Year	6,928.33	3,024.28	15,153.00	8,283.33
3	Repayment during the Year	3,764.58	886.98	9,256.00	3,297.77
4	Closing Loans	19,634.75	8,967.56	29,954.00	13,953.12
5	**Average Loans**	**18,052.88**	**7,898.91**	**27,005.50**	**11,460.34**
6	Interest on Loan	687.92	499.13	3,150.00	1,396.07
7	Interest on Security Deposit to the Consumers		145.34		380.05
8	Guarantee Charges		14.80		39.04
9	Other Charges (Finance Cost Paid)		33.98		101.51
10	**Total Interest & Financial Charges**	**687.92**	**693.26**	**3,150.00**	**1,916.68**

3.15.3 The opening balance of loans as on 1st November 2010 for TANGEDCO is based on the provisional transfer scheme notified as on 2nd January 2012 as taking over of loans from erstwhile Tamil Nadu Electricity Board (TNEB). Therefore TANGEDCO submits that they have an obligation to service the debt transferred to them as per government notification.

3.15.4 TANGEDCO would like to submit that the loan of a financial institution is not linked with any particular generating plant or the CAPEX schemes and erstwhile TNEB used to have a basket of loan which was used to meet the total capital expenditure of erstwhile TNEB. Hence it is difficult to identify the debt / interest and equity of the generating plant or station wise or distribution function wise. Therefore, the following approach has been adopted for segregation of interest to the generating plant / station and distribution function where TANGEDCO request the Hon'ble Commission to approve the same.

3.15.5 TANGEDCO submits that project specific loans for generation and distribution is initially allotted to each of the respective project and considered as opening loan balance for that particular project. However TANGEDCO has a large quantum of generic loans which cannot be differentiated into project specific loans.

3.15.6 It is to be submitted that the generic loans and interest paid by TANGEDCO cannot be entirely bifurcated into project specific loans. Therefore the opening balance of generic loans and interest paid on these loans is bifurcated as per opening gross block of generation and distribution notified as per transfer scheme.

3.15.7 Loans and interest for generation is further bifurcated into asset allocation for each power station. The total interest claimed in generation function and distribution function is the actual interest paid during FY 2010-11 and FY 2011-12. The Hon'ble Commission is therefore requested to allow total interest of TANGEDCO as a whole bifurcated into generation and distribution function.

3.16 Interest on Working Capital

3.16.1 The table below shows the interest on working capital for 5 months of FY 2010-11 and for FY 2011-12 for generation function.

Table 18: Interest on Working Capital for FY 2010-11 and FY 2011-12 - Generation

Rs. Crores

Sr. No	Power Station	FY 2010-11		FY 2011-12	
		Approved	Actual	Approved	Actual
1	Ennore TPS	-	10.67	-	21.60
2	Tuticorin TPS	-	37.90	-	124.40
3	Mettur TPS	-	30.00	-	99.96
4	North Chennai TPS	-	18.59	-	52.58
				-	-
5	Tirumakottai GTPS	-	1.35	-	7.16
6	Kuttalam GTPS	-	1.00	-	4.83
7	Basin Bridge GTPS	-	3.06	-	5.06
8	Valuthur GTPS	-	2.15	-	8.63
9	Erode HEP	-	1.62	-	4.49
10	Kadamparai HEP	-	0.77	-	2.07
11	Kundah HEP	-	1.48	-	4.66
12	Tirunelveli HEP	-	0.99	-	2.76
		-	-	-	-
	Grand Total	**-**	**109.58**		**338.19**

3.16.2 The table below shows the interest on working capital for 5 months of FY 2010-11 and for FY 2011-12 for distribution function.

Table 19: Interest on Working Capital for FY 2010-11 and FY 2011-12 - Distribution

Rs. Crores

Sr. No.	Particulars	Reference	FY 2010-11		FY 2011-12	
			Approved	Actuals	Approved	Actuals
1	O & M expenses	One Month		277.66		304.39
2	Maintenance Spares	1% of Historic Cost Escalated @ 6%		147.06		152.36
3	Receivables	Two Month Receivable		2,932.89		3,127.22
	Total Working Capital		-	3,357.61	-	3,583.97
	Rate of Interest on Working Capital		11.75%	11.75%	13.00%	13.00%
	Interest on Working Capital		**-**	**164.38**	**-**	**465.92**

3.16.3 The interest on working capital claimed in the above table is computed based on normative calculation as specified in TNERC (Terms and Conditions of Tariff) Regulations, 2005.

3.16.4 The interest on working capital is a part of fixed cost to be recovered and hence shall be allowed for five months of FY 2010-11 and for entire year of FY 2011-12.

3.17 Return on Equity

3.17.1 The table below shows the return on equity for 5 months of FY 2010-11 and for FY 2011-12 for generation function.

Table 20: Return on Equity for FY 2010-11 and FY 2011-12 - Generation

Rs. Crores

Sr. No	Power Station	FY 2010-11		FY 2011-12	
		Approved	Actual	Approved	Actual
1	Ennore TPS	4.73	8.62	11.39	26.81
2	Tuticorin TPS	11.98	15.07	39.30	47.06
3	Mettur TPS	6.67	9.36	21.60	28.88
4	North Chennai TPS	13.29	16.66	42.10	51.52
5	Tirumakottai GTPS	2.83	3.69	8.93	11.47
6	Kuttalam GTPS	0.63	2.83	7.32	8.84
7	Basin Bridge GTPS	3.67	4.42	11.40	13.80
8	Valuthur GTPS	3.43	4.60	14.17	14.18
9	Erode HEP	4.46	5.93	13.90	18.28
10	Kadamparai HEP	2.33	2.94	7.40	9.16
11	Kundah HEP	6.21	7.75	19.70	24.14
12	Tirunelveli HEP	1.88	2.49	7.50	8.18
				-	-
	Grand Total	**62.10**	**84.35**	**204.71**	**262.34**

3.17.2 The table below shows the return on equity for 5 months of FY 2010-11 and for FY 2011-12 for distribution function.

Table 21: Return on Equity for FY 2010-11 and FY 2011-12 - Distribution

Rs. Crores

Sr. No.	Particulars	FY 2010-11		FY 2011-12	
		Approved	Actuals	Approved	Actuals
1	Opening Equity Capital	-	1,112.72	-	1,112.72
2	Additions during the year	-	-	-	1,147.68
3	Closing Equity	-	1,112.72	-	2,260.40
		-	-	-	-
4	Average Equity	-	1,112.72	-	1,686.56
5	Rate of Return on the Equity	-	14%	-	14%
6	**Return on Equity**	-	**64.91**	-	**236.12**

3.17.3 The total equity balance as on 1st November 2010 is bifurcated into generation and distribution based on the opening balance of gross block allotted to generation and distribution of TANGEDCO.

3.17.4 Equity for generation function is further sub-allocated into plantwise based on opening gross block for each of the plant. The additions and deductions during the year is considered as per actual for FY 2010-11 and provisional for FY 2011-12.

3.17.5 The return on equity for entire year of FY 2010-11 has been brought down on pro rata basis for last five months of FY 2010-11. However return on equity for the entire year has been considered for entire year for FY 2011-12.

3.17.6 The rate of return on equity has been considered at 14% as specified in TNERC (Terms and Conditions of Tariff) Regulations, 2005.

3.17.7 TANGEDCO would like to submit that the opening equity is as per the 2nd provisional transfer scheme notified by the Government dated 2nd Jan 2012 and the GFA is funded partly by loan and equity. Accordingly, the opening equity and the GFA for the year FY 2010-11 are determined.

3.17.8 The Hon'ble Commission in its tariff order disallowed Return of Equity on the grounds that loan borrowing is more than the capital expenditure incurred. However, TANGEDCO would like to submit that a utility is entitled for Return on Equity as the RoE earned is invested every year to carry out future capacity additions. The relevant extracts of TNERC (Terms & Conditions of Tariff) Regulation 2005 is reproduced herein:

"*21. Debt-Equity Ratio*

For the purpose of determination of tariff, debt-equity ratio as on the date of *commercial operation of Generating Station and transmission projects, sub-station, distribution lines or capacity expanded after the notification of these Regulations shall be 70:30. Where equity employed is more than 30% the amount of equity shall be limited to 30% and the balance amount shall be considered as loans, advanced at the weighted average rate of interest and for weighted average tenor of the long term debt component of the investment"*

"Provided that in case of a Generating Company or other licensees, where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of return on equity in tariff computation." ***(Emphasis Added)***

3.17.9 TANGEDCO would like to submit that Return on Equity is a surplus generated which entitles a utility to safeguard itself against any uneven contingencies or a force majeure event in future. Also, clause 5.3(a) of the National Tariff Policy states that:

"Balance needs to be maintained between the interests of consumers and the need for investments while laying down rate of return. Return should attract investments at par with, if not in preference to, other sectors so that the electricity sector is able to create adequate capacity. The rate of return should be such that it allows generation of reasonable surplus for growth of the sector. (Emphasis Added)"

3.17.10 Also, APTEL order in the case for KPTCL v/s. KERC, states as follows:

"The Appellate Tribunal observed that merely because there is no notification or allocation indicating the capital or investment or such other sum cannot be reason enough to deny return of equity."

3.17.11 In the last tariff order dated 30th March 2012, the Hon'ble Commission has specified that loan borrowing is more than the capital expenditure incurred and hence there is no additional equity infusion for funding of Capital expenditure for creation of new assets. In line with that, TANGEDCO would like to submit that due to precarious financial situation of erstwhile TNEB and TANGEDCO, there was a mismatch in Revenue and capital expenditure. However, the opening balance of equity as per transfer scheme notification dated 2nd January 2012 is utilised for funding the opening balance of GFA and it is submitted that the RoE on the opening balance of TANGEDCO Balance Sheet may kindly be allowed.

3.17.12 Also TANGEDCO would like to submit that the cost of equity is always higher than the cost of finance and depriving TANGEDCO from RoE of 14% is resulting in additional cost burdened on the cash starved utility such as TANGEDCO.

3.17.13 In line with the above submission, it is submitted to allow RoE on the equity claimed @14% p.a

3.18 Operation and Maintenance Expenses

3.18.1 The table below shows the operation and maintenance expenses for 5 months of FY 2010-11 and for FY 2011-12 for generation function.

Table 22: O&M Expenses for FY 2010-11 and FY 2011-12 - Generation

Rs. Crores

Sr. No	Power Station	FY 2010-11		FY 2011-12	
		Approved	Actual	Approved	Actual
1	Ennore TPS	28.09	40.73	50.98	109.34
2	Tuticorin TPS	43.28	60.92	111.57	190.72
3	Mettur TPS	34.51	48.08	86.13	102.59
4	North Chennai TPS	50.58	46.72	126.24	116.00
5	NCTPS Stage-II**	-	-	-	-
6	MTPS Stage-III**	-	-	-	-
		-	-	-	-
7	Tirumakottai GTPS	3.10	2.73	7.78	10.06
8	Kuttalam GTPS	2.30	0.82	17.04	7.14
9	Basin Bridge GTPS	2.49	2.72	6.23	5.69
10	Valuthur GTPS	3.30	21.06	7.52	7.95
11	Erode HEP	14.34	11.10	35.79	26.52
12	Kadamparai HEP	8.02	10.88	20.03	22.05
13	Kundah HEP	16.13	15.18	37.34	35.91
14	Tirunelveli HEP	9.70	9.66	24.22	24.19
		-	-	-	-
	Grand Total	**215.85**	**270.60**	**530.87**	**658.16**

3.18.2 The table below shows the operation and maintenance expenses for 5 months of FY 2010-11 and for FY 2011-12 for distribution function.

Table 23: O&M Expenses for FY 2010-11 and FY 2011-12 - Distribution

Rs. Crores

Sr. No.	Particulars	FY 2010-11		FY 2011-12	
		Approved	Actuals	Approved	Actuals
1	Employee Cost	1,052.15	1,380.15	2,626.16	3,609.51
2	Repair & Maintenance	17.23	24.71	43.01	64.04
3	Administration & General Expenses	23.56	61.47	58.81	159.99
	Operation & Maintenance Expenses	**1,092.94**	**1,466.34**	**2,727.98**	**3,833.53**

3.18.3 The operation and maintenance expenses claimed in true up for generation and distribution function for FY 2010-11 is based on audited accounts for 5 months of FY 2010-11 and provisional accounts of FY 2011-12.

3.18.4 TANGEDCO has to undertake independently number of activities such as planning, safety, quality assurance, human resources, IT, corporate office, regulatory affairs, legal, accounts, finances, auditing etc and various miscellaneous activities.

3.18.5 The Hon'ble Commission is therefore requested to allow the actual audited operation and maintenance expenses incurred by generation and distribution function of TANGEDCO for FY 2010-11 and expenses as per provisional accounts of FY 2011-12.

3.19 Other Debits

3.19.1 The table below shows the other debits for 5 months of FY 2010-11 and for FY 2011-12 for generation function.

Table 24: Other Debits for FY 2010-11 and FY 2011-12 - Generation

Rs. Crores

Sr. No	Power Station	FY 2010-11		FY 2011-12	
		Approved	Actual	Approved	Actual
1	Ennore TPS	0.06	3.90	0.10	11.65
2	Tuticorin TPS	0.12	1.61	0.30	7.11
3	Mettur TPS	0.08	3.58	0.20	1.57
4	North Chennai TPS	0.13	9.17	0.40	24.16
				-	-
5	Tirumakottai GTPS	0.04	0.44	0.09	0.47
6	Kuttalam GTPS	0.01	68.21	0.06	0.13
7	Basin Bridge GTPS	0.05	0.01	0.14	0.05
8	Valuthur GTPS	0.04	20.60	0.19	0.00
				-	-
9	Erode HEP	0.05	0.04	0.12	0.10
10	Kadamparai HEP	0.04	(0.06)	0.10	0.00
11	Kundah HEP	0.08	0.06	0.20	0.15
12	Tirunelveli HEP	0.04	0.95	0.10	2.84
	Grand Total	**0.74**	**108.50**	**2.00**	**48.23**

3.19.2 The cost of **Rs. 68.21 Crores** towards other debits for Kuttalam GTPS is due to minimum guarantee off take of natural gas and transmission charges for supply of gas where this cost has been reflected in other debits.

3.19.3 Natural Gas is used as a fuel in Gas Turbine Power stations of TANGEDCO and the same is being supplied by M/s. GAIL, as per the Gas Sales Agreement executed between M/s. GAIL (as seller) and TANGEDCO (as buyer).

3.19.4 As per the conditions of the above Gas Sales agreement, the buyer shall pay to the seller for actual quantity of the gas supplied by the seller to buyer subject to the minimum payment for 90% of the annual quantities of gas supplied.

3.19.5 For the purpose of the supply of gas to the respective buyer, M/s. GAIL (seller) have laid gas pipe lines and the same is being maintained by the seller. Transmission Charges is being levied once in a month along with the first fortnight Gas consumption charges for transmission and delivery of Gas by M/s. GAIL up to the delivery point of the respective Gas Power station

3.19.6 The table below shows the other debits for 5 months of FY 2010-11 and for FY 2011-12 for distribution function.

Table 25: Other Debits for FY 2010-11 and FY 2011-12 - Distribution

Rs. Crores

Sr. No.	Particulars	FY 2010-11		FY 2011-12	
		Approved	Actuals	Approved	Actuals
1	Research and Development Expenses	0.05	0.04	0.11	0.06
2	Bad and Doubtful Debts Written Off	10.99	9.01	26.91	9.53
3	Miscellaneous Losses and Written Off/Provided for	0.96	1.72	2.34	4.68
4	Material Cost Variance	0.19	-	0.47	(0.10)
5	Sundry Expenses	-	-	-	-
6	Extra Ordinary Debits	0.05	-	0.11	23.81
	Total	**12.23**	**10.77**	**29.95**	**37.97**
	Less Capitalization	0.56	0.01	1.37	0.01
	Net Expenses	**11.68**	**10.76**	**28.58**	**37.97**

3.19.7 It is submitted that the other debits incurred during five months of FY 2010-11 and FY 2011-12 are related to the relevant revenue expenditure as discussed above and hence may entirely be allowed.

3.20 Other Income

3.20.1 The other income mainly comprises of interest on staff loans and advances, income from investments, income from trading, rebate on power purchase bills, interest on staff welfare and gain on sale of fixed asset.

3.20.2 The following table shows the other income for FY 2010-11 and FY 2011-12 pertaining to generation function.

Table 26: Other Income for FY 2010-11 and FY 2011-12 – Generation

Rs. Crores

Sr. No	Power Station	FY 2010-11		FY 2011-12	
		Approved	Actual	Approved	Actual
1	Ennore TPS	1.21	9.88	3.09	26.37
2	Tuticorin TPS	7.58	21.93	13.90	41.63
3	Mettur TPS	9.08	17.16	14.10	40.06
4	North Chennai TPS	5.92	9.77	10.70	19.62
5	Tirumakottai GTPS	-	0.02	0.09	1.55
6	Kuttalam GTPS	0.00	0.01	0.01	0.01
7	Basin Bridge GTPS	0.00	0.12	0.10	0.20
8	Valuthur GTPS	0.04	0.01	0.10	0.05
10	Erode HEP	0.04	0.21	0.42	0.26
11	Kadamparai HEP	0.08	0.08	0.30	0.30
12	Kundah HEP	0.33	0.83	1.00	1.08
13	Tirunelveli HEP	0.52	0.57	1.70	3.79
			-		-
	Grand Total		**60.60**		**134.91**

3.20.3 The other income as per actual for five months of FY 2010-11 and entire year of FY 2011-12 is **Rs. 60.60 Crores** and **Rs. 134.91 Crores** respectively pertaining to generation function.

3.20.4 The following table shows the other income for FY 2010-11 and FY 2011-12 pertaining to distribution function.

Table 27: Other Income for FY 2010-11 and FY 2011-12 – Distribution

Rs. Crores

Sr. No.	Particulars	FY 2010-11		FY 2011-12	
		Approved	Actuals	Approved	Actuals
1	Interest on Staff Loans & Advances	-	1.70	-	4.38
2	Income from Investment	-	0.00	-	0.01
3	Interest on Loans & Advances to Licensees	-	-	-	-
4	Delayed Payment Surcharges Collected from Consumers	-	12.40	-	35.77
5	Interest on Advances to Suppliers / Contractors	-	2.18	-	9.03
6	Interest from Banks	-	0.01	-	0.04
7	Income from Trading	-	8.83	-	17.45
8	Rebate on power purchase bills	-	27.33	-	14.89
9	Income from Staff Welfare	-	0.03	-	0.23
10	Miscellaneous Receipts	-	33.75	-	59.21
11	Gain on Sale of Fixed Assets		6.28	-	0.04
	Total	**114.58**	**92.52**	**289.00**	**141.05**

3.20.5 The other income for FY 2010-11 and FY 2011-12 for distribution function is **Rs. 92.52 Crores** and **Rs. 141.05 Crores** as compared to **Rs. 114.58 Crores** and **Rs. 289 Crores** approved in last tariff order respectively.

3.21 Non Tariff Income

3.21.1 The non tariff income pertaining to distribution function is **Rs. 216.94 Crores, t**he breakup of which is given in the table below.

Table 28: Non Tariff Income for FY 2010-11 - Distribution

Rs. Crores

Sr. No.	Particulars	FY 2010-11	
		Approved	Actuals
1	Meter Rent / Service line Rentals		7.26
2	Recoveries of Theft of Power / Malpractices		23.43
3	Wheeling Charges Recoveries		25.76
4	Miscellaneous Charges collected from Consumers		160.49
	Total	**217.5**	**216.94**

3.21.2 The non tariff income pertaining to distribution function is **Rs. 643.66 Crores**. The breakup of which is given in the table below.

Table 29: Non Tariff Income for FY 2011-12 - Distribution

Rs. Crores

Sr. No.	Particulars	FY 2011-12	
		Approved	Actuals
1	Meter Rent / Service line Rentals		20.30
2	Recoveries of Theft of Power / Malpractices		87.47
3	Wheeling Charges Recoveries		136.52
4	Miscellaneous Charges collected from Consumers		399.38
	Total	**624.00**	**643.66**

3.22 Prior Period Items

3.22.1 During FY 2011-12 the net prior period expenses comes out to **Rs. 1052 Crores** which is mainly on account of payments made relating to power purchase, revision in tariff payments and fuel price adjustment to Central Generating Stations. It also includes employee cost interest and other administrative expenses relating to prior period.

3.23 Summary of Fixed Cost of Generation for FY 2010-11 and FY 2011-12

3.23.1 The following table shows the summary of fixed cost for FY 2010-11 for Generation Function.

Table 30: Summary of Fixed Cost for FY 2010-11- Generation

Rs. Crores

Sr. No.	Power Station	FY 2010-11							
		Depreciation	Interest & Finance charges	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Other Income	Total Fixed Cost
1	Ennore TPS	16	15	9	11	41	4	10	85
2	Tuticorin TPS	27	68	15	38	61	2	22	188
3	Mettur TPS	14	29	9	30	48	4	17	117
4	North Chennai TPS	26	89	17	19	47	9	10	196
5	Tirumakottai GTPS	7	28	4	1	3	0	0	43
6	Kuttalam GTPS	5	21	3	1	1	68	0	99
7	Basin Bridge GTPS	8	28	4	3	3	0	0	46
8	Valuthur Unit-I	8	35	5	2	21	21	0	91
9	Valuthur Unit-II	-	-	-	-	-	-	-	
10	Erode HEP	8	32	6	2	11	0	0	59
11	Kadamparai HEP	4	5	3	1	11	(0)	0	24
12	Kundah HEP	10	7	8	1	15	0	1	42
13	Tirunelveli HEP	4	17	2	1	10	1	1	35
	Total Generation	**139**	**374**	**84**	**110**	**271**	**109**	**61**	**1,026**

3.23.2 The following table shows the summary of fixed cost for FY 2011-12 for Generation Function.

Table 31: Summary of Fixed Cost for FY 2011-12- Generation

Rs. Crores

Sr. No.	Power Station	FY 2011-12								
		Depreciation	Interest & Finance charges	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Net Prior Period	Other Income	Total Fixed Cost
1	Ennore TPS	38	41	27	22	109	12	(0)	26	222
2	Tuticorin TPS	64	146	47	124	191	7	0	42	538
3	Mettur TPS	36	89	29	100	103	2	3	40	322
4	North Chennai TPS	62	249	52	53	116	24	(1)	20	535
										-
5	Tirumakottai GTPS	16	75	11	7	10	0	0	2	118
6	Kuttalam GTPS	12	58	9	5	7	0	0	0	91
7	Basin Bridge GTPS	20	77	14	5	6	0	0	0	122
8	Valuthur GTPS	19	93	14	9	8	0	0	0	143
										-
9	Erode HEP	20	80	18	4	27	0	(0)	0	150
10	Kadamparai HEP	11	17	9	2	22	0	(2)	0	59
11	Kundah HEP	25	46	24	5	36	0	0	1	135
12	Tirunelveli HEP	11	42	8	3	24	3	1	4	88
	Grand Total	**334**	**1,014**	**262**	**338**	**658**	**48**	**2**	**135**	**2,522**

3.24 Total Cost for FY 2010-11 and FY 2011-12

3.24.1 The following table shows the total cost of generation for FY 2010-11 and FY 2011-12

Table 32: Total Cost of Generation for FY 2010-11 and FY 2011-12

Rs. Crores

Sr. No	Power Station	FY 2010-11			FY 2011-12		
		Total Variable Cost	Total Fixed Cost	Total Cost	Total Variable Cost	Total Fixed Cost	Total Cost
1	Ennore TPS	201	85	286	313	222	535
2	Tuticorin TPS	822	188	1,011	2,473	538	3,011
3	Mettur TPS	672	117	789	2,066	322	2,388
4	North Chennai TPS	389	196	585	995	535	1,530
						-	
5	Tirumakottai GTPS	44	43	86	120	118	239
6	Kuttalam GTPS	-	99	99	73	91	164
7	Basin Bridge GTPS	63	46	109	49	122	171
8	Valuthur Unit-I	53	91	144	86	143	229
9	Valuthur Unit-II	-		-	59		59
10	Erode HEP	-	59	59	0	150	150
11	Kadamparai HEP	0	24	24	0	59	59
12	Kundah HEP	0	42	42	0	135	135
13	Tirunelveli HEP	1	35	36	3	88	91
	Total Generation	**2,245**	**1,026**	**3,270**	**6,239**	**2,522**	**8,761**

3.25 Power Purchase Expenses for FY 2010-11 and FY 2011-12

3.25.1 It is submitted that the power purchase cost and units available in audited accounts for FY 2010-11 and provisional accounts for FY 2011-12 is inclusive of wheeling units. However while considering power purchase in the current petition, wheeling units are excluded as per approach adopted by Hon'ble Commission in last tariff order. The following table shows the power purchase in cost as well as in million units from other sources for FY 2010-11 and FY 2011-12 after excluding wheeling units.

Table 33: Power Purchase Expenses for FY 2010-11 and FY 2011-12

Sr.No.	Name of Power Plant	FY 2010-11		FY 2011-12	
		Power Purchase (in Mus)	Power Purchase (Rs. Crores)	Power Purchase (in Mus)	Power Purchase (Rs. Crores)
	Central Generating Station				
1	NLC-TS-I	1,213	247.44	3,146	675.76
2	NLC-TS-II (Stage-I & II)	1,244	216.09	3,167	811.80
3	NLC-TS-I Expansion	631	265.97	1,526	489.40
4	NTPC SR (I & II)	1,658	334.31	4,106	869.37
5	NTPC SR (III)	449	123.90	1,048	284.10
6	NTPC-Kayamkulam	343	350.63	205	267.95
7	NTPC ER	402	120.38	465	177.90
8	NTPC - Talcher II	1,542	392.09	3,622	1,024.53
9	MAPS	591	119.29	1,604	319.21
10	KAIGA	454	139.78	1,171	365.66
11	KSEB		-		-
11	Simahadri Unit - I	-		468	176.23
12	Simahadri Unit - II	-		101	41.49
	Total Central Generating Station	**8,528**	**2,310**	**20,630**	**5,503**
	IPP's				
1	GMR	393	375.20	858	969.19
2	Samalpatti	179	191.28	292	413.62
3	PPN	1,072	553.70	1,491	1,252.29
4	Madurai	168	181.31	282	419.25
5	ST-CMS	606	293.30	1,688	691.34
6	ABAN	357	113.18	760	240.87
7	Penna	148	48.67	360	120.60
	Total IPP's	**2,923**	**1,757**	**5,731**	**4,107**
	NCE				
1	CPP	218	36	2,778	476
2	Solar	2	1	11	9
3	Wind	(148)	58	5,893	2,369
4	Co-Generation	388	256	1,285	650
5	Biomass	38	18	73	33
	Total NCE	**498**	**368**	**10,040**	**3,537**
	Other Sources				
1	Traders - Bilateral	3,085	1,146	5,174	1,541
2	Traders - Exchange	1,618	751	1,032	152
3	UI	759	340	718	403
4	Wheeling				
	Total Other Sources	**5,462**	**2,237**	**6,923**	**2,096**
	Total Power Purchase from Other Sources	**17,411**	**6,671**	**43,324**	**15,243**
	NTPC NVVN	181	90.56	694	262.49
	PGCIL -SR Wheeling		197.41		520.47
	PGCIL ER Wheeling		6.15		3.65
	Transmission Charges Payable to TANTRANSCO		508.73		1,664.61
	ABTPGCIL		230.34		312.96
	PGCIL Reactive account		4.88		16.98
	Total Power Purchase Including Transmission Charges	**17,592**	**7,709**	**44,018**	**18,024**

3.26 Revenue from sale of power

3.26.1 The following table shows the categorywise sales and revenue earned by TANGEDCO for last five months of FY 2010-11 as per audited accounts and sales and revenue for FY 2011-12 as per provisional accounts. It is submitted to the Hon'ble Commission that the revenue shown in the table below is exclusive of subsidy and inclusive of wheeling sales.

Table 34: Sales and Revenue from sale of power for FY 2010-11 and FY 2011-12

Sr. No.	Consumer Category	FY 2010-11		FY 2011-12	
		Sales (in MUs)	Revenue (in Crores)	Sales (in MUs)	Revenue (in Crores)
I	**High Tension Supply (HT)**				
a	Registered factories,Textiles, Tea Estate, Software industries incl. Maint.	7,040	3,580	16,853	8,056
b	Railway Traction	248	119	707	285
c	Govt. Educational Instn, Hospitals, water supply etc.	482	232	927	440
d	Private Educational Instn, cinema Theaters & Studios	57	30	238	126
e	Actual places of public worship, Mutts and Religious Instn.	10	3	5	2
f	Commercial and all other categories	876	615	1,971	1,521
g	Lift Irrigation Co-operative societies	11	0	6	-
h	Supply to Pondicherry State and others	174	51	400	119
i	Supply to Other States (SWAP)	-	26		219
	Sub Total HT (A)	**8,896**	**4,656**	**21,107**	**10,767**
II	**Low Tension Supply (LT)**				
a	Domestic Purposes for lights & fans, Powerload etc.	6,251	1,038	17,336	3,027
b	Huts in Village panchayats, TAHDCO etc.	148	-	395	-
c	Defence Colonies etc. Notified Tariff	5	2	11	5
d	Public Lighting and Public Water Supply&Sewerage	672	219	1,629	524
e	Govt. Educational Instn, Hospitals, water supply etc.	202	98	123	62
f	Private Educational Instn, cinema Theaters & Studios	8	4	247	137
g	Actual places of public worship	42	22	100	26
h	Cottage and Tiny Industries,	261	75	132	36
i	Powerloom	324	38	769	127
j	Coffee grinding and Ice factories etc. and Industries not covered under L.T.Tariff IIIA	1,601	786	4,408	2,164
k	Agriculture and the Govt.seed farms	4,008	-	10,118	-
l	Commercial and all categories of Consumers not covered under IA, IB,IC, IIA, IIB, IIIA, III B and IV	1,732	1,156	4,828	3,234
n	Temp.supply:(a) Lighting and combined installation, (b) Lavish illuminations	10	10	24	25
	Sub Total LT (B)	**15,263**	**3,448**	**40,119**	**9,366**
	Total HT and LT {A+B}	**24,159**	**8,104**	**61,226**	**20,133**

3.27 Impact of Wheeling Units and Cost

3.27.1 The following table shows the bifurcation of wheeling units and cost which has been

excluded from the sales and revenue as specified in the audited and provisional accounts for FY 2010-11 and FY 2011-12 respectively. The same cost and units are also excluded from power purchase for FY 2010-11 and FY 2011-12. The net revenue and net power purchase has been considered for calculation of gap for FY 2010-11 and FY 2011-12. The power purchase cost considered in accounts for FY 2010-11 and FY 2011-12 is inclusive of transmission charges paid to TANTRANSCO.

Table 35: Wheeling Adjustment in Sales for FY 2010-11 and FY 2011-12

Particulars	FY 2010-11		FY 2011-12	
	Sales	Revenue	Sales	Revenue
	Mus	Rs. Crs	Mus	Rs. Crs
Sales as per Audited accounts	24,159	8,104	61,226	20,133
Less: Wheeling Units				
HT Industries	2,618	1,397	6,750	3,255
HT Commercial	87	61	289	194
Pvt. Educational Institutions etc.	4	2	10	5
Total Wheeling units	2,709	1,461	7,049	3,454
Net Sales	21,451	6,644	54,177	16,679

Table 36: Wheeling Adjustment in Power Purchase for FY 2010-11 and FY 2011-12

Particulars	FY 2010-11		FY 2011-12	
	Mus	Rs. Crs	Mus	Rs. Crs
Power Purchase as per Audited accounts	20,474	9,169	51,517	21,478
Less: Wheeling Units				
Traders	1,037	507	2,757	1,118
CPP	334	170	702	339
Wind	1,510	783	4,040	1,997
Total Wheeling units	2,882	1,460	7,499	3,454
Net Power Purchase	17,592	7,709	44,018	18,024

3.28 Energy Balance Excluding Wheeling Units

3.28.1 The following table shows the energy balance statement for FY 2010-11 and FY 2011-12 excluding wheeling units.

Table 37: Energy Balance Statement for FY 2010-11 and FY 2011-12 excluding wheeling units

Sr.No	Particulars	FY 2010-11 (MUs)	FY 2011-12 (MUs)
1	Power Purchase from Own Generation	10,212	26,027
2	Power Purchase from Other Sources	17,413	43,607
	Total Power Purchase	**27,625**	**69,633**
3	T&D Loss (in MUs)	6,017	15,322
4	T&D Loss (in %)	21.78%	22.00%
	Total Sales	**21,608**	**54,311**
5	Sales to Consumers	21,276	53,777
6	Power Supply to Kadamparai	332	534

3.29 Energy Balance Including Wheeling Units

3.29.1 It is submitted that the T&D losses approved by the Hon'ble Commission in tariff order dated 31st July 2010 was based on the trajectory fixed by the Hon'ble Commission starting with 18% for FY 2009-10 and subsequently reducing 0.4% for the ensuing years. TANGEDCO would like to aver that the T&D loss of 18% is a computed figure without any study and including wheeling units. However it would have been more relevant to fix T&D losses based on 5% Agriculture sampling for the control period than the computed figure of 18 %.

3.29.2 TANGEDCO would like to submit that in the Report "Loss Reduction Strategies Review of Provisions in Act and Policies" issued by Forum of Regulators in September 2008, FOR Group has specified in para 8.4.1 of page no. 21 of the report that

"The group felt that the trajectory for loss reduction should be determined keeping in view the actual loss levels, the capital expenditure made in the past for improving the network infrastructure, and the future capital expenditure plans for the purpose. This was important keeping in view the Orissa experience, where the loss level allowed in tariff at the beginning of the reforms process was much below the actual loss level and this completely distorted the revenue requirement and the utility went into a perennial loss".

3.29.3 It is submitted that the Hon'ble Commission has maintained the T&D loss, i.e., 16.80% approved for 2012-13 in the previous Tariff Order. However, the Hon'ble Commission has grossed up the total sales approved for FY 2012-13 by the T&D loss approved for FY 2012-13 in order to arrive at energy requirement during the year 2012-13 which has resulted into a lower energy requirement compared to realistic situation.

3.29.4 The additional energy sales approved for the year 2012-13 was 4976 Million units when compared to 2011-12, whereas the net energy requirement needs to be in line with the realistic T&D Loss (Page 115 of tariff order No 1 of 2012 dated 30.03.2012). Therefore, T&D loss for the year 2012-13 should be based on the actual sales approved by the Hon'ble Commission.

3.29.5 Further, if the loss trajectory as per the Hon'ble Commission is considered, i.e. 22.13%, it shall result into a reduction of 5.33% loss (22.13% - 16.80%) which is an uphill task and the same needs to be brought down to a reasonable. TANGEDCO would like to submit that measurement of the T&D losses and thereafter specifying a reduction target is an important component of the whole exercise of revenue requirement.

3.29.6 TANGEDCO humbly submit that the T&D loss arrived without any support data and thus requests the Hon'ble Commission to kindly approve revised T&D loss for FY 2010-11 to FY 2012-13.

3.29.7 It is submitted that computed consumption without sample study was higher than the computed consumption with sample study. The reduced agriculture consumption is due to lesser hours of supply under restriction & control measure and good monsoon.

3.29.8 It is submitted that due to lesser computed agriculture consumption for control period 2010-11 to 2011-13, T&D loss is increased more than the trajectory fixed in tariff order dated 31.07.2010 and revised T&D loss trajectory is to be fixed for the control period of 2010-11 to 2012-13 and TANGEDCO need not be penalised by disallowance of additional power purchase cost to a higher T&D loss than trajectory fixed.

3.29.9 It is submitted that T&D loss is basically the difference between the energy injected and energy drawal on the distribution system of the licensee. As defined, the Electric power transmission and distribution losses include losses in transmission between sources of supply and points of distribution and in the distribution to consumers, The energy injected in the Distribution system can be of the licensee, Open Access consumer, generator or any other licensee which is either wheeled through the system for their respective consumers or licensee's consumers.

3.29.10 The performance of the system is evaluated by the energy carried and loss of the system. It is submitted that the load of distribution Transformer or a feeder plays a vital role in determination of losses. The load is indifferent to the power injected by licensee or by any other user and the wheeling units are handled in the licensee's network. Considering the same logic T&D loss may be calculated taking into account the wheeled units on the Power Purchase as well as the sales.

3.29.11 The wheeling units in total power purchase are grossed up by 5% than the units considered in sales of FY 2010-11 and FY 2011-12. Similar methodology has been adopted for power supply to Pondicherry in sales and power form Pondicherry in power purchase.

3.29.12 The power supply to Kadamparai in sales and power purchase is as per methodology adopted by the Hon'ble Commission in last tariff order dated 30th March 2010.

3.29.13 Following table shows the T&D Loss computed considering the impact of wheeling units in the system.

Table 38: Energy Balance Statement for FY 2010-11 and FY 2011-12 inclusive of Wheeling Units

Sr.No	Particulars	FY 2010-11 (MUs)	FY 2011-12 (MUs)
1	Power Purchase from Own Generation	9,922	25,521
2	Power Purchase from Other Sources	17,413	43,607
3	Wheeling Units	2,882	7,499
4	Power from Kadamparai	290	506
5	Supply from NLC to Pudducherry	179	411
	Total Power Purchase	**30,686**	**77,543**
		-	-
6	T&D Loss (in MUs)	6,195	15,783
7	T&D Loss (in %)	20.19%	20.35%
	Total Sales	**24,491**	**61,760**
8	Sales to Consumers	21,276	53,777
9	Wheeling Units	2,709	7,049
10	Power Supply to Kadamparai	332	534
11	Power Supply to Pudducherry	174	400

3.29.14 Based on the above methodology adopted, T&D Loss for FY 2010-11 and FY 2011-12 is computed to be **20.19%** and **20.35%** respectively.

3.29.15 The energy balance statement for entire year of FY 2010-11 inclusive and exclusive of wheeling units is submitted as **Annexure 10** to this petition.

3.30 Summarized ARR and Revenue Gap for FY 2010-11 and FY 2011-12

3.30.1 Based on the above discussion on variable and fixed cost component for generation function and fixed cost related to distribution function following is the table showing ARR and Revenue Gap summary for FY 2010-11.

Table 39: Annual Revenue Requirement FY 2010-11 – Generation

Rs. Crores

Sr.No.	Particulars	FY 2010-11	
		Approved	Actuals
1	Variable Cost	1,831	2,245
2	Operation & Maintenance Expenses	216	275
3	Depreciation	136	139
4	Interest & Finance Charges	30	374
5	Interest on Working Capital	-	110
6	Provision for bad debts	-	-
7	Other Debits	1	109
8	Net Prior Period Expenses/(Income)	-	-
9	Expenses Capitalised	-	5
	Sub Total	**2,214**	**3,246**
	-		
10	Return on Equity	62	84
11	Provision for Tax / Tax Paid	-	-
	Total Expenditure	**2,276**	**3,331**
	-		
12	Less: Non Tariff Income	-	0
13	Less: Other Income	25	61
	Aggregate Revenue Requirement	**2,252**	**3,270**

Table 40: Annual Revenue Requirement FY 2010-11 - Distribution

Rs. Crores

Sr. No.	Particulars	FY 2010-11	
		Approved	Actuals
1	Expenses with respect to Generation	2,252	3,270
2	Power Purchase Cost from Other Sources	7,316	7,200
	Transmission Charges paid to TANTRANSCO	744	509
3	Operation & Maintenance Expenses	1,093	1,466
4	Depreciation	95	115
5	Interest & Finance Charges	688	693
6	Interest on Working Capital	-	164
7	Provision for bad debts	11	9
8	Other Debits	1	2
9	Net Prior Period Expenses/(Income)	-	-
10	Other Expenses Capitalised	-	78
	Sub Total	**12,199**	**13,350**
12	Return on Equity	-	65
13	Provision for Tax / Tax Paid	-	-
	Total Expenditure	**12,199**	**13,415**
14	Less: Non Tariff Income	218	217
15	Less: Other Income	115	93
16	Less: Other Income from Generation	29	-
	Aggregate Revenue Requirement	**11,838**	**13,105**
16	Revenue from sale of power		6,644
17	Other income Consumer related	-	-
18	**Total Revenue before Subsidy**	**-**	**6,644**
19	Subsidy		689
20	**Total Revenue after Subsidy**	**7,651**	**7,332**
21	**Gap/(Surplus)**	**4,187**	**5,773**

3.30.2 Similarly based on the parameters discussed for FY 2011-12 the revenue gap for FY 2011-12 based on actual revenue earned during the year is shown in the table below.

Table 41: Annual Revenue Requirement FY 2011-12 – Generation

Rs. Crores

Sr. No.	Particulars	FY 2011-12	
		Approved	Actuals
1	Variable Cost	5,459	6,239
2	Operation & Maintenance Expenses	531	683
3	Depreciation	350	334
4	Interest & Finance Charges	81	1,014
5	Interest on Working Capital	-	338
6	Provision for bad debts	-	-
7	Other Debits	2	48
8	Net Prior Period Expenses/(Income)	-	2
9	Expenses Capitalised	-	24
	Sub Total	**6,423**	**8,634**
10	Return on Equity	205	262
11	Provision for Tax / Tax Paid	-	-
	Total Expenditure	**6,627**	**8,896**
12	Less: Non Tariff Income	-	0
13	Less: Other Income	46	135
	Aggregate Revenue Requirement	**6,582**	**8,761**

Table 42: Annual Revenue Requirement FY 2011-12 - Distribution

Rs. Crores

Sr. No.	Particulars	FY 2011-12	
		Approved	Actuals
1	Expenses with respect to Generation	6,582	8,761
2	Power Purchase Cost from Other Sources	17,798	16,360
	Transmission Charges paid to TANTRANSCO	1,917	1,665
3	Operation & Maintenance Expenses	2,728	3,834
4	Depreciation	254	284
5	Interest & Finance Charges	3,150	1,917
6	Interest on Working Capital	-	466
7	Provision for bad debts	27	10
8	Other Debits	2	28
9	Net Prior Period Expenses/(Income)	-	1,052
10	Other Expenses Capitalised	-	181
	Sub Total	**32,457**	**34,195**
12	Return on Equity	-	236
13	Provision for Tax / Tax Paid	-	-
	Total Expenditure	**32,457**	**34,431**
14	Less: Non Tariff Income	624	644
15	Less: Other Income	289	141
16	Less: Other Income from Generation	59	2
	Aggregate Revenue Requirement	**31,485**	**33,645**
16	Revenue from sale of power		16,679
17	Other income Consumer related	-	-
18	**Total Revenue before Subsidy**	**-**	**16,679**
19	Subsidy		2,084
20	**Total Revenue after Subsidy**	**18,076**	**18,763**
21	**Gap/(Surplus)**	**13,409**	**14,882**

3.30.3 It is therefore requested to the Hon'ble Commission to approve the additional revenue gap arrived after truing up of FY 2010-11 and FY 2011-12.

4. ANNUAL PERFORMANCE REVIEW FOR FY 2012-13 AND AGGREGATE REVENUE REQUIREMENT FOR FY 2013-14

4.1 Preamble

4.1.1 This section deals with the performance of TANGEDCO for the year FY 2012-13 based on the projections made for the current year over the previous year i.e. FY 2011-12. TANGEDCO in this chapter has compared its performance with the corresponding approval by the Hon'ble Commission for FY 2012-13 for both its generation and distribution business. TANGEDCO has also projected ARR for FY 2013-14 based on the projections made for FY 2012-13. The basis of projection of ARR for FY 2013-14 is also discussed in detail in this chapter.

4.2 Operational Performance

4.2.1 The operational parameters like Plant Availability Factor (PAF), Plant Load Factor (PLF) Station Heat Rate (SHR), Auxiliary Consumption (AC), Specific Oil Consumption etc, achieved during the year FY 2012-13 have been discussed in this section. For the purpose of understanding the performance of TANGEDCO, a comparison has been made between the estimates projected by TANGEDCO vis-a-vis the approved levels by the Hon'ble Commission. The section also outlines projected operational performance parameters for generating plants during the year FY 2013-14.

4.2.2 The actual operating parameters derived during the year are dependent of present condition of the machine. The present operating conditions of the machine is a function of following factors.

- ✓ Operation and Maintenance carried out in the plant since commissioning
- ✓ Degradation due to ageing
- ✓ Water Chemistry
- ✓ Conditions of the Auxiliaries
- ✓ Overloading and Partial Loading of machines
- ✓ Number of Start/Stop
- ✓ Temperatures and Pressures Stress-Machines have been subjected to
- ✓ Automation of C&I
- ✓ Condenser Vacuum

4.3 Plant Load Factor

4.3.1 The table below showcases the estimated loading of TANGEDCO plants for the year FY 2012-13.

Table 43: Plant Load Factor - FY 2012-13

Sr. No.	Power Station	FY 12-13	
		Approved	Estimated
1	Ennore TPS	20.28%	23.43%
2	Tuticorin TPS	82.43%	83.20%
3	Mettur TPS	89.01%	83.85%
4	North Chennai TPS	86.95%	86.27%
5	NCTPS Stage-II**	0.00%	0.00%
6	MTPS Stage-III**	0.00%	60.00%
7	Tirumakottai GTPS	68.75%	75.85%
8	Kuttalam GTPS	71.20%	12.80%
9	Basin Bridge GTPS	5.75%	0.51%
10	Valuthur Unit-I	78.50%	49.12%
11	Valuthur Unit-II	78.30%	53.84%
12	Erode HEP	25.00%	25.00%
13	Kadamparai HEP	25.00%	25.00%
14	Kundah HEP	25.00%	25.00%
15	Tirunelveli HEP	25.00%	25.00%

4.3.2 MTPS: The PLF of MTPS for the year 2012-13 (up to Sep'12) was 81.32% which is lesser when compared to the TNERC Target of 89.01% mainly due to the major fire accident that occurred in the Coal handling system at MTPS on 10th May 2012 resulting in forced outage of all the four Units. Reconstruction works of the damaged Coal handling system were carried out on war footing and the System was put back into service within 15 days and full generation was resumed at MTPS by the end of May'12.

4.3.3 KGTPS: The unit is under shutdown from 22nd February 2012 due to failure of compressor blades in Gas Turbine rotor. While taking all efforts to re-commission the unit by July 2012, the unit at VGTPS-I got tripped on 26th June 2012 and it was not able to get in to service due to heavy internal damages in GT rotor. The materials procured /refurbished for re-commissioning of KGTPS was diverted to VGTPS-I to avoid MGO charges payable at VGTPS-I. VGTPS-I was therefore re-commissioned on 17th October 2012. The materials required for re-commissioning of KGTPS have been ordered and the same are expected at the end of Dec'12. The unit at KGTPS is expected to be re-commissioned on 31st January 2013. Hence the generation projection of 113.280 MU has been made based on 80% gas availability for FY 2012-13. Hence PLF considered is less.

4.3.4 BBGTPS: Generation projection of 60 MU has been made for the year 2012-13. Actual generation up to Sep'12 was 0.3039 MU. During Oct & Nov.2012 there was no generation. By adding the projection of 5 MU for 2 months (Feb'13 & Mar'13) total generation for 2012-13 has been arrived as 5.3039 MU. Hence PLF is 0.51%.

4.3.5 VGTPS I: The unit was under shutdown from 11th March 2012 to 02nd May 2012, due to vibration in GT rotor. As per the advice of OEM, major Inspection was carried out and the Gas Turbine Generator was put back in to service on 3rd May 2012. The unit got tripped on 26th June 2012 but could not be put back into service due to heavy internal damages in GT rotor the unit was re-commissioned on 17th October 2012 by diverting the materials procured for re-commissioning of KGTPS. Hence actual generation up to Sep'12 was 108.496MU and projection has been made for 300.3MU based on 90% gas availability. The total generation for 2012-13 has been arrived as 408.796 MU against the projected generation of 653 MU. Hence PLF is 49.12%.

4.3.6 VGTPS II: The plant was re-commissioned on 17th May 2011 after long shut down from 09th January 2010 due to high vibration and heavy internal damages. The plant was under stabilization till the end of July 2011 due to some teething problems such as Gear Box vibration leakage in Blow off Valve HP Economizer Valve etc. Even after attending the above problems by OEM, full load could not be reached due to Choking of Air Filters. The defective Air Filters were replaced by new filters on 15th April 2012. The plant was under shut down from 27th April 2012 to 04th May 2012 for Boiler License renewal. Gas Turbine Generator got tripped on 30th June 2012 due to activation of surge protection relay which was activated due to sudden dip in frequency. Subsequently, Steam Turbine Generator got tripped. After normalization, the GT could not be started due to failure of bearing in Inlet Guide Vane (IGV). This unit was re commissioned on 14th August 2012 by importing IGV and put into service. Still the full load could not be reached. The OEM, M/s. Ansaldo, Italy has suggested to carry out Minor Inspection. After carrying out Minor Inspection in January 2013, the Unit will generate at its full capacity. The actual generation up to Sep'12 was 195.967 MU and projection has been made for 238.92 MU based on 90% gas availability. The total generation for 2012-13 has been arrived as 434.887 MU against the projected generation of 631 MU. Hence PLF is 53.84%.

4.3.7 The table below shows the expected loading of generating plants of TANGEDCO during the year FY 2013-14.

Table 44: Plant Load Factor - FY 2013-14

Sr. No.	Power Station	FY 13-14 Projected
1	Ennore TPS	38.98%
2	Tuticorin TPS	82.74%
3	Mettur TPS	89.01%
4	North Chennai TPS	89.15%
5	NCTPS Stage-II**	70.71%
6	MTPS Stage-III**	78.21%
7	Tirumakottai GTPS	75.35%
8	Kuttalam GTPS	73.80%
9	Basin Bridge GTPS	5.71%
10	Valuthur Unit-I	78.47%
11	Valuthur Unit-II	78.72%
12	Erode HEP	28.39%
13	Kadamparai HEP	28.39%
14	Kundah HEP	28.39%
15	Tirunelveli HEP	28.39%

4.4 Auxiliary Consumption

4.4.1 The auxiliary consumption for TANGEDCO plants during the year FY 2012-13 is shown in the table below:

Table 45: Auxiliary Consumption FY 2012-13

Sr. No.	Power Station	FY 12-13	
		Approved	Estimated
1	Ennore TPS	15.00%	15.00%
2	Tuticorin TPS	8.50%	8.50%
3	Mettur TPS	9.00%	8.34%
4	North Chennai TPS	8.50%	8.40%
5	NCTPS Stage-II**	8.50%	0.00%
6	MTPS Stage-III**	9.00%	9.00%
7	Tirumakottai GTPS	6.00%	5.97%
8	Kuttalam GTPS	6.00%	6.00%
9	Basin Bridge GTPS	3.43%	0.99%
10	Valuthur Unit-I	6.00%	5.91%
11	Valuthur Unit-II	6.00%	6.40%
12	Erode HEP	0.00%	1.00%
13	Kadamparai HEP	0.00%	-5.20%
14	Kundah HEP	0.00%	1.00%
15	Tirunelveli HEP	0.00%	1.00%

4.4.2 As seen from the table above the auxiliary consumption of all the generating plant during FY 2012-13 is within the approved auxiliary consumption parameter specified by the Hon'ble Commission in last tariff order. It is submitted to approve auxiliary consumption as estimated for FY 2012-13 considering the constraint in operation.

4.4.3 The table below shows the auxiliary consumption projected for TANGEDCO plants during the year FY 2013-14.

Table 46: Auxiliary Consumption FY 2013-14

Sr. No.	Power Station	FY 13-14
		Projected
1	Ennore TPS	15.00%
2	Tuticorin TPS	8.50%
3	Mettur TPS	8.55%
4	North Chennai TPS	8.50%
5	NCTPS Stage-II**	8.50%
6	MTPS Stage-III**	9.00%
7	Tirumakottai GTPS	6.00%
8	Kuttalam GTPS	6.00%
9	Basin Bridge GTPS	0.99%
10	Valuthur Unit-I	6.00%
11	Valuthur Unit-II	6.00%
12	Erode HEP	1.00%
13	Kadamparai HEP	-4.94%
14	Kundah HEP	1.00%
15	Tirunelveli HEP	1.00%

4.5 Station Heat Rate (SHR)

4.5.1 The table below shows the estimated station heat rate for thermal (coal and gas) power plants for TANGEDCO for the year FY 2012-13 as against approved by the Hon'ble Commission in the last tariff order.

Table 47: Station Heat Rates of Thermal Power Plants – FY 2012-13 (kCal/kWh)

Sr. No.	Power Station	FY 12-13	
		Approved	Estimated
1	Ennore TPS	3,200	4,097
2	Tuticorin TPS	2,453	2,705
3	Mettur TPS	2,500	2,500
4	North Chennai TPS	2,393	2,481
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	2,550
7	Tirumakottai GTPS	1,850	1,813
8	Kuttalam GTPS	1,850	1,850
9	Basin Bridge GTPS	3,219	3,311
10	Valuthur Unit-I	1,850	1,763
11	Valuthur Unit-II	1,850	1,991

4.5.2 ETPS: At ETPS, due to prolonged service of the Units of lower capacity and partial load operations, the performance gets reduced resulting in increased Heat rate.

4.5.3 TTPS: Regarding Station Heat Rate in FY 2012-13, the Commission has adopted the SHR for the Thermal Power Stations of TANGEDCO in accordance with the Norms specified in Regulation – 37 (iii) of the TNERC Tariff Regulations, 2005.

4.5.4 NCTPS: The variation in Station Heat Rate with respect to TNERC Norms is due to higher heat requirements, Variation in Coal quality and Wet coal.

- The Hon'ble TNERC has fixed the norms for Station Heat Rate for new thermal Stations as 2500 Kcal/KWHr as per Regulation 2005. While being so, the Units I, II & III of NCTPS which were commissioned during 1994, 1995 & 1996 respectively, the Heat Rate has been fixed as 2466 Kcal/KWHr only.
- Considering the ageing factor and the Calorific Value of coal received, the Hon'ble TNERC has been requested to revise the Station Heat rate of NCTPS to **2500 KCal/KWHr**.

4.5.5 BBGTPS: SHR is on the higher side due to frequent on/off operation of the units.

4.5.6 VGTPS-I: The heat rate was higher since the full load could not be reached . The OEM, M/s. Ansaldo, Italy has suggested to carry out Minor Inspection to study the reason for the problem. After carrying out Minor Inspection during January 2013, the unit will generate at its full capacity. Hence the heat rate projection of 1850 Kcal/KWhr has been made for Feb & Mar'13. Hence the heat rate for the year 2012-13 has been arrived as 1991 Kcal/KWhr.

4.5.7 However for other plants it can be observed that the SHR is well within the approved limits as specified by the Hon'ble Commission.

4.5.8 The table below shows the expected station heat rate of thermal plants during the year FY 2013-14.

Table 48: Station Heat Rates of Thermal Power Plants – FY 2013-14 (kCal/kWh)

Sr. No.	Power Station	FY 13 - 14
		Projected
1	Ennore TPS	3,906
2	Tuticorin TPS	2,705
3	Mettur TPS	2,500
4	North Chennai TPS	2,485
5	NCTPS Stage-II**	2,450
6	MTPS Stage-III**	2,450
7	Tirumakottai GTPS	1,850
8	Kuttalam GTPS	1,850
9	Basin Bridge GTPS	3,219
10	Valuthur Unit-I	1,850
11	Valuthur Unit-II	1,850

4.6 Specific Oil Consumption

4.6.1 The specific oil consumption of TANGEDCO plants for FY 2012-13 is compared to the approved by the Hon'ble Commission is shown in the table below:

Table 49: Specific Oil Consumption (ml/kWh) – FY 2012-13

Sr. No.	Power Station	FY 12-13	
		Approved	Estimated
1	Ennore TPS	10.00	12.00
2	Tuticorin TPS	2.00	3.00
3	Mettur TPS	2.00	1.29
4	North Chennai TPS	2.00	0.63
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	4.50

4.6.2 As submitted in the sections earlier, Specific Oil Consumption is calculated in terms of percentage of total calorific requirement of the power generating unit and has relation with the size of the generating unit.

4.6.3 For the lower size units the Specific Oil Consumption remains higher as compared to larger size power generating units, because certain amount of Specific Oil consumption remains fixed irrespective of the size of the generating unit.

4.6.4 Also, as per the Tariff Regulations 2005, Clause 37 (IV), the Hon'ble Commission has approved the operating norms in relation to Secondary fuel oil consumption for ETPS as 12 ml/kWh.

4.6.5 Also, in the tariff order dated 30th March 2012, the Hon'ble Commission TNERC in para 6.1.59 on page 225 has stated as below:

"The Commission observed that for ETPS, TANGEDCO has claimed secondary fuel oil consumption of 12 ml/ kWh. The Commission has decided to approve the same since it is within limits specified in the Regulations".

4.6.6 The Hon'ble Commission is therefore requested to approve the specific oil consumption as projected by TANGEDCO for FY 2012-13.

4.6.7 The table below also shows specific oil consumption for TANGEDCO generating stations for the year FY 2013-14.

Table 50: Specific Oil Consumption (ml/kWh) – FY 2013-14

Sr. No.	Power Station	FY 13 - 14
		Projected
1	Ennore TPS	12.00
2	Tuticorin TPS	3.00
3	Mettur TPS	1.29
4	North Chennai TPS	0.94
5	NCTPS Stage-II**	2.00
6	MTPS Stage-III**	2.00

4.7 Fuel Related Parameters

4.7.1 The table below summarizes estimated weighted average gross calorific value of primary fuels during FY 2012-13 along with approved GCV in tariff order dated 30th March 2012:

Table 51: GCV of Coal/Gas for FY 2012-13 (kcal/kg)

Sr. No.	Power Station	FY 12 -13	
		Approved	Estimated
1	Ennore TPS	3,088	3,190
2	Tuticorin TPS	3,485	4,320
3	Mettur TPS	3,525	3,562
4	North Chennai TPS	3,728	3,585
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	3,562
7	Tirumakottai GTPS	10,000	10,000
8	Kuttalam GTPS	10,000	10,000
9	Basin Bridge GTPS	10,572	10,572
		10,249	10,249
10	Valuthur Unit-I	10,000	10,000
11	Valuthur Unit-II	10,000	10,000

4.7.2 As seen from the table above estimated GCV for FY 2012-13 is in line with the approved GCV as per the last tariff order. It is submitted to approve weighted average GCV as estimated.

4.7.3 The table below shows the weighted average GCV of primary fuel for FY 2013-14.

Table 52: GCV of Coal/Gas for FY 2013-14 (kcal/kg)

Sr. No.	Power Station	FY 13-14
		Projected
1	Ennore TPS	3,150
2	Tuticorin TPS	4,320
3	Mettur TPS	3,562
4	North Chennai TPS	3,588
5	NCTPS Stage-II**	3,588
6	MTPS Stage-III**	3,562
7	Tirumakottai GTPS	10,000
8	Kuttalam GTPS	10,000
9	Basin Bridge GTPS	10,572
		10,249
10	Valuthur Unit-I	10,000
11	Valuthur Unit-II	10,000

4.7.4 The weighted average GCV for NCTPS Stage II and MTPS Stage III is considered similar to that of North Chennai TPS and Mettur TPS respectively.

4.7.5 The table below shows the summary of estimated primary fuel prices for FY 2012-13 with approved values.

Table 53: Price of Coal/Gas for FY 2012-13 (Rs. /MT) (Rs. /SCM)

Sr. No.	Power Station	FY 12-13	
		Approved	Estimated
1	Ennore TPS	2,261	2,452
2	Tuticorin TPS	3,814	4,279
3	Mettur TPS	3,395	3,721
4	North Chennai TPS	2,939	3,199
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	4,628
7	Tirumakottai GTPS	8.55	9.72
8	Kuttalam GTPS	8.55	9.53
9	Basin Bridge GTPS	40.44	
		43.10	48.63
10	Valuthur Unit-I	8.93	17.08
11	Valuthur Unit-II	8.93	17.08

4.7.6 It is submitted to consider primary fuel price as estimated for FY 2012-13 as shown in the table above.

4.7.7 The primary fuel prices for generating plants for FY 2013-14 are shown in the table below.

Table 54: Price of Coal/Gas for FY 2013-14 (Rs. /MT) (Rs. /SCM)

Sr. No.	Power Station	FY 13-14
		Projected
1	Ennore TPS	2,575
2	Tuticorin TPS	4,494
3	Mettur TPS	3,907
4	North Chennai TPS	3,359
5	NCTPS Stage-II**	4,312
6	MTPS Stage-III**	4,864
7	Tirumakottai GTPS	10.88
8	Kuttalam GTPS	10.29
9	Basin Bridge GTPS	
		51.07
10	Valuthur Unit-I	17.08
11	Valuthur Unit-II	17.08

4.7.8 It is submitted to approve the variable cost parameters outlined above and any variation in price of fuel.

4.8 Net Generation

4.8.1 Based on plant load factor and auxiliary consumption discussed in aforesaid sections, the net generation for TANGEDCO stations for FY 2012-13 is shown in the table below.

Table 55: Net Generation for FY 2012-13 (MUs)

Sr. No.	Power Station	FY 12 - 13	
		Approved	Estimated
1	Ennore TPS	680	785
2	Tuticorin TPS	6,938	7,002
3	Mettur TPS	5,960	5,655
4	North Chennai TPS	4,391	4,361
5	NCTPS Stage-II**	4,790	-
6	MTPS Stage-III**	3,428	236
7	Tirumakottai GTPS	611	674
8	Kuttalam GTPS	592	106
9	Basin Bridge GTPS	58	5
10	Valuthur Unit-I	614	385
11	Valuthur Unit-II	593	407
12	Erode HEP	1,418	983
13	Kadamparai HEP		-
14	Kundah HEP	2,605	1,807
15	Tirunelveli HEP	1,087	754
16	Wind	11	28

4.8.2 TANGEDCO submits that the new plant to be commissioned during the year i.e. MTPS Stage III is to be commissioned on 1st March 2013. The net generation from this plant during the year has been adjusted on pro rata basis for last one month of FY 2012-13.

4.8.3 It is submitted to approve the Net Generation as shown in the table above for the year FY 2012-13.

4.8.4 The table below shows the net generation projected during the year FY 2013-14 based on performance parameters as stated above.

Table 56: Net Generation for FY 2013-14 (MUs)

Sr. No.	Power Station	FY 13 - 14 Projected
1	Ennore TPS	987
2	Tuticorin TPS	6,963
3	Mettur TPS	5,990
4	North Chennai TPS	4,502
5	NCTPS Stage-II**	6,387
6	MTPS Stage-III**	3,587
7	Tirumakottai GTPS	669
8	Kuttalam GTPS	614
9	Basin Bridge GTPS	59
10	Valuthur Unit-I	614
11	Valuthur Unit-II	598
12	Erode HEP	1,502
13	Kadamparai HEP	-
14	Kundah HEP	2,579
15	Tirunelveli HEP	1,126
16	Wind	28

4.9 Computation of Fuel Expenses for FY 2012-13 and FY 2013-14

4.9.1 Based on operating parameters and fuel related parameters estimated by TANGEDCO during FY 2012-13, plant wise fuel expenses arrived are tabulated below.

Table 57: Fuel Cost for FY 2012-13

Rs. Crores

Sr. No.	Power Station	FY 2012-13 Approved	FY 2012-13 Estimated
1	Ennore TPS	209	338
2	Tuticorin TPS	2,070	2,118
3	Mettur TPS	1,608	1,637
4	North Chennai TPS	932	1,063
5	NCTPS Stage-II**	1,208	-
6	MTPS Stage-III**	1,014	89
7	Tirumakottai GTPS	108	128
8	Kuttalam GTPS	107	22
9	Basin Bridge GTPS	75	8
10	Valuthur Unit-I	109	127
11	Valuthur Unit-II	106	148
12	Erode HEP	-	0.10
13	Kadamparai HEP	-	0.00
14	Kundah HEP	-	0.01
15	Tirunelveli HEP	-	2.97
	Total	**7,588**	**5,681**

Table 58: Fuel Cost per Unit for FY 2012-13 (Rs. /unit)

Sr. No.	Power Station	FY 2012-13 Approved	FY 2012-13 Estimated
1	Ennore TPS	3.14	4.31
2	Tuticorin TPS	2.99	3.02
3	Mettur TPS	2.70	2.89
4	North Chennai TPS	2.13	2.44
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	3.78
7	Tirumakottai GTPS	1.76	1.90
8	Kuttalam GTPS	1.80	2.05
9	Basin Bridge GTPS	12.75	15.39
10	Valuthur Unit-I	1.79	3.30
11	Valuthur Unit-II	1.79	3.63

4.9.2 The projected fuel cost for FY 2013-14 based on the operational and fuel related parameters are tabulated below.

Table 59: Fuel Cost for FY 2013-14

Sr. No.	Power Station	FY 2013-14
		Projected
1	Ennore TPS	429
2	Tuticorin TPS	2,224
3	Mettur TPS	1,823
4	North Chennai TPS	1,164
5	NCTPS Stage-II**	2,110
6	MTPS Stage-III**	1,342
7	Tirumakottai GTPS	145
8	Kuttalam GTPS	126
9	Basin Bridge GTPS	93
10	Valuthur Unit-I	210
11	Valuthur Unit-II	201
12	Erode HEP	0.11
13	Kadamparai HEP	0.00
14	Kundah HEP	0.01
15	Tirunelveli HEP	3.12
	Total	**9,871**

Table 60: Fuel Cost per Unit for FY 2013-14

Sr. No.	Power Station	FY 2013-14
		Projected
1	Ennore TPS	4.35
2	Tuticorin TPS	3.19
3	Mettur TPS	3.04
4	North Chennai TPS	2.59
5	NCTPS Stage-II**	3.30
6	MTPS Stage-III**	3.74
7	Tirumakottai GTPS	2.17
8	Kuttalam GTPS	2.06
9	Basin Bridge GTPS	15.71
10	Valuthur Unit-I	3.42
11	Valuthur Unit-II	3.36

4.10 Summary of Variable Cost for FY 2012-13 and FY 2013-14

4.10.1 The following table shows the summary of variable cost for FY 2012-13 and FY 2013-14.

Table 61: Summary of Variable Cost for FY 2012-13

Sr. No.	Power Station	FY 2012-13				
		Gross Generation (in MUs)	Auxilliary Consumption (in MUs)	Net Generation (in MUs)	Variable Cost (in Crores)	Varible Cost (Per Unit)
1	Ennore TPS	924	139	785	338	4.31
2	Tuticorin TPS	7,653	651	7,002	2,118	3.02
3	Mettur TPS	6,170	515	5,655	1,637	2.89
4	North Chennai TPS	4,761	400	4,361	1,063	2.44
5	NCTPS Stage II	-	-	-		
6	MTPS Stage III	259	23	236	89	3.78
7	Tirumakottai GTPS	717	43	674	128	1.90
8	Kuttalam GTPS	113	7	106	22	2.05
9	Basin Bridge GTPS	5	0	5	8	15.39
10	Valuthur Unit-I	409	24	385	127	3.30
11	Valuthur Unit-II	435	28	407	148	3.63
12	Erode HEP	993	10	983	0	0.00
13	Kadamparai HEP	-	-	-	0	
14	Kundah HEP	1,825	18	1,807	0	0.00
15	Tirunelveli HEP	762	8	754	3	0.04
					-	
16	Wind	28	-	28	-	-
	Total	**25,054**	**1,864**	**23,189**	**5,681**	

Table 62: Summary of Variable Cost for FY 2013-14

Sr. No.	Power Station	FY 2013-14				
		Gross Generation (in MUs)	Auxilliary Consumption (in MUs)	Net Generation (in MUs)	Variable Cost (in Crores)	Varible Cost (Per Unit)
1	Ennore TPS	1,161	174	987	429	4.35
2	Tuticorin TPS	7,610	647	6,963	2,224	3.19
3	Mettur TPS	6,550	560	5,990	1,823	3.04
4	North Chennai TPS	4,920	418	4,502	1,164	2.59
5	NCTPS Stage II	6,980	593	6,387	2,110	3.30
6	MTPS Stage III	3,942	355	3,587	1,342	3.74
7	Tirumakottai GTPS	712	43	669	145	2.17
8	Kuttalam GTPS	653	39	614	126	2.06
9	Basin Bridge GTPS	60	1	59	93	15.71
10	Valuthur Unit-I	653	39	614	210	3.42
11	Valuthur Unit-II	636	38	598	201	3.36
12	Erode HEP	1,518	15	1,502	0	0.00
13	Kadamparai HEP	-	-	-	0	
14	Kundah HEP	2,605	26	2,579	0	0.00
15	Tirunelveli HEP	1,137	11	1,126	3	0.03
16	Wind	28	-	28	-	-
	Total	**39,165**	**2,960**	**36,205**	**9,871**	

4.11 Capital Expenditure and Capitalization

4.11.1 TANGEDCO submits the following list of upcoming new plants during FY 2012-13 and FY 2013-14 along with their capacity, estimated date of commissioning and capital cost as on COD.

Table 63: Details of Upcoming New Plants during FY 2012-13 and FY 2013-14

Name of Power Plant	Installed Capacity (in MW)	Expected COD	Cost as on COD
Bhavani Barrage II	2 x 5 MW = 10 MW	1st June 2013	187.61 Crores
Bhavani Kattalai Barrage II	2 x 15 MW = 30 MW	29th November 2012	497.46 Crores
Periyar Vaigai I	2 x 2 MW = 4 MW	Unit I – 2nd November 2010	62.00 Crores

		Unit II – 25th January 2011	
Periyar Vaigai II	2 x 1.25 MW = 2.5 MW	Unit I & II – 30th January 2012	48.29 Crores
MTPS Stage III	1 x 600 MW = 600 MW	Unit I – 01st March 2013	3,550 Crores
NCTPS Stage II	2 x 600 MW = 1200 MW	Unit I – 01st April 2013 Unit II – 01st May 2013	5,814.04 Crores

4.11.2 TANGEDCO submits that the capitalization estimated for FY 2012-13 and FY 2013-14 is based on the commissioning date of new plants as shown in the table above.

4.11.3 TANGEDCO submits that the expenditure incurred in each of the existing power station is on account of regular repairs and maintenance works like replacement of worn-out machinery, damaged equipments, transformers, boilers, generators, stators, auxiliary equipments, etc which are necessary works to be carried out for effective and efficient working of the power station.

4.11.4 TANGEDCO submits that the additional expenditure incurred on the generation plant is in line with the clause 19 of the TNERC Tariff Regulations which have been incurred for efficient and successful operation of the Generating Station, and for the commercial operation of the plant.

4.11.5 TANGEDCO also submits that the expenditure incurred for the distribution function during the respective years is on account of regular operational and maintenance works carried out during the respective years which were necessary for efficient working of the distribution system.

4.11.6 The works carried out for the distribution function are mainly on account of addition of LT and HT lines, distribution transformers, services rendered during the respective years and works carried out under RGGVY scheme.

Table 64: Capitalization for FY 2012-13 and FY 2013-14

Rs. Crores

Sr. No.	Particulars	Capitalization	
		FY 2012-13	FY 2013-14
1	Ennore TPS	-	1.50
2	Tuticorin TPS	8.64	58.50
3	Mettur TPS	89.31	18.90
4	North Chennai TPS	43.41	41.40
5	NCTPS Stage-II**	-	5,814.04
6	MTPS Stage-III**	3,550.31	12.00
7	Tirumakottai GTPS	-	31.02
8	Kuttalam GTPS	14.79	10.37
9	Basin Bridge GTPS	-	6.20
10	Valuthur GTPS	-	16.16
11	Erode HEP	530.04	0.82
12	Kadamparai HEP	0.11	59.64
13	Kundah HEP	4.63	4.02
14	Tirunelveli HEP	111.61	22.00
	Total Generation	**4,352.85**	**6,096.57**
	Total Distribution	**705.36**	**2,789.63**
	Grand Total	**5,058.21**	**8,886.21**

4.12 Fixed Cost for FY 2012-13 and FY 2013-14

4.12.1 TANGEDCO has determined actual fixed cost for its generating station on the basis of TNERC (Terms & Conditions of Tariff) Regulation, 2005 and annual audited accounts for FY 2010-11 and provisional accounts of FY 2011-12.

4.12.2 TANGEDCO is entitled to claim fixed cost for generating plants for FY 2012-13 and FY 2013-14 categorized under the following heads.

- ✓ Depreciation
- ✓ Interest and Finance Charges
- ✓ Return on Equity
- ✓ Operation and Maintenance Expenses
- ✓ Interest on Working Capital
- ✓ Other Debits

4.13 Depreciation

4.13.1 The table below shows the comparison of actual plantwise depreciation for FY 2012-13 with that of approved in the last tariff order for generation function.

Table 65: Depreciation for FY 2012-13 - Generation

Rs. Crores

Sr. No.	Power Station	Depreciation	
		FY 2012-13	
		Approved	Estimated
1	Ennore TPS	61.40	37.80
2	Tuticorin TPS	55.90	64.72
3	Mettur TPS	40.50	36.47
4	North Chennai TPS	64.40	63.67
5	Tirumakottai GTPS	19.93	15.90
6	Kuttalam GTPS	17.06	12.32
7	Basin Bridge GTPS	30.00	19.81
8	Valuthur GTPS	46.00	19.11
9	Erode HEP	24.69	20.39
10	Kadamparai HEP	9.80	10.53
11	Kundah HEP	23.30	25.24
12	Tirunelveli HEP	10.30	11.14
	Grand Total	**403.28**	**337.11**

4.13.2 The actual depreciation charge for the year FY 2012-13 is **Rs. 337.11 Crores** as against a depreciation charge of **Rs. 403.28 Crores** as approved by the Hon'ble Commission. The average rate of depreciation as a percentage of the Opening GFA for the year FY 2012-13 works out to 3.24%.

4.13.3 The calculation of depreciation is in line with the methodology proposed in para 3.14 of this petition.

4.13.4 The table below shows the depreciation cost projected by TANGEDCO for generating plants for FY 2013-14.

Table 66: Depreciation for FY 2013-14 – Generation

Rs. Crores

Sr. No.	Power Station	Depreciation
		FY 2013-14
1	Ennore TPS	37.80
2	Tuticorin TPS	64.98
3	Mettur TPS	39.66
4	North Chennai TPS	64.86
5	NCTPS Stage-II**	-
6	MTPS Stage-III**	126.61
7	Tirumakottai GTPS	15.90
8	Kuttalam GTPS	12.86
9	Basin Bridge GTPS	19.81
10	Valuthur Unit-I	19.11
11	Erode HEP	35.90
12	Kadamparai HEP	10.53
13	Kundah HEP	25.39
14	Tirunelveli HEP	14.36
	Grand Total	**487.78**

4.13.5 The table below shows the comparison of estimated depreciation for FY 2012-13 with that of approved in last tariff order for distribution function.

Table 67: Depreciation for FY 2012-13 – Distribution

Sr. No.	Particulars	Reference	FY 2012-13	
			Aprroved	Estimated
1	Gross Block in Beginning of the year	B/S	9,488.48	14,389.64
2	Additions during the Year (Net)	B/S		705.36
3	Deductions	B/S		16.15
4	Closing Balance		10,596.10	15,078.84
5	**Depreciation for the Year**	Based on Average Rate of Depreciation	**287.05**	**303.00**
6	**Average Rate of Depreciation**	Based on Tariff Order	**3.03%**	**2.11%**

4.13.6 The depreciation claimed during FY 2012-13 is based on assetwise weighted average depreciation rate adopted for FY 2011-12. The same assetwise depreciation rate has been adopted for projections for FY 2013-14.

4.13.7 The additions during the year are based on capitalization incurred during FY 2012-13 and FY 2013-14.

4.13.8 The table below shows the depreciation projected for FY 2013-14 for distribution function.

Table 68: Depreciation for FY 2013-14 – Distribution

Sr. No.	Particulars	Reference	FY 2013-14
			Projected
1	Gross Block in Beginning of the year	B/S	15,078.84
2	Additions during the Year (Net)	B/S	2,789.63
3	Deductions	B/S	-
4	Closing Balance		17,868.48
5	**Depreciation for the Year**	Based on Average Rate of Depreciation	**327.61**
6	**Average Rate of Depreciation**	Based on Tariff Order	**2.17%**

4.14 Interest on Loan and Finance Charges

4.14.1 The interest on loan computed for FY 2012-13 and FY 2013-14 is based on average of opening and closing loans during the year and the interest rate considered for particular type of loans.

4.14.2 The loan additions and deductions during the year are based on estimated projections for upcoming projects for generation and distribution in the ensuing years.

4.14.3 The Interest and Finance Charges for the year FY 2012-13 is shown in the table below:

Table 69: Interest & Finance Charges for FY 2012-13 (Generation)

Rs. Crores

Sr. No.	Power Station	Interest & Finance FY 2012-13	
		Approved	Estimated
1	Ennore TPS	8.40	9.40
2	Tuticorin TPS	15.60	98.62
3	Mettur TPS	8.50	41.49
4	North Chennai TPS	16.50	185.79
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	20.72
7	Tirumakottai GTPS	3.53	64.17
8	Kuttalam GTPS	2.98	49.52
9	Basin Bridge GTPS	4.30	61.94
10	Valuthur GTPS	7.20	85.37
11	Erode HEP	9.21	160.05
12	Kadamparai HEP	3.10	27.21
13	Kundah HEP	7.80	64.56
14	Tirunelveli HEP	3.50	85.17
	Grand Total	**90.62**	**954.02**

4.14.4 The calculation of interest on working capital is in line with the methodology proposed in paragraph 3.15 of this petition.

4.14.5 The Interest and Finance Charges for the year FY 2013-14 for generation function is shown in the table below:

Table 70: Interest & Finance Charges for FY 2013-14 (Generation)

Rs. Crores

Sr. No.	Power Station	Interest & Finance charges
		FY 2013-14
1	Ennore TPS	11.07
2	Tuticorin TPS	101.92
3	Mettur TPS	43.23
4	North Chennai TPS	190.99
5	NCTPS Stage-II**	468.52
6	MTPS Stage-III**	317.60
7	Tirumakottai GTPS	66.21
8	Kuttalam GTPS	49.69
9	Basin Bridge GTPS	63.30
10	Valuthur Unit-I	87.51
11	Erode HEP	162.59
12	Kadamparai HEP	29.86
13	Kundah HEP	68.50
14	Tirunelveli HEP	86.85
	Grand Total	**1,747.84**

4.14.6 The Interest and Finance Charges for the year FY 2012-13 for distribution function is shown in the table below:

Table 71: Interest & Finance Charges for FY 2012-13 (Distribution)

Rs.Crores

Sr. No.	Particulars	FY 2012-13	
		Approved	Estimated
1	Opening Loans	29,954.00	13,953.12
2	Loan Additions during the Year	13,510.00	4,166.17
3	Repayment during the Year	4,639.00	3,660.31
4	Closing Loans	38,825.00	14,458.98
5	**Average Loans**	**34,389.50**	**14,206.05**
6	Interest on Loan	3,355.00	1,592.00
7	Interest on Security Deposit to the Consumers		399.05
8	Guarantee Charges		40.99
9	Other Charges (Finance Cost Paid)		106.59
10	**Total Interest & Financial Charges**	**3,355.00**	**2,138.64**
11	Average Interest on Long Term Loan	9.76%	11.21%

4.14.7 The Interest and Finance Charges for the year FY 2013-14 for distribution function is shown in the table below:

Table 72: Interest & Finance Charges for FY 2013-14 (Distribution)

Rs.Crores

Sr. No.	Particulars	FY 2013-14
		Projected
1	Opening Loans	14,458.98
2	Loan Additions during the Year	4,903.48
3	Repayment during the Year	4,217.40
4	Closing Loans	15,145.05
5	**Average Loans**	**14,802.02**
6	Interest on Loan	1,663.81
7	Interest on Security Deposit to the Consumers	419.01
8	Guarantee Charges	43.04
9	Other Charges (Finance Cost Paid)	111.92
10	**Total Interest & Financial Charges**	**2,237.78**
11	Average Interest on Long Term Loan	11.24%

4.14.8 The interest claimed in generation and distribution function for FY 2012-13 and FY 2013-14 is based on average of opening and closing balance of loans considered during the year and actual interest rate on such loan paid by TANGEDCO.

4.15 Interest on Woking Capital

4.15.1 The interest on working capital claimed during FY 2012-13 and FY 2013-14 is based on normative calculation as specified in the regulations.

4.15.2 The interest on working capital computed for FY 2012-13 for generation function is based on normative calculation is given in the table below.

Table 73: Interest on Working Capital for FY 2012-13 (Generation)

Rs. Crores

Sr. No.	Power Station	Interest on Working FY 2012-13	
		Approved	Estimated
1	Ennore TPS	-	25.62
2	Tuticorin TPS	-	123.43
3	Mettur TPS	-	91.73
4	North Chennai TPS	-	63.70
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	12.53
7	Tirumakottai GTPS	-	8.34
8	Kuttalam GTPS	-	3.52
9	Basin Bridge GTPS	-	3.92
10	Valuthur GTPS	-	14.61
11	Erode HEP	-	8.44
12	Kadamparai HEP	-	2.74
13	Kundah HEP	-	6.07
14	Tirunelveli HEP	-	4.72
		-	-
	Grand Total		**369.38**

4.15.3 The interest on working capital computed for FY 2013-14 for generation function based on normative calculation is given in the table below.

Table 74: Interest on Working Capital for FY 2013-14 (Generation)

Rs. Crores

Sr. No.	Power Station	Interest on Working Capital
		FY 2013-14
1	Ennore TPS	30.65
2	Tuticorin TPS	129.57
3	Mettur TPS	101.73
4	North Chennai TPS	76.09
5	NCTPS Stage-II**	136.39
6	MTPS Stage-III**	91.63
7	Tirumakottai GTPS	9.14
8	Kuttalam GTPS	7.54
9	Basin Bridge GTPS	8.52
10	Valuthur Unit-I	19.88
11	Erode HEP	9.33
12	Kadamparai HEP	3.01
13	Kundah HEP	6.32
14	Tirunelveli HEP	5.00
		-
	Grand Total	**634.78**

4.15.4 The interest on working capital computed for FY 2012-13 and FY 2013-14 for distribution function based on normative calculation is given in the table below.

Table 75: Interest on Working Capital for FY 2012-13 (Distribution)

Rs. Crores

Sr. No.	Particulars	Reference	FY 2012-13	
			Approved	Actuals
1	O & M expenses	One Month		307.58
2	Maintenance Spares	1% of Historic Cost Escalated @ 6%		159.58
3	Receivables	Two Month Receivable		4,284.55
	Total Working Capital		-	**4,751.72**
	Rate of Interest on Working Capital		11.75%	14.75%
	Interest on Working Capital		-	**700.88**

Table 76: Interest on Working Capital for FY 2013-14 (Distribution)

Rs. Crores

Sr. No.	Particulars	Reference	FY 2013-14
			Projected
1	O & M expenses	One Month	341.69
2	Maintenance Spares	1% of Historic Cost Escalated @ 6%	187.73
3	Receivables	One Month Receivable	4,949.13
	Total Working Capital		**5,478.55**
	Rate of Interest on Working Capital		14.75%
	Interest on Working Capital		**808.09**

4.15.5 The interest on working capital claimed in the above table is computed based on normative calculation as specified in TNERC (Terms and Conditions of Tariff) Regulations, 2005.

4.15.6 The interest on working capital is a part of fixed cost to be recovered and hence it is requested to approve the Interest on Working Capital for the year FY 2012-13 and FY 2013-14.

4.16 Reasonable Rate of Return on Equity

4.16.1 TANGEDCO has calculated Return on Equity for the year FY 2012-13 and FY 2013-14 on the basis on the average equity for the corresponding year. This has been done in line with the TNERC Regulations. The Normative Rate of Equity has been taken at 14%.

4.16.2 The Hon'ble Commission in its tariff order has disallowed Return of Equity on the grounds that loan borrowing is more than the capital expenditure incurred. TANGEDCO would like to submit that the opening equity is as per the 2nd provisional transfer scheme notified by the Government dated 2nd Jan 2012 and the GFA is funded partly by loan and equity. Accordingly, the opening equity and the GFA for the year FY 2012-13 are determined. TANGEDCO would further like to submit that a utility is allowed for Return on Equity at least on the opening balance of equity every year to carry out future capacity additions. The relevant extracts of TNERC (Terms & Conditions of Tariff) Regulation 2005 is reproduced herein:

"21. Debt-Equity Ratio

For the purpose of determination of tariff, debt-equity ratio as on the date of commercial operation of Generating Station and transmission projects, sub-station, distribution lines or capacity expanded after the notification of these Regulations shall be 70:30. Where equity employed is more than 30% the amount of equity shall be limited to 30% and the balance amount shall be considered as loans, advanced at the weighted average rate of interest and for weighted average tenor of the long term debt component of the investment"

"Provided that in case of a Generating Company or other licensees, where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of return on equity in tariff computation." ***(Emphasis Added)***

4.16.3 TANGEDCO would like to submit that Return on Equity is a surplus generated which entitles a utility to safeguard itself against any uneven contingencies in future.

4.16.4 The addition of assets considered during the year is equivalent to the capitalization of the assets occurred during that year. The Reasonable Rate of Return of TANGEDCO for the generation business for the year FY 2012-13 is shown in the table below:

Table 77: Return on Equity for FY 2012-13 (Generation)

Rs. Crores

Sr. No.	Power Station	Return on Equity FY 2012-13	
		Approved	Estimated
1	Ennore TPS	28.80	32.94
2	Tuticorin TPS	52.60	58.14
3	Mettur TPS	29.00	37.17
4	North Chennai TPS	55.90	63.98
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	74.56
7	Tirumakottai GTPS	12.50	14.09
8	Kuttalam GTPS	9.94	11.19
9	Basin Bridge GTPS	14.90	17.01
10	Valuthur GTPS	24.00	17.32
11	Erode HEP	25.98	33.45
12	Kadamparai HEP	10.10	11.27
13	Kundah HEP	26.20	29.79
14	Tirunelveli HEP	11.80	12.74
		-	-
	Grand Total	**301.72**	**413.65**

4.16.5 The return on equity computed for generation function for generation function for FY 2013-14 is as shown in the table below.

Table 78: Return on Equity for FY 2013-14 (Generation)

Rs. Crores

Sr. No.	Power Station	Return on Equity
		FY 2013-14
1	Ennore TPS	32.97
2	Tuticorin TPS	59.55
3	Mettur TPS	39.44
4	North Chennai TPS	65.76
5	NCTPS Stage-II**	122.09
6	MTPS Stage-III**	149.37
7	Tirumakottai GTPS	14.74
8	Kuttalam GTPS	11.72
9	Basin Bridge GTPS	17.14
10	Valuthur GTPS	17.66
11	Erode HEP	44.60
12	Kadamparai HEP	12.53
13	Kundah HEP	29.97
14	Tirunelveli HEP	15.55
		-
	Grand Total	**633.09**

4.16.6 The table below shows the Reasonable Return on equity for the distribution function for the year FY 2012-13:

Table 79: Return on Equity for FY 2012-13 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2012-13	
		Approved	Estimated
1	Opening Equity Capital		2,260.40
2	Additions during the year		211.61
3	Closing Equity		2,472.01
4	Average Equity		2,366.21
5	Rate of Return on the Equity		14.00%
6	**Return on Equity**	**-**	**331.27**

4.16.7 The table below shows the Reasonable Return on equity for the distribution function for the year FY 2013-14:

Table 80: Return on Equity for FY 2013-14 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2013-14 Estimated
1	Opening Equity Capital	2,472.01
2	Additions during the year	836.89
3	Closing Equity	3,308.90
4	Average Equity	2,890.45
5	Rate of Return on the Equity	14.00%
6	**Return on Equity**	**404.66**

4.16.8 The total equity balance is bifurcated into generation and distribution based on the opening balance of gross block allotted to generation and distribution businesses of TANGEDCO.

4.16.9 Equity for generation function is further sub-allocated into plant wise based on opening gross block for each of the plant. The rate of return on equity has been considered at 14% as specified in TNERC (Terms and Conditions of Tariff) Regulations, 2005.

4.16.10 It is submitted to kindly approve the Return on Equity as projected for the year FY 2012-13 and FY 2013-14.

4.17 Operation & Maintenance Expenses

4.17.1 O&M Expenses for FY 2012-13 and FY 2013-14 have been arrived at on the basis of escalation over the O&M expense of previous years. O&M expense comprises of employee expense, A&G expense and R&M expense. As per TNERC (Terms & Conditions for determination of tariff) Regulations 2005, O&M expenses are to be derived on the basis of actual O&M expenses for the last 5 years based on the audited accounts. However, TANGEDCO would like to submit that TANGEDCO was unbundled from the erstwhile TNEB only on 30th Oct 2010. As such, it is difficult for it to derive the O&M expenses pertaining to transmission activities for the last 5 years.

4.17.2 Although the TNERC (Terms & Conditions for determination of tariff) Regulations 2005 provides for an escalation of 4% on O&M expenses for previous year; TANGEDCO has considered escalation rates on the basis of certain ground realities. The rationale for considering the rates for certain particulars is given below:

a. Employee Cost:

i. Salaries

4.17.3 The basic salary and the grade pay have been considered at an escalation of 5%. This is on account of the fact that yearly increments on the basic salary and grade pay are provided at 3%. Further, seniority based promotions are being provided depending on the number of vacancies created every year; for which an additional 3% rise is provided to the employees who are promoted. Also, due to assigning of additional responsibilities to the officers, 20% of the basic and grade pay will be additionally paid for a maximum of 5 months depending on the vacancies and the nature of work. Hence, considering all the above factors, basic salary and grade pay are escalated at 5% for the year FY 2012-13 and FY 2013-14.

4.17.4 TANGEDCO would like to submit that, wage revisions are generally provided to the employees once in four years. The last revision came in on 1st Dec 2011 which is already due and is in process of being finalized in the current year and for this purpose a committee has been formed. The next wage revision will be from 1st Dec 2015. Therefore, a hike of 10% has been considered for the years FY 2012-13 and FY 2015-16.

ii. Dearness Allowance

4.17.5 The rate of dearness allowance is applied on the basic salaries; the rate is subjected to revision as notified by the Central Government in every six months i.e. in January and July on the basis of consumer price index. the DA rates in effect in the previous years were as under:

Year	1st Half	2nd Half	% Hike
2010	35	45	29%
2011	51	58	29%
2012	65	72	24%

4.17.6 Based on the trend during previous years, the escalation of DA rate is considered at 15%.

iii. Surrender Leave Salary, Terminal Benefits (including pension), Pension Scheme

4.17.7 The amount equivalent to 15 days of salary and DA with applicable HRA is generally encashed by employees every year. In addition, the leave salary for the period of 8 months or the amount pertaining to balance leave whichever lesser is paid at the time of retirement to the retirees. Since this includes both DA and a lumpsum of 8 month salary, the escalation is considered at 10%. Likewise, the emoluments related to Terminal Benefits (including pension) also tend to increase every year. Hence, escalation for surrender leave salary and terminal benefits (including pension) is considered at 10%. On the Basic and DA quantum of eligible employees to Contributory Pension Scheme (CPS), the utility has to contribute 10% as employer's portion and thus a hike of 10% over previous years has been considered for CPS.

b. Administration & General Expenses

i. Legal Fees, Audit Fees & Professional charges

4.17.8 The fees payable to AG Auditors, Statutory Auditors, Advocate General, Technical experts, Design & developers are booked under this group which are getting increased manifold. Moreover the related expenditure like travelling expenditure and allowances incurred on these activities will also be accounted under this head. Thus an escalation of 10% is considered.

ii. Watch & ward Expenses:

4.17.9 The engagement of retired Ex-servicemen for the security purposes was made in all power stations, certain sub-stations and central stores, etc. The expenditure relating to these particulars are increased every year on the basis of hike in DA and certain annual increase and thus 10% escalation has been considered.

iii. Salary to fire service personnel:

4.17.10 Similar to the ex-service men, the fire service personnel from Government Department are being engaged in power stations whose expenses is also governed as per DA hike, etc. Thus 10% hike has been considered.

c. Repair & Maintenance Expenses

4.17.11 For R&M expenses, the escalation has been considered at 4% which is in line with the TNERC (Terms & Conditions for determination of Tariff) Regulations 2005.

4.17.12 Based on the foregoing paragraphs and escalations considered, the O&M expenses works to be **Rs. 734.63 Crores** for Generation Business for the year FY 2012-13; the same is shown in the table below:

Table 81: O&M Expenses for FY 2012-13 (Generation)

Rs. Crores

Sr. No.	Power Station	FY 2012-13	
		Approved	Estimated
1	Ennore TPS	102.86	120.48
2	Tuticorin TPS	116.04	208.29
3	Mettur TPS	89.58	115.05
4	North Chennai TPS	131.30	128.37
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	7.00
7	Tirumakottai GTPS	7.68	10.95
8	Kuttalam GTPS	17.72	7.78
9	Basin Bridge GTPS	6.47	6.32
10	Valuthur GTPS	8.96	8.88
11	Erode HEP	37.22	29.83
12	Kadamparai HEP	20.83	24.32
13	Kundah HEP	38.83	39.86
14	Tirunelveli HEP	25.18	27.50
	Total	**602.67**	**734.63**

4.17.13 The table below shows the projected O&M expenses for FY 2013-14 based on the assumptions given above.

Table 82: O&M Expenses for FY 2013-14 (Generation)

Rs. Crores

Sr. No.	Power Station	FY 2013-14
		Projected
1	Ennore TPS	130.47
2	Tuticorin TPS	223.52
3	Mettur TPS	125.70
4	North Chennai TPS	138.51
5	NCTPS Stage-II**	168.00
6	MTPS Stage-III**	88.20
7	Tirumakottai GTPS	11.74
8	Kuttalam GTPS	8.36
9	Basin Bridge GTPS	6.89
10	Valuthur GTPS	9.69
11	Erode HEP	32.52
12	Kadamparai HEP	26.42
13	Kundah HEP	43.36
14	Tirunelveli HEP	30.27
	Total	**1,043.66**

4.17.14 Similarly, for the distribution business of TANGEDCO, the O&M expenses for FY 2012-13 and FY 2013-14 works out to be **Rs. 4309.25 Crores and Rs. 4,743.87 Crores**; respectively the details of which are provided below:

Table 83: O&M Expenses for FY 2012-13 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2012-13	
		Approved	Estimated
1	Employee Cost	2,731.21	4,056.23
2	Repair & Maintenance	44.73	66.60
3	Administration & General Expenses	61.17	186.43
	Operation & Maintenance Expenses	**2,837.11**	**4,309.25**

Table 84: O&M Expenses for FY 2013-14 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2013-14
		Projected
1	Employee Cost	4,469.79
2	Repair & Maintenance	69.26
3	Administration & General Expenses	204.82
	Operation & Maintenance Expenses	**4,743.87**

4.17.15 It is submitted to approve the O&M expenses as projected by TANGEDCO.

4.18 Other Debits

4.18.1 The table below shows expenses pertaining to other debits for generation business of TANGEDCO for the year FY 2012-13. The other debits for the year FY 2012-13 has been arrived at an escalation rate of 4% over the previous year FY 2011-12.

Table 85: Other Debits FY 2012-13 (Generation)

Rs. Crores

Sr. No.	Power Station	FY 2012-13	
		Approved	Estimated
1	Ennore TPS	0.20	12.11
2	Tuticorin TPS	0.34	7.40
3	Mettur TPS	0.15	1.63
4	North Chennai TPS	0.44	25.12
5	NCTPS Stage-II**	-	-
6	MTPS Stage-III**	-	-
7	Tirumakottai GTPS	0.05	0.49
8	Kuttalam GTPS	0.06	0.13
9	Basin Bridge GTPS	0.07	0.05
10	Valuthur Unit-I	0.15	0.00
11	Valuthur Unit-II		-
12	Erode HEP	0.12	0.10
13	Kadamparai HEP	0.13	0.00
14	Kundah HEP	0.20	0.16
15	Tirunelveli HEP	0.10	2.95
	Total	**2.01**	**50.15**

4.18.2 The other debits for FY 2013-14 are based on standard escalation rate of 4% considered on figures of FY 2012-13.

Table 86: Other Debits FY 2013-14 (Generation)

Rs. Crores

Sr. No.	Power Station	FY 2013-14
		Projected
1	Ennore TPS	12.60
2	Tuticorin TPS	7.69
3	Mettur TPS	1.70
4	North Chennai TPS	26.13
5	NCTPS Stage-II**	-
6	MTPS Stage-III**	-
7	Tirumakottai GTPS	0.51
8	Kuttalam GTPS	0.14
9	Basin Bridge GTPS	0.05
10	Valuthur Unit-I	0.00
11	Valuthur Unit-II	-
12	Erode HEP	0.10
13	Kadamparai HEP	0.00
14	Kundah HEP	0.17
15	Tirunelveli HEP	3.07
	Total	**52.16**

4.18.3 The table below shows Other Debits for the year FY 2012-13 for distribution function of TANGEDCO vis-a-vis approved by the Hon'ble Commission:

Table 87: Other Debits FY 2012-13 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2012-13	
		Approved	Estimated
1	Research and Development Expenses	0.11	0.07
2	Bad and Doubtful Debts Written Off	27.45	11.69
3	Miscellaneous Losses and Written Off/Provided for	2.39	5.15
4	Material Cost Variance	0.48	-
5	Demand Side Management	-	10.00
6	Extra Ordinary Debits	0.11	-
	Total	**30.55**	**26.91**
	Less Capitalization	1.40	0.01
	Net Expenses	**29.15**	**26.90**

4.18.4 The table below shows the other debits considered for FY 2013-14 for distribution function based on assumptions given above.

Table 88: Other Debits FY 2013-14 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2013-14 Projected
1	Research and Development Expenses	0.07
2	Bad and Doubtful Debts Written Off	14.21
3	Miscellaneous Losses and Written Off/Provided for	5.66
4	Material Cost Variance	-
5	Sundry Expenses	
6	Demand Side Management	10.00
	Total	**29.94**
	Less Capitalization	0.01
	Net Expenses	**29.94**

4.18.5 It is submitted to approve the Other Debits incurred for the year FY 2012-13 and FY 2013-14 as it is related to the relevant revenue expenditure.

4.19 Other Income

4.19.1 The other income projected for FY 2012-13 and FY 2013-14 for generation function is based on standard escalation rate of 4% applied on FY 2011-12 and FY 2012-13 respectively.

4.19.2 The following table shows the cost of other income for FY 2012-13 and FY 2013-14.

Table 89: Other Income for FY 2012-13 (Generation)

Rs. Crores

Sr. No.	Power Station	FY 2012-13	
		Approved	Actual
1	Ennore TPS	6.00	27.42
2	Tuticorin TPS	13.90	43.30
3	Mettur TPS	14.11	41.66
4	North Chennai TPS	10.70	20.40
5	Tirumakottai GTPS	0.14	1.61
6	Kuttalam GTPS	0.01	0.01
7	Basin Bridge GTPS	0.07	0.20
8	Valuthur Unit-I	0.10	0.05
9	Erode HEP	0.42	0.27
10	Kadamparai HEP	0.30	0.31
11	Kundah HEP	1.00	1.12
12	Tirunelveli HEP	1.70	3.94
	Total	**48.45**	**140.31**

Table 90: Other Income for FY 2013-14 (Generation)

Rs. Crores

Sr. No.	Power Station	FY 2013-14
		Projected
1	Ennore TPS	28.52
2	Tuticorin TPS	45.03
3	Mettur TPS	43.33
4	North Chennai TPS	21.22
5	Tirumakottai GTPS	1.67
6	Kuttalam GTPS	0.01
7	Basin Bridge GTPS	0.21
8	Valuthur Unit-I	0.05
9	Erode HEP	0.28
10	Kadamparai HEP	0.33
11	Kundah HEP	1.17
12	Tirunelveli HEP	4.10
	Total	**145.92**

4.19.3 The other income with respect to generation is projected for FY 2012-13 and FY 2013-14 at **Rs. 140.31 Crores** and **Rs. 145.92 Crores** respectively.

4.19.4 The other income estimated for distribution function is **Rs. 132.43 Crores** for FY 2012-13. The breakup of other income is shown in the table below.

Table 91: Other Income FY 2012-13 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2012-13	
		Approved	Estimated
1	Interest on Staff Loans & Advances		4.60
2	Income from Investment		0.01
3	Interest on Loans & Advances to Licensees		-
4	Delayed Payment Surcharges Collected from Consumers		37.56
5	Interest on Advances to Suppliers / Contractors		9.48
6	Interest from Banks		0.04
7	Income from Trading		18.32
8	Rebate on power purchase bills		-
9	Gain on Sale of Fixed assets		-
10	Income from Staff Welfare		0.24
11	Miscellaneous Receipts		62.17
	Total	**57**	**132.43**

4.19.5 The other income estimated for distribution function is **Rs. 303.47 Crores** for FY 2013-14. The breakup of other income is shown in the table below.

Table 92: Other Income FY 2013-14 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2013-14
		Projected
1	Interest on Staff Loans & Advances	4.83
2	Income from Investment	0.01
3	Interest on Loans & Advances to Licensees	-
4	Delayed Payment Surcharges Collected from Consumers	39.43
5	Interest on Advances to Suppliers / Contractors	9.96
6	Interest from Banks	0.05
7	Income from Trading	19.24
8	Rebate on power purchase bills	164.42
9	Gain on Sale of Fixed assets	-
10	Income from Staff Welfare	0.25
11	Miscellaneous Receipts	65.28
	Total	**303.47**

4.20 Non Tariff Income

4.20.1 The non tariff income estimated for distribution function is **Rs. 688.82 Crores** for FY 2012-13. The breakup of other income is shown in the table below.

Table 93: Non Tariff Income FY 2012-13 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2012-13	
		Approved	Estimated
1	Meter Rent / Service line Rentals		21.63
2	Recoveries of Theft of Power / Malpractices		96.22
3	Wheeling Charges Recoveries		145.45
4	Miscellaneous Charges collected from Consumers		425.52
	Total	**746.00**	**688.82**

4.20.2 The non tariff income estimated for distribution function is **Rs. 737.23 Crores** for FY 2013-14. The breakup of other income is shown in the table below.

Table 94: Non Tariff Income FY 2013-14 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2013-14 Projected
1	Meter Rent / Service line Rentals	23.04
2	Recoveries of Theft of Power / Malpractices	105.84
3	Wheeling Charges Recoveries	154.97
4	Miscellaneous Charges collected from Consumers	453.37
	Total	**737.23**

4.21 Summary of Fixed Cost for FY 2012-13 and FY 2013-14

4.21.1 The following table shows the summary of Fixed Cost of Generation for FY 2012-13 and FY 2013-14.

Table 95: Summary of Fixed Cost for FY 2012-13 (Generation)

Rs. Crores

Sr.No.	Power Plant	FY 2012-13							
		Depreciation	Interest & Finance charges	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Other Income	Total Fixed Cost
1	Ennore TPS	38	9	33	26	120	12	27	211
2	Tuticorin TPS	65	99	58	123	208	7	43	517
3	Mettur TPS	36	41	37	92	115	2	42	282
4	North Chennai TPS	64	186	64	64	128	25	20	510
5	NCTPS Stage-II**	-	-	-	-	-	-	-	-
6	MTPS Stage-III**	-	21	75	13	7	-	-	115
		-	-	-	-	-	-	-	-
7	Tirumakottai GTPS	16	64	14	8	11	0	2	112
8	Kuttalam GTPS	12	50	11	4	8	0	0	84
9	Basin Bridge GTPS	20	62	17	4	6	0	0	109
10	Valuthur Unit-I	19	85	17	15	9	0	0	145
11	Valuthur Unit-II	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
12	Erode HEP	20	160	33	8	30	0	0	252
13	Kadamparai HEP	11	27	11	3	24	0	0	76
14	Kundah HEP	25	65	30	6	40	0	1	165
15	Tirunelveli HEP	11	85	13	5	27	3	4	140
		-	-	-	-	-	-	-	-
	Grand Total	**337**	**954**	**414**	**369**	**735**	**50**	**140**	**2,719**

Table 96: Summary of Fixed Cost for FY 2013-14 (Generation)

Rs. Crores

Sr. No.	Power Plant	FY 2013-14							
		Depreciation	Interest & Finance charges	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Other Income	Total Fixed Cost
1	Ennore TPS	38	11	33	31	130	13	29	227
2	Tuticorin TPS	65	102	60	130	224	8	45	542
3	Mettur TPS	40	43	39	102	126	2	43	308
4	North Chennai TPS	65	191	66	76	139	26	21	541
5	NCTPS Stage-II**	-	469	122	136	168	-	-	895
6	MTPS Stage-III**	127	318	149	92	88	-	-	773
		-	-	-	-	-	-	-	-
7	Tirumakottai GTPS	16	66	15	9	12	1	2	117
8	Kuttalam GTPS	13	50	12	8	8	0	0	90
9	Basin Bridge GTPS	20	63	17	9	7	0	0	116
10	Valuthur Unit-I	19	88	18	20	10	0	0	154
		-	-	-	-	-	-	-	-
11	Erode HEP	36	163	45	9	33	0	0	285
12	Kadamparai HEP	11	30	13	3	26	0	0	82
13	Kundah HEP	25	68	30	6	43	0	1	173
14	Tirunelveli HEP	14	87	16	5	30	3	4	151
		-	-	-	-	-	-	-	-
	Grand Total	**488**	**1,748**	**633**	**635**	**1,044**	**52**	**146**	**4,453**

4.22 Total Cost for FY 2012-13 and FY 2013-14

4.22.1 The following table shows the total cost of generation for FY 2012-13 and FY 2013-14 as summarized below.

Table 97: Total Cost for FY 2012-13 (Generation)

Rs. Crores

Sr. No	Power Station	FY 2012-13		
		Total Variable Cost	Total Fixed Cost	Total Cost
1	Ennore TPS	338	211	549
2	Tuticorin TPS	2,118	517	2,635
3	Mettur TPS	1,637	282	1,919
4	North Chennai TPS	1,063	510	1,573
5	NCTPS Stage-II**	-	-	-
6	MTPS Stage-III**	89	115	204
7	Tirumakottai GTPS	128	112	240
8	Kuttalam GTPS	22	84	106
9	Basin Bridge GTPS	8	109	117
10	Valuthur Unit-I	127	145	272
11	Valuthur Unit-II	148		148
12	Erode HEP	0	252	252
13	Kadamparai HEP	0	76	76
14	Kundah HEP	0	165	165
15	Tirunelveli HEP	3	140	143
	Total Generation	**5,681**	**2,719**	**8,399**

Table 98: Total Cost for FY 2013-14 (Generation)

Rs. Crores

Sr. No	Power Station	FY 2013-14		
		Total Variable Cost	Total Fixed Cost	Total Cost
1	Ennore TPS	429	227	656
2	Tuticorin TPS	2,224	542	2,766
3	Mettur TPS	1,823	308	2,131
4	North Chennai TPS	1,164	541	1,705
5	Kuttalam GTPS	2,110	895	3,005
6	Basin Bridge GTPS	1,342	773	2,115
7	Tirumakottai GTPS	145	117	262
8	Kuttalam GTPS	126	90	217
9	Basin Bridge GTPS	93	116	209
10	Valuthur Unit-I	210	154	364
11	Valuthur Unit-II	201		201
12	Erode HEP	0	285	285
13	Kadamparai HEP	0	82	82
14	Kundah HEP	0	173	173
15	Tirunelveli HEP	3	151	154
	Total Generation	**9,871**	**4,453**	**14,324**

4.23 Power Purchase Expenses for FY 2012-13 and FY 2013-14

4.23.1 The following table shows the power purchase in cost as well as in million units from other sources for FY 2012-13 and FY 2013-14 after excluding wheeling units.

Table 99: Power Purchase Expenses for FY 2012-13 and FY 2013-14

Sr.No.	Name of Power Plant	FY 2012-13		FY 2013-14	
		Power Purchase (in Mus)	Power Purchase (Rs. Crores)	Power Purchase (in Mus)	Power Purchase (Rs. Crores)
	Central Generating Station				
1	NLC-TS-I	2,937	668.44	2,937	696.80
2	NLC-TS-II (Stage-I & II)	3,450	903.28	3,450	941.48
3	NLC-TS-I Expansion	1,749	553.15	1,749	577.50
4	NTPC SR (I & II)	4,164	915.97	4,164	954.89
5	NTPC SR (III)	1,074	301.31	1,074	314.29
6	NTPC ER	342	148.34	-	47.67
7	NTPC - Talcher II	3,567	1,056.74	3,567	1,101.99
8	MAPS	1,986	411.11	1,986	427.56
9	KAIGA	1,278	414.95	1,278	431.55
10	NTPS - Simahadri	599	213.64	638	232.40
11	Simhadiri - Unit II	123	49.47	599	186.55
12	Kudankulam Unit - I	178	62.37	2,426	882.88
13	Kudankulam Unit - II	-	-	-	-
14	NLC-TS-II Expansion Unit I	397	139.10	1,449	527.44
15	NLC-TS-II Expansion Unit II	-	-	-	
16	NTPC-TNEB (JV) - Unit -1	648	226.80	2,186	795.74
17	NTPC-TNEB (JV) - Unit -2	262	91.82	2,040	749.83
18	NTPC-TNEB (JV) - Unit -3	-	-	450	157.40
19	TNEB NLC JV	-	-	257	89.80
	Total Central Generating Station	**22,755**	**6,156**	**30,250**	**9,116**
	IPP's				
1	GMR	615	770.88	-	174.80
2	Samalpatti	273	410.77	-	127.74
3	PPN	1,541	1,338.73	-	314.76
4	Madurai	285	440.70	-	137.04
5	ST-CMS	1,794	746.69	1,819	785.89
6	ABAN	366	179.16	375	189.16
7	Penna	759	200.27	759	208.87
	Total IPP's	**5,633**	**4,087**	**2,953**	**1,938**
	NCE				
1	CPP	705	307	719	329
2	Solar	21	10	208	103
3	Wind	5,067	1,649	5,320	1,818
4	Co-Generation	1,771	688	2,562	1,045
5	Biomass	783	372	799	398
	Total NCE	**8,347**	**3,026**	**9,608**	**3,694**
	Other Sources				
1	Traders - Bilateral	9,816	3,066	1,413	463
2	Traders - Exchange	-	-	-	-
3	UI	-	-	-	-
4	Wheeling	25	-	-	-
	Total Other Sources	**9,841**	**3,066**	**1,413**	**463**
	Total Power Purchase from Other Sources	**46,576**	**16,336**	**44,223**	**15,211**
	NTPC NVVN	694	275.62	694	289.40
	PGCIL -SR Wheeling		546.49		573.82
	PGCIL ER Wheeling		3.83		4.02
	Transmission Charges Payable to TANTRANSCO		-		-
	ABTPGCIL		328.61		345.04
	PGCIL Reactive account		17.82		18.72
	Total Power Purchase Including Other Charges	**47,270**	**17,508**	**44,917**	**16,442**

4.24 Transmission Charges

4.24.1 The transmission charges considered in ARR for Distribution function for FY 2012-13 and FY 2013-14 is based on the ARR calculated for TANTRANSCO based on the estimated cost of transmission for the respective years.

4.25 Sales Estimation for FY 2012-13 and FY 2013-14

4.25.1 The following table shows the sales and revenue estimated by TANGEDCO for FY 2012-13 and FY 2013-14.

Table 100: Sales and Revenue Projection for FY 2012-13 and FY 2013-14

Sr. No.	Consumer Category	FY 2012-13		FY 2013-14	
		Sales (in MUs)	Revenue (in Crores)	Sales (in MUs)	Revenue (in Crores)
I	**High Tension Supply (HT)**				
a	Registered factories,Textiles, Tea Estate, Software industries incl. Maint.	7,944	5,622	9,107	6,327
b	Railway Traction	758	481	798	506
c	Govt. Educational Instn, Hospitals, water supply etc.	1,044	551	1,196	623
d	Private Educational Instn, cinema Theaters & Studios	256	171	293	193
e	Actual places of public worship, Mutts and Religious Instn.	-	-	-	-
f	Commercial and all other categories	1,837	1,498	2,277	1,816
g	Lift Irrigation Co-operative societies	6	2	7	2
h	Temporary Supply	5	26	5	27
i	Supply to Pondicherry State and others	413	338	413	338
j	Supply to Other States (SWAP)				
	Sub Total HT (A)	**12,263**	**8,688**	**14,096**	**9,832**
II	**Low Tension Supply (LT)**				
a	Domestic Purposes for lights & fans, Powerload etc.	18,934	6,951	23,237	8,687
b	Huts in Village panchayats, TAHDCO etc.	473	108	508	105
c	Defence Colonies etc. Notified Tariff	12	5	12	5
d	Public Lighting and Public Water Supply&Sewerage	1,905	1,047	2,018	1,110
e	Govt. Educational Instn, Hospitals, water supply etc.	139	80	158	90
f	Private Educational Instn, cinema Theaters & Studios	276	194	317	221
g	Actual places of public worship	113	66	156	88
h	Cottage and Tiny Industries,	143	54	151	57
i	Powerloom	831	418	1,073	532
j	Coffee grinding and Ice factories etc. and Industries not covered under L.T.Tariff IIIA	4,913	2,911	5,659	3,332
k	Agriculture and the Govt.seed farms	9,707	1,970	10,269	2,005
l	Commercial and all categories of Consumers not covered under IA, IB,IC, IIA, IIB, IIIA, III B and IV	5,421	3,187	6,182	3,597
n	Temp.supply:(a) Lighting and combined installation, (b) Lavish illuminations	24	29	30	35
	Sub Total LT (B)	**42,891**	**17,019**	**49,770**	**19,863**
	Total HT and LT {A+B}	**55,155**	**25,707**	**63,866**	**29,695**

4.25.2 The categorywise sales considered for FY 2012-13 is based on the monthly sales available for

first six months of FY 2012-13 i.e. up to Sept 2012. The revenue is therefore projected on the tariff applicable for FY 2012-13.

4.25.3 The sales for FY 2013-14 are based on projections for FY 2013-14 and the revenue is thus calculated considering the tariff rates applicable for FY 2012-13 i.e. on existing tariff.

4.25.4 It is submitted that no wheeling units have been considered in the total sales MUs projected for FY 2012-13 and FY 2013-14. However revenue projected for both the years is inclusive of subsidy provided by Government of Tamil Nadu (GoTN).

4.26 Energy balance for FY 2012-13 and FY 2013-14

4.26.1 The following table shows the energy balance statement for FY 2012-13 and FY 2013-14.

Table 101: Energy Balance Statement for FY 2012-13 and FY 2013-14

Sr.No	Particulars	FY 2012-13 (MUs)	FY 2013-14 (MUs)
1	Power Purchase from Own Generation	23,694	36,738
2	Power Purchase from Other Sources	46,845	44,493
	Total Power Purchase	**70,540**	**81,231**
3	T&D Loss (in MUs)	15,237	17,190
4	T&D Loss (in %)	21.60%	21.16%
	Total Sales	**55,302**	**64,042**
5	Sales to Consumers	54,742	63,453
6	Power Supply to Kadamparai	561	589

4.26.2 The energy balance and the distribution loss hence arrived is based on the methodology adopted by TANGEDCO for FY 2010-11 and FY 2011-12.

4.26.3 The following table shows the energy balance statement for FY 2012-13 and FY 2013-14 considering wheeling units for calculation of T&D Loss. The wheeling units and power from Pondicherry considered for FY 2012-13 is an escalation of actual units wheeled during FY 2011-12.

Table 102: Energy Balance Statement for FY 2012-13 and FY 2013-14 including Wheeling Units

Sr.No	Particulars	FY 2012-13 (MUs)	FY 2013-14 (MUs)
1	Power Purchase from Own Generation	23,162	36,178
2	Power Purchase from Other Sources	46,845	44,493
3	Wheeling Units	8,723	11,170
4	Power from Kadamparai	533	561
5	Supply from NLC to Pudducherry	424	424
	Total Power Purchase	**79,687**	**92,826**
		-	-
6	T&D Loss (in MUs)	15,772	17,871
7	T&D Loss (in %)	19.79%	19.25%
	Total Sales	**63,915**	**74,955**
8	Sales to Consumers	54,742	63,453
9	Wheeling Units	8,200	10,500
10	Power Supply to Kadamparai	561	589
11	Power Supply to Pudducherry	413	413

4.27 Summarized ARR and Revenue Gap for FY 2012-13 and FY 2013-14

4.27.1 Based on the above discussion on variable and fixed cost component for generation function and fixed cost related to distribution function following is the table showing ARR and Revenue Gap summary for FY 2012-13.

Table 103: Annual Revenue Requirement for FY 2012-13 (Generation)

Rs. Crores

Sr. No.	Particulars	FY 2012-13	
		Approved	Estimated
1	Variable Cost	7,588	5,681
2	Operation & Maintenance Expenses	603	735
3	Depreciation	403	337
4	Interest & Finance Charges	91	954
5	Interest on Working Capital	-	369
6	Provision for bad debts	-	-
7	Other Debits	2	50
8	Net Prior Period Expenses/(Income)	-	-
9	Expenses Capitalised	-	-
	Sub Total	**8,687**	**8,126**
10	Return on Equity	302	414
11	Provision for Tax / Tax Paid	-	-
	Total Expenditure	**8,989**	**8,540**
12	Less: Non Tariff Income	-	-
13	Less: Other Income	48	140
	Aggregate Revenue Requirement	**8,940**	**8,399**

Table 104: Annual Revenue Requirement for FY 2012-13 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2012-13	
		Approved	Estimated
1	Expenses with respect to Generation	8,940	8,399
2	Power Purchase Cost from Other Sources	11,678	17,508
	Transmission Charges paid to TANTRANSCO	3,076	3,076
3	Operation & Maintenance Expenses	2,837	4,309
4	Depreciation	287	303
5	Interest & Finance Charges	3,355	2,139
6	Interest on Working Capital	-	701
7	Provision for bad debts	27	12
8	Other Debits	2	15
9	Net Prior Period Expenses/(Income)	-	-
10	Contribution to Contingency Reserves	-	72
11	Other Expenses Capitalised	-	618
	Sub Total	**30,203**	**35,916**
12	Return on Equity	-	331
13	Provision for Tax / Tax Paid	-	-
	Total Expenditure	**30,203**	**36,247**
14	Less: Non Tariff Income	746	689
15	Less: Other Income	57	132
16	Less: Other Income from Generation	59	-
	Aggregate Revenue Requirement	**29,341**	**35,426**
	Total Revenue after Subsidy	**29,347**	**25,707**
	Gap/(Surplus)	**(6)**	**9,719**

4.27.2 Similarly based on the parameters discussed for FY 2013-14 the revenue gap for FY 2013-14 based on existing revenue is shown in the table below.

Table 105: Annual Revenue Requirement for FY 2013-14 (Generation)

Rs. Crores

Sr. No.	Particulars	FY 2013-14 Projected
1	Variable Cost	9,871
2	Operation & Maintenance Expenses	1,044
3	Depreciation	488
4	Interest & Finance Charges	1,748
5	Interest on Working Capital	635
6	Provision for bad debts	-
7	Other Debits	52
8	Net Prior Period Expenses/(Income)	-
9	Expenses Capitalised	-
	Sub Total	**13,837**
10	Return on Equity	633
11	Provision for Tax / Tax Paid	-
	Total Expenditure	**14,470**
12	Less: Non Tariff Income	-
13	Less: Other Income	146
	Aggregate Revenue Requirement	**14,324**

Table 106: Annual Revenue Requirement for FY 2013-14 (Distribution)

Rs. Crores

Sr. No.	Particulars	FY 2013-14
		Projected
1	Expenses with respect to Generation	14,324
2	Power Purchase Cost from Other Sources	16,442
	Transmission Charges paid to TANTRANSCO	2,329
3	Operation & Maintenance Expenses	4,744
4	Depreciation	328
5	Interest & Finance Charges	2,238
6	Interest on Working Capital	808
7	Provision for bad debts	14
8	Other Debits	16
9	Net Prior Period Expenses/(Income)	-
10	Contribution to Contingency Reserves	75
11	Other Expenses Capitalised	644
	Sub Total	**40,675**
12	Return on Equity	405
13	Provision for Tax / Tax Paid	-
	Total Expenditure	**41,079**
14	Less: Non Tariff Income	737
15	Less: Other Income	303
16	Less: Other Income from Generation	-
	Aggregate Revenue Requirement	**40,039**
20	**Total Revenue after Subsidy**	**29,695**
21	**Gap/(Surplus)**	**10,344**

4.27.3 It is submitted to kindly approve the revenue gap for FY 2012-13 and FY 2013-14 as computed above.

5. SUMMARY OF REVENUE GAP TOTAL REVENUE GAP TO BE RECOVERED

5.1 Total Revenue Gap to be recovered

5.1.1 The total revenue gap from to be recovered from tariff comprises of

- ✓ Final True up for FY 2010-11;
- ✓ Provisional True Up for FY 2011-12
- ✓ Annual Performance Review for FY 2012-13
- ✓ Aggregate Revenue Requirement for FY 2013-14

5.1.2 The consolidated total revenue gap calculated in this petition is given in the table below.

Table 107: Consolidated Revenue Gap

Rs. Crores

Particulars	Gap Approved by Commission	Gap Arrived in this Petition	Revenue Gap to be added
FY 2010-11	4,187	5,773	1,586
FY 2011-12	13,409	14,882	1,472
FY 2012-13	(6)	9,719	9,725
FY 2013-14	-	10,344	10,344
Total	**17,590**	**40,718**	**23,127**

5.1.3 TANGEDCO hereby submits that the total revenue gap derived in the present petition after final true up of FY 2010-11, provisional true up of FY 2011-12, APR for FY 2012-13 and ARR for FY 2013-14 comes out to **Rs. 40,718 Crores**.

5.1.4 TANGEDCO also submits that the resultant revenue gap of **Rs. 40,718 Crores** after considering revenue based on proposed tariff hike, shall be allowed and approved by the Hon'ble Commission as regulatory asset and hence to be added to the existing regulatory asset as approved in tariff order dated 30th March 2012 and the revenue gap of **Rs. 40,718 Crores** may be allowed to be recovered through tariff hike in the ensuing tariff petition to be filed.

6. FORMATION OF REGULATORY ASSETS

6.1 Regulatory Asset

6.1.1 In a general term, Regulatory assets include previously-incurred losses that are in the nature of deferred expenditure and that can be recovered from consumers in future allowed by regulatory authorities.

6.1.2 As per the Guidance Note on Accounting for Rate Regulated Activities, issued by ICAI, a Regulatory assets is defined as follows:

"A regulatory asset is an entity's right to recover fixed or determinable amounts of money towards incurred costs as a result of the actual or expected actions of its regulator under the applicable regulatory framework"

6.1.3 The National Tariff Policy has also prescribed guidelines for allowing the facility of regulatory assets to be recovered with carrying cost. In cases where regulatory asset is proposed to be adopted, it should be ensured that the return on equity should not become unreasonably low in any year so that the capability of the licensee to borrow is not adversely affected.

6.1.4 It is submitted that a distribution business is a regulated business whereby the business activities creates a gap between operational and accounting situations that would not have arisen in the absence of such regulation. With cost-of-service regulation, there is a direct link between the costs that an entity is expected to incur and its expected revenue as the rates is set to allow the entity to recover its expected costs. However, there could be a significant time lag between incurrence of costs by the entity and their recovery through tariffs. Recovery of certain costs may be provided for by regulation either before or after the costs are incurred. Also, the reasons of a need for creation of Regulatory assets can be due to any or all of the following reasons:

- such as infrequent revision of tariffs,
- variation in the actual and estimated values of major expenditure along with their reasons and treatment;
- gap between the total validated expenditure and total estimated revenue;
- difference between the cost estimated and approved by the appropriate authority;
- effect of prescribed and achieved milestones for loss reduction and sharing of efficiencies and losses;

6.1.5 The Regulatory Assets as specified under Tariff Order No. 1 dated 30th March 2012 is the unrecoverable loss for the period November 2010 to March 2013. As per the Tariff order

dated 30th March 2012, the issue of the Regulatory Assets was dealt in line with the Regulation No. 13 of the Terms and Conditions of Tariff Regulations 2005 which is stated as below:

13. Regulatory Asset

(1) Wherever the licensee could not fully recover the reasonably incurred cost at the tariff allowed with his best effort after achieving the benchmark standards for the reasons beyond his control under natural calamities and force majeure conditions and consequently there is a revenue shortfall and if the Commission is satisfied with such conditions, the Commission shall treat such revenue shortfall as Regulatory Asset.

(2) The regulatory asset shall first be adjusted against the contingency reserve. The balance regulatory asset, if any, will be allowed to be recovered within a period of three years as decided by the Commission.

(3) The licensee shall intimate the Commission then and there when such contingency arises.

(4) Any unrecovered gap at the beginning must be covered through transition financing arrangement or capital restructuring.

6.1.6 As per the Tariff Order, the Hon'ble Commission had expressed a view that the accumulated losses up to the date of unbundling will have to be dealt with in accordance with Para 5.4.3 of the National Electricity Policy and Tariff Policy. The provisions of the National Electricity Policy and Tariff Policy envisages that the gap at the time of unbundling will have to be sorted out by financial restructuring and support from the Government rather than passing on the accumulated losses to the successor entities.

6.1.7 In line with the National Tariff Policy, National Electricity policy and as per the Tariff Order dated 30th March 2012, TANGEDCO have not claimed any relief on account of accumulated losses prior to unbundling on 1-11-2010 in the given petition.

6.1.8 The proposal of TANGEDCO is to create regulatory assets for the unrecovered deficit post unbundling only. TANGEDCO would like to submit that even though it has requested for creation of regulatory asset of the amount which is unrecovered deficit after claiming part as a tariff hike, all efforts has been undertaken to reduce such deficit.

6.1.9 As per the Tariff Order dated 31st March 2012, the treatment of the Regulatory Asset along with its carrying cost upto 31st March 2013 is given below:

Table 108: Regulatory Asset Approved in the Last Tariff Order

Particulars	Regulatory Assets
Loss for the year (including Carrying cost)	
FY 2010-11	5,422
FY 2011 – 2012	14,149
FY 2012 – 2013	7,874
Total Regulatory Asset	**27,445**
Less: Tariff hike approved	7,874
Total Regulatory Asset	**19,571**

6.2 Recovery of Regulatory Asset

6.2.1 As specified under Tariff Order No. 1 dated 30th March 2012 (Page No. 309), the Regulatory Asset is proposed to be amortized over a period of 5 years commencing from the year 2013 – 2014 onwards. Once the Regulatory Asset is arrived at, 1/5th of the Regulatory Asset would be amortized along with the carrying cost. The Regulatory Asset would be re-worked out in 2014 – 2015 and 1/4th of such Regulatory Asset would be amortized in that year and so on until the entire Regulatory Asset is amortized. The carrying cost would correspond to the weighted average rate of interest for medium / long term loans of TANGEDCO in the corresponding year in which the amortization of the Regulatory Asset is done.

6.3 Revision in Regulatory assets

6.3.1 Based on the total gap arrived in this petition, which is cumulative of gap for FY 2010-11 (true-up for 5 months), FY 2011-12 (on provisional true-up), FY 2012-13 (Estimated for current year) and FY 2013-14 (gap for ensuing year), TANGEDCO submits the revised calculation of Regulatory Assets for approval of the Hon'ble Commission.

Table 109: Regulatory Asset Proposed in this Petition

Particulars	Rs. Crores
Loss for the year	
FY 2010-11	5,773
FY 2011-12	14,882
FY 2012-13	9,719
FY 2013-14	10,344
Total Gap arrived in this Petition	**40,718**
Total Regulatory Asset approved by Commission	19,571
Less: Tariff hike proposed	973
Additional Regulatory Asset Proposed	20,173
Total Regulatory Asset Proposed	**39,744**

6.3.2 Considering the deficit situation of power supply faced by TANGEDCO and the current economic situation of the State resulting due to such deficit situation where by industries are shifting their base to other States and unemployment is increasing, TANGEDCO proposed a nominal tariff hike of Rs. **973 Crores** which would be met by Subsidy from the State Government and there would be no additional tariff hike on the consumers.

6.3.3 Hence the remaining gap of the **Rs 39,744 Crores** after tariff revision may be allowed to recover in the ensuing tariff petition from the consumer in the deferred years so that there is no tariff shock for the consumers. It is submitted to approve the revised Regulatory Assets of **Rs 39,744 Crores** by treating the present critical power position as force majeure position as per tariff regulation and based on the revised gaps and after adjusting the tariff hike as proposed in the given petition.

6.3.4 The percentage of sharing of the Regulatory Asset by Government of Tamil Nadu (GOTN) is awaited.

7. WHEELING CHARGES AND CROSS SUBSIDY SURCHARGE

7.1 Background

7.1.1 The Electricity Act 2003 (the Act) allows non- discriminatory Open Access to the network of a Licensee on payment of applicable charges.

7.1.2 The proposed Wheeling charges, Cross Subsidy Surcharge, Additional Surcharge, Grid Availability charges and Restoration Charges for FY 2013-14 are detailed in the section below.

7.1.3 As the transfer of Assets has not yet been finalized, it has considered various assumptions while apportioning the capital expenditure (CAPEX) related expenses and revenue for each function. Further, the Hon'ble Commission has provisionally approved all the expenses and based on that the Annual Distribution Charges has been arrived at.

7.1.4 The Board maintains separate Balance Sheet for its generation function. Hence the balance figures out of total revenue and expenditure has been taken for Distribution function.

7.1.5 The following section details the expenses for Distribution function, to be recovered as wheeling charges from all beneficiaries.

7.2 Summary of Expenses Considered for Wheeling Charges

7.2.1 Operation and Maintenance Expenses considered for calculation of wheeling charges is as per the charges submitted in section 4.17.13 of this petition.

7.2.2 Interest on loan considered for calculation of wheeling charges is as per the charges submitted in section 4.14.7 of this petition.

7.2.3 Depreciation considered is as per calculation submitted in section 4.13.8 of this petition.

7.2.4 Return on equity considered for wheeling charges is as per submitted in section 4.16.7 of this petition.

7.2.5 Other debits considered are as per section 4.18.4 of this petition.

Table 110: Annual Distribution Charges for FY 2013-14

Sr. No.	Particulars	Rs. Crs
1	Net O&M Expenses	4,100.31
2	Interest on Loan	2,237.78
3	Interest on Working Capital	808.09
4	Depreciation	327.61
5	Return on equity	404.66
6	Other debits	15.73
7	Provision for Bad Debts	14.21
	Annual Wheeling Charges	**7,908.38**
8	Less: Interest on Security Deposit	419.01
	Net Annual Distribution Charges	**7,489.38**

7.2.6 As the open access is allowed to HT consumers, the wheeling charges are to be determined on the cost of HT distribution network. Hence, the annual wheeling charges are required to be allocated between HT and LT in the ration of HT and LT network.

7.2.7 As on 31st March 2012, the length of HT and LT lines was in the ratio of 22: 78 (1.56 lakh ckt kms: 5.67 lakh ckt kms).

7.2.8 The annual wheeling charges are allocated among HT and LT as below.

Table 111: Allocation of Wheeling Charges into LT & HT Category

Sr. No	Particulars as on 31st March 2012	Nos	Ratio
1	HT Lines (lakh ckt. km.)	1.56	21.52%
2	LT Lines (lakh ckt. km.)	5.67	78.48%
	Total	**7.23**	**100.00%**

7.2.9 The projected units sold through the distribution system during the control period and the wheeling charges for the control period shall be as below:

Table 112: Wheeling Charges per Unit

Sr No.	Average Cost of Supply and Cross Subsidy Reduction		
	Particulars	Units	FY 2013-14
1	Projected energy fed into the grid	MUs	80,670
2	Transmission loss up to 110 kV	%	2.70%
3	Energy sent out into distribution network	MUs	78,489
4	Less: Energy consumed up to 110 kV	MUs	5,144
5	Less lossed up to 33 kV network	%	6.55%
6	Energy fed into 33 kV and below	MUs	73,345
7	Annual wheeling charges	Rs. Lacs	161,192
8	Wheeling charges per unit	Paise/kWh	21.98

7.3 Cross Subsidy Surcharge

7.3.1 The proviso under sub-section (2) of section 42 of Electricity Act 2003 stipulates the following:

"Provided that such open access shall be allowed on payment of a surcharge in addition to the charges for wheeling as may be determined by the State Commission"

"Provided further that such surcharge shall be utilized to meet the requirements of current level of cross-subsidy within the area of supply of the distribution licensee"

7.3.2 The surcharge shall be the difference between the tariff applicable to the relevant category of consumers and the cost of distribution licensee to supply electricity to the consumers of the applicable class.

7.3.3 National Tariff Policy further provides the "Surcharge Formula" as follows:

$S = T – [C (1 + L / 100) + D]$

Where

S is the Surcharge

T is the tariff payable by the relevant category of consumers'

C is the weighted average cost of power purchase of top 5% of the margin excluding liquid fuel based generation & renewable power'

D is the Wheeling Charge and

L is the system losses for the applicable Voltage level, expressed as a percentage

7.3.4 The quantum of 5% power purchase has been determined for the year 2013-14 as below.

Table 113: Quantum of 5% Power Purchase

Marginal Cost of Power purchase			
Particulars	**Units Purchased**	**Total Cost**	**Average Rate**
ABAN	375	189	5.04
NTPC - Talcher II	3,567	1,102	3.09
Kudankulam Unit - I	2,426	883	3.64
Total	**6,368**	**2,174**	**3.41**

Table 114: Calculation of Weighted Average Power Purchase

Calcualtion of Weighted average Power Purchase cost at different Voltage						
Sl. No	Injection Voltage	Drawal Volatge	Total Loss (%)	Marginal Cost of Power Purchase	Wheeling Charges	Weighted Average Power Purchase Cost
1	33 kV	33 kV	3.53%	341	21.98	375.90
2	33 kV	22 kV	4.85%	341	21.98	380.80
3	33 kV	11 kv	6.36%	341	21.98	386.59
4	33 kV	110 kV	3.12%	341	21.98	374.39
5	33 kV	230 kV	2.15%	341	21.98	370.90
6	22 kV	11 kv	7.68%	341	21.98	391.79
7	22 kV	22 kV	6.16%	341	21.98	385.83
8	22 kV	33 kV	4.85%	341	21.98	380.80
9	22 kV	110 kV	4.43%	341	21.98	379.25
10	22 kV	230 kV	3.46%	341	21.98	375.66
11	11 kv	11 kv	9.19%	341	21.98	397.94
12	11 kv	22 kv	7.68%	341	21.98	391.79
13	11 kv	33 kV	6.36%	341	21.98	386.59
14	11 kv	110 kV	5.95%	341	21.98	384.99
15	11 kv	230 kV	4.98%	341	21.98	381.28
16	110 kV	110 kV	2.70%	341	21.98	372.89
17	110 kV	11 kv	5.95%	341	21.98	384.99
18	110 kV	22 kv	4.43%	341	21.98	379.25
19	110 kV	33 kV	3.12%	341	21.98	374.39
20	110 kV	230 kV	1.73%	341	21.98	369.43
21	230 kV	230 kV	0.76%	341	21.98	366.03
22	230 kV	33 kV	2.15%	341	21.98	370.90
23	230 kV	22 kv	3.46%	341	21.98	375.66
24	230 kV	11 kv	4.98%	341	21.98	381.28
25	230 kV	110 kV	1.73%	341	21.98	369.43

Note: Wherever the 22 KV lines involved, the loss level should be replaced in place of 11 KV loss level.

7.3.5 The cross subsidy surcharge applicable to different categories of consumers for injection and drawl at different voltage levels has been arrived for the year 2013-14 as below:

Table 115: Calculation of Cross Subsidy Surcharge

Calcualtion of Cross Subsidy Sucharge for HT Categories							
Sl. No	Injection Voltage	Drawal Volatge	Industrial	Railway Traction	Govt. And Govt. Aided educational Instns. Etc.	Private Educational Institution	Commercial
1	33 kV	33 kV	318.82	258.08	145.09	281.42	421.63
2	33 kV	22 kV	313.92	253.18	140.19	276.52	416.73
3	33 kV	11 kv	308.13	247.39	134.40	270.73	410.94
4	33 kV	110 kV	320.33	259.59	146.60	282.93	423.14
5	33 kV	230 kV	323.82	263.08	150.09	286.42	426.64
6	22 kV	11 kv	302.93	242.19	129.20	265.53	405.74
7	22 kV	22 kV	308.88	248.15	135.16	271.49	411.70
8	22 kV	33 kV	313.92	253.18	140.19	276.52	416.73
9	22 kV	110 kV	315.47	254.73	141.75	278.08	418.29
10	22 kV	230 kV	319.06	258.32	145.34	281.67	421.88
11	11 kv	11 kv	296.77	236.04	123.05	259.38	399.59
12	11 kv	22 kv	302.93	242.19	129.20	265.53	405.74
13	11 kv	33 kV	308.13	247.39	134.40	270.73	410.94
14	11 kv	110 kV	309.73	248.99	136.00	272.33	412.55
15	11 kv	230 kV	313.44	252.70	139.71	276.04	416.25
16	110 kV	110 kV	321.82	261.09	148.10	284.43	424.64
17	110 kV	11 kv	309.73	248.99	136.00	272.33	412.55
18	110 kV	22 kv	315.47	254.73	141.75	278.08	418.29
19	110 kV	33 kV	320.33	259.59	146.60	282.93	423.14
20	110 kV	230 kV	325.29	264.55	151.56	287.89	428.10
21	230 kV	230 kV	328.68	267.95	154.96	291.29	431.50
22	230 kV	33 kV	323.82	263.08	150.09	286.42	426.64
23	230 kV	22 kv	319.06	258.32	145.34	281.67	421.88
24	230 kV	11 kv	313.44	252.70	139.71	276.04	416.25
25	230 kV	110 kV	325.29	264.55	151.56	287.89	428.10

7.4 Additional Surcharge

7.4.1 As per Tariff Policy, the additional Surcharge should become applicable only, if it is conclusively demonstrated that the obligation of a licensee, in terms of existing power purchase commitments, has been and continues to be stranded, or there is an unavoidable obligation and incidence to bear fixed costs consequent to such a contract. Since, there is a shortage of available capacity, it is submitted that it is proposed not to claim the additional surcharge at present.

7.5 Grid Availability Charges

7.5.1 TANGEDCO in this petition is submitting for approval of energy charges plus the energy equated demand charges applicable to HT Temporary tariff as Grid Availability Charges. TANGEDCO submits that the Grid Availability Charges are basically for providing standby arrangements to Open Access customers in the following cases:

- In case of outages of Generator supplying to an open access consumer.
- For start up power by generator.
- When the generation as per schedule is not maintained and when the drawal by the open access consumer is in excess of the schedule.

7.5.2 Also, TANGEDCO submits that it is facilitating standby power supply arrangement for open access consumers. As per clause 8.5.6 of the National Tariff Policy, it specifies that in case of open access, a standby arrangement needs to be provided to open access consumers to safeguard their supply in case of outages of generator. However, such consumer will be charged a tariff relevant to temporary connection as that standby support will be for a temporary period of time. The clause is outlined below:

8.5.6 In case of outages of generator supplying to a consumer on open access, standby arrangements should be provided by the licensee on the payment of tariff for temporary connection to that consumer category as specified by the Appropriate Commission.

7.5.3 Also, in an interconnection (integrated A.C. grid), since MW deviations from schedule of an entity are met from the entire grid, the temporary standby support will result into deviation in the drawl by licensee resulting in UI applicability.

7.5.4 The Hon'ble commission in tariff order dated 30-3-2012 approved the separate tariff category to HT temporary supply. (Page 324 of tariff order No 1 of 2012 dated 30.03.2012) and hence, it is prayed to fix the tariff of Grid availability Charges equivalent to energy charges plus energy equated demand charges applicable to HT Temporary supply.

8. TARIFF PHILOSOPHY

8.1 Introduction

8.1.1 TANGEDCO proposes the following tariff philosophy in the current petition

- Fixed Charges for Tariff Category LT-1B for Hut Consumers to be increased from Rs. 60/Month/Service to Rs. 125/Month/ Service.

Tariff Category	Existing Fixed Charges (Rs. / month)	Proposed Fixed Charges (Rs. /month)	Subsidy for Fixed Charges (Rs. / month)	Proposed Fixed Charges payable by Consumers (Rs. / month)
Low Tension Tariff I-B (Till Installation of Energy Meter)	60	125	125	Nil

- Fixed Charges for Tariff Category LT-IV for Agriculture Consumers to be increased from Rs. 1750/HP/Annum to Rs. 2500/HP/Annum.

Tariff Category	Existing Fixed Charges (Rs. / HP / anum)	Proposed Fixed Charges (Rs. / HP / anum)	Subsidy for Fixed Charges (Rs. / HP / anum)	Proposed Fixed Charges payable by Consumers (Rs. / HP / anum)
Low Tension Tariff IV (Till Installation of Energy Meter)	1750	2500	2500	Nil

- TANGEDCO submits that except the above revision in tariff for Hut and Agriculture Category, tariff rates and conditions for all other categories is proposed to be as per prevailing tariff order dated 30th March 2012.

9. TARIFF SCHEDULE

TARIFF FOR HIGH TENSION SUPPLY CONSUMERS

9.1 General Provisions applicable for High Tension Supply

9.1.1 **Categories of supply**: The categories of supply are as specified in the Commission's distribution code and supply code. The HT tariffs specified for different categories of HT consumers are also applicable to the consumers who are supplied at EHT level in accordance with TNERC Supply Code and TNERC Distribution Code.

9.1.2 **Harmonics:** As specified in the Supply Code, when the consumer fails to provide adequate harmonic suppression equipment to avoid dumping of harmonics beyond the limits as specified by CEA regulations into Licensee's distribution system, he is liable to pay compensation at 15% of the respective tariff. As and when the consumer brings down the harmonics within the limit, compensation charges shall be withdrawn.

9.1.3 In case of supply under HT Tariff, except for HT tariff-III, supply used for creating facilities for the compliance of Acts/Laws or for the purpose incidental to the main purpose of the establishment of the consumer such as facilities extended to the employees/students/patients as the case may be, within the premises of the consumer, shall be considered to be for the bonafide purpose. However, if such facilities are extended to the public, such facilities shall be metered separately and charged under appropriate LT tariff. Such metered consumption shall be deducted from the total consumption registered in the main meter of the HT/EHT supply for billing.

9.1.4 In the case of supply under HT Tariff IA, IIA, II B and III, at the option of the consumer, the use of electricity for residential quarters, within the premises, shall be metered separately and charged under LT Tariff IC. Such metered consumption shall be deducted from the total consumption registered in the main meter of the HT/EHT supply for billing.

9.1.5 In the case of HT supply under IA, IIA, IIB, III, the use of electricity for the construction purposes within the premises shall be metered separately and charged under LT Tariff VI. Such metered consumption shall be deducted from the total consumption registered in the main meter of the HT/EHT supply for billing.

9.1.6 Low Power Factor Surcharge: In respect of High Tension service connections the average power factor of the consumers installation shall not be less than 0.90. Where the average power factor of High Tension service connection is less than the stipulated limit of 0.90 the following compensation charges will be levied.

Particulars	Dispensation for Power Factor Surcharge
Below 0.90 and up to 0.85	One per cent of the current consumption charges for every reduction of 0.01 in power factor from 0.90
Below 0.85 to 0.75	One and half per cent of the current consumption charges for every reduction of 0.01 in power factor from 0.90
Below 0.75	Two per cent of the current consumption charges for every reduction of 0.01 in power factor from 0.90

9.1.7 Billable Demand: In case of HT Consumers, maximum Demand Charges for any month will be levied on the kVA demand actually recorded in that month or 90% of the sanctioned demand whichever is higher.

9.1.8 Provided, that whenever the restriction and control measures are in force, the billable demand in case of two part tariff for any month will be the actual recorded maximum demand or 90% of demand quota, as fixed from time to time through restriction and control measures, whichever is higher.

9.2 High Tension Tariff IA

Tariff category	Existing and proposed Tariff	
	Demand Charge in Rs/KVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff I A	300	550

9.2.1 This Tariff is applicable to all manufacturing and industrial establishments and registered factories including Tea Estates, Textiles, Fertilizers, Salem Steel Plant, Heavy Water Plant, Chemical plant, common effluent treatment plant, Cold storage units, Industrial estates water works, Water Supply Works by new Tirupur Area Development Corporation.

9.2.2 Information Technology services as defined in the ICT Policy 2008 of Government of Tamil Nadu.

9.2.3 The definition is reproduced below:

"IT services are broadly defined as systems integration, processing services, information services outsourcing, packaged software support and installation, hardware support and installation."

9.2.4 Information Technology Services includes:

i. **Systems integration includes** :

a) Network Management Services

b) Applications Integration

ii. **Processing services includes**:

a) Outsourced Services in Banking, HR, finance, Technology and other areas

b) Outsourced Bank office support or Business transformation and Process Consulting Services.

iii. **Information Services Outsourcing includes**:

a) Outsourced Global Information Support Services

b) Knowledge Process Outsourcing

c) Outsourced Global Contact Centre Operations

d) Outsourced Process Consulting Services.

iv. **Packaged Software Support and Installation includes**:

a) Software Design and Development, Support and Maintenance

b) Application installation, support and maintenance

c) Application testing.

v. **Hardware Support and Installation includes**:

a) Technical and network operations support

b) Hardware installation, administration and management

c) Hardware infrastructure maintenance and support

9.2.5 The HT Industrial consumers (HT IA) shall be billed at 20% extra on the energy charges for the energy recorded during peak hours. The duration of peak hours shall be 6.00 A.M to 9.00 A.M and 6.00 P.M to 9.00 P.M.

9.2.6 The HT Industrial Consumers (HT I A) shall be allowed a reduction of 5% on the energy charges for the consumption during 10.00 P.M to 5.00 A.M as an incentive for night consumption.

9.2.7 High Tension Industries under Tariff I-A having arc, induction furnaces or steel rolling process the integration period for arriving at the maximum demand in a month will be fifteen minutes.

9.3 High Tension Tariff IB

Tariff category	Existing and proposed Tariff	
	Demand Charge in Rs/KVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff I B	250	550

9.3.1 This tariff is applicable to Railway traction.

9.4 High Tension Tariff II A

Tariff category	Existing and proposed Tariff	
	Demand Charge in Rs/KVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff II A	300	450

9.4.1 This tariff is applicable for the following services under the control of Central/State Governments/local bodies/TWAD Board/CMWSSB:

9.4.1.1 Educational institutions and Hostels run by such educational institutions, Hospitals, Veterinary Hospitals, Leprosy Sub-Centres, Primary Health Centres and Health Sub-Centres, Orphanages, Public Libraries, Public Water works and sewerage works, Public Lighting, Electric crematorium, Senior citizens communities, Residential colonies and Housing complexes, Research Laboratories and institutions, Ministry of Defence and CRPF establishment, Dairy units, Desalination plants and Art Galleries.

9.4.1.2 Government aided educational institutions and hostels run by such educational institutions, Hospitals and Rehabilitation centres run by charitable trusts which offer totally free treatment for all categories of patients on par with government hospitals,

9.4.1.3 Desalination plant at Kudankulam nuclear power plant and Minjur Desalination plant of Chennai water Desalination Ltd.

9.4.1.4 Single point supply to Cooprative group housing society as specified in "The Electricity Eighth Order 2005".

9.4.1.5 Actual places of public worship.

9.5 High Tension Tariff IIB

Tariff category	Existing and proposed Tariff	
	Demand Charge in Rs/KVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff II B	300	550

9.5.1 The tariff is applicable to all Private educational institutions not covered under HT tariff IIB and hostels run by them.

9.6 High Tension Tariff III

Tariff category	Existing and proposed Tariff	
	Demand Charge in Rs/KVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff III	300	700

9.6.1 The tariff is applicable to all Commercial Establishments and other categories of consumers not covered under High Tension Tariff IA, IB IIA, IIB and IV.

9.6.2 The tariff is also applicable to Private Communication Providers, Cinema Studios and Cinema Theatres.

9.7 High Tension Tariff IV

Tariff category	Existing and proposed Tariff		Subsidy for Energy Charges in Paise per kWh	Tariff rate payable by Consumer	
	Demand Charge in Rs/KVA/ month	Energy charge in Paise per kWh		Demand Charge in Rs/KVA/ month	Energy charge in Paise per kWh
High Tension Tariff IV	Nil	350	350	Nil	Nil

9.7.1 This tariff is applicable to the Lift Irrigation Societies for Agriculture registered under Co-operative Societies or under any other Act.

9.8 High Tension Tariff V

Tariff category	Existing and proposed Tariff	
	Demand Charge in Rs/KVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff V	300	950

9.8.1 The tariff is applicable for construction and other purposes.

TARIFF FOR LOW TENSION SUPPLY CONSUMERS

9.9 General Provisions applicable for Low Tension Supply

9.9.1 All consumers under this LT category except under LT tariff IB shall have ISI marked motor.

9.9.2 All consumers under LT except IB and IV having motor loads of 3 HP and more shall install adequate power factor improvement capacitors (ISI marked). Non compliance shall invite compensation charges as specified in TNERC Supply Code.

9.9.3 In case of LT Tariff III-B and LT Tariff V, all services with a connected load of 18.6 kW (25 HP) and above should maintain a power factor of not less than 0.85. Where the average power factor of Low Tension Service connection is less than the stipulated limit of 0.85 the following compensation charges will be levied.

Power Factor	Dispensation for Power Factor Surcharge
Below 0.85 and upto 0.75	One per cent of the current consumption charges for every reduction of 0.01 in power factor from 0.85
Below 0.75	One and half per cent of the current consumption charges for every reduction of 0.01 in power factor from 0.85

9.9.4 In the event of disconnection of services, the consumers shall be liable to pay the fixed charges applicable for the respective category during the disconnection period.

9.9.5 In case of LT Tariff IIB 1, II B2, IIC, IIIA 1, IIIA2, IIIB and V, the fixed charges shall be calculated based on the contracted demand.

9.10 Low Tension Tariff IA

Tariff	Consumption slabs – Range in kWh(units) and billing period (one or two months)	Existing and proposed Tariff		Subsidy for Energy Charges in paise / kWh	Tariff rate payable by consumer	
		Fixed charges (Rupees per month)	Energy charges in paise / kWh		Fixed charges (Rupees per month)	Energy Charges in paise / kWh
Low Tension Tariff I-A	For consumers who consume upto 50 units per month or 100 units for two months					
	From 0 to 50 units per month (or) 0 to 100 units for two months	10	260	160	10	100
	For consumers who consume from 51 units to 100 units per month (or) 101 to 200 units for two month					
	From 0 to 100 units per month (or) 0 to 200 units for two months	10	280	130	10	150
	For consumers who consume from 101 units to 250 units per month (or) 201 units to 500 units for two months					
	From 0 to 100 units per month (or) 0 to 200 units for two months	15	300	100	15	200
	From 101 to 250 units per month (or) 201 to 500 units for two months		400	100		300
	For consumers who consume 251 units and above per month (or) 501 units and above for two months					
	From 0 to 100 units per month (or) 0 to 200 units for two months	20	300	Nil	20	300
	From 101 to 250 units per month (or) 201 to 500 units for two months		400	Nil		400
	From 251units and above per month (or) 501 units and above for two months		575	Nil		575
	On account of Government Subsidy there will be no fixed and energy charges for Handloom consumers consuming up to 100 units for two months and if consumption exceeds 100 units for two months they will be charged as per slab mentioned above and Rs. 100 will be deducted from the bill amount.					

9.10.1 This tariff is applicable to the following

(1) Domestic purposes of lights, fans, Air conditioners, including radio/TV and all other home appliances and watering for gardening including growing of trees in and around residential houses/buildings.

(2) Handlooms in residences of handloom weavers (regardless of the fact whether outside labour is employed or not) and to handlooms in sheds erected where energy is availed of only for lighting and fans.

(3) Public conveniences and Integrated woman sanitary Complexes.

(4) Community Nutrition Centres, Anganwadi Centres, Nutritious Meal Centres and school buildings associated with the Government welfare scheme.

(5) Old Age Homes, Leprosy Centres run by Charitable Institutions rendering totally free services

(6) Consulting rooms of size limited to 200 square feet of any professionals attached to the residence of such professionals.

(7) In respect of multi tenements/residential complexes supply used for common lighting, water supply, lift alone may be given separate connection and charged under this tariff.

(8) In respect of multi-storied buildings/residential complexes having both domestic and commercial utilities, common facilities such as common lighting, common water supply, and lift will be charged under this tariff only if the commercial built up area does not exceed 25% of the total built up area

(9) In multi tenements residential building/Group Houses the additional service connections requested by the owners/tenants shall be given without collecting development charges and service connection charges. All other conditions applicable for giving such multiple service connections are applicable except that more than one service connections are permitted in the same door number.

(10) Electric crematorium by local bodies.

9.11 Low Tension Tariff I B

Tariff	Description	Existing Tariff Rate		Proposed Tariff Rate		Subsidy for Fixed Charges/ Energy Charge	Tariff Rate payable by Consumer	
		Energy charges in Paise / kWh	Fixed charges (Rupees / Month)	Energy charges in Paise / kWh	Fixed charges (Rupees / Month)		Fixed Charges (Rupees / Month)	Energy charges in Paise / kWh
Low Tension Tariff I-B	Till installation of Energy Meter	Nil	60	Nil	125	125 Rupees /service/ Month	Nil	Nil
	On Installation of Energy Meter	250	NIL	430	Nil	430 Paise/kWh	Nil	Nil

9.11.1 This tariff is applicable to huts in Village Panchayats and special grade panchayats, houses constructed under Jawahar Velai Vaiipu Thittam, TAHDCO Kamarajar Adi Dravidar housing schemes, huts in Nilgiris District and hut with concrete wall in the schemes of state and central Governments. This tariff is applicable subject to following conditions:

(1) Hut means a living place not exceeding 250 square feet area with mud wall and the thatched roof / tiles / asbestos / metal sheets like corrugated G.I. sheets for roofing/ concrete Roof and concrete wall with specification of square feet as approved in the schemes of State/ Central Government.

(2) Only one light not exceeding 40 watts shall be permitted per hut.

(3) As and when the government provides other appliances such as Colour TV, fan, Mixie, Grinder and Laptops to these hut dwellers, the usage of appropriate additional load may be permitted.

9.11.2 Whenever the norms prescribed in (1) to (3) above is violated, the service category shall be immediately brought under Low Tension Tariff I-A and billed accordingly.

9.12 Low Tension Tariff I C

Tariff	Tariff Existing and Proposed	
	Energy charges in paise / kWh	Fixed charges (Rupees / Month)
Low Tension Tariff I-C	400	50

9.12.1 This tariff is applicable to LT bulk supply for railway colonies, plantation worker colonies, defence colonies, Police Quarters, Residential quarters of Koodankulum Nuclear power project. This tariff is also applicable for the HT/EHT consumers who opt for extending supply under this category for their residential colonies / quarters.

9.13 Low Tension Tariff II A

Tariff	Existing and Proposed	
	Energy charges in paise / kWh	Fixed charges (Rupees / Month)
Low Tension Tariff II-A	550	Nil

9.13.1 This tariff is applicable to Public Lighting, Public Water Supply and Public Sewerage System belonging to Government/local bodies /TWAD Board/MMSSB, Railway level crossings, private agriculture wells/private wells hired by Government/CMWSSB/TWAD Board/Local bodies to draw water for public distribution, Public Water Supply by New Tirupur Area Development Corporation, Public Water Supply in plantations, separate service connections for streetlights for SIDCO and other Industries Department. Lighting arrangements in the Rockfort temple area, its environs and for the roads and pathways leading to temple at Tirchy.

9.14 Low Tension Tariff II B (1)

Tariff	Existing and Proposed	
	Energy charges in paise / kWhr	Fixed charges (in Rupees per kW per month)
Low Tension Tariff II-B (1)	500	50

9.14.1 This tariff is applicable to the following:

Government and Government aided Educational Institutions, Hostels run by such Educational Institutions, Hostels run by Adi-Dravidar and Tribal Welfare, Backward Class Welfare Departments and other Government agencies, Government Youth Hostels, Scouts camps, Government Hospitals, Hospitals under the Control of local bodies, Veterinary Hospitals, Leprosy Sub-Centers, Primary Health Centers and sub-centers, Research Laboratories, Dispensaries, creches and recreation centers run by plantations, Research Institutes, Orphanages, Public Libraries and Libraries run at free of cost by trusts , Homes for Destitutes and Old people, Emergency accident Relief centers on highway, Terminal cancer

care centre giving free treatment, Hospitals and Rehabilitation centres for mentally ill and blind, centres and dispensaries run by charitable trusts which offers totally free treatment for all categories of patients on par with government hospitals, Free Student Hostel, Hospital at Tribal areas, Institutes run for /by the physically challenged at free of cost, Government Art Galleries and Private Art Galleries and museum on service motives, Government Elephant Health camp, State Legal Udhavi Maiyam.

9.15 Low Tension Tariff II B (2)

	Existing and Proposed Tariff	
Tariff	**Energy charges in paise / kWhr**	**Fixed charges (in Rupees per kW per month)**
Low Tension Tariff II-B (2)	650	50

9.15.1 This tariff is applicable to Private educational institutions and hostels run by them.

9.16 Low Tension Tariff II C

Tariff	**Consumption slabs – Range in kWh and billing period**	**Existing and Proposed Tariff**		**Subsidy for Energy Charges in Paise per kWh**	**Tariff Rate Payable by the Consumer**	
		Fixed Charges (Rupees per kW per month)	**Energy Charges in Paise per kWh**		**Fixed Charges (Rupees per kW per month)**	**Energy Charges in Paise per kWh**
Low Tension Tariff II-C	0 to 60 units per month or 0 to 120 units bimonthly	50	500	250	50	250
	Above 60 units per month or above 120 units bimonthly		500	Nil		500

9.16.1 This tariff is applicable to actual places of public worship.

9.16.2 The existing concessions to the actual places of worship as already notified by GoTN having annual income less than Rs. 1000 shall be continued under the same terms and conditions, until further Order of the Commission.

9.17 Low Tension Tariff III A (1)

Tariff	Consumption slabs – Range in kWh and billing period	Existing and Proposed Tariff	
		Fixed Charges (Rupees per kW per month)	Energy Charges in Paise per kWh
Low Tension Tariff III-A(1)	0 to 250 units per month or 0 to 500 units bimonthly	15	350
	From 251 and above units per month or 501 units and above bimonthly		400

9.17.1 The connected load for supply under this tariff category shall not exceed 10 HP.

9.17.2 This tariff is applicable to Cottage and tiny industries, micro enterprises engaged in the manufacture or production of goods pertaining to any industries specified in the first schedule to Industries (Development and Regulations) Act 1951 (Central Act 65 of 1951).

9.17.3 The intending consumers applying for service connection under LT Tariff III A (1) claiming to have established the micro enterprise engaged in the manufacture or production of goods shall produce the cottage industries certificates from the industrial department /acknowledgement issued by the District Industries Centre under the Micro Small and Medium Enterprises Development Act, 2006 (Act 27 of 2006) as proof for having filed Entrepreneurs Memorandum for setting up of Micro Enterprises for manufacture or production of goods with District Industries Centre under whose jurisdiction the Enterprise is located.

9.17.4 The existing consumers who are classified under LT Tariff III A (1) based on the SSI / Tiny Industries Certificate may be continued to be charged under the same tariff.

9.17.5 This tariff is applicable to Small gem cutting units, Waste land development, laundry works, and Common effluent treatment plants.

9.17.6 This tariff is also applicable to Coffee grinding, Ice factory, Vehicle Body building units, saw mills, rice mills, and flour Mills, battery charging units.

9.17.7 This tariff is also applicable for sericulture, floriculture, horticulture, mushroom cultivation, cattle farming, poultry and bird farming, dairy units and fish/prawn culture who have not been covered under LT Tariff IV and which are run on commercial lines

9.18 Low Tension Tariff III A (2)

Tariff	Consumption slabs – Range in kWh and billing period	Existing and Proposed Tariff		Subsidy for Energy Charges in Paise per kWh	Tariff Rate payable by consumer	
		Fixed Charges (Rupees per kW per month)	Energy Charges in Paise per kWh		Fixed Charges (Rupees per kW per month)	Energy Charges in Paise per kWh
	(i) For consumer who consume up to 250 units per month (or) 500 units for two months					
Low Tension Tariff III-A (2)	0 to 250 units per month or 0 to 500 units bimonthly	50	450	450	Nil	Nil
	On account of Government Subsidy there will be no fixed and energy charges for Power loom consumers consuming up to 500 units for two months.					
	ii) For consumers who consume 251 units and above per month (or) 501 units and above for two months					
	0 to 250 units per month or 0 to 500 units bimonthly	50	450	450	30	Nil
	From 251 and above units per month or 501 units and above bimonthly		500	300		200
	501 to 750 units per month or 1001 to 1500 units bimonthly		500	200		300
	From 751 units and above per month or 1501 units and above bimonthly		500	100		400
	On account of Government Subsidy, for those Power loom consumers who consume above 500 units for two months the energy charges will be levied as per the slab mentioned above and the fixed charge will be levied at Rs.30.					

9.18.1 The connected load shall not exceed 10 HP under this category.

9.18.2 The tariff is applicable to Power looms, Braided Cords Manufacturers, related ancillary tiny industries engaged in warping, twisting, and winding.

9.19 Low Tension Tariff III B

Tariff	Existing and Proposed Tariff	
	Fixed Charges (Rupees per kW per month)	Energy Charges in Paise per kWh
Low Tension Tariff III-B	30	550

9.19.1 This tariff is applicable to all industries not covered under LT Tariff III A (1) and III-A (2). All industries covered under LT Tariff III A (1) and III A (2) shall also fall under this tariff category if the connected load of such industries exceeds 10 HP.

9.19.2 This tariff is also applicable to Welding sets irrespective of its capacity.

9.19.3 Information Technology services as defined in the ICT Policy 2008 of Government of Tamil Nadu and amended from time to time. The definition is reproduced below:

"IT services are broadly defined as systems integration, processing services, information services outsourcing, packaged software support and installation, hardware support and installation."

9.19.4 Information Technology Services includes:

(i) Systems integration includes :

a) Network Management Services

b) Applications Integration

(ii) Processing services includes:

a) Outsourced Services in Banking, HR, finance, Technology and other areas

b) Outsourced Bank office support or Business transformation and Process Consulting Services.

(iii) Information Services Outsourcing includes:

a) Outsourced Global Information Support Services

b) Knowledge Process Outsourcing

c) Outsourced Global Contact Centre Operations

d) Outsourced Process Consulting Services.

(iv) Packaged Software Support and Installation includes:

a) Software Design and Development, Support and Maintenance

b) Application installation, support and maintenance

c) Application testing.

(v) Hardware Support and Installation includes:

a) Technical and network operations support

b) Hardware installation, administration and management

c) Hardware infrastructure maintenance and support.

9.19.5 Supply to welding sets shall be charged 15% extra.

9.19.6 The intending consumers applying for service connection under LT Tariff III B claiming to have established the industries engaged in the manufacture or production of goods shall produce certificate from the District Industries centre.

9.20 Low Tension Tariff IV

Tariff	Description	Existing Tariff Rate		Proposed Tariff Rate		Subsidy for Fixed Charges/ Energy Charge	Tariff Rate payable by Consumer	
		Energy charges in Paise / kWh	Fixed charges (Rupees per HP per annum)	Energy charges in Paise / kWh	Fixed charges (Rupees per HP per annum)		Fixed Charges (Rupees / Month)	Energy charges in Paise / kWh
Low Tension Tariff IV	Till installation of Energy Meter	Nil	1750	Nil	2500	Rs. 2500 per HP per annum	Nil	Nil
	On Installation of Energy Meter	130	NIL	280	Nil	280 Paise/kWh	Nil	Nil

9.20.1 This tariff is applicable to all agricultural and allied activities such as cultivation of food crops, vegetables, seeds, trees and other plants. Sericulture, floriculture, horticulture, mushroom cultivation, cattle farming, poultry and other bird farming, fish/prawn culture carried out as allied activities of agriculture shall be construed as agricultural activities.

9.20.2 The services under this tariff shall be permitted to have lighting loads up to 50 watts per 1000 watts of power connected subject to a maximum of 150 watts inclusive of wattage of pilot lamps.

9.20.3 This tariff is applicable irrespective of owner ship of land if the usage of electricity is for agriculture.

9.20.4 Agriculturists shall be permitted to use the water pumped from the well and stored in overhead tanks for bonafide domestic purposes in the farmhouse. The farmhouse shall be in close proximity from the well.

9.20.5 For supply of other purpose specified under clause 9.20.1 exceeding the limit permitted for the Pump sets and lighting purpose shall be provided only by separate service connections under appropriate LT Tariff. Service connections with water pumping for non agricultural purpose specified under clause 9.20.1 effected /to be affected under appropriate tariff is permitted in the same well.

9.20.6 This Tariff is applicable to pump sets of Tamil Nadu Agriculture University and Research centres, Government Seed Farms, pump sets of Tamil Nadu Forest department, Pump sets of Government coconut nurseries, Pump sets of Government oil seed farms, Pumping and purifying of drainage water for the purpose of agriculture use.

9.20.7 All the new services under this category shall have ISI marked motors and power factor compensation capacitors to qualify for the supply. All the existing services should be provided with power factor compensation capacitors within one year. Non-compliance to provide the capacitors shall invite compensation charges as per the Tamil Nadu Electricity Regulatory Commission Regulations.

9.21 Low Tension Tariff V

Tariff	Existing and Proposed Tariff	
	Fixed Charges (Rupees per kW per month)	**Energy Charges in Paise per kWh**
For consumer with consumption 50 units per month or 100 units bimonthly	60	430
For consumer with consumption above 50 units per month or above 100 units bimonthly	60	700

9.21.1 This tariff is applicable to All Commercial establishments, private communication providers, cinema studios, cinema theatres and consumers not categorized under LT IA, IB, IC, IIA, IIB (1), II B (2), IIC, IIIA (I), III A (2), IIIB, and IV.

9.21.2 This tariff is also applicable for LT supply for construction activities of residential house/building till the completion of construction activities.

9.21.3 In respect of multi tenements/multi-storeyed buildings/residential complexes where the number of flats/Tenements utilized for commercial purposes exceeds 25% of the total built up area, the LT services relating to common utilities such as common lighting, water supply, lift shall be charged under this tariff.

9.21.4 In respect of residential complexes used for domestic, the common facilities such as Gym, swimming pool, recreation clubs, indoor stadiums and grounds, indoor and community halls, am phi theatres, shops etc will be charged under this tariff.

9.22 Low Tension Tariff VI

Tariff	Description	Existing and Proposed Tariff	
		Energy charges in paise / kWh	Minimum (in Rupees)
Low Tension Tariff VI	Supply to temporary activities	1050	100 per kW or part of connected load thereof per day
	Lavish illumination	1050	Nil

9.22.1 This tariff is applicable for power supply for temporary activities such as construction of commercial complexes, Residential buildings and Residential Complexes of more than 12 dwelling units. The temporary supply shall be converted into respective regular category after completion.

9.22.2 This tariff is also applicable for lavish illumination to weddings, garden parties and other private functions, where the illumination is obtained through bulbs fastened in outer surfaces of walls of buildings on trees and poles inside the compound and in pandals, etc., outside the main building. All other cases of illumination, obtained through bulbs intended on outer surface of walls of buildings on trees and poles inside the compound and in pandals etc., outside the main building shall be charged as for Temporary Supply.

Applicability of the Tariff Schedule

9.22.3 The above tariff schedule shall be read with the General Terms and Conditions of Supply Code and Distribution code specified by the Tamil Nadu Electricity Regulatory Commission.

9.22.4 The present tariff order supersedes all the previous specific orders issued by the Commission on categorization of certain consumers.

9.23 Revenue from Proposed Tariff

9.23.1 The following table shows the revenue arrived from proposed tariff hike for FY 2013-14 in subsequent categories.

Table 116: Revenue from Proposed Tariff

Sr. No.	Consumer Category	FY 2013-14	
		Sales (in	Revenue
I	**High Tension Supply (HT)**		
a	Registered factories,Textiles, Tea Estate, Software industries incl. Maint.	9,107	6,327
b	Railway Traction	798	506
c	Govt. Educational Instn, Hospitals, water supply etc.	1,196	623
d	Private Educational Instn, cinema Theaters & Studios	293	193
e	Actual places of public worship, Mutts and Religious Instn.	-	-
f	Commercial and all other categories	2,277	1,816
g	Lift Irrigation Co-operative societies	7	2
h	Temporary Supply	5	27
i	Supply to Pondicherry State and others	413	338
	Sub Total HT (A)	**14,096**	**9,832**
II	**Low Tension Supply (LT)**		
a	Domestic Purposes for lights & fans, Powerload etc.	23,237	8,687
b	Huts in Village panchayats, TAHDCO etc.	508	220
c	Defence Colonies etc. Notified Tariff	12	5
d	Public Lighting and Public Water Supply&Sewerage	2,018	1,110
e	Govt. Educational Instn, Hospitals, water supply etc.	158	90
f	Private Educational Instn, cinema Theaters & Studios	317	221
g	Actual places of public worship	156	88
h	Cottage and Tiny Industries,	151	57
i	Powerloom	1,073	532
j	Coffee grinding and Ice factories etc. and Industries not covered under L.T.Tariff IIIA	5,659	3,332
k	Agriculture and the Govt.seed farms	10,269	2,864
l	Commercial and all categories of Consumers not covered under IA, IB,IC, IIA, IIB, IIIA, III B and IV	6,182	3,597
n	Temp.supply:(a) Lighting and combined installation, (b) Lavish illuminations	30	35
	Sub Total LT (B)	**49,770**	**20,836**
	Total HT and LT {A+B}	**63,866**	**30,668**

9.23.2 Based on the revised revenue for FY 2013-14 the revised gap for FY 2013-14 is as shown in the table below.

Table 117: Revised Revenue Gap for FY 2013-14

Particulars	Amt (in Crores)
Aggregate Revenue Reqirement for FY 2013-14	40,039
Revenue at Existing Tariff	29,695
Revenue Gap at Existing Tariff	10,344
Revenue at Proposed Tariff	30,668
Additional Revenue Proposed from Tariff Revision	973
Revenue Gap at Proposed Tariff	9,371

10. ANNUAL REVENUE REQUIREMENT FOR CONTROL PERIOD (FY 2013-14 TO FY 2015-16)

10.1 Preamble

10.1.1 The Tamil Nadu Electricity Regulatory Commission notified the Regulations "TNERC (Terms and Conditions of Tariff) Regulations, 2005 and MYT Regulations, 2009 for the determination of tariff based on certain norms of operation and financial parameters.

10.1.2 As per the Amendment to Tamil Nadu Electricity Regulatory Commission Terms and conditions for determination of tariff for intra state transmission / Distribution of Electricity under MYT framework Regulations 2009 dated 28th November 2012, the control period is defined as:

> *"(i) Control Period: The control period under the MYT framework shall be for a duration of 3 years. The year preceding the first year of the control period shall be the base year."*

10.1.3 Based on the above amendment, the control period for TANGEDCO will be from FY 2013-14 to FY 2015-16. However, since the ARR for FY 2013-14 has already been determined in the petition in Chapter 4, this chapter provides details of the expenditure estimates of TANGEDCO for the balance Control Period from 2014-15 to 2015-16 which are proposed to be approved by the Hon'ble Commission to work out Annual Revenue Requirement of TANGEDCO.

10.2 Principles for determination of ARR

10.2.1 This Chapter summarises the Aggregate Revenue Requirement (ARR) for the control period FY 2013-14 to FY 2015-16. The projections for the control period have been made considering the Audited figures of FY 2010-11 and the provisional figures of FY 2011-12 as the base and estimates of FY2012-13. The various components of ARR are determined in the following chapters.

10.2.2 TANGEDCO would like to submit that the performance trajectory and financial projections are linked to internal as well as external factors and the schemes to be carried out by TANGEDCO. Subject to prudence check, any deferment in such schemes will have an impact on the performance and therefore the trajectory as specified in this business plan needs to be updated commensurate to the actual implementation of the schemes and other factors.

10.2.3 The overall performance parameters proposed by TANGEDCO over the control period for existing generating units and the Annual Revenue Requirement is projected based on methodologies discussed in detail in subsequent paragraphs.

10.3 Performance trajectories to determine variable cost of the own generation plant

10.3.1 The performance trajectories such as PAF, PLF, SHR, Auxiliary consumption are based on the current condition of the existing plant, the age of the plant, current issues pertaining to the coal quality and quantity of coal received, usage of imported coal, etc. TANGEDCO would like to submit that so far as the performance of Hydro plant is concerned, they are dependent on the quantum of rainfall received in the catchment areas as well as the actual water release from the connected dam.

10.3.2 To calculate the variable cost of the power plant has been calculated based on the operational parameter has outlined in the following table and has applied an escalation factor on the base price to project the future fuel cost for the control period.

10.3.3 The performance parameters of the existing plant of TANGEDCO have been highlighted below:

Table 118: Performance Trajectories of Coal based generating plant

Particulars	Units	FY 13-14	FY 14-15	FY 15-16
		Projection	Projection	Projection
COAL PLANT				
Ennore TPS				
PAF	%	83.90%	79.50%	75.90%
PLF	%	38.98%	36.80%	35.30%
Aux. Consumption	%	15.00%	15.00%	15.00%
SHR	Kcal / kWh	3,906	3,858	3,822
Sp. Oil consumption	ml/unit	12	12	12
GCV	kCal/kg	3,150	3,110	3,080
Fuel Rate	Rs./MT	2,575	2,704	2,839
Variable Cost	Rs. / unit	4.35	4.57	4.80
Tuticorin TPS				
PAF	%	83.45%	84.82%	86.12%
PLF	%	82.74%	84.31%	85.55%
Aux. Consumption	%	8.50%	8.50%	8.50%
SHR	Kcal / kWh	2,705	2,705	2,705
Sp. Oil consumption	ml/unit	3.00	3.00	3.00
GCV	kCal/kg	4,320	4,320	4,320
Fuel Rate	Rs./MT	4,494	4,719	4,955
Variable Cost	Rs. / unit	3.19	3.35	3.52
Mettur TPS				
PAF	%	90.00%	90.00%	90.00%
PLF	%	89.01%	89.01%	89.01%
Aux. Consumption	%	8.55%	8.55%	8.55%
SHR	Kcal / kWh	2,500	2,500	2,500
Sp. Oil consumption	ml/unit	1.29	1.29	1.29
GCV	kCal/kg	3,562	3,562	3,562
Fuel Rate	Rs./MT	3,907	4,102	4,307
Variable Cost	Rs. / unit	3.04	3.26	3.42
North Chennai TPS				
PAF	%	89.86%	92.60%	92.62%
PLF	%	89.15%	91.87%	91.89%
Aux. Consumption	%	8.50%	8.50%	8.50%
SHR	Kcal / kWh	2,485	2,487	2,489
Sp. Oil consumption	ml/unit	0.94	0.94	0.94
GCV	kCal/kg	3,588	3,591	3,594
Fuel Rate	Rs./MT	3,359	3,527	3,704
Variable Cost	Rs. / unit	2.59	2.72	2.85

NCTPS Stage-II**				
PAF	%	70.71%	80.82%	86.04%
PLF	%	70.71%	80.82%	86.04%
Aux. Consumption	%	8.50%	8.50%	8.50%
SHR	Kcal / kWh	2,450	2,450	2,450
Sp. Oil consumption	ml/unit	2.00	2.00	2.00
GCV	kCal/kg	3,588	3,588	3,588
Fuel Rate	Rs./MT	4,312	4,528	4,754
Variable Cost	Rs. / unit	3.30	3.47	3.64
MTPS Stage-III**				
PAF	%	78.21%	83.43%	88.64%
PLF	%	78.21%	83.43%	88.64%
Aux. Consumption	%	9.00%	9.00%	9.00%
SHR	Kcal / kWh	2,450	2,450	2,450
Sp. Oil consumption	ml/unit	2.00	2.00	2.00
GCV	kCal/kg	3,562	3,562	3,562
Fuel Rate	Rs./MT	4,864	5,107	5,363
Variable Cost	Rs. / unit	3.74	3.93	4.12
Ennore Expansion				
PAF	%	0.00%	0.00%	80.00%
PLF	%	0.00%	0.00%	80.00%
Aux. Consumption	%	0.00%	0.00%	8.50%
SHR	Kcal / kWh	-	-	2,450
Sp. Oil consumption	ml/unit	-	-	2.00
GCV	kCal/kg	-	-	3,080.0
Fuel Rate	Rs./MT	-	-	-
Variable Cost	Rs. / unit	-	-	2.57

Table 119: Performance Trajectories of Gas based generating plant

Particulars	Units	FY 13-14	FY 14-15	FY 15-16
		Projection	Projection	Projection
GAS PLANT				
Tirumakottai GTPS				
PAF	%	94.52%	98.08%	98.08%
PLF	%	75.35%	78.18%	78.41%
Aux. Consumption	%	6.00%	6.00%	6.00%
SHR	Kcal / kWh	1,850	1,850	1,850
GCV	kCal/kg	10,000	10,000	10,000
Fuel Rate	Rs./SCM	10.88	11.42	12.00
Variable Cost	Rs. / unit	2.17	2.28	2.39
Kuttalam GTPS				
PAF	%	98.08%	98.08%	94.54%
PLF	%	73.80%	73.80%	71.33%
Aux. Consumption	%	6.00%	6.00%	6.00%
SHR	Kcal / kWh	1,850	1,850	1,850
GCV	kCal/kg	10,000	10,000	10,000
Fuel Rate	Rs./SCM	10.29	10.81	11.35
Variable Cost	Rs. / unit	2.06	2.16	2.27
Basin Bridge GTPS				
PAF	%	97.95%	99.52%	100.00%
PLF	%	5.71%	5.71%	5.71%
Aux. Consumption	%	0.99%	0.99%	1.00%
SHR	Kcal / kWh	3,219	3,219	3,219
GCV	kCal/kg	10,572	10,572	10,572
Fuel Rate	Rs./SCM	51.07	53.62	56.30
Variable Cost	Rs. / unit	15.71	16.49	17.32
Valuthur Unit-I				
PAF	%	98.08%	98.08%	94.54%
PLF	%	78.47%	78.47%	75.84%
Aux. Consumption	%	6.00%	6.00%	6.00%
SHR	Kcal / kWh	1,850	1,850	1,850
GCV	kCal/kg	10,000	10,000	10,000
Fuel Rate	Rs./SCM	17.08	17.94	18.83
Variable Cost	Rs. / unit	3.42	3.59	3.77
Valuthur Unit-II				
PAF	%	98.08%	91.78%	98.09%
PLF	%	78.72%	73.66%	78.73%
Aux. Consumption	%	6.00%	6.00%	6.00%
SHR	Kcal / kWh	1,850	1,850	1,850
GCV	kCal/kg	10,000.0	10,000.0	10,000.0
Fuel Rate	Rs./SCM	17.08	17.94	18.83
Variable Cost	Rs. / unit	3.36	3.53	3.71

Table 120: Performance Trajectories of Hydro based generating plant

Particulars	Units	FY 13-14 Projection	FY 14-15 Projection	FY 15-16 Projection
HYDRO PLANT				
Erode HEP				
Capacity Utilisation Factor	%	28.39%	29.24%	32.16%
Aux. Consumption	%	1.00%	1.00%	1.00%
Variable Cost	Rs. Crs	0.11	0.11	0.12
Kadamparai HEP				
Capacity Utilisation Factor	%	28.39%	29.24%	32.16%
Aux. Consumption	%	-4.94%	-4.70%	-4.46%
Variable Cost	Rs. Crs	0.00	0.00	0.00
Kundah HEP				
Capacity Utilisation Factor	%	28.39%	29.24%	32.16%
Aux. Consumption	%	1.00%	1.00%	1.00%
Variable Cost	Rs. Crs	0.01	0.01	0.01
Tirunelveli HEP				
Capacity Utilisation Factor	%	28.39%	29.24%	32.16%
Aux. Consumption	%	1.00%	1.00%	1.00%
Variable Cost	Rs. Crs	3.12	3.28	3.44

10.3.4 The reasons for uneven performance trajectories projections during the control period have been specified in the following table:

Plant Availability Factor (PAF)

Table 121: Reasons for uneven Performance Trajectories in PAF

Year	PAF (%)	Reason	Remarks
T(K)GTPS			
FY 2013-14	94.52	Hot gas path Inspection for 20 days has been proposed	As per the Operation and Maintenance schedule of Original Equipment Manufacturer, M/s. BHEL–GE, following statutory inspections is to be carried out at specified intervals. After Every 8000 fired hours – Combustion Inspection for 7 days After Every 24000 fired hours - Hot Gas Path Inspection for 20 days After Every 48000 fired hours - Major Inspection for 30 days
FY 2016-17	91.78	Major Inspection for 30 days has been proposed	
VGTPS-I			

Year	PAF (%)	Reason	Remarks
FY 2012-13	59.66	Major Inspection was carried out from 11.3.2012 to 2.5.12. Further, the unit got tripped on 26.6.12 due to heavy internal damages and recommissioned on 17.10.12	
FY 2015-16	94.54	Hot gas path Inspection for 20 days has been proposed	
KGTPS			
FY 2012-13	16.16	KGTPS is under shut down from 22.2.12 due to failure of Gas Turbine Compressor rotor. While taking all efforts to bring KGTPS in to operation in July'2012, VGTPS-I got tripped on 26.6.12 due to heavy internal damages. The recommissioning of VGTPS Phase-I has to be carried out at first, instead of KGTPS, to avoid Minimum Guaranteed Off take charges for non-utilization of Gas at Ramnad Zone. The above decision has been taken, since diversion of gas to nearby power plants is not feasible due to 100 % gas availability to all Gas plants at Ramnad Zone. Whereas diversion of gas to other nearby power plants is possible at Kuttalam, as the gas availability is 80 %. Hence all the materials procured for KGTPS are diverted to VGTPS-I and VGTPS-I was commissioned on 17.10.12.The unit at Kuttalam is expected to be re-commissioned on 31.1.2013 after completion of repairing works at site. Hence PAF (Plant Availability Factor) is less.	
BBGTPS			
FY 2015-16 onwards	100%	In the plant, Naphtha is being used as fuel. As the cost of the fuel (i.e.,Rs.70483/MT as on 1.10.12) is very high, the station is being operated as a peak load station based on Grid demand. In view of the above reasons, the generation of 60 MU only is projected for a year as per TNERC Norms. If a unit of capacity 30 MW is run for an hour the generation will be 30,000 units. For 60 MU, the machines are to be operated for 200 hours. With the availability of 4 machines the running hours for each unit will be 50 hours, which is very less when compared to available 8760 hours in a year. As the probability of operating each unit for more than 50 hours in a year is more, the availability factor is taken as 100%. However, in the year 2013-14, Combustion Inspection in unit-3 and overhauling of Generator of unit-3 for 30 days have been proposed. Hence the availability factor is 97.95%.In the year 2014-15, the Combustion Inspection in unit-4 for 7 days has been proposed .Hence the availability factor is 99.52%.	

Plant Load Factor (PLF):

Table 122: Reasons for uneven Performance Trajectories in PLF

Year	PLF (%)	Reason for lower PLF in %
T(K)GTPS		
FY 2016-17	73.17	Major Inspection for 30 days has been proposed. Hence the projected Generation is less thereby PLF is less.
VGTPS-I		
FY 2012-13	49.12	Major Inspection was carried out from 11.3.2012 to 2.5.12. Further, the unit got tripped on 26.6.12 due to heavy internal damages and recommissioned on 17.10.12. Hence the Generation is less thereby PLF is less.
FY 2015-16	75.84	Hot gas path Inspection for 20 days has been proposed.
FY 2017-18	78.47	Combustion Inspection for 7 days has been proposed.
VGTPS-II		
FY 2012-13	53.84	The unit got tripped on 30.6.12 due to failure of Electronic control unit. The above control unit was procured by importing and put in to service. Further, the Gas Turbine Generator was recommissioned on 8.8.12 and Steam turbine Generator was synchronized on 14.8.12. The full load could not be reached. The OEM,M/s.Ansaldo, Italy have suggested to carry out Minor Inspection. Orders have been placed to procure the spares for carrying out Minor Inspection and the same are expected at the end of November 2012. After carrying out Minor Inspection during December 2012, the unit will generate at its full capacity. Hence PLF is less.
FY 2015-16	78.94	Combustion Inspection for 7 days has been proposed.
FY 2017-18	73.66	Major Inspection for 30 days has been proposed.
BBGTPS		
FY 2013-14 onwards	5.71	In FY 2012-13 (up to sep'12) actual generation was very less. However, Generation projection of 60MU per year has been made as per TNERC Norms for the period from FY 2013-14 to FY 2017-18. Hence PLF is higher.

Specific Oil Consumption

In BBGTPS, two types of fuel are used. Naphtha is Primary fuel and High Speed Diesel oil (HSD) is used as secondary fuel. HSD is being used during starting and stopping of unit to avoid accidents, since the primary fuel Naphtha is highly explosive and any unburnt Naphtha particles in the chamber may cause explosion. Generation on HSD is very small when compared to generation on Naphtha. The following assumptions have been made for the projection of secondary oil consumption at BBGTPS:

- Two units are to be operated per day (each one for morning peak and evening peak)
- For each start & stop, HSD required is 0.900 KL.(Value taken based on actual)
- For two units per day, HSD required is 1.8 KL.
- HSD requirement per year is 657 in KL.

However, actual consumption of HSD vary during the period from FY 2005-06 to FY 2011-12 depending on the number of starts and number of units operated in the respective period. The specific secondary oil consumption is arrived as follows:

$$\text{Specific secondary oil consumption} = \frac{\text{Secondary oil consumption}}{\text{Generation on secondary oil}}$$

10.4 Generation from the State owned Power plant

10.4.1 Based on the above operational parameter and the capacity of the power plant, the net generation envisaged for the control period is outlined in the following table:

Table 123: Gross Generation from Own Plant during control period

Particulars			FY 13-14 Projection	FY 14-15 Projection	FY 15-16 Projection
Gross Generation (Mus)	THERMAL - COAL	Ennore TPS	1,161	1,128	1,082
		Tuticorin TPS	7,610	7,755	7,868
		Mettur TPS	6,550	6,550	6,550
		North Chennai TPS	4,920	5,070	5,071
		NCTPS Stage-II**	6,980	8,496	9,044
		MTPS Stage-III**	3,942	4,385	4,659
		Ennore Expansion	-	-	1,156
		Udangudi TPS	-	-	-
		TOTAL - Thermal Coal	31,163	33,384	35,431
	THERMAL - GAS	Tirumakottai GTPS	712	739	741
		Kuttalam GTPS	653	653	631
		Basin Bridge GTPS	60	60	60
		Valuthur Unit-I	653	653	631
		Valuthur Unit-II	636	595	636
		TOTAL - Thermal Gas	2,714	2,700	2,699
	HYDRO	Erode HEP	1,518	1,460	1,606
		Kadamparai HEP	-	-	-
		Kundah HEP	2,605	2,683	2,952
		Tirunelveli HEP	1,137	1,120	1,232
		New Hydro Addition	-	-	-
		TOTAL - Hydro	5,260	5,263	5,790
	Total		39,137	41,347	43,920

Table 124: Net Generation from Own Plant during control period

Particulars			FY 13-14 Projection	FY 14-15 Projection	FY 15-16 Projection
Net Generation (Mus)	THERMAL - COAL	Ennore TPS	987	959	920
		Tuticorin TPS	6,963	7,096	7,200
		Mettur TPS	5,990	5,990	5,990
		North Chennai TPS	4,502	4,639	4,640
		NCTPS Stage-II**	6,387	7,774	8,275
		MTPS Stage-III**	3,587	3,990	4,240
		Ennore Expansion			1,058
		Udangudi TPS			
		TOTAL - Thermal Coal	28,416	30,448	32,323
	THERMAL - GAS	Tirumakottai GTPS	669	694	697
		Kuttalam GTPS	614	614	593
		Basin Bridge GTPS	59	59	59
		Valuthur Unit-I	614	614	593
		Valuthur Unit-II	598	559	598
		TOTAL - Thermal Gas	2,554	2,541	2,540
	HYDRO	Erode HEP	1,502	1,446	1,590
		Kadamparai HEP	-	-	-
		Kundah HEP	2,579	2,657	2,922
		Tirunelveli HEP	1,126	1,109	1,219
		New Hydro Addition	-	-	-
		TOTAL - Hydro	5,207	5,211	5,732
	Total		36,178	38,199	40,595

10.5 Approach on Sales Projections

10.5.1 It has been observed from past experience that the historical trend method has proved to be a reasonably accurate and well accepted method for estimating the load, number of consumers and energy consumption. In light of the above, TANGEDCO has estimated these parameters for various customer categories primarily based on the CAGR trends during past years. Wherever it is observed that the trend is unreasonable or unsustainable, the growth factors have been corrected to arrive at more realistic projections.

10.5.2 CAGR of Category-wise Sales

10.5.2.1 The Break-up of the past sales and the CAGR growth rates for different periods (5 years and 3 years) thereof are as follows. It may be noted that the 5 year CAGR growth rate is for the period between FY 07 & FY 12 while the 3 year CAGR growth rate is for the period between FY 09 & FY 12.

Table 125: Historical Trend in Category-wise sales

Consumer Category & Consumption Slab	7 year CAGR	5 year CAGR	3 Year CAGR	2 Year CAGR	YOY
HT Category					
HT Industries	5%	2%	-5%	-12%	40%
Commercial and Other HT	7%	13%	14%	14%	4%
Lift Irrgiation and co-ops (HT)	10%	20%	25%	38%	-66%
TOTAL HT	**6%**	**5%**	**-2%**	**-7%**	**33%**
LT Category					
Domestic	9%	10%	12%	14%	8%
Huts	13%	17%	28%	37%	11%
Industries	3%	2%	-1%	-6%	8%
Agriculture & Government seed farm	1%	1%	-3%	-8%	8%
Commercial and Other	9%	10%	9%	8%	9%
TOTAL LT	**5%**	**6%**	**5%**	**5%**	**5%**
TOTAL DEMAND	**7%**	**7%**	**5%**	**1%**	**13%**

10.5.2.2 CAGR Considered for Sales Projections

Table 126: CAGR considered for HT & LT Category for projection

Consumer Category & Consumption Slab	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
HT Category				
HT Industries	10%	15%	16%	4%
Commercial and Other HT	14%	24%	20%	6%
Lift Irrgiation and co-ops (HT)	8%	6%	6%	1%
TOTAL HT	**-12%**	**15%**	**15%**	**4%**
LT Category				
Domestic	13%	12%	12%	6%
Huts	17%	7%	7%	6%
Industries	12%	15%	11%	4%
Agriculture & Government seed farm	8%	6%	6%	2%
Commercial and Other	14%	14%	16%	6%
TOTAL LT	**7%**	**16%**	**10%**	**5%**
TOTAL DEMAND	**2%**	**16%**	**11%**	**5%**

10.5.3 Sales Projections

10.5.3.1 Based on the actual data for first half of FY 2012-13 i.e. Apr 12 to Sept 12 and the CAGR as shown in above tables, TANGEDCO has projected the sales for various categories which is shown in the following tables.

10.5.3.2 The sales growth has been considered on yearly basis based on the availability of the power and the growth has been estimated based on the external factors also.

Table 127: Sales Projection for the control period

Consumer Category & Consumption Slab	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
HT Category				
HT Industries	7,944	9,107	10,564	11,029
Railway Traction	758	798	848	861
Government Educational Institution Etc. (HT)	1,038	1,190	1,333	1,391
Pvt. Educational Institutions etc.	256	293	328	343
Places of Public Worship	6	6	7	8
Commercial and Other HT	1,837	2,277	2,732	2,905
Lift Irrgiation and co-ops (HT)	6	7	7	7
Others	413	413	413	413
Temporary	5	5	5	5
TOTAL HT	**12,263**	**14,096**	**16,238**	**16,962**
LT Category				
Domestic	18,934	23,237	25,666	27,085
Huts	473	508	543	577
Bulk Supply	12	12	13	13
Public Lighting & Water Works	1,905	2,018	2,250	2,349
Government Educational Institution	139	158	181	189
Pvt. Educational Institutions	276	317	366	382
Places of Public Worship (LT)	113	156	178	186
Cottage and Tiny Industries	143	151	168	172
Power Loom	831	1,073	1,234	1,264
Industries	4,913	5,659	6,301	6,578
Agriculture & Government seed farm	9,707	10,269	10,433	10,600
Commercial and Other	5,421	6,182	7,196	7,651
Temporary Supply	24	30	34	35
TOTAL LT	**42,891**	**49,770**	**54,561**	**57,081**
TOTAL DEMAND	**55,155**	**63,866**	**70,799**	**74,043**

10.6 Estimation of ARR

10.6.1 The components for the calculation of total expenses for the ARR for the period FY 2012-13 and FY 2015-16 are as follow:

- Cost of Own Generation
- Power Purchase Cost.
- Operation & Maintenance Cost.
- Interest on Loan and Financial Charges.
- Depreciation.

- Interest on Working Capital.
- Provision for Bad Debts.
- Return on Equity.

10.6.2 TANGEDCO would like to submit that while calculating the cost of Own Generation, the variable cost and the fixed cost has been considered as a whole. However, the rationale behind the projection has been outlined in each cost parameters in the section paragraph outlined below which has been adopted for generation as well as distribution function.

10.7 Power Purchase Expenses

10.7.1 Sources of power

TANGEDCO has following primary sources of firm power viz.

1. State Power Generation Station
2. Purchase from Central Generating Stations
3. Independent Power Producer (IPP)
4. Merchant Power Plant

In addition to the above sources, TANGEDCO buys power from the Power trading Companies, Power exchanges and other sources such Non Conventional sources including co-generation, Wind power and surplus power from Captive plants.

10.7.2 Assumptions for power purchase Projection

- ✓ TANGEDCO procures power from different sources on Merit Order Dispatch Principle. But due to considerable demand supply short fall, Entire power available from all the sources during FY 2012-13 to FY 2013-14 has been considered to meet the demand to the extent possible. However, the merit order principle has been considered from FY 2013-14 onwards.
- ✓ Further, a realistic approach has been adopted in projecting the power purchase availability based on the actual availability during the first six months period of the current year 2012-13.
- ✓ TANGEDCO has projected power purchase expenses based on actual generation and actual monthly fixed charges and variable charges for six months i.e. from April 12 to Sept 12. For making projection, it has extrapolated energy availability and power purchase for the remaining six months i.e. Oct 12 to Mar 13, on pro- rata basis after taking in to consideration information available about availability of source of generation.

- ✓ The calculation of the power purchase cost has been carried out based on the base figure of FY 2011-12 whereby 5% escalation has been carried out for future projections on the energy charges to take care of fuel cost adjustments for the purpose of estimating power cost.
- ✓ The charges related to PGCIL, Reactive Charges and transmission charges has been also considered with 5% escalation, however the transmission charges of TANTRANSCO is calculated based on the estimated / projected ARR of TANTRANSCO.

The details of total power available from own generation and power purchase from other sources without applying Merit-order principle is outlined below:

Table 128: Power Available without merit order principle

Particulars	FY 12-13 Estimate			FY 13-14 Projection			FY 14-15 Projection			FY 15-16 Projection		
	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs
Central Generating Station												
NLC-TS-I	2,937	2.28	668	2,937	2.37	697	2,937	2.47	726	1,469	3.22	473
NLC-TS-II (Stage-I & II)	3,450	2.62	903	3,450	2.73	941	3,450	2.84	981	3,450	2.96	1,023
NLC-TS-I Expansion	1,749	3.16	553	1,749	3.30	578	1,749	3.45	603	1,749	3.60	630
NTPC SR (I & II)	4,164	2.20	916	4,164	2.29	955	4,164	2.39	995	4,164	2.49	1,038
NTPC SR (III)	1,074	2.81	301	1,074	2.93	314	1,074	3.05	328	1,074	3.18	342
NTPC ER	342	4.34	148	-	-	48	-	-	50	-	-	53
NTPC - Talcher II	3,567	2.96	1,057	3,567	3.09	1,102	3,567	3.22	1,149	3,567	3.36	1,198
MAPS	1,986	2.07	411	1,986	2.15	428	1,986	2.24	445	1,986	2.33	462
KAIGA	1,278	3.25	415	1,278	3.38	432	1,278	3.51	449	1,278	3.65	467
NTPS - Simahadri	599	3.57	214	638	3.64	232	678	3.72	252	678	3.88	263
NTPC - Dadri	123	4.02	49	599	3.12	187	638	3.23	206	678	3.34	227
Kudankulam Unit - I	178	3.50	62	2,426	3.64	883	2,772	3.79	1,049	2,945	3.94	1,160
Kudankulam Unit - II	-	-	-	-	-	-	1,544	3.86	596	2,599	3.86	1,003
NLC-TS-II Expansion Unit I	397	3.50	139	1,449	3.64	527	1,546	3.79	585	1,642	3.94	647
NTPC-TNEB (JV) - Unit -1	648	3.50	227	2,186	3.64	796	2,332	3.79	883	2,478	3.94	975
NTPC-TNEB (JV) - Unit -2	262	3.50	92	2,040	3.68	750	2,186	3.82	836	2,332	3.97	927
NTPC-TNEB (JV) - Unit -3	-	-	-	450	3.50	157	2,186	3.64	796	2,332	3.79	883
TNEB NLC JV	-	-	-	257	3.50	90	1,219	3.64	444	1,300	3.79	492
Total Central Generating Station	**22,755**	**2.71**	**6,156**	**30,250**	**3.01**	**9,116**	**35,307**	**3.22**	**11,373**	**35,721**	**3.43**	**12,261**
IPPs												
GMR	615	12.53	771	-	-	175	-	-	184	-	-	193
Samalpatti	273	15.05	411	-	-	128	-	-	134	-	-	141
PPN	1,541	8.69	1,339	-	-	315	-	-	331	-	-	347
Madurai	285	15.46	441	-	-	137	-	-	144	-	-	151
ST-CMS	1,794	4.16	747	1,819	4.32	786	1,844	4.49	827	1,869	4.66	870
ABAN	366	4.90	179	375	5.04	189	375	5.28	198	375	5.52	207
Penna	759	2.64	200	759	2.75	209	810	2.82	228	810	2.94	238
Total IPPs	**5,633**	**7.26**	**4,087**	**2,953**	**6.56**	**1,938**	**3,029**	**6.75**	**2,045**	**3,054**	**7.03**	**2,147**
NCE												
CPP	705	4.36	307	719	4.58	329	755	4.80	363	793	5.04	400
Solar	21	4.73	10	208	4.96	103	768	5.21	400	769	5.47	421
Wind	5,067	3.26	1,649	5,320	3.42	1,818	5,586	3.59	2,005	5,866	3.77	2,210
Co-Generation	1,771	3.89	688	2,562	4.08	1,045	3,049	4.28	1,306	3,126	4.50	1,406
Biomass	783	4.74	372	799	4.98	398	839	5.23	439	881	5.49	484
Total NCE	**8,347**	**3.63**	**3,026**	**9,608**	**3.84**	**3,694**	**10,997**	**4.10**	**4,512**	**11,434**	**4.30**	**4,920**
Other Sources												
Traders - Bilateral	9,816	3.12	3,066	1,413	3.28	463	804	3.44	277	933	3.62	338
NTPC NVVN	694	3.97	276	694	4.17	289	694	4.38	304	694	4.60	319
Total Other Sources	**10,535**	**3.17**	**3,342**	**2,107**	**3.57**	**753**	**1,498**	**3.88**	**581**	**1,627**	**4.03**	**657**
PGCIL -SR Wheeling	-	-	546	-	-	574	-	-	603	-	-	633
PGCIL ER Wheeling	-	-	4	-	-	4	-	-	4	-	-	4
ABTPGCIL	-	-	329	-	-	345	-	-	362	-	-	380
PGCIL Reactive account	-	-	18	-	-	19	-	-	20	-	-	21
Total Power Purchase Including Transmission Charges	**47,270**	**3.70**	**17,508**	**44,917**	**3.66**	**16,442**	**50,831**	**3.84**	**19,500**	**51,836**	**4.06**	**21,023**

10.7.3 Merit Order Principle

In accordance with Regulation 75 (1) of TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005 has determined the power purchase cost for various sources from which energy is available from FY 2013-14. Regulation 75(1) of the TNERC (Terms and Condition for Determination of Tariff) Regulation, 2005 states as under:

"75. Cost of Power Purchase

The Distribution Licensee shall procure power on least cost basis and strictly on Merit Order Despatch and shall have flexibility to procure power from any source in the country".

For the purpose of determination of power purchase cost, TANGEDCO has followed the methodology given below:

1. Firstly, the total energy calculated has been considered for Must-Run Power Plants. The Must run power plants considered are nuclear power, hydro, wind, solar and power from State own generating station. The total energy available from Must-Run Power Plants is given below:

Table 129: Must run power for control period

Particulars	FY 13-14			FY 14-15			FY 15-16		
	Projection			Projection			Projection		
	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs
ETPS	987	6.65	656	959	7.18	689	920	7.66	705
TTPS	6,963	3.97	2,766	7,096	4.18	2,966	7,200	4.34	3,127
MTPS	5,990	3.56	2,131	5,990	3.82	2,286	5,990	4.01	2,401
NCTPS	4,502	3.79	1,705	4,639	3.92	1,819	4,640	4.01	1,859
North Chennai Stage II - Unit I	6,387	4.71	3,005	7,774	4.94	3,839	8,275	4.95	4,096
Mettur State III	3,587	5.90	2,115	3,990	5.81	2,319	4,240	5.84	2,476
Ennore Expansion	-	-	-	-	-	-	1,058	5.71	604
Ennore SEZ Unit I	-	-	-	-	-	-	-	-	-
NCTPS Stage III	-	-	-	-	-	-	-	-	-
Udangudi Stage I Unit I	-	-	-	-	-	-	-	-	-
TKGTPS	669	3.91	262	694	3.97	276	697	4.03	281
KGTPS	614	3.53	217	614	3.64	223	593	3.76	223
BBGTPS	59	35.14	209	59	36.09	215	59	36.43	216
VGTPS	1,211	4.66	565	1,173	4.85	569	1,191	4.97	592
Erode	1,502	1.90	285	1,446	1.96	284	1,590	1.73	275
Kadamparai	561	1.46	82	590	1.61	95	621	1.72	107
Kundah	2,579	0.67	173	2,657	0.72	191	2,922	0.69	201
Tirunelveli	1,126	1.37	154	1,109	1.38	153	1,219	1.26	153
MAPS	1,986	2.15	428	1,986	2.24	445	1,986	2.33	462
KAIGA	1,278	3.38	432	1,278	3.51	449	1,278	3.65	467
Kudankulam Unit - I	2,426	3.64	883	2,772	3.79	1,049	2,945	3.94	1,160
Kudankulam Unit - II	-	-	-	1,544	3.86	596	2,599	3.86	1,003
Solar	208	4.96	103	768	5.21	400	769	5.47	421
Wind	5,320	3.42	1,818	5,586	3.59	2,005	5,866	3.77	2,210
Co-Generation	2,562	4.08	1,045	3,049	4.28	1,306	3,126	4.50	1,406
Biomass	799	4.98	398	839	5.23	439	881	5.49	484
NTPC NVVN	694	4.17	289	694	4.38	304	694	4.60	319
Total Power Purchase Cost	**52,011**	**3.79**	**19,720**	**57,306**	**4.00**	**22,915**	**61,359**	**4.11**	**25,248**

2. After factoring in the energy available from all the above listed sources, the balance remaining energy to be purchased as per the energy requirement is calculated on

Merit Order Ranking basis. The energy required to be purchased on Merit Order Despatch basis is given below:

Table 130: Power required on MoD basis

Particulars	FY 13-14			FY 14-15			FY 15-16		
	Projection			Projection			Projection		
	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs
NLC-TS-I	2,937	2.37	697	2,937	2.47	726	1,469	3.22	473
NLC-TS-II (Stage-I & II)	3,450	2.73	941	3,450	2.84	981	3,450	2.96	1,023
NLC-TS-I Expansion	1,749	3.30	578	1,749	3.45	603	1,749	3.60	630
NTPC SR (I & II)	4,164	2.29	955	4,164	2.39	995	4,164	2.49	1,038
NTPC SR (III)	1,074	2.93	314	1,074	3.05	328	1,074	3.18	342
NTPC ER	-	-	48	-	-	50	-	-	53
NTPC - Talcher II	3,567	3.09	1,102	3,567	3.22	1,149	3,567	3.36	1,198
NTPS - Simahadri	638	3.64	232	678	3.72	252	678	3.88	263
NTPC - Dadri	599	3.12	187	638	3.23	206	678	3.34	227
NLC-TS-II Expansion Unit I	1,449	3.64	527	1,546	3.79	585	1,642	3.94	647
NLC-TS-II Expansion Unit II	-	-	-	-	-	-	-	-	-
NTPC-TNEB (JV) - Unit -1	2,186	3.64	796	2,332	3.79	883	2,478	3.94	975
NTPC-TNEB (JV) - Unit -2	2,040	3.68	750	2,186	3.82	836	2,332	3.97	927
NTPC-TNEB (JV) - Unit -3	450	3.50	157	2,186	3.64	796	2,332	3.79	883
TNEB NLC JV	257	3.50	90	1,219	3.64	444	1,300	3.79	492
GMR			175			184			193
Samalpatti			128			134			141
PPN			315			331			347
Madurai			137			144			151
ST-CMS	1,819	4.32	786	1,844	4.49	827	1,869	4.66	870
ABAN	375	5.04	189	375	5.28	198	375	5.52	207
Penna	759	2.75	209	810	2.82	228	810	2.94	238
Traders - Bilateral	1,413	3.28	463	804	3.44	277	933	3.62	338
CPP	719	4.58	329	755	4.80	363	793	5.04	400
Total Power Purchase Including Transmission Charges	**29,645**	**3.41**	**10,104**	**32,315**	**3.56**	**11,519**	**31,693**	**3.80**	**12,054**

Particulars	FY 13-14			FY 14-15			FY 15-16		
	Projection			Projection			Projection		
	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs
Must-Run	52,011	3.97	20,662	57,306	4.17	23,902	61,359	4.28	26,286
MoD Principle	29,645	3.41	10,104	32,315	3.56	11,519	31,693	3.80	12,054
Total	**81,656**	**3.77**	**30,766**	**89,621**	**3.95**	**35,422**	**93,052**	**4.12**	**38,340**

3. The fixed cost has been allocated for the Power Plants which are not scheduled as per Merit Order Despatch shown above.
4. The Merit Order Despatch shown above has been considered assuming an idealistic scenario in which the energy is available from all the Power Plants listed in the Merit Order Ranking throughout the year. However due to corridor constraints, power flow

from other regions may become difficult and other power plants may also get dispatched. Also with lifting of R&C, the demand may increase and go beyond the estimates resulting in dispatch of other available sources. Therefore, it is submitted to allow any deviation in the power procurement plan and allow to source power from the source with post facto approval.

10.7.4 Cost related to Power Purchase

Table 131: Fixed Cost and Variable Cost for projection period.

Plant Name	FY 13-14			FY 14-15			FY 15-16		
	Variable Cost Rs./Crs	Fixed Cost (Rs. Crores)	Total Cost (Rs. Crs)	Variable Cost Rs./Crs	Fixed Cost (Rs. Crores)	Total Cost (Rs. Crs)	Variable Cost Rs./Crs	Fixed Cost (Rs. Crores)	Total Cost (Rs. Crs)
ETPS	429	227	656	438	251	689	441	264	705
TTPS	2,224	542	2,766	2,380	587	2,966	2,535	592	3,127
MTPS	1,823	308	2,131	1,952	335	2,286	2,049	351	2,401
NCTPS	1,164	541	1,705	1,260	559	1,819	1,323	536	1,859
North Chennai Stage II - Unit I	2,110	895	3,005	2,697	1,142	3,839	3,014	1,082	4,096
Mettur State III	1,342	773	2,115	1,567	752	2,319	1,748	728	2,476
Ennore Expansion	-	-	-	-	-	-	272	333	604
Ennore SEZ Unit I	-	-	-	-	-	-	-	-	-
NCTPS Stage III	-	-	-	-	-	-	-	-	-
Udangudi Stage I Unit I	-	-	-	-	-	-	-	-	-
TKGTPS	145	117	262	158	118	276	167	114	281
KGTPS	126	90	217	133	91	223	135	88	223
BBGTPS	93	116	209	98	117	215	103	114	216
VGTPS	411	154	565	418	151	569	445	146	592
Erode	-	285	285	-	284	284	-	275	275
Kadamparai	-	82	82	-	95	95	-	107	107
Kundah	-	173	173	-	191	191	-	201	201
Tirunelveli	-	154	154	-	153	153	-	153	153
NLC-TS-I	526	171	697	547	180	726	284	189	473
NLC-TS-II (Stage-I & II)	724	217	941	753	228	981	783	240	1,023
NLC-TS-I Expansion	343	234	578	357	246	603	371	258	630
NTPC SR (I & II)	715	240	955	744	252	995	774	264	1,038
NTPC SR (III)	217	97	314	226	102	328	235	107	342
NTPC ER	-	48	48	-	50	50	-	53	53
NTPC - Talcher II	789	313	1,102	820	329	1,149	853	345	1,198
MAPS	428	-	428	445	-	445	462	-	462
KAIGA	432	-	432	449	-	449	467	-	467
NTPS - Simahadri	151	81	232	167	85	252	174	90	263
NTPC - Dadri	170	17	187	188	17	206	208	18	227
Kudankulam Unit - I	883	-	883	1,049	-	1,049	1,160	-	1,160
Kudankulam Unit - II	-	-	-	596	-	596	1,003	-	1,003
NLC-TS-II Expansion Unit I	527	-	527	585	-	585	647	-	647
NTPC-TNEB (JV) - Unit -1	796	-	796	883	-	883	975	-	975
NTPC-TNEB (JV) - Unit -2	750	-	750	836	-	836	927	-	927
NTPC-TNEB (JV) - Unit -3	157	-	157	796	-	796	883	-	883
TNEB NLC JV	90	-	90	444	-	444	492	-	492
GMR	-	175	175	-	184	184	-	193	193
Samalpatti	-	128	128	-	134	134	-	141	141
PPN	-	315	315	-	331	331	-	347	347
Madurai	-	137	137	-	144	144	-	151	151
ST-CMS	439	347	786	463	364	827	488	382	870
ABAN	72	117	189	75	123	198	78	129	207
Penna	147	62	209	163	65	228	169	68	238
CPP	329	-	329	363	-	363	400	-	400
Solar	103	-	103	400	-	400	421	-	421
Wind	1,818	-	1,818	2,005	-	2,005	2,210	-	2,210
Co-Generation	1,045	-	1,045	1,306	-	1,306	1,406	-	1,406
Biomass	398	-	398	439	-	439	484	-	484
New Solar	-	-	-	-	-	-	-	-	-
Traders - Bilateral	463	-	463	277	-	277	338	-	338
NTPC NVVN	289	-	289	304	-	304	319	-	319
PGCIL -SR Wheeling	289	-	574	304	-	603	319	-	633
PGCIL ER Wheeling	-	-	4	-	-	4	-	-	4
ABTPGCIL	-	-	345	-	-	362	-	-	380
PGCIL Reactive account	-	-	19	-	-	19	-	-	21
Total Cost of Power	**22,959**	**7,156**	**30,766**	**27,081**	**7,657**	**35,422**	**29,561**	**8,061**	**38,340**

10.7.4.1 The total fixed cost is considered irrespective of the Merit order principle whereby a particular source of power is procured or not while projection of total cost during the control period. However, variable cost is calculated only for the source from which the power is procured and the merit – order principle is carried out. The details of the fixed cost and the variable cost per unit for the projection period are outlined above.

10.7.4.2 The total cost of Generation and the power purchase cost for the control period is outlined as below:

Table 132: Total cost of Must Run and power purchase cost for control period

Particulars	FY 13-14			FY 14-15			FY 15-16		
	Projection			Projection			Projection		
	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs	Mus	Rs./Kwh	Rs. Crs
Must-Run	52,011	3.97	20,662	57,306	4.17	23,902	61,359	4.28	26,286
MoD Principle	29,645	3.41	10,104	32,315	3.56	11,519	31,693	3.80	12,054
Total	**81,656**	**3.77**	**30,766**	**89,621**	**3.95**	**35,422**	**93,052**	**4.12**	**38,340**

10.8 Distribution Loss

10.8.1 TANGEDCO has been trying to achieve a significant reduction in distribution losses and already have a lower distribution loss as compare to the distribution loss of other States. The efforts to achieve lower distribution loss will be continued and will be enhanced. However, the loss reduction is a slow process and becomes increasingly difficult as the loss levels come down. Considering the low distribution losses, it is assumed that the distribution loss during the Control Period will reduce by 0.5% or more. Projection of distribution losses for the Control Period is shown in following table:

Table 133: Distribution Loss projection for the control period

Particulars	FY 13-14	FY 14-15	FY 15-16
	Projection	Projection	Projection
Transmission and Distribution Loss (%)	21.16%	20.40%	19.81%

10.8.2 TANGEDCO also proposes T&D loss projection for the control period while considering wheeling units into the TANGEDCO distribution network.

Table 134: Distribution Loss projection for the control period including wheeling units

Particulars	FY 13-14	FY 14-15	FY 15-16
	Projection	Projection	Projection
Transmission and Distribution Loss (%)	19.25%	18.71%	18.17%

10.9 Energy Balance

10.9.1 While calculating energy balance of TANGEDCO as a whole, the sale to the open access consumers, wheeling of power and sale to Puducherry has not been projected for the control period. Only the sales to its own consumers and the power required to meet the demand of such own consumers has been considered while calculating Energy Balance.

10.9.2 The energy requirement for Company will be met by supply from various sources as discussed above. Based on the information provided above, Energy Balance of TANGEDCO for the control is shown in the following table:

Table 135: Energy Balance for the control period exclusive of Wheeling Units

Sr.No	Particulars	FY 2013-14	FY 2014-15	FY 2015-16
1	Power Purchase from Own Generation	36,178	38,199	40,595
2	Power Purchase from Other Sources	44,493	50,407	51,412
3	Power from Kadamparai	561	590	621
	Total Power Purchase	**81,231**	**89,196**	**92,628**
4	T&D Loss (in MU's)	17,190	18,192	18,349
5	T&D Loss (in %)	21.16%	20.40%	19.81%
	Total Sales	**64,042**	**71,004**	**74,279**
6	Sales to Consumers	63,453	70,386	73,630
7	Power Supply to Kadamparai	589	618	649

10.9.3 TANGEDCO also submits energy balance including the sale to the open access consumers, wheeling of power and sale to Puducherry projected for the control period.

Table 136: Energy Balance for the control period inclusive of Wheeling Units

Sr.No	Particulars	FY 2013-14	FY 2014-15	FY 2015-16
1	Power Purchase from Own Generation	36,178	38,199	40,595
2	Power Purchase from Other Sources	44,493	50,407	51,412
3	Wheeling Units	11,170	11,276	11,915
4	Power from Kadamparai	561	590	621
5	Supply from NLC to Pudducherry	424	424	424
	Total Power Purchase	**92,826**	**100,897**	**104,967**
6	T&D Loss (in MUs)	17,871	18,880	19,075
7	T&D Loss (in %)	19.25%	18.71%	18.17%
	Total Sales	**74,955**	**82,017**	**85,892**
8	Sales to Consumers	63,453	70,386	73,630
9	Wheeling Units	10,500	10,600	11,200
10	Power Supply to Kadamparai	589	618	649
11	Power Supply to Pudducherry	413	413	413

10.10 Operation & Maintenance Expenses

10.10.1 O&M Expenses for the control period have been arrived at on the basis of escalation over the O&M expense of previous years. O&M expense comprises of employee expense, A&G expense and R&M expense. As per TNERC (Terms & Conditions for determination of tariff) Regulations 2005, O&M expenses are to be derived on the basis of actual O&M expenses for the last 5 years based on the audited accounts. However, TANGEDCO would like to submit that TANGEDCO was unbundled from the erstwhile TNEB only on 30th Oct 2010. As such, it is difficult for TANGEDCO to derive the O&M expenses pertaining to generation and distribution activities for the last 5 years.

10.10.2 TANGEDCO is undertaking number of activities such as planning, safety, quality assurance, human resources, IT, corporate office, regulatory affairs, legal, accounts, finances, auditing etc and various miscellaneous activities. Therefore, it is submitted that since the company has been formed in line with the transfer scheme notified by State Government, the comparison of the past year data wont arise and it will be erroneous to calculate average O&M expenses for the last five year to arrive at the O&M expenses for projection purpose.

10.10.3 TANGEDCO would also like to submit that the tariff regulations provide for only 4% escalation to the average O&M cost which needs to be considered as a base cost for escalation and projection purpose. TANGEDCO would like to submit that mere 4% escalation would not suffice enough for O&M expenses for following reason:

1. The real inflation factor itself is more than 7% for last one year;
2. Certain cost such as material cost, labour used for R&M, employee cost etc are not in the control of TANGEDCO. The cost of material varies based on the market trend and the employee cost are more in the nature of standard costs and it does not retain much control over the same;
3. Since this is the early stage of the formation of the company, there are many expenses which will result due to such segregation of the erstwhile TNEB;
4. Even the riskfree interest rate is around 6% which means that it guarantees the consumer to have a investment which take care of inflation.

10.10.4 Although the TNERC (Terms & Conditions for determination of tariff) Regulations 2005 provides for an escalation of 4% on O&M expenses for previous year; TANGEDCO has considered escalation rates on the basis of certain ground realities. The rationale for considering the rates for certain particulars is given below:

1. Employee Cost:

i. Salaries

The basic salary and the grade pay have been considered at an escalation of 5%. This is on account of the fact that yearly increments on the basic salary and grade pay are provided at 3%. Further, seniority based promotions are being provided depending on the number of vacancies created every year; for which an additional 3% rise is provided to the employees who are promoted. Also, due to assigning of additional responsibilities to the officers, 20% of the basic and grade pay will be additionally paid for a maximum of 5 months depending on the vacancies and the nature of work. Hence, considering all the above factors, basic salary and grade pay are escalated at 5% for the year FY 2012-13.

TANGEDCO would like to submit that, wage revisions are generally provided to the employees once in four years. The last revision came in on 1st Dec 2011 which is already due and is in process of being finalized in the current year and for this purpose a committee has been formed. The next wage revision will be from 1st Dec 2015. Therefore, a hike of 10% has been considered for the years FY 2012-13 and FY 2015-16.

ii. Dearness Allowance

The rate of dearness allowance is applied on the basic salaries; the rate is subjected to revision as notified by the Central Government in every six months i.e. in January and July on the basis of consumer price index. The DA rates in effect in the previous years were as under:

Table 137: Dearness Allowance rates for past years

Year	1st Half	2nd Half	% Hike
2010	35	45	29%
2011	51	58	29%
2012	65	72	24%

Based on the trend during previous years, the escalation of DA rate is considered at 15%.

iii. Surrender Leave Salary, Terminal Benefits (including pension), Pension Scheme

The amount equivalent to 15 days of salary and DA with applicable HRA is generally

encashed by employees every year. In addition, the leave salary for the period of 8 months or the amount pertaining to balance leave whichever lesser is paid at the time of retirement to the retirees. Since this includes both DA and a lump sum of 8 month salary, the escalation is considered at 10%. Likewise, the emoluments related to Terminal Benefits (including pension) also tend to increase every year. Hence, escalation for surrender leave salary and terminal benefits (including pension) is considered at 10%. On the Basic and DA quantum of eligible employees to Contributory Pension Scheme (CPS), the utility has to contribute 10% as employer's portion and thus a hike of 10% over previous years has been considered for CPS.

2. Administration & General Expenses

i. Legal Fees, Audit Fees & Professional charges

The fees payable to AG Auditors, Statutory Auditors, Advocate General, Technical experts, Design & developers are booked under this group which are getting increased in manifold. Moreover the related expenditure like travelling expenditure and allowances incurred on these activities will also be accounted under this head. Thus an escalation of 10% is considered.

ii. Watch & ward Expenses:

The engagement of retired Ex-servicemen for the security purposes was made in all power stations, certain sub-stations and central stores, etc. The expenditure relating to these particulars are increased every year on the basis of hike in DA and certain annual increase and thus 10% escalation has been considered.

iii. Salary to fire service personnel:

Similar to the ex-service men, the fire service personnel from Government Department are being engaged in power stations whose expenses is also governed as per DA hike, etc. Thus 10% hike may be taken.

3. Repair & Maintenance Expenses

For the other particulars of the above expenses and R&M expenses, the escalation has been considered at 4% which is in line with the TNERC (Terms & Conditions for determination of Tariff) Regulations 2005.

Table 138: Operation & Maintenance Expenses for the Control Period of Generation Function

Sr. No.	Power Station	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	130	142	159
2	Tuticorin TPS	224	241	265
3	Mettur TPS	126	138	157
4	North Chennai TPS	139	150	167
5	NCTPS Stage-II**	168	176	185
6	MTPS Stage-III**	88	93	97
7	Ennore Expansion	-	-	23
8	Tirumakottai GTPS	12	13	14
9	Kuttalam GTPS	8	9	10
10	Basin Bridge GTPS	7	8	8
11	Valuthur Unit-I	10	11	12
12	Erode HEP	33	36	41
13	Kadamparai HEP	26	29	32
14	Kundah HEP	43	47	53
15	Tirunelveli HEP	30	33	38
	Total	**1,044**	**1,124**	**1,262**

Table 139: Operation and Maintenance Expenses for Control period for Distribution Function

Rs. Crs

Sr. No.	Details	FY 14	FY 15	FY 16
1	Net Repair & Maintenance Expenses	69	72	75
2	Net Employees Cost	3,837	4,280	4,916
3	Net Admn. & General Expneses	194	229	285
	Total Operation and Maintenance	**4,100**	**4,582**	**5,276**

10.10.5 TANGEDCO submits that CERC (Terms and Conditions) Tariff Regulations 2009 allows an escalation of 5.7% on operation and maintenance expenses on base year for future year projections. It is therefore submitted that an escalation of 4% as provided in TNERC (Tariff Regulations) 2005 does not entirely cover the expenses for previous and ensuing years and hence it is submitted to approve the escalation rates considered by TANGEDCO in the present petition by making suitable amendments in the tariff regulations.

10.11 Depreciation

10.11.1 The Tariff regulations provide for recovery of Depreciation under Paragraph 23 which is

reproduced hereunder:

For the purpose of tariff, depreciation shall be computed in the following manners:

- ✓ The value base for the purpose of depreciation shall be historical cost of the asset.
- ✓ The depreciation shall be calculated at the rates as per the Annexure to these Regulations.
- ✓ The residual value of assets shall be considered as 10% and depreciation shall be allowed upto maximum of 90% of the estimated cost of the Asset.
- ✓ Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset.
- ✓ The historical cost of the asset shall include additional capitalisation.
- ✓ Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro-rata basis.
- ✓ After the assets are fully depreciated the benefit of reduced tariff shall be made available to the consumer.

10.11.2 As per clause 8 of MYT Regulations, the method of computing Depreciation which is reproduced as under:

8) Depreciation

Depreciation rates shall be as per the Schedule annexed to the Tariff Regulations.

Addition to the asset base in each year of the control period shall be as per the approved capitalization schedule.

10.11.3 Depreciation has been calculated taking into consideration the opening balance of assets in the beginning of the year based on the provisional transfer scheme. The Depreciation rates are used as per the TNERC Tariff Regulations. The estimated depreciation for the control period is shown in the following table:

Table 140: Depreciation for the control period

Rs. Crores

Particulars	2013-14	2014-15	2015-16
Generation			
Op. Balance	14,219	18,520	25,531
Addition	4,301	7,010	5,758
Deletion	-	-	-
Cl. Balance	18,520	25,531	31,289
Depreciation	393	511	705
Dep. Rate	2.76%	2.76%	2.76%
Distribution			
Op. Balance	15,079	17,868	24,412
Addition	2,790	6,544	10,833
Deletion	-	-	-
Cl. Balance	17,868	24,412	35,246
Depreciation	328	388	530
Dep. Rate	2.17%	2.17%	2.17%

10.12 Interest on Loan

10.12.1 Interest calculations have been estimated based on the heads viz Interest on Loan and Interest & Finance charges.

10.12.2 The interest expenditure on account of long-term loans depends on the outstanding loan, repayments, and prevailing interest rates on the outstanding loans. Further, the projected capital expenditure and the funding of the same also have a major bearing on the long-term interest expenditure.

10.12.3 The interest on the loan has been calculated considering the loans allocated to TANGEDCO at the time of segregation of erstwhile TNEB and based on such notified transfer scheme, it is an obligation of TANGEDCO to service such debts and repay them along with the interest.

10.12.4 The funding for new capital expenditure in the control period has been assumed to be undertaken at a normative debt: equity ratio of 70:30 in accordance with the TNERC (Terms and Conditions of Tariff) Regulations, 2005 and accordingly the new loan additions during the year has been estimated.

10.12.5 For the purpose of repayment, average tenure of the loan has been assumed as 10 years for all TANGEDCO loans and accordingly repayments for all years under consideration have been calculated.

10.12.6 The Interest and Finance charge comprises of Interest on General Provident Fund, Bank charges, premium on redemption etc. The Interest and Finance charges for the control period have been arrived considering an escalation of 10% over the previous year.

Table 141: Interest on Loan for the control period

Rs. Crores

Particulars	2013-14	2014-15	2015-16
Generation			
Op. Balance	17,083	17,823	18,021
Addition	5,723	4,562	5,404
Repayment	4,983	4,364	5,558
Cl. Balance	17,823	18,021	17,867
Net Interest	1,739	1,630	1,592
Int. Rate	**9.97%**	**9.10%**	**8.87%**
Distribution			
Op. Balance	14,459	15,145	16,683
Addition	4,903	5,246	7,666
Repayment	4,217	3,708	5,146
Cl. Balance	15,145	16,683	19,203
Net Interest	1,664	1,773	1,862
Int. Rate	**11.24%**	**11.14%**	**10.38%**

Table 142: Other Interest and Finance Charges for the Control Period

Rs. Crores

Particulars	2013-14	2014-15	2015-16
Generation - Other Interest Charges			
Total Other Interest Charges	**9**	**9**	**12**
Distribution - Other Interest Charges			
Interest on Security Deposit to the Consumers	419	440	462
Guarantee Charges	43	45	47
Other Charges (Finance Cost Paid)	112	118	123
Total Other Interest Charges	**574**	**603**	**633**

10.13 Interest on Working Capital

10.13.1 The Interest on Working Capital in line with the clause 10 of MYT Regulations and clause 26 of Tariff Regulations which has been computed as follows:

Interest on Working Capital =

a) <u>For Coal based / Lignite fired Generating Stations</u>

i. Cost of coal or lignite for one and half month for pit head generating stations and two months for non pit head generating stations corresponding to the target availability;

ii. Cost of secondary fuel oil for two months corresponding to the target availability;

iii. Operation and Maintenance expenses for one month;

iv. Maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation;

v. Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on target availability.

b) <u>For Gas Turbine / combined cycle Generating Stations</u>

i. Fuel cost for one month corresponding to the target availability duly taking into account the mode of operation of the Generating Station on gas fuel and liquid fuel;

ii. Liquid fuel stock for half month;

iii. Operation and Maintenance expenses for one month;

iv. Maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation; and

v. Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on target availability.

c) <u>For Hydro Power Generating Stations</u>

i. Operation and Maintenance expenses for one month;

ii. Maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation; and

iii. Receivables equivalent to two months of fixed charges for sale of electricity, calculated on normative capacity index.

d) <u>For Distribution System</u>

i. Operation and Maintenance expenses for one month

ii. Maintenance spares for two months based on annual requirement considered at 1% of the gross fixed cost at the beginning of the year.

iii. Receivable equivalent to sixty days consumption charges.

10.13.2 As per regulation 10 of MYT Regulations and Regulations 27 of the Tariff regulations. The rate of interest on working capital shall be equivalent to short term primary lending rate of State Bank of India as on 1st April of the initial year of the control period. The rate of interest on working capital considered is 14.75% which is the SBI interest rate as on 1st April

2012. The interest on working capital for the control period is as outlined below:

Table 143: Interest on Working Capital for Control period

Rs. Crores

Particulars	2013-14	2014-15	2015-16
Generation			
Coal Cost (2 months)	1,458	1,652	1,827
Sec Fuel Cost (2 Months)	57	64	70
O&M Expenses (1 Month)	87	94	105
Maintenance Spares	217	224	261
Receivable (2 Months)	2,353	2,653	2,886
Total Working Capital	4,173	4,687	5,149
Rate of Interest	14.75%	14.75%	14.75%
Interest on Working Capital	**625**	**701**	**770**
Distribution			
O & M expenses	342	382	440
Maintenance Spares	188	255	367
Recievables	4,949	7,748	8,596
Total Working Capital	**5,479**	**8,385**	**9,403**
Rate of Interest	14.75%	14.75%	14.75%
Interest on Working Capital	**808**	**1,237**	**1,387**

10.14 Provision on Bad Debt

10.14.1 Provision for bad and doubtful debts at the rate of 0.25% of the receivables projected based on the total ARR for the control period has been shown in following table. It is a legitimate expenditure which is associated with the business risk and is a consumer related expense as TANGEDCO is in distribution business serving to the consumers.

Table 144: Provision for Bad-debts for control period

Rs. Crores

Particulars	2013-14	2014-15	2015-16
Provision for Bad debts	14	19	21

10.15 Other Expenses / debits

10.15.1 The other expenses comprise of the expenditure on account of interest to suppliers/contractors and other expenses viz. compensation for injuries to staff and outsiders. Nominal rise over previous year 5% has been considered. Other Expenses projected for control period is tabulated in the following table:

Table 145: Other Expenses / Debits for the control period

Rs. Crores

Particulars	2013-14	2014-15	2015-16
Ennore TPS	12.60	13.10	13.63
Tuticorin TPS	7.69	8.00	8.32
Mettur TPS	1.70	1.77	1.84
North Chennai TPS	26.13	27.17	28.26
Tirumakottai GTPS	0.51	0.53	0.55
Kuttalam GTPS	0.14	0.15	0.15
Basin Bridge GTPS	0.05	0.05	0.06
Valuthur Unit-I	0.00	0.00	0.00
Erode HEP	0.10	0.11	0.11
Kadamparai HEP	0.00	0.00	0.00
Kundah HEP	0.17	0.17	0.18
Tirunelveli HEP	3.07	3.19	3.32
Total Generation	**52.16**	**54.25**	**56.42**
Distribution	**15.73**	**16.30**	**16.93**
Total	**67.89**	**70.55**	**73.35**

10.16 Contribution for Contingency Reserves

10.16.1 As per Regulation 35 of the MYT regulations, it is stated as below:

To meet out any contingent liability or unforeseen revenue losses, the Distribution licensees shall maintain a contingency reserve. The Distribution Licensees shall estimate the contingency reserve on the value of Assets for each year of the control period.

10.16.2 As per Regualtion31 of the Tariff Regulations,

The Generating Companies and the licensees shall provide and maintain a contingency reserve upto 0.5% of the value of assets at the beginning of the year and the provision made for the year will be allowed in their Revenue Requirement. This reserve will be utilised to meet any contingent liability or unforeseen revenue losses.

10.16.3 Accordingly, TANGEDCO has considered around 0.25% of the Gross Fixed Assets and has calculated Contribution to Contingency Reserve as follows:

Table 146: Contingency Reserves for Control Period

Rs. Crores

Particulars	2013-14	2014-15	2015-16
Contingency Reserves	75	89	122

10.17 Return on Equity

10.17.1 Return on Equity for TANGEDCO for the control period has been calculated based on the average equity for the corresponding year. This has been done in line with the TNERC Regulations. The Normative Rate of Equity has been taken at 14%.

10.17.2 TANGEDCO would like to submit that the opening equity is as per the 2nd provisional transfer scheme notified by the Government dated 2nd Jan 2012 and the GFA is funded partly by loan and equity. Accordingly, the opening equity and the GFA for the year FY 2010-11 are determined.

10.17.3 The Hon'ble Commission in its tariff order disallowed Return of Equity on the grounds that loan borrowing is more than the capital expenditure incurred. However, TANGEDCO would like to submit that a utility is entitled for Return on Equity as the RoE earned is invested every year to carry out future capacity additions. The relevant extracts of TNERC (Terms & Conditions of Tariff) Regulation 2005 is reproduced herein:

"21. Debt-Equity Ratio

For the purpose of determination of tariff, debt-equity ratio as on the date of commercial operation of Generating Station and transmission projects, sub-station, distribution lines or capacity expanded after the notification of these Regulations shall be 70:30. Where equity employed is more than 30% the amount of equity shall be limited to 30% and the balance amount shall be considered as loans, advanced at the weighted average rate of interest and for weighted average tenor of the long term debt component of the investment"

"Provided that in case of a Generating Company or other licensees, where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of return on equity in tariff computation." ***(Emphasis Added)***

10.17.4 TANGEDCO would like to submit that Return on Equity is a surplus generated which entitles a utility to safeguard itself against any uneven contingencies or a force majeure event in future. Also, clause 5.3(a) of the National Tariff Policy states that:

"Balance needs to be maintained between the interests of consumers and the need for investments while laying down rate of return. Return should attract investments at par with, if not in preference to, other sectors so that the electricity sector is able to create adequate capacity. The rate of return should be such that it allows generation of reasonable surplus for growth of the sector." ***(Emphasis Added)***

10.17.5 Also, APTEL order in the case for KPTCL v/s. KERC, states as follows:

The Appellate Tribunal observed that merely because there is no notification or allocation indicating the capital or investment or such other sum cannot be reason enough to deny return of equity.

10.17.6 TANGEDCO is entitled on RoE on the opening balance of equity as per the second transfer scheme. The Reasonable Rate of Return of TANGEDCO for the control period is shown in the table below:

Table 147: RoE for the control period

Rs. Crores

Particulars	2013-14	2014-15	2015-16
Generation			
Op. Bal	3,608	5,437	5,548
Addition	1,829	111	1,086
Cl. Bal	5,437	5,548	6,633
RoE %	14%	14%	14%
RoE	633	769	853
Distribution			
Op. Bal	2,472	3,309	5,272
Addition	837	1,963	3,250
Cl. Bal	3,309	5,272	8,522
RoE %	14%	14%	14%
RoE	405	601	966

10.18 Non-Tariff Income and other income

10.18.1 As per clause 38 and 39 of MYT Regulations, the distribution licensee has shall furnish the details of estimated non-tariff income and other income for each year of the control period.

10.18.2 TANGEDCO has certain sources of non-tariff income viz. interest on arrears of consumers, delayed payment charges, interest on staff loans and advances, interest on investment, etc. Annual increase of 5% over previous year is assumed for the heads covered under non tariff income and other income.

Table 148: Non-Tariff Income and other income for the control period

Rs. Crores

Particulars of Non-Tariff Income	2013-14	2014-15	2015-16
Meter Rent / Service lines Rent	23	25	26
Recovery for theft of power, etc,	106	116	128
Wheeling Charges received from Open Access customers	155	165	176
Other Miscellaneous Charges collected from consumers	453	483	515
Total Non-tariff income	**737**	**789**	**845**

Rs. Crores

Particulars of Other Income	2013-14	2014-15	2015-16
Ennore TPS	28.52	29.66	30.85
Tuticorin TPS	45.03	46.83	48.71
Mettur TPS	43.33	45.06	46.86
North Chennai TPS	21.22	22.07	22.95
Tirumakottai GTPS	1.67	1.74	1.81
Kuttalam GTPS	0.01	0.01	0.01
Basin Bridge GTPS	0.21	0.22	0.23
Valuthur Unit-I	0.05	0.05	0.05
Erode HEP	0.28	0.29	0.30
Kadamparai HEP	0.33	0.34	0.35
Kundah HEP	1.17	1.22	1.26
Tirunelveli HEP	4.10	4.27	4.44
Total Generation	**145.92**	**151.76**	**157.83**
Interest on Staff Loans & Advances	4.83	5.07	5.33
Income from Investment	0.01	0.01	0.01
Delayed Payment Surcharges Collected from Consumers	39.43	41.41	43.48
Interest on Advances to Suppliers / Contractors	9.96	10.45	10.98
Interest from Banks	0.05	0.05	0.05
Income from Trading	19.24	20.20	21.21
Rebate on power purchase bills	164.42	194.99	210.23
Miscellaneous Receipts	0.25	0.27	0.28
Gain on Sale of Fixed Assets	65.28	68.54	71.97
Total Distribution	**303.47**	**341.00**	**363.54**

10.18.3 Due to financial issues and liquidity crunch faced by TANGEDCO, no rebate has been considered on the power purchase bill for FY 2012-13 and later on same has been considered as 1% of the power purchase cost.

10.19 Regulatory Assets

10.19.1 In a general term, Regulatory assets include previously-incurred losses that are in the nature of deferred expenditure and that can be recovered from consumers in future provided allowed by regulatory authorities.

10.19.2 As per the Guidance Note on Accounting for Rate Regulated Activities, issued by ICAI, a Regulatory assets is defined as follows:

A regulatory asset is an entity's right to recover fixed or determinable amounts of money towards incurred costs as a result of the actual or expected actions of its regulator under the applicable regulatory framework.

10.19.3 The National Tariff Policy has also prescribed guidelines for allowing the facility of regulatory assets to be recovered with carrying cost. In cases where regulatory asset is proposed to be adopted, it should be ensured that the return on equity should not become unreasonably low in any year so that the capability of the licensee to borrow is not adversely affected.

10.19.4 It is submitted that a distribution business is a regulated business whereby the business activities creates a gap between operational and accounting situations that would not have arisen in the absence of such regulation. With cost-of-service regulation, there is a direct link between the costs that an entity is expected to incur and its expected revenue as the rates is set to allow the entity to recover its expected costs. However, there could be a significant time lag between incurrence of costs by the entity and their recovery through tariffs. Recovery of certain costs may be provided for by regulation either before or after the costs are incurred. Also, the reasons of a need for creation of Regulatory assets can be due to any or all of the following reasons:

- such as infrequent revision of tariffs,
- variation in the actual and estimated values of major expenditure alongwith their reasons and treatment;
- gap between the total validated expenditure and total estimated revenue;
- difference between the cost estimated and approved by the appropriate authority;
- effect of prescribed and achieved milestones for loss reduction and sharing of efficiencies and losses;

10.19.5 The Regulatory Assets as specified under Tariff Order No. 1 dated 30th March 2012 is the unrecoverable loss for the period November 2010 to March 2013. As per the Tariff order dated 30th March 2012, the issue of the Regulatory Assets was dealt in line with the Regulation No. 13 of the Terms and Conditions of Tariff Regulations 2005 which is stated as below:

13. Regulatory Asset

(5) Wherever the licensee could not fully recover the reasonably incurred cost at the tariff allowed with his best effort after achieving the benchmark standards for the reasons beyond his control under natural calamities and force majeure conditions and consequently there is a revenue shortfall and if the Commission is satisfied with such conditions, the Commission shall treat such revenue shortfall as Regulatory Asset.

(6) The regulatory asset shall first be adjusted against the contingency reserve. The balance regulatory asset, if any, will be allowed to be recovered within a period of three years as decided by the Commission.

(7) The licensee shall intimate the Commission then and there when such contingency arises.

(8) Any unrecovered gap at the beginning must be covered through transition financing arrangement or capital restructuring.

10.19.6 As per the Tariff Order, the Hon'ble Commission had expressed a view that the accumulated losses up to the date of unbundling will have to be dealt with in accordance with Para 5.4.3 of the National Electricity Policy and Tariff Policy. The provisions of the National Electricity Policy and Tariff Policy envisages that the gap at the time of unbundling will have to be sorted out by financial restructuring and support from the Government rather than passing on the accumulated losses to the successor entities.

10.19.7 In line with the National Tariff Policy, National Electricity policy and as per the Tariff Order dated 30th March 2012, TANGEDCO have not claimed any relief on account of accumulated losses prior to unbundling on 1-11-2010 in the given petition. The similar stand was taken in the earlier petition also.

10.19.8 The proposal of TANGEDCO is to create regulatory assets for the unrecovered deficit post unbundling only. TANGEDCO would like to submit that even though it has requested for creation of regulatory asset of the amount which is unrecovered deficit after claiming part as a tariff hike, all efforts has been undertaken to reduce such deficit and are under process to carry out Financial Restructuring Plan under the guidance of State Government.

10.19.9 As per the Tariff Order dated 31st March 2012, the treatment of the Regulatory Asset along with its carrying cost up to 31st March 2013 is given below:

Table 149: Regulatory Assets approved by the Hon'ble Commission

Particulars	Regulatory Assets
Loss for the year (including Carrying cost)	
2010-11	5,422
2011 – 2012	14,149
2012 – 2013	7,874
Total Regulatory Asset	**27,445**
Less: Tariff hike approved	7,874
Total Regulatory Asset	**19,571**

Recovery of Regulatory Asset

10.19.10 As specified under Tariff Order No. 1 dated 30th March 2012 (Page No. 309), the Regulatory Asset is proposed to be amortized over a period of 5 years commencing from the year 2013 – 2014 onwards. Once the Regulatory Asset is arrived at, 1/5th of the Regulatory Asset would be amortized along with the carrying cost. The Regulatory Asset would be re-worked out in 2014 – 2015 and 1/4th of such Regulatory Asset would be amortized in that year and so on until the entire Regulatory Asset is amortized. The carrying cost would correspond to the weighted average rate of interest for medium / long term loans of TANGEDCO in the corresponding year in which the amortization of the Regulatory Asset is done.

Revision in Regulatory assets

10.19.11 Based on the total gap arrived in this petition, which is cumulative of gap for FY 2010-11 (true-up for 5 months), FY 2011-12 (on provisional true-up), FY 2012-13 (Estimated for current year) and FY 2013-14 (gap for ensuing year), It is submitted that the revised calculation of Regulatory Assets may kindly be approved.

Table 150: Regulatory Assets as claimed by TANGEDCO

Particulars	Rs. Crores
Loss for the year	
FY 2010-11	5,773
FY 2011-12	14,882
FY 2012-13	9,719
FY 2013-14	10,344
Total Gap arrived in this Petition	**40,718**
Total Regulatory Asset approved by Commission	19,571
Less: Tariff hike proposed	973
Additional Regulatory Asset Proposed	20,173
Total Regulatory Asset Proposed	**39,744**

10.19.12 TANGEDCO is requesting the Hon'ble Commission to approve the revise Regulatory Assets based on the revised gaps and after adjusting the tariff hike as proposed in the given petition and allow the recovery from the ensuing tariff petition to be filed.

10.19.13 Considering the deficit situation of power supply faced by TANGEDCO and the current economic situation of the State resulting due to such deficit situation where by industries are shifting their base to other States and unemployment is increasing, TANGEDCO proposed a nominal tariff hike of **Rs. 973 Crores** which would be met by Subsidy from the State Government and there would be no additional tariff hike on the consumers.

10.19.14 Hence the remaining gap of the **Rs 39,744 Crores** after tariff revision may be allowed to recover in the ensuing tariff petition from the consumer in the deferred years so that there is no tariff shock for the consumers. It is submitted to approve the revised Regulatory Assets of **Rs 39,744 Crores** by treating the present critical power position as force majeure position as per tariff regulation and based on the revised gaps and after adjusting the tariff hike as proposed in the given petition.

10.19.15 Considering the amount of the regulatory assets to be determined and the necessary approval from the Hon'ble Commission, TANGEDCO has not considered any amount of Regulatory assets in the control period and can be revised as per the direction of the Hon'ble Commission.

10.20 Annual Revenue Requirement

10.20.1 Based on the parameters discussed above, the projection of Annual Revenue Requirement (ARR) of TANGEDCO for existing, new units and upcoming units including distribution for the Control Period is as follows:

Table 151: ARR of TANGEDCO (Generation Function) for the control period

ARR of Generating Stations (Rs. Crs)				
Sr. No.	Particulars	FY 13-14	FY 14-15	FY 15-16
		Projection	Projection	Projection
1	**Variable Cost**	9,871	11,103	12,236
2	**Fixed Cost**			
a	Operation & Maintenance Expenses	1,044	1,124	1,262
b	Depreciation	488	684	696
c	Interest & Finance Charges	1,748	1,639	1,603
d	Interest on Working Capital	635	701	770
e	Other Debits	52	54	56
	Sub Total	**3,966**	**4,203**	**4,387**
3	Return on Equity	633	769	853
4	**Total Expenditure**	**14,470**	**16,075**	**17,475**
5	Less: Other Income	146	152	158
6	**Aggregate Revenue Requirement**	**14,324**	**15,923**	**17,317**

Table 152: ARR of TANGEDCO (Distribution Function) for control period

ARR of Distribution Function (Rs. Crs)				
Sr. No.	Particulars	FY 13-14	FY 14-15	FY 15-16
		Projection	Projection	Projection
1	**Cost of Generation**	14,324	15,923	17,317
2	**Power Purchase**	16,442	19,499	21,023
3	**Transmission Charges**	2,329	2,888	3,629
	Total Cost of Power available	**33,096**	**38,309**	**41,970**
4	**Fixed Cost**			
a	Operation & Maintenance Expenses	4,100	4,582	5,276
b	Depreciation	328	388	530
c	Interest & Finance Charges	2,238	2,376	2,495
d	Interest on Working Capital	808	1,237	1,387
e	Provision for bad debts	14	19	21
f	Other Debits	16	16	17
g	Contribution to Contingency Reserves	75	89	122
	Sub Total	**7,579**	**8,708**	**9,849**
5	Return on Equity	405	601	966
6	**Total Expenditure**	**41,079**	**47,618**	**52,784**
7	Less: Non Tariff Income	737	789	845
8	Less: Other Income	303	341	364
9	**Aggregate Revenue Requirement**	**40,039**	**46,488**	**51,576**

10.20.2 The Annual Revenue Requirement for the control period is based on certain assumptions with respect to current projection and expected strategic plans to be undertaken in future. However, the impacts of any uneven internal or external parameters have not been considered in the current Projections. While TANGEDCO would aggressively pursue the goals envisaged in the Petition, however a change in such assumed parameters may impact the operational performance.

11. COMPLIANCE OF DIRECTIVES

11.1 Preamble

11.1.1 In the Tariff Order issued by TNERC on 30th March 2012, the Hon'ble Commission has provided certain directives to TANGEDCO. This section will be dealing with the latest status of compliance/ action taken by the TANGEDCO in relation to the directives.

11.2 Compliance of Directives

11.2.1 In the previous Tariff Order, the Hon'ble Commission has specified following directives to TANGEDCO, to which, TANGEDCO has submitted the compliance separately, which is as follows:

Directive No. 1 – Monitoring of Ongoing Projects

The Commission directs the TANGEDCO to properly monitor the on-going projects so that they are commissioned without further delay. The TANGEDCO should also ensure that the TANTRANSCO completes all the associated transmission system for evacuation of power from the generating stations which are getting commissioned during the year 2012-13 so that power generated from the generating stations are transmitted up to the Load Centers without any bottle necks. The TANGEDCO should ensure that the power which is available at the sub-stations is taken up to the consumption points by way of appropriate distribution system. All these arrangements will have to be carried out through a well structured business plan and individual schemes matching with the business plan. All such plans and schemes shall be submitted in accordance with the Terms and Conditions of Tariff Regulations 2005, MYT Tariff Regulations as well as Licensing Conditions to the Commission.

Compliance:

The present progress of all new generating stations is enclosed in Annexure 2. The present progress and bottlenecks are enclosed as Annexure 3

Directive No. 2 – Measurement of T&D Loss and Unmetered Ag Consumption

The Commission directs TANGEDCO to complete the exercise being done by TANGEDCO for accurate measurement of T&D Loss and unmetered agricultural consumption before October 31, 2012 and submit the findings to the Commission before December 1, 2012.

Compliance:

TANGEDCO submits that Anna University is entrusted with the consultancy works. V.M Natham feeder at Cuddalore EDC is selected to develop the model programme. The software model prepared by Anna University is awaited. On receipt, it will be submitted shortly.

The T&D loss up to 11 KV bus of the system is submitted in the petition. In order to measure the T&D loss up to 11 KV end, the programme for fixing of meters in Distribution Transformers is submitted under Directive no.7.(100%DT metering). The agriculture consumption based on 5% sampling metering is submitted.

In addition, the Secretary, CERC under the supervision of FOR Secretariat has selected M/S Medhaj Techno Concept Pvt Ltd as a consultant to study "Assessment of Component wise AT & C Losses". Vellore, Tuticorin, Madurai and Erode Distribution Circles have been identified for study and M/S Medhaj Techno Concept Pvt Ltd have started the field survey and the report is awaited and on receipt it will be submitted shortly.

Directive No. 3 – Energy Audit

The Commission directs TANGEDCO to comply with various provision of Energy Conservation Act 2001 pertaining to energy audit.

Compliance:

- ✓ 14.62 lac hut services will be provided one CFL each free of cost as replacement.
- ✓ 1 crore CFLs will be provided for domestic households at a cost of Rs 15/- for replacement of existing incandescent lamps.
- ✓ The tender is under progress. The details are furnished in Annexure 4.

Directive No. 4 – Capital Cost and Tariff Determination for New Plants

The Commission directs TANGEDCO to file separate petition for the approval of capital cost and tariff determination of new power plants.

Compliance:

The submission for capital cost and tariff determination of upcoming new thermal plants is submitted along with this petition as Annexure 11.

Directive No. 5 – Data on TOD Consumption

The TANGEDCO is directed to submit data on ToD consumption along with the subsequent Tariff Application for all consumers where ToD meters have been installed.

Compliance:

ToD consumption is submitted along with this Tariff Application as Annexure 5

Directive No. 6 – Quality of Supply

The Commission directs TANGEDCO to maintain quality of supply as specified in Tamil Nadu Electricity Distribution Standards of Performance Regulations dated 21-07-2004.

Compliance:

The present progress on quality of supply as specified in Tamil Nadu Electricity Distribution Standards of Performance Regulations is enclosed in Annexure 6.

Directive No. 7 – 100% metering at feeder level and Distribution Transformers

The Commission directs TANGEDCO to submit a time bound program for 100% metering at feeder level and Distribution Transformers.

Compliance:

The feeder metering level as on 31.03.2012 is 99.69%. Already the CEs & SEs Distribution have been addressed to take necessary action to fix meters in the feeders, where meters are not available, and to replace the defective meters. 100% feeder metering will be completed. The programme for provision of meter in DT is submitted in Annexure 7

R-APDRP AREA:

In 110 towns of R-APDRP schemes, all the feeders and the distribution transformers will have the Automatic Meter Reading (AMR) facility.

For this purpose 2689 Nos. feeder meters having AMR facility have been procured and installed. Further 40,525 Nos. Distribution Transformer meters with AMR facility will be installed in 110 towns. Out of 40,525 nos, fixing of 35500 nos. DT meters with metering box under turnkey are in progress. The works have already been started in Chennai, Trichy ,Tirunelveli, Erode ,Madurai and Coimbatore. So far 14934 nos. Meters along with meter boxes have been installed. The balance DT meters with Metering box are being erected. Further additional quantity of 7100 nos. meters has been procured & same will also be installed.

Non-R-APDRP AREA:

Road map is enclosed in Annexure 8

Directive No. 8 – Segregation of Wheeled energy from Power Purchase

The Commission directs TANGEDCO to submit the detailed segregation of wheeled energy included in power purchase and sales in next Tariff determination process.

Compliance:

The above directive has been complied.

Directive No. 9 – Projection of Hydro Generation

The Commission directs TANGEDCO to project the hydro generation accurately and submit the same within 3 months of the issuance of this Order.

Compliance:

The details for the same have been already submitted to Hon'ble Commission. The revised plan is submitted as an enclosure to this petition.

Directive No. 10 – GOI guidelines under section 63

The Commission directed TANGEDCO to follow the Government of India (GoI) guidelines under Section-63 for power purchase for less than 1 year, as and when finalized.

Compliance:

The said directive is being complied with.

Directive No. 11 – Power Purchase from Traders

The Commission directs TANGEDCO to take prior approval before purchasing the energy from Traders higher than the quantum and rate specified by the Commission in this Tariff Order.

Compliance:

TANGEDCO submits that the separate petitions are being filed before the Hon'ble Commission for power purchase from traders.

Directive No. 12 – Filing of Tariff Petition

The Commission directs TANGEDCO to file their Tariff Petition on a timely basis every year, as per the TNERC Tariff Regulations.

Compliance:

The said directive is complied for the FY 2012-13.

Directive No. 13 – Separate Petition for Additional Capitalization

The Commission directs TANGEDCO to submit separate Petition for approval of additional capitalization along with all details within three months of the date of issuance of this Order.

Compliance:

The separate petition for additional capitalization had been filed before the Hon'ble Commission on 5th October 2012. This has been complied with.

Directive No. 14 – R&M expenses should not be diverted

The Commission directs TANGEDCO that the amount approved for R&M expenses should not be diverted for any other purpose.

Compliance:

The said directive is being complied.

Directive No. 15 – Separate Petition for approval of Capital Cost for New Hydro

The Commission directs TANGEDCO to submit separate Petition for approval of Capital Cost and determination of Tariff for New Hydro Generating Stations before next Tariff determination exercise.

Compliance:

Petition for approval of Capital cost and determination of tariff for new hydro generating stations shall be submitted subsequently.

Directive No. 16 – Introduction to KVAH billing

The Commission directs TANGEDCO to introduce KVAH billing for LT and HT consumers, as recommended by Forum of Regulators.

Compliance:

Report on KVAH billing is submitted along with the tariff petition as Annexure 9.

Directive No. 17 – Metering of Unmetered Hut Consumption

The Commission directs TANGEDCO to provide meters for all the new hut connections. Also, TANGEDCO should submit a phase wise plan to convert existing un-metered hut connections to metered connections within 90 days of the issuance of this Order.

Compliance:

The Hon'ble Commission had granted extension of time till 30th September 2012 for installing meters for agricultural and hut services. A letter was addressed to Govt. of Tamil Nadu on 4.4.2012 to issue policy directives to the Hon'ble TNERC, regarding fixing of meters in agricultural and hut services. Orders are awaited from GOTN.

Orders are awaited from GOTN. As the time extension granted by the Hon'ble TNERC was due to expire on 30.09.2012, a petition was filed by TANGEDCO before the Hon'ble TNERC on 26.09.2012 seeking extension of time for 25 months. The case was numbered as M.P.No. 35 of 2012. The case came up for admission on 18.10.2012 and the Hon'ble TNERC has directed that upon receipt of orders from the Government of Tamil Nadu, the same shall be filed before the Hon'ble TNERC. Accordingly further course of action will be taken

Directive No. 18 – Additional Capitalization Petition

TANGEDCO shall file its Petition for additional capitalization of existing generating stations submitted in this Tariff Petition, for Commission's approval, in accordance with Regulation 19 of TNERC Tariff Regulations, 2005, within 90 days of issuance of this Order.

Compliance:

The separate petition for additional capitalization had been filed before the Hon'ble Commission on 5th October 2012. The said directive is complied with.

Directive No. 19 – Treatment of GPF

TANGEDCO should not consider GPF as a source of fund and treat it separately from revenue account and same will be revisited by the Commission in next Tariff Order.

Compliance:

The Transfer Scheme of TANGEDCO is provisional. As per this scheme, it is specified that terminal benefits will continue to be met from cash flow of the operations of the transferee companies.

Issues relating to funding the GPF of the employees can be considered and finalized at the time of final Transfer.

Directive No. 20 – Payment of Transmission Charges

TANGEDCO should pay transmission charges determined by the Commission to TANTRANSCO in twelve equal monthly instalments during FY 2012-13.

Compliance:

Due to critical financial position of TANGEDCO, the monthly commitments to TANTRANSCO could not be met. However the entire obligation of TANGEDCO towards TANTRANSCO would be met in due course of time.

Directive No. 21 – FPCA Calculation

The Commission directs TANGEDCO to submit its preparedness, implementation plan and sample FPCA calculations for the last quarter, for which data is available, to the Commission, within 30 days of issuance of this Order.

Compliance:

The FPCA sample calculations for the last quarter were submitted before the Hon'ble Commission.

Directive: Cost to Serve (Para 9.6.8)

TANGEDCO to submit cost to serve report including demand related cost, energy related cost, etc.

Compliance:

Cost to Serve Report submitted along with this petition as Annexure 12

12. PRAYERS

TANGEDCO respectfully prays to the Hon'ble Commission:

12.1.1 To admit the petition seeking Final True up of FY 2010-11, Provisional True Up for FY 2011-12, Annual Performance Review for FY 2012-13 and Aggregate Revenue Requirement for FY 2013-14 as per the provisions of TNERC (Terms and Conditions of Tariff) Regulations, 2005;

12.1.2 To approve the total recovery of Final True up of FY 2010-11, Provisional True Up for FY 2011-12, Annual Performance Review for FY 2012-13 and Aggregate Revenue Requirement for FY 2013-14 and other claims as proposed by TANGEDCO.

12.1.3 To approve the Regulatory Assets as proposed in the petition for the cumulative period from FY 2010-11 (5 months) to FY 2013-14 and allow the recovery of the regulatory assets to be approved by the Hon'ble Commission.

12.1.4 To allow TANGEDCO to adjust the Regulatory assets and the gap with the retrospective effect after the finalization of the Financial Restructuring Plan.

12.1.5 To allow TANGEDCO to make claim in the ensuing tariff petition as per notification of the Final Transfer Scheme.

12.1.6 To allow recovering the additional charges in case of any variation in the fixed cost of the Central Government Power Stations as approved by CERC in line with the CERC (Terms & Conditions of Tariff) Regulations, 2009-14.

12.1.7 To approve escalation in operation and maintenance expenses as proposed i.e. is in line with CERC Terms and Conditions of Tariff Regulations 2009 by invoking Regulation 89 to 91 of TNERC (Terms and Conditions of Tariff) Regulations, 2005.

12.1.8 To approve the revision in tariff as proposed by TANGEDCO for Hut and Agriculture consumers as specified in section related to tariff philosophy.

12.1.9 To approve cross subsidy surcharge and all such other charges including Wheeling Charges and Losses in relation with Open Access granted to consumers in accordance with the provisions of the EA 2003 for the year 2013-14 based on the correct level of cross subsidy for FY 2013-14.

12.1.10 To grant any other relief as the Hon'ble Commission may consider appropriate.

12.1.11 To pass any other order as the Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice.

12.1.12 To charge existing tariff approved in tariff order dated 30th March 2012 until the approval of new tariff for FY 2013-14.

12.1.13 To condone any error/omission and to give opportunity to rectify the same.

12.1.14 To permit the Petitioner to make further submissions, addition and alteration to this Petition as may be necessary from time to time.