TAMIL NADU ELECTRICITY REGULATORY COMMISSION

Suo-Motu Determination of Tariff for Generation and Distribution

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SMT - Order No. 9 of 2014
Order dated: 11-12-2014
(effective from 12-12-2014)

TAMIL NADU ELECTRICITY REGULATORY COMMISSION

(Constituted under section 82(1) of the Electricity Act, 2003)

(Central Act 36 of 2003)

PRESENT: Thiru S. Akshayakumar - Chairman
Thiru S. Nagalsamy - Member
Thiru G. Rajagopal - Member

SMT - Order No. 9 of 2014
Date of Order : 11-12-2014

In the matter of : Determination of Tariff for Generation and Distribution in the State of Tamil Nadu on suo motu basis

In exercise of the powers conferred by clauses (a) (c) and (d) of sub-section (1) of section 62 and clause (a) of sub-section (1) of section 86 of the Electricity Act, 2003 (Central Act 36 of 2003) read with sub-regulation (1) of Regulation 16 of the Tamil Nadu Electricity Regulatory Commission-Conduct of Business Regulations, 2004 and sub-regulation (8) of Regulation 6 of the Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for the Determination of Tariff) Regulations, 2005 and in compliance with the Order dated 11-11-2011 of the Hon'ble Appellate Tribunal for Electricity, New Delhi in O.P. No. 1 of 2011 and all other powers hereunto enabling in that behalf and after considering the views of the State Advisory Committee meeting held on 13-10-2014 and the suggestions and objections received from the public during the public hearings held on 24-10-2014, 28-10-2014 and 31-10-2014, the Tamil Nadu Electricity Regulatory Commission, hereby, passes this order for Generation and Distribution tariff in the State of Tamil Nadu.

Thiru S. Nagalsamy, Member disagreed with this order and issued a separate order which is attached as a dissenting order.

This order is passed with majority as per sub-section (3) of Section 92 of the Electricity Act, 2003.

This Order shall take effect from 12-12-2014. The Tamil Nadu Generation and Distribution Corporation Limited, the Distribution Licensee shall take immediate steps to implement the order. This order is subject to the outcome of the Writ Petition No.29175 of 2014 and M.P. No. 1 of 2014 in the said WP pending in the Hon'ble High Court of Madras.

This Order may be amended, reviewed or modified, as the case may be, in accordance with the provisions of the Electricity Act, 2003 and the Regulations/ Rules made thereunder or as per any law or the Regulations or the Rules for the time being in force, if so required.

Sd/-	Sd/-	Sd/-
G. Rajagopal	S. Nagalsamy	S. Akshayakumar
Member	Member	Chairman

TABLE OF CONTENTS

List of Abbreviations

Abbreviation	Description
A & G	Administration and General Expenses
ABC	Aerial Bunched Cables
ABR	Average Billing Rate
APTEL	Appellate Tribunal for Electricity
ARR	Aggregate Revenue Requirement
CAGR	Compounded Annual Growth Rate
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CFL	Compact Fluorescent Lamps
CGS	Central Generating Station
COS	Cost of Supply
CPP	Captive Power Plant
CSD	Consumer Security Deposit
CWIP	Capital Work in Progress
DA	Dearness Allowance
EA	Electricity Act
ED	Electricity Duty
FRP	Financial Restructuring Plan
FY	Financial Year
GFA	Gross Fixed Assets
G.O.	Government Order
GPF	General Provident Fund
GoTN	Government of Tamil Nadu
HT	High Tension
HVDS	High Voltage Distribution System
kWh	Kilo-watt Hour
LT	Low Tension
LTOA	Long Term Open Access
MU	Million Units
MW	Mega-watt
MYT	Multi-Year Tariff
NTI	Non-Tariff Income
O & M	Operation & Maintenance
PF	Power Factor
PLF	Plant Load Factor
R & M	Repair & Maintenance
O & M	Operation & Maintenance
RoE	Return on Equity
SLDC	State Load Despatch Centre
STOA	Short Term Open Access
T&D	Transmission & Distribution

TANGEDCO	Tamil Nadu Generation and Distribution Corporation Ltd.
TANTRANSCO	Tamil Nadu Transmission Corporation Ltd.
TNEB	Tamil Nadu Electricity Board
TNERC	Tamil Nadu Electricity Regulatory Commission
ToD	Time of Day
TP	Tariff Policy

A1: INTRODUCTION

Preamble

1.1 Consequent to the enactment of the Electricity Regulatory Commissions Act 1998 (Central Act 14 of 1998), the Government of Tamil Nadu (GoTN) constituted the Tamil Nadu Electricity Regulatory Commission (TNERC) vide G.O.Ms.No.58, Energy (A1) Department, dated 17-03-1999.

1.2 The Commission issued its **first** tariff order (Order No 1 of 2002) under Section 29 of the Electricity Regulatory Commission Act, 1998, on 15-03-2003 based on the petition filed by the Tamil Nadu Electricity Board (TNEB) on 25-09-2002.

1.3 Electricity Regulatory Commission Act, 1998 was repealed and the Electricity Act 2003 (Central Act 36 of 2003) was enacted with effect from 10-06-2003.

1.4 The Commission notified the Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations 2005 (herein after called Tariff Regulations) on 03-08-2005under Section 61 read with Section 181 of the Act.

1.5 The Commission issued separate order (Order No. 2 of 2006) on Transmission charges, Wheeling charges, Cross Subsidy surcharge and Additional surcharge on15-05-2006, based on the petition filed by TNEB on 26-09-2005 under Section 42 of the Act.

1.6 The Commission had issued its first Renewable Energy Tariff Order on 15-05-2006. Later in 2009, Commission has issued technology wise second Renewable Energy Tariff Orders. Further on 31-07- 2012, the Commission issued its third Tariff Order with respect to renewable energy sources.

1.7 The Commission notified the TNERC (Terms and Conditions for Determination of Tariff for Intra state Transmission / Distribution of Electricity under MYT Framework) Regulations, 2009 (herein after called MYT Regulations) on 11-02-2009.

1.8 Subsequently, TNEB filed an application for determination of tariff with Aggregate Revenue Requirement (ARR) for all functions on 18-01-2010, which was admitted by the Commission after initial scrutiny on 09-02-2010. The Commission issued its **second** Retail Tariff Order on 31.07.2010 (Order No. 3 of 2010).

1.9 TNEB was formed as a statutory body by the Government of Tamil Nadu (GoTN) on 01-07-1957 under the Electricity (Supply) Act 1948.The Board was primarily responsible for generation, transmission, distribution and supply of electricity in the State of Tamil Nadu.

1.10 Government of Tamil Nadu, in G.O (Ms) No 114 Energy Dept, dated 08-10-2008 accorded in principle approval for the re-organisation of TNEB by establishment of a holding company, namely TNEB Ltd and two subsidiary companies, namely Tamil Nadu Transmission Corporation Ltd (TANTRANSCO) and Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO) with the stipulation that the aforementioned companies shall be fully owned by the Government.

1.11 Tamil Nadu Generation and Distribution Corporation Ltd. was incorporated on 01-12-2009 and started functioning as such with effect from. 01-11-2010.

1.12 Subsequent to the filing of tariff petitions by TANGEDCO for determination of retail supply tariff for the year FY 2012-13, the Commission scrutinised and reviewed the same. After a thorough review the **third** Order (Order. No. 1 of 2012) of the Commission on retail supply tariff, wheeling charges and other related charges was passed on 30-03-2012.

1.13 Tamil Nadu Generation and Distribution Corporation Ltd. TANGEDCO filed tariff petition for determination of tariff for Generation and Distribution for the year FY 2013-14, the Commission scrutinised and reviewed the same. Based on this petition and after considering views of the State Advisory Committee and the public, Tamil Nadu Electricity Regulatory Commission passed the **fourth** Order on 20-06-2013.

1.14 Subsequently in the event of The Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO) not filing the ARR and Tariff petition for FY 2014-15 before the Commission, the Commission initiated suo-motu proceedings for tariff determination in accordance with section-64 of the Act. After a thorough review of the available information, the **fifth** Order of the Commission on determination of Retail Tariff is now passed.

Tariff Filing

1.15 As per provisions of Section 64 of the Electricity Act 2003, it is incumbent upon the Licensee to make an application to the State Regulatory Commission for determination of tariff in such manner as may be determined by Regulations framed by the Commission. Regulation 5 of the Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2005 lays down that licensee is required to file tariff application on or before 30th November each year, with the Commission. Accordingly TANGEDCO was expected to file a petition for the final true up and approval of ARR for 2011-12 and 2012-13, APR for 2013-14 and ARR and Tariff petition for 2014-15 by 30th November 2013. However TANGEDCO failed to file the petition before the said deadline. However TANGEDCO has filed the petition formats for generation stations and distribution business with the Commission in the month of October. The Commission would like to place on record that it does not accept this data submission by the utility in lieu of the ARR and tariff petition to be filed by it. These numbers shall be filed by TANGEDCO along with the petition for final true-up of ARR for FY 2011-12 to FY 2013-14, within the stipulated timelines as per regulations.

Procedure Adopted

1.16 Hon'ble APTEL vide it's judgement dated 11th November, 2011 in the matter OP No. 1 of 2011, has directed the State Commissions that

"In the event of delay in filing of the ARR, truing-up and Annual Performance Review, one month beyond the scheduled date of submission of the petition, the State Commission must initiate suo-motu proceedings for tariff determination in accordance with Section 64 of the Act read with clause 8.1 (7) of the Tariff Policy."

1.17 TNERC Tariff Regulations 2005 under Regulation 6 stipulates that

"(8) In case the licensee does not initiate tariff filings in time, the Commission shall initiate tariff determination and regulatory scrutiny on suo motu basis."

Considering the directives of the Hon'ble APTEL, the National Tariff Policy and in exercise of the powers vested in it under the Section 62 and Section 64 of the Electricity Act, 2003 (Act) and the Tariff Regulations 2005, TNERC decided to take up the matter of Determination of ARR and Tariff for 2014-15 by initiating suo-motu proceedings.

1.18 As per Financial Restructuring Plan (FRP) requirement, the tariff is to be revised every year covering the ARR. Under such circumstances TNERC decided to proceed with the suo-motu determination of ARR and Tariff for FY 2014-15 on the basis of information available from TANGEDCO's submissions to the Commission. With the available information with the Commission, the following decisions have been taken by the Commission:

a. The 2011-12 and 2012-13 expenses will be provisionally trued up based on the audited accounts.

b. The APR for 2013-14 and ARR for FY 2014-15 will be taken up based on available information and audited accounts for FY 2011-12 and 2012-13.

c. The revenue gap and regulatory asset determined will be provisional in nature and will be trued-up in the next year.

1.19 The Commission issued the public notice containing the provisionally determined Aggregate Revenue Requirement and the tariff schedule for FY 2014-15 in newspapers on 23-09-2014 and 24-09-2014. The summary of the ARR containing the salient features of all the ARR items and Revenue Gap along with all supporting data was made available on the website of the Commission. The written objections/suggestions/views from stakeholders were invited by 23-10-2014 and it was subsequently extended upto 31-10-2014.

1.20 The Commission published the public notice in the following newspapers on September 23, 2014 and September 24, 2014.

23-09-2014 (Evening Edition)
a) Trinity Mirror (English Evening Edition)
b) News Today (English Evening Edition)
c) Malai Murasu (Tamil Evening Edition)
d) Makkal Kural (Tamil Evening Edition)

24-09-2014 (Morning Edition)
a) The New Indian Express (English Daily);
b) The Deccan Chronicle (English Daily);
c) Daily Thanthi (Tamil Daily)
d) Dinamani (Tamil Daily)

1.21 The Public notice was placed before the State Advisory Committee on 13-10-2014. The list of Members who participated in the meeting is detailed as Annexure II to this Order.

1.22 The list of stakeholders who have submitted written objections/suggestions/views in response to the public notice are detailed in Annexure III and Objections/suggestions/views are included in Chapter A2.

1.23 The Commission conducted public hearing at the following places on the dates noted against each:

Date	Day	Place	Venue
24.10.2014 Friday	Chennai	Tamil Isai Sangam, Rajah Annamalai Mandram Near High Court, 5, Esplanade Road, Chennai 600 108.	10.30 AM to 1.30 PM & 2.30 PM to 5.30 PM
28.10.2014 Tuesday	Tirunelveli	Dr. APJ Abdul Kalam Auditorium, Francis Xavier Engineering College, 103 G2 North Bypass Road, Vannarpettai, Tirunelveli 627 003.	10.30 AM to 1.30 PM & 2.30 PM to 5.30 PM
31.10.2014 Friday	Erode	Malligai Arangam, Old No.267, New No.14, Veerapathira Street, Near Bus stand & V.O.C. Park Play Ground, Erode 638 003.	10.30 AM to 1.30 PM & 2.30 PM to 5.30 PM

1.24 The lists of participants in each public hearing, is attached as Annexure IV to this Order. The views / comments / objections raised by the participants are discussed in Chapter A2.

The Electricity Act, 2003, Tariff Policy (TP) and Regulations

1.25 Section-62 of the Act stipulates the guiding principles for determination of Tariff by the Commission and mandates that the Tariff should 'progressively reflect cost of supply of electricity', 'reduce cross-subsidy', 'safeguard consumer interest' and 'recover the cost of electricity in a reasonable manner'.

Section-62 (1) of Act states as under:

"Section-62 (1):

1. *The Appropriate Commission shall determine the tariff in accordance with provisions of this Act for*

    a. *supply of electricity by a generating company to a distribution licensee: Provided that the Appropriate Commission may, in case of shortage of supply of electricity, fix the minimum and maximum ceiling of tariff for sale or purchase of electricity in pursuance of an agreement, entered into between a generating company and a licensee or between licensees, for a period not exceeding one year to ensure reasonable prices of electricity;*

    b. *transmission of electricity ;*

    c. *wheeling of electricity;*

    d. *retail sale of electricity.*

    Provided that in case of distribution of electricity in the same area by two or more distribution licensees, the Appropriate Commission may, for promoting competition among distribution licensees, fix only maximum ceiling of tariff for retail sale of electricity."

Similarly, the objectives stipulated in the Tariff Policy are as under:

"4.0 Objectives of the policy

The objectives of this tariff policy are to:

a. *Ensure availability of electricity to consumers at reasonable and competitive rates;*

b. *Ensure financial viability of the sector and attract investments;*

c. *Promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimise perceptions of regulatory risks;*

d. *Promote competition, efficiency in operations and improvement in quality of supply."*

1.26 In the State of Tamil Nadu, Tamil Nadu Electricity Regulatory Commission in exercise of powers vested in it under the Electricity Act, 2003 (Act) passes the Tariff Orders.

Transfer scheme

1.27 The proposal for Assets Transfer and Employee transfer called as Tamil Nadu Electricity Board (Reorganization and Reforms) Transfer Scheme 2010 was notified by the 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.

1.28 This Transfer Scheme is provisional and addresses various issues like transfer of assets, revaluation of assets and partly addresses the issue of accumulated losses. This Transfer Scheme envisages deployment of staff of the erstwhile TNEB to TANGEDCO and TANTRANSCO. The Commission in its earlier Tariff Order No. 3 of 2010 dated 31-07-2010 had suggested in line with the National Electricity Policy (para 5.4.3) and Tariff Policy that the accumulated losses should not be passed on to the successor entities and financial restructuring has to be resorted to clean up the Balance Sheet of the successor companies and allow them to start on a clean slate so that the successor entities could start performing better. The statutory advices that have been sent to the Government of Tamil Nadu in this regard are appended as Annexure V. The Commission has also issued a statutory advice with regard to the establishment of a separate Generating Company and establishment of four Distribution Companies so that the performance of these companies can be improved and efficiently monitored, which will enable proper investments and growth of the individual company. This document is appended as Annexure VI.

1.29 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 October 2012. The same has been appended as Annexure VII.

1.30 This Transfer Scheme is also provisional and is subject to revision. The transactions for 7 months i.e. from 1st April 2010 to 30th October, 2010 do not get reflected in the opening balance sheet of the TANGEDCO as specified in the Transfer Scheme.

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 through 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) The date was further extended for 6 months i.e. up to 30.04.2013 for final transfer of assets and liabilities to successor entities of erstwhile TNEB by GoTN through G.O.Ms (23) dated 8th March 2013 (Annexure VIII).

d) TANGEDCO and TANTRANSCO again sought for an extension for another six months i.e. upto 31st October 2013 for final transfer of assets and liabilities to successor entities of erstwhile TNEB and the same has been approved by GoTN through G.O.Ms (106) dated 5th December 2013 (Annexure IX).

e) TANGEDCO and TANTRANSCO has now sought for an extension for another six months i.e. upto 30.04.2014 for final transfer of assets and liabilities to successor entities of erstwhile TNEB and the same has been approved by GoTN through G.O.Ms (35) dated 13th May 2014 (Annexure X).

f) Further through the G.O. Ms. No. 36 dated 13th May 2014; the State Government on hearing the proposal of the TANGEDCO has extended the timeline for final transfer of personnel from Board to TANGEDCO to 31st October 2014 (Annexure XI).

g) TANGEDCO through Lr.No SE/PLG/EE/GP/AEE4/F Transfer Scheme/D 275/2014, dated 05.11.2014 has requested to extend the provisional period upto 30.04.2015 for final transfer of assets and liabilities and to extend the provisional period upto 31.10.2015 for transfer of personnel from erstwhile TNEB to successor entities by issuing necessary amendments (Annexure XII).

h) In the absence of availability of opening balances based on the final Notification of GoTN, as per transfer scheme, TANGEDCO has considered the opening balance as per the provisional transfer scheme notified on 2nd January 2012.

1.31 Hence, Commission is of the view that once the final transfer scheme is notified by the State Government, the impact due to revision in the opening balance of Fixed Assets, Loan and Equity and O&M expenses may have to be revisited and accounted during the tariff determination process of the concerned year.

Unbundling of TNEB - 1st November 2010

1.32 TNEB was unbundled on 1.11.2010. Consequently it started functioning as two separate entities namely TANGEDCO and TANTRANSCO. While TANGEDCO was made responsible for generation and distribution, TANTRANSCO was made responsible for transmission activities within the State.

1.33 The Commission in its Tariff Order issued on 31st July 2010, 30th March 2012 and 20th June 2013 had indicated that the accumulated losses upto the date of unbundling will have to be dealt with in accordance with the National Electricity Policy and Tariff Policy. The Commission had also clearly indicated that any losses incurred after 1.11.2010 only are being dealt with in various Tariff Orders subsequent to unbundling.

1.34 The revenue gaps arising subsequent to unbundling were dealt with primarily as Regulatory Asset in the Order of the Commission dated 20th June 2013. For FY 2013-14, the Commission had hiked the tariff of Agriculture and Hut Categories to be met through Government Subsidy. This had led to a reduction in revenue gap.

1.35 The approach followed by the Commission to treat the revenue gap has again been discussed in this Order.

Brief Note on Public Hearing

1.36 The Commission has noted the various views expressed by stakeholders both in the written comments submitted by them to the Commission as well as during the Public Hearings held at Chennai on 24th Oct 2014, Tirunelveli on 28th Oct 2014 and Erode on 31st Oct 2014.

1.37 Various suggestions and objections that were raised on the TANGEDCO's ARR and Tariff Summary after the issuance of the Public Notice, both in writing as well as during the Public Hearing, along with TANGEDCO's reply and the Commission's view have been detailed in Chapter A2 of this Order.

Applicability of Order

1.38 This Order will come into effect from 12th December, 2014. The Generation and Retail Tariff contained in this order will be valid until issue of the next order.

Layout of the Order

1.39 This Order is organised into seven Chapters:

a) Chapter A1 provides details of the tariff setting process and the approach of the Order;

b) Chapter A2 provides a brief of the Public Hearing process, including the details of comments of various stakeholders, the licensee's response and views of the Commission thereon;

c) Chapter A3 provides details/ analysis of the provisional true up for FY 2011-12 and FY 2012-13 and annual performance review for FY 2013-14;

d) Chapter A4 provides analysis of the approach followed for determination of the Aggregate Revenue Requirement for FY 2014-15;

e) Chapter A5 provides details of determination of Open access charges and Retail Supply Tariff for all consumer categories, and the approach adopted by the Commission in determining the tariff;

f) Chapter A6 gives the tariff schedule applicable for the consumers; and

g) Chapter A7 provides details of the Directives of the Commission for compliance by TANGEDCO.

1.40 The Order contains the following Annexure, which are an integral part of the Tariff Order.

a) Annexure I - Copies of letters written to TANGEDCO directing them to file the Tariff Petition for FY 2014-15

b) Annexure II - The list of participants at the State Advisory Committee

c) Annexure III - The list of stakeholders who have submitted written objections/suggestions/views in response to the public notice.

d) Annexure IV - The list of participants at each public hearing.

e) Annexure V – Copy of the statutory advices given by the Commission sent to the Government of Tamil Nadu.

f) Annexure VI- Copy of statutory advice of the Commission regarding the unbundling of TANGEDCO into a separate Generating Company and four Distribution Companies.

g) Annexure VII – Copy of the second provisional transfer scheme as notified by the State Government vide G.O. (Ms.) No.2, Energy (B2) Department, dated 2nd January 2012.

h) Annexure VIII – G.O.Ms (23) dated 8th March 2013, allowing extension for 6 months i.e. up to 30.04.2013 for final transfer of assets and liabilities to successor entities of erstwhile TNEB.

i) Annexure IX - G.O.Ms (106) dated 5th December 2013 approving second extension for another six months i.e. upto 31st October 2013 for final transfer of assets and liabilities to successor entities.

j) Annexure X - G.O.Ms (35) dated 13th May 2014 approving third extension i.e. upto 30.04.2014 for final transfer of assets and liabilities to successor entities.

k) Annexure XI - G.O. Ms. No. (36) dated 13th May 2014, approving fourth extension i.e. upto 31st October 2014 for final transfer personnel to successor entities.

l) Annexure XII - TANGEDCO Lr.No SE/PLG/EE/GP/AEE4/F.Transfer Scheme/D 275/2014, dated 05.11.2014 requesting to extend the provisional period upto 30.04.2015 for final transfer of assets and liabilities and to extend the provisional period upto 31.10.2015 for transfer of personnel from erstwhile TNEB to successor entities.

Approach of the order

1.41 Commission in its last order had arrived at the consolidated revenue gap as on March 2013 by considering the approved revenue gap for each year of the first control period and allowing interest expenses at 11%. The revenue gap has been treated as regulatory asset in the books of TANGEDCO and would be dealt with in a phased manner through Financial Restructuring Plan and Amortization of Regulatory Asset in conjunction with tariff revision.

"Point 4(f) of Letter (Ms) No. 59/C2/2012 dated 7th June 2013

The Government in its letter cited first above has agreed in-principle with a request of amortisation of regulatory assets. The details are to be worked out in conjunction with tariff revision."

1.42 TNERC has determined the revenue gap for FY 2014-15 in this order and has adopted tariff hike across all consumer categories as an approach to bridge the gap. The revenue gap and regulatory asset determined is provisional in nature and will be trued-up in the next tariff order.

1.43 The broad approach adopted in this order is given below:

- The Commission has taken into consideration the second provisional transfer scheme as 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.

- The Commission has referred to the audited accounts of TANGEDCO for FY 2011-12 for provisionally truing up the expenses of the utility. The Commission has undertaken a review of the various performance parameters as well as the controllable cost factors. Based on the assessment the Commission have arrived at the allowable ARR and revenue recovered by the utility.

- The same exercise has been undertaken for the provisional true-up for FY 2012-13 based on the audited accounts and the ARR and revenue recovered for the year have been arrived at.

- For the FY 2013-14, based on the information available in the TANGEDCO's submission to the Commission, annual statement of accounts and based on provisions of the Tariff regulation as well as trend in the approved costs in the previous two years, the ARR and revenue recovered have been arrived at.

- For the FY 2014-15, Commission has extended the rationale adopted for allowing/ disallowing various controllable components of the ARR, to project the ARR and determine tariff for FY 2014-15.

A2: STAKEHOLDERS' COMMENTS, TANGEDCO'S REPLY AND COMMISSION'S VIEW

2.1 The following section summarizes the key views/ objections/ suggestions and requests made by stakeholders on the basis of the public notice issued by the Commission on 23.09.2014. These include submissions received in writing as well as submissions received and observations made at the public hearings held by the Commission at three venues. The Commission to accommodate maximum responses to the public notice had also extended the timeline for submission of written comments by a week to 31.10.2014.

2.2 In this section the Commission has addressed the views expressed by the stakeholders under two main categories namely general comments which include multiple broad areas under which views were expressed by multiple stakeholders and hence have been addressed at a single place. The general comments also list specific requests made by stakeholders like Southern Railways, Airports Authority of India, TWAD Board etc., to which the Commission has responded. The Second category includes specific views/ objections/ suggestions made by some stakeholder groups which the Commission has appropriately addressed. All comments received from the stakeholders by the Commission have been provided to TANGEDCO, soliciting their responses. The responses so received have been included under the relevant heads. Therefore each view has been considered by the Commission and appropriately addressed with in this Order.

I. General Issues

Stakeholder Comments

2.3 Penalty should be levied for the EPC contractors for delay in completion of the ongoing generation projects of TANGEDCO.

2.4 Compensation should be obtained from M/s. BGR for delayed commissioning of project.

2.5 In Palladam area power looms are connected in wind mill feeders when wind mills are backed down there is no power supplied to power looms. Action to be taken to provide 24 hours power supply.

2.6 There are inadequate staffs in TANGEDCO offices. It results in delay in providing required services by TANGEDCO to the consumers.

2.7 It has been pointed out that earlier with a consumer base of about 1 crore, the staff strength of TNEB was 2 lakhs and now with a consumer base of about 2.5 crores the staff strength of TANGEDCO is only 70,000.

2.8 Consumers face lot of difficulties in getting new service connection, defective meter replacement, change of tariff, etc. A centre should be established to receive such applications.

2.9 Power of sanction of various offices should be displayed in EB offices and only quality materials should be procured and used.

2.10 Separate feeders for agricultural services to be provided.

2.11 New agricultural service connection shall be given in five years period.

2.12 Public hearing shall be conducted in all the district headquarters.

2.13 Public hearing this year has been scheduled at Chennai, Erode and Tirunelveli. The Commission has not notified the reasons for changing the venues to smaller towns such as Erode and Tirunelveli instead of Coimbatore, Trichy and Madurai where industrial concentration is high and the accessibility to attend such Public Hearings by the stakeholders and Public is better.

2.14 More publicity should be given regarding the date of public hearing.

2.15 Provide all the details for tariff increase in Tamil for understanding by the common public.

2.16 Open access for LT consumers shall be allowed so as to use renewable energy.

2.17 It was suggested that the Commission should consist of five members - three from judiciary and two technical members from TANGEDCO.

2.18 Cases of violation should not be treated as theft of energy and refund may be made of the illegal levy collected in this regard.

2.19 Bore wells are to be shown at the time of registration of agriculture application. Since there is a huge time gap between registration and effecting supply of service connection, the applicant may be permitted to dig the bore well 6 months before affecting the supply by TANGEDCO. Commission shall give instruction in this regard.

2.20 Simple procedure shall be evolved for shifting of agriculture service connection.

2.21 Unauthorized load to be regularized in agriculture service connection.

2.22 To encourage online payments, a discount of 1% may be allowed for such payments, which can be effected in the next bill.

2.23 When TNERC has fixed up a tariff for Metered Hut Service, TANGEDCO shall be advised to connect all new services with meter only. TANGEDCO has to plan to provide meters for all existing Hut Services.

2.24 Introduce Bachaat Yojana Lamp whereby CFL lamps are provided at concessional rates and thereby energy conservation to the extent of 600 MW can be made.

2.25 Commission should associate with consumer and industry associations to understand the prevailing consumer conditions and accordingly fix the tariffs for different consumer categories.

2.26 Commission and TANGEDCO may explain the reason as to why the licensee has failed to file the petition for ARR.

2.27 The proposed tariff shall come into effect from the date of notification and not from the start of financial year.

2.28 The Commission should analyse the reasons for the loss suffered by TANGEDCO and steps should be taken to privatize the utility or introduce competition.

2.29 The losses incurred by TANGEDCO should be borne by the Government.

2.30 The norms to erect distribution transformers are not being followed in respect of buildings with an area of 900 sq. m and above and TANGEDCO has not taken any action in this regard.

2.31 There is no proper co-ordination between the different wings of TANGEDCO dealing with Open Access that resulted in furnishing of wrong data and incorrect calculation of transmission charges required to be collected from Open Access Consumers.

2.32 One of the conditions for release of funds by the Government under the Financial Restructuring Plan is to privatize the urban distribution centres. It is requested to provide the status of privatisation of the 110 urban centres.

2.33 Commission to issue a directive to allow open access at LT level.

2.34 Need for regulatory oversight on TANGEDCO’s plants as well as on the PPAs executed.

2.35 The generation and distribution companies should be separate.

2.36 Tariff determination should not be proceeded if TANGEDCO does not adhere to the directives given in tariff order passed in June 2013 that highlight several technical, operational and accounting inefficiency issues.

2.37 Performance improvement schemes such as R-APDRP, energy conservation measures, etc. may be mentioned in the tariff order and accordingly tariff may be revised based on energy savings and efficiency improvements of the utility.

2.38 Consumers should be advised to reduce their consumption by energy efficient lighting systems, motors, pumps, refrigerators, air conditioners, better machine drive systems, utilizing waste heat and using more natural lights, ventilation, etc.

2.39 Incentives should be provided to consumers introducing energy conservation measures.

2.40 Industries may be advised to undertake energy audit so that they can reduce their power consumption. They may be advised to use only essential machines during peak hours.

2.41 Hotline phone number like 100, 101, 102, 108 have to be created to bring awareness with the public to avoid malpractices such as unauthorized usage of electricity.

2.42 Impact of TANGEDCO sales due to migration of consumers via open access to be studied.

TANGEDCO's Reply

2.43 It is informed that the delays that have occurred in the completion of the project due to factors that are beyond the control of the Licensee. TANGEDCO will recover applicable Liquidated Damages from the EPC contractor as per the contract provisions. To recover this Liquidated Damages amount performance guarantee, retention amount is available with the TANGEDCO.

Measures taken for conservation of energy

2.44 "National Energy Conservation day" is being celebrated by TANGEDCO on 14th December and Energy Conservation week from 14th to 20th December every year throughout the state of Tamil Nadu.

2.45 To create awareness among public, TANGEDCO is conducting various programmes during Energy Conservation week such as organising mass rallies and human chain, conducting elocutions/Poem writing / drawing and painting competitions among school and college students by giving prizes.

2.46 As per the instruction of Government of Tamil Nadu on implementing energy conservation measures in the offices of Public Works Department, Chennai Corporation and Public Sector undertakings, TANGEDCO has nominated Chief Engineer/Demand Side Management as Nodal Officer. Based on the outcome of discussions with the officers of above organisations, use of Incandescent bulbs (ICBS) was completely banned and replaced with energy efficient Compact Fluorescent Lamps (CFL).

2.47 As a major initiative to promote Demand Side Management measure, about 8.75 lakh numbers of Compact Fluorescent Lamps (CFL) in exchange of ICBs were distributed to the hut service consumers in the state at free of cost to the consumers as announced by the GOTN.

2.48 The use of Energy Efficient Pump Sets (EEPS) viz, Bureau of Energy Efficiency's "4" star and above rated has been made as mandatory for the new Agricultural Service Connections and also replaced 149 Nos. of EEPS to the willing farmers in exchange of old inefficient pump sets.

2.49 To promote usage of solar Energy, TANGEDCO has established a 60KW roof top solar power plant in its headquarters office.

2.50 As a measure of promoting DSM, TANGEDCO has taken steps to provide LED lights in the cabins of HOD in all TANGEDCO and TANTRANSCO offices at Headquarters. As a first step, it is proposed to install 76 LED lights in these offices.

Energy Audit

2.51 As per the provisions made available in the EC Act 2003, the State Designated Agency (SDA) i.e., the Tamil Nadu Electrical Inspectorate (TNEI) has been nominated by Bureau of Energy Efficiency (BEE) in consultation with GoTN to carry out the schemes on Energy Conservation and other allied activities in the state of Tamil Nadu.

2.52 TANGEDCO as such could not insist for energy audit among industries/ commercial establishments on its own.

2.53 GoTN had already been addressed in this regard. Subsequently the Secretary to Government, Energy Department in his letter dated 28.02.2013 has directed CMD/TANGEDCO and CEIG to initiate action for implementing energy conservation on all the consumers with electrical installations exceeding 650 V other than Designated Consumers (DCs).

2.54 As directed by GoTN, TANGEDCO extends all possible co-operations to CEIG in implementation of Energy Audit for the above said consumers.

Commission's View

2.55 TANGEDCO has to decide about the levy of penalty for delay in the EPC Contract as per the Terms and Conditions of the Contract. However, levying of penalty for delay in EPC Contract is outside the purview of the Tariff Order.

2.56 TANGEDCO may conduct a detailed study in respect of the available vacancies and necessary action may be taken to fill the vacant posts to provide quality supply in all aspects.

2.57 The Commission appointed the Director (Engineering) and Director (Tariff) under section 128 of the Electricity Act 2003, to study the matter relating to delay in effecting new service connection and delay in replacement of defective meters in (Suo Motu Order No.3 of 2012/D.992 dated 30-07-2012 (for delay in effecting new service connection) and Suo Motu Order No.2 of 2012/D.993 dated 30-07-2012 (delay in replacement of defective meter)and the investigation officers filed their reports to the Commission and Commission had heard the matters and orders are reserved.

2.58 Providing of separate feeders for agriculture service connections involves huge cost and the licensee has to make a cost benefit analysis before planning for the same.

2.59 Time span for giving new agriculture service connection is the Policy of the Government of Tamil Nadu.

2.60 The process of tariff determination is time bound in nature. Depending upon the time availability and other requirements every year, the places of Public Hearing will be decided by the Commission. Conducting of Public Hearing in all district headquarters is not feasible. The places of Public Hearing and time of the public hearing are published well in advance in two leading English and two Tamil daily Newspapers which have a wide coverage to reach the public.

2.61 The details of tariff have been published as Public Notice in English and Tamil Newspapers. Further, the English and Tamil version of the Public Notice and Summary for determination of tariff is also hosted in the Commission's website.

2.62 As per Regulation 9(6) of the existing Tamil Nadu Electricity Regulatory Commission Grid Connectivity and Open Access Regulations, 2014, the eligibility for Open Access and conditions to be satisfied are as follows:

"Open Access shall be allowed to the intra state transmission system subject to the satisfaction of the conditions contained in the Act and in these Regulations. Having regard to operational constraints and other relevant factors, open access shall be allowed to all EHT & HT consumers within their contracted demand subject to the terms and conditions of supply. In case of generation of electricity from new and renewable sources, open access shall be allowed as specifically permitted by the Commission in its relevant regulations/orders in force."

2.63 As per Section 82(4) of the Electricity Act, 2003,

"the State Commission shall consist of not more than three Members including the Chairperson."

2.64 In respect of the Bore wells to be shown at the time of registration for Agricultural Service connection, a report may be submitted by TANGEDCO and the same will be studied by the Commission and action will be taken accordingly.

2.65 For unauthorised load to be regularized in agriculture service connection, now around 21 lakh agriculture service connection with a connected load of 1crore HP is connected in the TANGEDCO's grid. TANGEDCO will be asked to undertake a detailed study first before implementation.

2.66 Master Metering Plan for metering agriculture and hut services have been sought by the Commission and time extension were given by the Commission and at present a report was called for from the TANGEDCO on current status.

2.67 The Suo-motu tariff determination was first discussed in the State Advisory Committee which consists of experts from all walks of life like representation from Industries, Small and Tiny Industries, Southern Railways, Government, Agriculture, Consumers, etc.

2.68 Letters were issued by the Commission to TANGEDCO, TANTRANSCO and SLDC directing them to file the Tariff Petition vide letter dated 12-12-2013, 02-01-2014, 29-1-2014 and 13-02-2014. As there was no response, Commission has decided to go on for suo-motu tariff determination.

2.69 As per the applicability clause of the Order, the date of implementation will be issued by the Commission and the same will be with prospective effect.

2.70 Commission in its letter dated 9-12-2010 has categorically stated that losses prior to unbundling will not be allowed as Regulatory Asset for carry forward and it is to be dealt with Government of Tamil Nadu. Government of Tamil Nadu in its letter dated 25-03-2012 has in principle agreed for the same. Regarding losses after unbundling also Commission took it with Government of Tamil Nadu. GoTN in its response vide letter dated Lr.(Ms)No. 59/C2/2012, dated 07-06-2013, the GoTN has stated that the GoTN has agreed to the financial restructuring of the State DISCOMS announced by the Government of India on 05-10-2012. The Government issued orders and it became operational from 30-09-2012. Accordingly, the Government will take over 50% of TANGEDCOs short term liabilities to the tune of Rs.6382.68 crores in a phased manner. In its annual budget for 2013-14, Rs.3000 crores has been provided for the takeover during the financial year 2013-14 and the remaining liabilities i.e. Rs.3382.68 crores would continue to be in the books of TANGEDCO till the time of eventual take over. However, the interest on these liabilities will be paid by the Government.

2.71 Further, GoTN has stated that the Commission to consider as the audited accounts are available only for the year 2010-11, it was therefore requested that the amortization may be carried out for the regulatory assets of the year for which audited accounts are available i.e. 2010-11. For the subsequent years, the regulatory assets would be reassessed for amortization as soon as the audited accounts are available.

2.72 The Commission have already issued a Statutory advice vide letter dated 27-10-2010 to the GoTN recommending for Generation as a separate entity with a separate Chairman would be in public interest and to split the Distribution company into four Government Companies.

2.73 In respect of Directives issued to TANGEDCO, the Commission is monitoring the Directives and as per the Orders of the Hon'ble APTEL tariff determination has to be carried out in the interest of all stakeholders including the licensee.

2.74 Regarding creation of Hot line numbers, the licensee may study and come with a report.

2.75 The impact of TANGEDCOs sales due to migration of consumers via open access has been discussed in Chapter A5.

1. Suo-Motu tariff proposal

Stakeholder Comments

2.76 Though the Commission has the power to determine tariff on Suo-Motu basis, such tariff revision exercise should be undertaken by directing the licensee to file the application in suitable manner with all figures warranting such a revision in a more transparent way.

2.77 The distribution licensee has completely failed in its duty of filing of a complete tariff petition within the time limit prescribed in Electricity Act 2003, and various sub-ordinate regulations and orders. The action of TANGEDCO leads to a strong suspicion that it is trying to cover its mis-management and unfair practices by forcing the Hon'ble TNERC to initiate Suo-motu proceedings.

2.78 For non-filing of ARR as per the Electricity Act action has to be taken against TANGEDCO/TANTRANSCO under section 142 of the Electricity Act, 2003.

2.79 The exercise to propose tariff hike without ensuring any transparency of the data used by the Commission is in violation of its obligation under Section 64(1) of the Electricity Act, 2003 leads to be an offense in filing the papers under Section 146 of the Electricity Act 2003 and suspension of license under Section 24 for its continuous non-performance and defaults.

2.80 There is no petition to rely on and the summary released by the Hon'ble Commission merely has numbers under different heads of cost which the Commission proposes to approve. It is submitted that this is a gross violation of Section 86(3) of the Act which mandates that the Commissions exercise transparency in the exercise of its vast powers.

2.81 Section 64 of the Electricity Act, 2003, clearly envisages that any revision and determination of tariff could be done only on the basis of an application received from TANGEDCO. It has also been pointed out by the Hon'ble Gujarat High Court that the Commission cannot issue suo-motu directions without following the procedures laid down in the Act.

2.82 Some stakeholders have welcomed the action taken by the Commission for initiating suo-motu tariff.

2.83 Appropriate Commission should initiate tariff determination and regulatory scrutiny on a suo-motu basis in case the licensee does not initiate filings in time. It is desirable that requisite tariff changes come into effect from the date of commencement of each financial year and any gap on account of delay in filing should be on account of licensee.

TANGEDCO's Reply

Non Compliance of Provision of Act

2.84 It is informed that the Hon'ble Commission has initiated suo-moto proceedings in accordance with the powers vested in it in the provisions of the Electricity Act and directions of APTEL vide order in O.P 1 of 2011 dated 11th November 2011. The following are the extract of the order.

2.85 "(iii) In the event of delay in filing of the ARR, truing-up and Annual Performance Review, one month beyond the scheduled date of submission of the petition, the State Commission must initiate suo-moto proceedings for tariff determination in accordance with Section 64 of the Act read with clause 8.1 (7) of the Tariff Policy."

2.86 The Hon'ble Commission has therefore acted in line with the directions of the APTEL and had initiated suo-moto proceedings. The Hon'ble Commission has called for various information /data from TANGEDCO and the Utility have submitted the same.

2.87 The Hon'ble Commission has also invited public comments from the consumers on revision of tariff.

2.88 The Hon'ble Commission after scrutinizing the data available with them directed TANGEDCO to submit some additional data required for further analysis. Accordingly TANGEDCO submitted the additional data.

2.89 The Hon'ble Commission also conducted public hearings at three different locations in Tamil Nadu to hear the views of the public.

Commission's View

2.90 The Commission has called for Tariff Petition in its letter dated 12-12-2013, 02-01-2014, 29-01-2014 and 13-02-2014 from TANGEDCO, TANTRANSCO and SLDC. As there was no response from the licensees, the Commission had initiated the suo-motu tariff determination for the FY 2014-15 in respect of TANGEDCO and TANTRANSCO and the same was done in a reasonable manner.

2.91 The Licensee is under MYT Regime and therefore the Commission had already approved the ARR for FY 2014-15 at Rs.35,918 Crores against TANGEDCO's claim of Rs.47,618 Crores in the last Tariff Order dated 20-06-2013. The present exercise is only fine tuning of the provisionally approved ARR. Further, it is again subject to "True up" in the next year based on the Audited Accounts and True up petition. The provision of "True up mechanism" is inbuilt in the Tariff determination process to take care of variations between estimates and actuals and therefore there cannot be any issue and hence the stakeholders can give their objections/suggestions based on the detailed Summary hosted in the website of the Commission which contained all the details viz. demand forecast, Energy Availability, Energy Balancing, Cost of Generation, Cost of Power Purchase, Revenue, O & M Expenses, Depreciation, Interest on Debt, Return on Equity, Interest on Working Capital, etc.

2. O&M Expenses

Stakeholder Comments

2.92 TNERC (Terms and Conditions of Tariff) Regulation 2005 provides for 5.72% escalation for all the components of O&M expenses. R&M and A&G expenses have been escalated by 5.72% over the previous year, while employee expenses have increased by 12.34%, thus increasing the overall O&M expenses by 11.69%. In addition, Mettur and North Chennai Power Stations, where additional units are commissioned, the additional units commissioned are treated as separate stage in Tables 11, 12 and 13, but in respect of O&M expenses they are treated as one project.

TANGEDCO's Reply:

2.93 It is informed that the escalations considered for deriving the O&M expenses are based on the escalation rates mentioned in the TNERC Tariff Regulations.

2.94 (ii) The Regulations were notified after considering all the comments from the stakeholders and then finalized. It is therefore submitted that these expenses may be allowed in line with the Regulations.

Commission's View

2.95 Commission is guided by the following regulations:

Regulation-25 of TNERC Tariff Regulations:

"25 Operation and Maintenance Expenses

i. *The operation and maintenance expenses shall be derived on the basis of actual operation and maintenance expenses for the past five years previous to current year based on the audited Annual Accounts excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission. The Commission may, if considered necessary engage Consultant/Auditors in the process of prudence check for correctness.*

ii. *The average of such normative operation and maintenance expenses after prudence check shall be escalated at the rate of 5.72% per annum to arrive at operation and maintenance expenses for current year i.e. base year and ensuing year.*

iii. *The base operation and maintenance expenses so determined shall be escalated further at the rate of 5.72% per annum to arrive at permissible operation and maintenance expenses for the relevant years of tariff period.*

iv. *………"*

2.96 DA rates for FY 2013-14 have been taken as per the Government Orders. This was also upheld by Hon'ble ATE in Appeal Petition No. 196 and 199 of 2013, dated 27-10-2014.

3. Capital Expenses

Stakeholder Comments

2.97 TNERC must comply with the directions of the Hon'ble APTEL in Appeal No. 196 of 2013 dated 27.10.2014 while determining the capital expenses and capitalization which would result in reduction of interest, depreciation and RoE.

2.98 Regulatory scrutiny of execution of sanctioned projects to evaluate the costs and benefits of planned projects on an annual basis to ensure mitigation on delays.

TANGEDCO's Reply

2.99 The breakup of details of actual Capital Expenditure and Capitalization has already been submitted to the Commission on quarterly basis in the format prescribed by the Commission. The actual capital expenditure has been submitted upto 1st quarter of 2014-15.

Commission's View:

2.100 Commission is provisionally taking the Capital expenditure approved by the Commission in the last Tariff Order and as per the directions of the Hon'ble APTEL in Appeal No.196 & 199 of 2013 dated 27-10-2014, provisionally trued-up the capitalization for FY2013-14 and the shortfall if any would be accounted with carrying cost while determining the tariff for the FY 2015-16.

4. Generation and Power Purchase

Stakeholder Comments

Own generation stations

2.101 The Regulatory Commission should institute a framework to rationalize capacity addition planned

2.102 Fixed cost of Rs. 461.99 crores towards Ennore Expansion has been provided as "Allowable Fixed Cost for Own Generation Stations". As the plant is yet to be commissioned, fixed cost for the same should not be allowed by the Commission.

Cost of generation

2.103 An amount of Rs. 12,687 crores has been considered for the current tariff order as against an amount of Rs. 8,851 crores that was approved in last tariff order. An excess amount of Rs. 3,836 crores has been provisionally determined as excess generation expenditure in the ensuing years, whereas the power purchase cost has remained the same. Explanation for the same is required that while the generation cost has been projected to increase by 50% over the approved one, there is no corresponding decrease in the power purchase cost.

2.104 Cost of thermal generation should be reduced by optimizing cost of fuel, increasing PLF, prevention of breakdowns, better supervision, better utilization of wastes like fly ash & flue gas, modernizing thermal power plants.

2.105 Cost of buying external power sources should be minimized by selecting cheap cost power suppliers etc.

2.106 Cost of Distribution should be reduced by curtailing transmission losses, improving transmission system and eliminating energy theft.

2.107 Possibilities of generating power from alternative power generation systems which are cheaper should be explored. Technologies such as off shore wind power, ocean energy power generation and solar power should be preferred to fossil fuel power.

2.108 The supply of coal to thermal plants in Tamil Nadu is not being received sufficiently and hence TANGEDCO is forced to import coal at high cost. The Government of India should compensate TANGEDCO for incurring higher cost for procurement of coal due to deficiency in supply of coal locally

2.109 Poor quality of coal is being supplied to thermal plants in Tamil Nadu.

2.110 Coal India has allocated coal to be supplied to three private power producers at concessional rates. Suggested that the Commission can intervene and take steps for supply of coal at concessional rates to TANGEDCO.

2.111 Due to non-implementation of transmission corridor high cost power purchase is resorted.

2.112 Income and expenditure statement of TANGEDCO available in the website shows an income of Rs.31,467 crores of which there is an expenditure of Rs.25,740 crores for purchase of power i.e. to say 82% of income is spent on power purchase. Commission may take steps to reduce the losses of TANGEDCO and improve its efficiency.

2.113 30% of TANGEDCO's revenue is being spent on 6% of power purchase from IPPs.

2.114 As per CAG report excess payment of Rs.311 crores has been made to Madurai Power Corporation. No action has been taken to recover the amount.

2.115 Even though commission has ordered not to purchase of power from GMR and the same has not been followed by TANGEDCO.

Power Purchase

2.116 TANGEDCO has deliberately shut down wind turbines and bought high cost power resulting in increase in power purchase cost. Thus the additional cost incurred due to inefficient operations of the utility should not be passed on to the consumers.

2.117 The cost of power purchase from interstate and intrastate sources is high when compared with renewable sources which were not availed in full. Power purchase from renewable sources has shown a significant decline from 9624 MUs in 2012-13 to 6575 MUs in 2014-15. Thus Commission should clarify the circumstances that necessitated the reduction in purchase of low cost renewable power.

2.118 The Hon'ble Commission has disallowed power purchase from GMR Vasavi, a liquid fuel based IPP since the PPA between GMR and TANGEDCO has expired in January 2014. But the actual power purchase details for FY 2012-13 and FY 2013-14 shows that TANGEDCO has continued buying power from GMR till date. It is requested to TANGEDCO to provide an explanation for purchase of power even after expiry of PPA.

2.119 Termination of agreements with Cogeneration plants that supply low cost power at Rs.3.41 per unit and purchase of power from exchanges at Rs.7.41 per unit has been done by TANGEDCO.

2.120 It has been pointed out that while the quantum of energy to the tune of 6,974 MU out of own generation was available with TANGEDCO, 4500 MU units were purchased from the inter-state at a very high rate. The available energy was in the order of 87,000 MU and the actual energy sold by TANGEDCO was of the order of 67,000 MU thereby leading to a loss of 22,000 MU, which works out to a T&D loss of 26%.

2.121 The power purchase from private generation was about 16000 MU and if steps are taken to reduce the line loss by 10% this power purchase can be avoided.

2.122 Action shall be taken to increase self-generation and low cost power from central generating stations to be purchased.

2.123 There should be regulatory over sight on TANGEDCOs plants as well as on the PPAs executed.

2.124 Excess payment to the tune of Rs.331.54 crores has been made to PPN by hiking the quantum of naphtha used.

2.125 The joint venture power project at Vallur can be taken over fully by TANGEDCO paying the balance equity of Rs.1666 crores so that the entire power generated can be utilized. Already cooling water, coal from NCTPS is being shared with the Vallur Thermal power plant.

2.126 Provide single part levy on the power drawn by the captive generator for start-up purpose within the sanction demand based on the energy charges plus energy equated demand charges has ordered in Order No. 2 dated 15-5-2006. Indicate that 10% is only the limit to which generator can apply and the excess demand charge can be levied only if the recorded demand exceeds the demand sanctioned on application and after execution of agreement. As the generator is also supplying demand in proportion to the energy supplied, it is requested that deemed demand benefit should be given to the generator.

2.127 The start-up power now being provided to the generator after declaration of COD may be continued to be given without any restriction i.e. limit of 42 days and the energy so availed by generator from TANGEDCO may be ordered to be charged for the net consumption during the outages only deducting the energy consumed from the energy transmitted to the Grid during that month, when there is outage of generators at the energy charges plus the energy equated demand charges applicable to that category.

TANGEDCO's Reply

Fixed Cost Calculations

2.128 The Commission is allowing the fixed cost based on norms specified in the TNERC Tariff Regulations; Further the fixed cost have been subject to availability of plant as specified in the Regulations.

2.129 In case the licensee is able to achieve the target availability; they are eligible for full cost recovery. It is therefore submitted that fixed cost have been derived based on these components.

Energy savings in Thermal power stations

2.130 The Bureau of Energy Efficiency under the Ministry of Power (MoP) by its notification dated 30.03.2012 has fixed the following targets for Specific Energy Consumption (SEC) and heat rate targets under implementation of Perform, Achieve &Trade(PAT)Scheme for TANGEDCO 's Thermal Power stations.

S.No	Name of the Thermal power station	Present heat rate(kcal/kwhr)	Heat rate to be achieved (kcal/kwhr)	Heat rate reduction to be achieved (kcal/kwhr)
1.	Mettur Thermal Power Station (MTPS)	2739	2715	24
2.	North Chennai Thermal Power Station (NCTPS)	2696	2684	12
3.	Tuticorin Thermal Power Station(TTPS)	2777	2738	39

2.131 Based on the above direction, an action plan of energy saving proposals for Mettur Thermal Power Station (MTPS), North Chennai Thermal Power Station (NCTPS) and Tuticorin Thermal Power Station (TTPS) has been evolved and is expected to be completed by March 2015.

2.132 Reasons for purchase of high cost power

(i) In Tamil Nadu, the demand for electricity is on the increasing trend during the last few years. In the year 2012-13, the electricity consumption was 67208 million units. This is increased to 76445 million units in the year 2013-14 which was about 14% increase over the previous year. But, the estimated consumption for the FY 2014-15 is 91642 million units. The estimation is about 20% higher than that of the previous year of 2013-14.

(ii) The total requirement of 91642 million units is expected to be met through the following sources. Around 34253 million units (37.37% of total estimated requirement) from TANGEDCO's own generating stations, 30534 million units (33.32% of total estimated requirement) from Central Generating Stations and 6082 million units (6.64% of total estimated requirement) from Non-Conventional Energy Sources. The balance requirement of power up to 16.28% of total demand is purchased through open tender system which covers 5007 million units through Long Term Agreements, 3723million units from Medium Term Agreements and 6185 million units from Short Term Agreements. Apart from the above,2829 million units (3.08% of estimated consumption) is purchased from low cost Independent Power Producers (IPPs) and 2950million units (3.21% of estimated consumption) from high cost IPPs.

(iii) TANGEDCO is giving top priority for purchase of required power from these low cost IPPs in the first instance and then power from high cost IPPs is purchased through step by step upward increase in the pricing trend till our demand is met. Such Merit Order Dispatch has been stipulated by TNERC and strictly followed by TANGEDCO.

(iv) From the above, it could be seen that only after exhausting power from TANGEDCO's own generating stations and share from Central Generating Stations totalling together up to 70% of the total estimated demand, the balance 30% of power is purchased through other sources till the State's demand is fulfilled. However, top priority is being given for purchase of low cost power from other sources.

(v) Through this low cost power purchase, 6082 million units of power are purchased from Non-Conventional Energy Sources which contributes only 6.64% of total estimated demand. In particular, power from wind mill sources is 4650 million units and the average cost of purchase is Rs.3.15 per unit. Normally, wind mills are capable of producing maximum power only for about 4 months period particularly from June to September. Apart from the above, 1432 million units are purchased from other Non-Conventional sources which contribute only 1.56% of total estimated demand of 91642 million units. Such power is purchased at the rate already fixed by the TNERC and thereby complying the Renewable Purchase Obligations (RPO) Regulations as well.

(vi) It is further submitted that 2829 million units of power is purchased from other Private Power Producers, viz. ST-CMS, Pioneer (Penna) and Lanco ABAN at the next lower rate of Rs.4.04 per unit.

(vii) It is further submitted that 3000 MW of power from the already entered Long Term Agreements for about 15 years will be purchased at the levelised tariff rate of Rs.4.91 per unit. At present, TANGEDCO is getting 224 MW of power from the above agreement and by the end of this Financial Year, TANGEDCO is expected to get 1423 MW of power. Through Long Term Agreements, totally 5007 million units are expected to be purchased.

(viii) Further to the above, 3723 million units is being purchased at Rs.4.96 per unit on Medium Term Agreements.

(ix) Apart from the above, power is purchased from Private Power Producers from both Tamil Nadu and other States through Open Tender basis in accordance with the Tamil Nadu Transparency in Tenders Act, 1998 and the Tamil Nadu Transparency in Tenders Rules made thereunder. By this process, 773MW of power at the rate of Rs. 4.93 per unit is purchase from other state IPPs.

(x) It is further submitted that 1393 MW of power at the rate of Rs.5.50 per unit is purchased from local Private Power Producers through open tender system. Such producers are generating power by using the imported coal. Hence, their cost of production is slightly higher than the power producers from other States. As far as other State Power Producers are concerned, they generate power by using indigenous coal available in their States. Moreover, their generating stations are located near the coal mines and the cost of transportation of coal from the mines to their respective stations is considerably minimum.

Hence, they are capable of supplying power at a lower cost when compared to the private power producers in Tamil Nadu. Further, there are lot of constraints in bringing power from other States to Tamil Nadu including due to lack of required Interstate Transmission Corridors. In view of such difficulties, TANGEDCO is not able to bring the full quantity of 773 MW of power for which agreements have already been entered. As present, power from other States availed through Short Term Agreements is 150 MW only.

(xi) After exhausting the low cost power purchase to the maximum extent possible, TANGEDCO in order to meet the balance shortage of power, is purchasing 2950 million units (3% of total estimated demand) of power from local private power producers with whom Long Term Agreement have already been entered. Even though, power from such producers is not purchased on permanent basis but only at the time of school/college student's night study, examination times, festival seasons and at all times of crisis. However, such procurement is subject to exhausting power from all other sources. Purchase of power from these sources varies day to day and time to time. Whenever, Power is available at low cost, purchase of power from these producers is stopped immediately.

(xii) It could be relevant to point out that power from such sources is purchased only upto 40% of their production capacity. Their average production cost is around Rs.14.00per unit, out of which Rs.12.50 is being spent by them for variable cost (i.e. fuel cost). Such variable cost, directly goes to the Public Sector Undertakings, viz IOC and BPCL. Only the balance cost of Rs.1.50 per unit goes to the producers.

(xiii) Based on the Central Government's Policy evolved during the year 1992 with a view to promote Private Sector participation in generation of power, agreements were entered into between 1996 and 1999 for purchase of power from 7 Independent Power Producers, out of which, three IPPs are using LSHS as fuel and one IPP is using Naphtha as fuel. Of the remaining three IPPs, only two IPPs are using Natural gas as fuel and one IPP is using Lignite. At the time of initial operation of their plant, the cost of LSHS per Metric Tonne was Rs.8400 and the cost of Naphtha per metric Tonne was 14,780. But, the prices of above fuels have considerably increased over the years and at present the rates are Rs.54,000/- and Rs.73,100/- per metric tonne respective which is the main reason for their high cost of power production. Hence, their cost of supply is at the rate Rs.14.00 per unit.

(xiv) As far as short term agreements are concerned, power is purchased from February 2008 from other State power producers and from March 2009 from power producers within the State.

(xv) During 2007 to 2008, power from other State was purchased at the rate of Rs.7.25 per unit. However, at present, power is purchased at a lower cost of Rs.4.93 per unit. In the same manner, power from local private power producers were purchased from 2009 at the rate of Rs.6.70 per unit. But the present rate of power purchase cost isRs.5.50per unit and power is purchased during the last three years at the same rate.

(xvi) It also submitted that power is also purchased through the power traders, viz, Indian Energy Exchange (IEX) and Power Exchange of India (PEX). However, TANGEDCO is not able to purchase sufficient quantity of power from them in view of non-availability of Inter-State Transmission Corridors and also instability in their prices. In view of lack of Inter-State Transmission Corridors, TANGEDCO is not able to bring sufficient quantity of power from Andhra and Karnataka to Tamil Nadu and Kerala through the Southern Grid.

(xvii) It is also submitted that if power is purchased at the rate of Rs. 3.50 per unit as fixed by the TNERC, then TANGEDCO will be in a position to distribute only around 9800 MW of power (75% of estimated power) and in turn, TANGEDCO would have to resort to load shedding. In the event of not meeting the balance demand, the industries, agriculture sector, students and domestic users will be severely affected. Taking into account the above reasons and in order to avoid enforcing such hardships to all categories of consumers, power is being purchased from all the sources to meet the demand.

Commission's View

2.133 In the last Tariff Order, the Commission has approved the following in respect of the FY 2014-15 after MoD. The total energy considered was 23,426 MU with a related total cost of Rs.8,851 Crores. In the present order of the Commission for determining the cost of own generation after MoD, the Commission now considered 32,671 MU and the associated total cost is Rs. 12,299 Crores. The additional generation (million units) now considered is 9,245 MUs and the total cost for the said additional generation is Rs.3,448 Crores. Hence, the increase in cost should be compared along with the increase in generation.

2.134 Regulation 75(1) of the TNERC (Terms and Conditions for Determination of Tariff) Regulations 2005, specify the following:

"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".

2.135 Similar provision exists in the Tamil Nadu Electricity Grid Code as well as in Electricity Act 2003.

2.136 In cases where the energy to be despatched outside Merit Order, TANGEDCO shall obtain approval of the Commission in advance by furnishing reason for such an action. In case of emergencies TANGEDCO is permitted to resort to such a practice but will approach the Commission within a week of such action along with the reasons for such action.

2.137 MoD for specific stakeholders has been in vogue from 1st April 2012.

2.138 TANGEDCO's own generating plants as well as power purchase by TANGEDCO both are subject to MoD principle.

2.139 There have been sweeping statements made by several stakeholders that the efficiency of operations of TANGEDCO is poor and that T&D losses are high, which is not monitored by the Commission and TANGEDCO procures high cost power at will, ignoring much cheaper power from wind generation.

2.140 TANGEDCO has been contending that their operational efficiency is high, with the PLFs in their power plants being higher than the national average and extremely good billing and collection efficiency. They also project a T&D loss of 21% which is a reasonable figure, despite which we are allowing cost on power purchase only upto the extent of 16% loss. With regard to power purchase TANGEDCO has responded that they have been procuring high cost power at the time of need and the percentage of such power being less than 3% of the total requirement. They have also claimed that backing down of wind energy does not have any bearing on purchase of high cost power. It is only the grid security and grid code which necessitate backing down of wind energy.

2.141 Commission understands that grid operation is dynamic in nature. Decision with respect to backing down of generation, load shedding and power purchase from different sources is complex and vastly depends on time of such occurrences. Finally Commission has allowed power purchase only on the basis of MoD and not allowed any costly power purchase in the ARR.

Interest Expenses

Stakeholder comment

2.142 Interest during construction period is getting accrued due to the delay in commissioning of plants. Such delay should be avoided.

2.143 Details of loan taken should be publicized.

2.144 The Government may be informed to write off the interest to the tune of Rs.10,000 crores to be paid by the TANGEDCO towards various loans.

TANGEDCO's Reply

2.145 Project specific loans are deducted from the total loans and interest on such loans has been allotted to that particular project.

2.146 Interest on loans for RAPDRP, PMGY, RGGVY and NABARD are directly allotted to distribution function.

2.147 All other loans and interest are considered as generic and are allotted to each function based on the gross block of each plant and distribution function.

2.148 The Commission allowed the interest expenses only to the extent of capital expenditure incurred from the loan and not allowed entire interest on loan.

2.149 The Commission has not been allowing Return on Equity and Interest on working capital in light of the allowance of interest on loans.

Commission's View

2.150 In the last tariff order Commission has treated the revenue account and capital account separately as TANGEDCO started working independently. The Commission, in its last tariff order has considered the following assumption for the determination of interest expenses on long term loans:

i. *Revised opening loans as on 1st November 2010 has been arrived considering the net addition during first seven months of FY 11 based on information provided by TANGEDCO.*

ii. *The repayment of existing loans as per audited accounts also includes the repayment of loans borrowed for revenue account. Commission is treating the revenue account separately and also allowing the interest expenses on account of regulatory asset approved in its last tariff order. Hence, allowing the borrowings and interest expenses corresponding to the repayment of loans borrowed for funding of revenue account will result in double accounting of the interest expenses allowed for funding the revenue gap. In view of this, Commission is accepting the opening loans as on 1st November 2010 and is assuming a repayment period of 10 years.*

iii. *The repayment period of new loans borrowed during the control period is assumed to be 10 years*

iv. *The borrowings required for loan repayment will be estimated after taking into account the depreciation allowed during the year.*

v. *Loans required for the capital works will be arrived at after considering the approved capital expenditure and available grants and consumer contribution during the control period. Equity required for funding the capital expenditure is assumed to be nil as Commission is not allowing any return on equity.*

vi. *The consumer contribution and grants for FY 11 and FY 12 has been considered as per audited accounts while for FY 13 they are approved based on historical data.*

vii. *Interest expenses on account of capital works for wind assets has not been considered as borrowings on account of wind assets cannot be loaded on tariff for other generating stations and distribution business. Commission has already approved generation cost for wind assets based on transfer price mechanism.*

viii. *Interest on cogeneration sugar mills is also not considered as the tariff for these generating stations is taken as per Commission's tariff order for procurement of power from cogeneration.*

ix. *Average interest rate for FY 11 and FY 12 is estimated based on interest expenses as per audited accounts and revised loan profile considering the borrowings during the first seven months of FY 11. Interest rate for FY 13 is assumed as 11.98% i.e. the average interest rate of FY 11 and FY 12.*

x. *Interest during construction (IDC) is approved based on capital works in progress."*

2.151 As any further information on the nature of existing and any new loans is unavailable, Commission is retaining the same loan structure and interest rates as approved in its last tariff order. However, for new plants, Commission has considered addition to loans based on their respective CoD and capital expenditure required for such new plants.

5. AT&C Losses

Stakeholder Comments

2.152 TANGEDCO should complete the exercise accurate measurement of the T&D losses and unmetered agriculture consumption to determine accurate losses.

2.153 Electricity theft should be curtailed.

2.154 T&D loss can be reduced from 16% to 4%.

2.155 Line loss is stated to be 17% for the past 10 years. If this loss has been reduced, Rs.3000 crores per year would have been saved.

2.156 T&D loss should be 10%

2.157 Power theft during political meetings and temple festivals should be curtailed.

2.158 Misuse of agriculture / hut services to be curtailed by vigilant TANGEDCO officials. There is number of cases where the canal water is being illegally tapped by unauthorized use of pump sets. This has to be curtailed.

2.159 There was some representation that T&D loss is in the order of 26%. If losses are reduced by 10% high cost power purchase can be avoided.

2.160 When agriculture services are unmetered how the losses can be calculated and how the consumption in agriculture services should be accounted properly and correct subsidy obtained.

2.161 If the line loss at 20% is reduced, there is no need for any tariff increase

2.162 Energy auditors should be appointed to monitor AT&C losses.

2.163 AMR metering shall be introduced especially for HT services.

2.164 Measures should be taken to minimize loss due to transmission and theft of energy , which account to approximately 30%

TANGEDCO's Reply

2.165 The Aggregate Technical and Commercial loss (AT&C loss) in the year 2010-11 was 24.95%. The same was reduced to 20.18% in the year 2012-13. Though the AT&C losses could not be reduced and avoided immediately. TANGEDCO is taking all efforts to reduce the losses in a phased manner at 0.4% annually. Technically there is no possibility to reduce line loss at 4% immediately.

2.166 During the last three years, 134 new sub stations, 9553 circuit kilometre HT lines and 27,430 new transformers were erected. During the current and next financial year, it has been proposed to replace the old lines into new one at a total cost of Rs.1054 crores.

R-APDRP – Scheme:

The objective of the R-APDRP Scheme is to provide quality and reliable power supply to the consumer and bring down the Aggregate Technical & Commercial losses (AT&C) below 15%. Funds allotted by Ministry of Power /GOI for implementation of R-APDRP Scheme and measures taken by TANGEDCO are detailed as below.

Part-A

An amount of Rs. 417 crores towards Part-A (Information Technology) implementation in 110 Towns and Rs. 182.17 crores for SCADA-DMS implementation in 7 towns have been sanctioned and the work is expected to be completed by June'2015.

ii) Meter with Automatic Meter Reading (AMR) provision for 46850 Distribution Transformers and 2900 HT Service have been completed.

iii) GIS survey is under progress for Consumer Indexing of 77.07 lakh consumers and Asset Mapping and 62 lakhs consumer details have already been completed.

iv) SCADA/DMS, Control Centre equipment's have been commissioned in all the 7 towns, viz Chennai, Madurai, Salem, Tiruppur, Tirunelveli, Trichy and Coimbatore.

Part –B

Rs.3445.10 crores has been sanctioned under Part- B scheme and measures taken are detailed as below:

Part-B Schemes cover New SS, Transformers/Transformer Centers, Re-Conducting of lines at 11/22 kV level and below, Load Bifurcation, Feeder segregation, HVDS, RMUs, APFC Panels, Sectionalisers, installation of capacitor banks and consumer meter replacement etc., in order to reduce the AT&C losses to the target level of 15% in the eligible project towns (with AT&C losses of above 15%). DPRs for 100 towns for R-APDRP Part-B schemes are sanctioned for a total value of Rs. 3445.10 Crores.

The works and progress are detailed below:

- New Sub-stations: Out of total 64 Nos. (values Rs. 225.16 Crs.), 32nos. have been commissioned and works are in progress in rest of the sites.

- Erection of additional /enhancement of Power Transformers: Out of 82 Nos., (values Rs. 86.39 Crs.) 67 Nos. have been commissioned so far and works are in progress in rest 15 substations.

- Provision of Capacitor Banks: Out of 16 Nos. (Values Rs. 3.22 Crs.), 15 nos have been commissioned so far and work in progress in 1 SS.

- Out of 99 towns in which distribution strengthening works are sanctioned, total turnkey basis Contracts have been awarded (values Rs. 1802.81 Crs.) and works are in progress in 87 towns. Of the remaining 12 towns recently sanctioned, contract awarded for 8 towns. Tendering is in progress for 4 towns.

- Replacement of Electromechanical Meters with tamper proof Electronic Meters :

- 7.51 Lakhs meters have been replaced so far out of the sanctioned quantity of 43.15 Lakhs (values Rs. 937.79 Crs.).

- APFC Panels: Automatic Power factor Control panel is provided in Distribution Transformers in low voltage package area to improve tail end voltage.

- 22094 Nos. of APFC panels commissioned out of 28022 Nos. (values Rs. 150.44 Crs.) ordered. Erection of remaining panels is under progress.

- Automated Ring Main Units: Ring Main Units are provided for effective control of Distribution system of 7 major cities and thereby system outage time minimized.

- 1797 Nos. commissioned out of 3283 Nos. (values Rs. 264.35 Crs.) ordered. Erection of remaining quantity in progress.

- Automated Sectionalisers:

- 300 nos. commissioned out of 1348 Nos. (values Rs. 92.27 Crs.) ordered.

So far overall works under Part-'B' to the tune of Rs. 849.47 Crs. have been completed.

Theft of Energy

2.167 Action is being taken as per the provisions of Section 126 (Investigation and Enforcement) and Section 135 (Offences and Penalties) of Electricity Act 2003 if a person indulges in unauthorized use of electricity and theft of energy.

2.168 Measures taken to curb theft of energy:

a. Seventeen Enforcement squads, headed by Executive Engineer in 4 divisions in Chennai, Coimbatore, Madurai and Trichy are functioning throughout the State.

b. In addition to these Enforcement Squads, one more squad known as flying squad/ Chennai is also functioning in the Enforcement Wing.

c. Functioning of all these 18 squads is supervised by the Superintending Engineer/ Enforcement /Chennai with overall control of DGP/Vigilance/ TANGEDCO Chennai.

d. Any person who indulges in dishonest activities such as unauthorized use of Electricity and Theft of Energy, action is being taken on such person under section-126 (Investigation and Enforcement) and section-136 (Theft of Electricity) of Electricity Act-2003.

e. In order to implement the above provisions contained in the Electricity Act-2003, forty (40) teams comprising Ex-Serviceman (5 members per team) were also functioning along with the existing 18 Enforcement squads in all the 42 distribution circles.

f. Immediate action is being taken on information received over phone call (or) anonymous petitions about theft of energy.

g. Further surprise check, night raids and mass raids are also conducted in the consumer premises. To create awareness among public, the slogan printed under the caption "Theft of Electricity is a crime" is displayed in the notice boards in the offices of Assistant Engineers, Assistant Executive Engineers and Executive Engineers.

2.169 Table below shows the Enforcement squad and Ex-Serviceman teams Joint performance details.

Details	2012-13	2013-14
No. of services inspected	480953	468234
No. of Energy theft detected	26351	17993
No. of crime cases	8	3
No. of cases compounded	8168	3183
Provisional amount assessed (Rs. in crores)	81.35	38.86
Compounding amount assessed (Rs. in crores)	12.98	7.11

2.170 Apart from the above an Accounts Officer (Revenue Intelligence) posted in 42 Distribution Circles regularly visits the consumers premises to check the correctness of meters, assessed amount and prompt disconnection in case of non-payment of CC Charges

2.171 TANGEDCO has proposed to provide meters with AMR facility in all the Distribution Transformers at an approximate cost of Rs.355 Crores. Necessary detailed project report has been prepared and the process of tie up with financial institutions is in progress.

2.172 Out of 8781 Feeder (covering from 230 KV to 11 KV) 8765 Feeders were metered.

During the FY 2014-15, TANGEDCO has set a target to reduce the T&D Loss to 19.98% from the present 20.38%. Table below shows the reduction of T&D losses for the last three years.

FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15
21.62%	20.95%	20.38%	19.98%

Commission's View

2.173 The Commission initiated suo-motu proceedings (SMP 3 of 2013 dated 04.06.2013) against TANGEDCO for non-compliance in the matter of T & D Loss determination as directed by it and the Hon'ble APTEL. The Commission in the absence of scientific study for loss determination has fixed the T & D loss level at 16.4% for FY2013-14 and has clarified that it shall assume loss percentage at 16% and 15.6% for FY2014-15 and FY2015-16 respectively. As and when the TANGEDCO comes out with the scientific study on T&D loss as specified in the Regulations, the Commission may review and re-fix the T&D loss norms subject to prudent check. If no study report is submitted for consideration of the Commission, T&D loss for FY 2014-15 shall be reckoned as 16% and for FY 2015-16 shall be reckoned as 15.6%.

6. Cross Subsidy Surcharge, Cost to Serve and Average Cost of Supply

Stakeholder Comments

2.174 Cross subsidy surcharges need to be dispensed with totally for all open access consumers as other charges such as wheeling charges, transmission charges, T&D loss, compensation charges, scheduling and system operation charges, etc. are being paid by open access consumers to meet the fixed costs of the Distribution licensee arising out of its obligation to supply power. Payment of such charges towards open access by itself meant to be CSS. The levying of additional CSS charges would in turn be a double taxation for the consumers. Therefore, the Commission should either charge open access charges or CSS as both serve the same purpose.

2.175 The Hon'ble Commission must comply with the orders of APTEL in appeal No. 196 of 2013 dated 27.10.2014 while determining the cross subsidy surcharge. The average realisation per unit for HT category should be considered excluding Demand Charges as the same is being paid by HT consumers even if power is wheeled under Open Access.

2.176 The Hon'ble Commission to notify the road map for reduction in cross subsidy as per the provisions of the Electricity Act 2003.

2.177 As per observation of Hon'ble APTEL in Appeal No. 257 of 2012, Appeal No. 192 and 206 of 2010, the State Commission must arrive at the voltage wise cost of supply during tariff revision process. In spite of various directions from Hon'ble APTEL neither TANGEDCO nor the Hon'ble TNERC has made any attempt to arrive at voltage wise cost of supply before proceeding for proposed tariff hike.

2.178 The cross subsidy cannot be +/- 20% of the cost of supply. The present tariff hike for telecom tower is violating the ruling of APTEL and Supreme Court in this regard.

2.179 The Policy document released by the Government of Tamil Nadu states that in 2012 the Average Cost of supply was Rs.6.15 and the Cost of Realization was Rs.3.74 leaving a gap of Rs.2.41 and after 1/4/2012 the Average Cost of supply stood at Rs.5.98 and the Average Cost of Realization was Rs.5.29 leaving a gap of Re.0.69.

2.180 Notwithstanding several opportunities being given to TANGEDCO, they are yet to notify a road map for reduction of cross subsidy to be within the band of +/- 20% of the average cost of supply. The Cross subsidy element in even the energy charge component along with the proposed tariff is 82%. This is in violation of one of the very basic tenets of tariff fixation and will make serious in-roads into the health of TANGEDCO.

2.181 To waive cross subsidy surcharge as long as power cut is imposed.

2.182 Cross subsidy surcharge needs to be eliminated as already OA charges are collected.

2.183 Demand charges and energy charges should be fixed based on drawal Voltage.

2.184 To determine tariff based on cost of production and supply.

2.185 Increase in tariff should be in the range of +/-20% and should reflect cost to serve.

2.186 Voltage wise cost of supply should be implemented

Commission's View

2.187 All these aspects are inter-related and have been dealt with in detail in tariff order No 1 of 2012. However Commission is reiterating the approach towards the three issues. The provisions regarding these three issues are extensively covered in the Order of Hon'ble Appellate Tribunal for Electricity dated 11th June 2012 in Appeal Nos. 57 of 2008, 155 of 2007, 125 of 2008, 45 of 2010, 40 of 2010, 196 of 2009, 199 of 2009, 163 of 2010, 6 of 2011 and 144 of 2010.

2.188 Cost to Serve, Average Cost of Supply and Cross Subsidy are also discussed extensively in the above referred Order of the Hon'ble Appellate Tribunal for Electricity in paragraphs, 36, 37, 38 and 39 and also in Appeal no.196 and 199 of 2013 Order dated 27-10-2014.

2.189 The Commission would like to mention that the average cost of supply for FY 2014-15 is at Rs. 5.77/unit when compared to Rs. 5.24/unit last year for FY 2013-14, is a 10% increase. If the last year tariff was one which allowed full recovery of ARR, it would further have to be increased by 10% at a minimum, for all categories to meet the increase in average cost. Since this is not the case and a substantial gap was left uncovered in the last tariff order itself, a higher increase was necessitated to enable the utility to recover its costs. This being said, the Commission taking cognisance of the fact that a disproportionate increase to only the subsidising categories would cause them a tariff shock, has increased the retail tariffs for all consumer categories equitably, thus attempting to retain the cross subsidy atleast at the existing levels and not higher as compared to last year.

2.190 The Commission is also underway in reviewing the study report submitted by TANGEDCO for voltage wise cost to serve. It intends to use the findings of this study as the basis for chalking out the said roadmap which will have intermediate milestones with an intention of gradual reduction in cross subsidy levels. Hence the Commission shall along with the determination of cross subsidy for 2012-13 to 2014-15 for all consumer categories also design a forward looking road map along with its next tariff order.

2.191 There is a need to understand the tenets of ARR and Tariff Determination. Section 62 of the Act vests power with the Commission to determine tariffs for generation, transmission and distribution of power and Section 61 of the Act outlines specific guidelines for determination of tariff. Based on the same the Commission has issued the Regulation on Terms and Conditions of Tariff. Principles outlined in this regulation take into consideration a number of factors for determining the costs and returns for each of the businesses.

2.192 For Tariff design of FY 2014-15, the Commission has allowed only reasonable cost elements of ARR. Based on this allowance; the Commission has determined Net Revenue Requirement recoverable from tariff. The Commission in this Order has adopted a Tariff Philosophy to allow incremental revenue from approved tariff matching with the net additional revenue requirement, thereby designing the tariff for FY 2014-15 on revenue neutral basis.

2.193 With regard to Cross subsidy surcharge calculation, the Commission has taken cognisance of the Appellate Tribunal's direction on this matter in its judgement on Appeal 196 & 199 dated 27th Oct, 2014. The correction of the Cross Subsidy Surcharge for FY 2013-14 as per the above judgement of the Appellate Tribunal, has been addressed in this Order. In the current order the Commission has followed the methodology as stipulated.

7. Subsidy

Stakeholder Comments

2.194 Tariff hike should not exceed 5% for the domestic consumers and same should be compensated by way of Government subsidy.

2.195 Agricultural subsidy shall be calculated based on the actual connected load.

2.196 Subsidy has to be paid to TANGEDCO and it should not be paid to the consumers directly.

2.197 Subsidy should be fully recovered from the Government.

2.198 Had the Government provided sufficient subsidy for huts & agriculture, there is no need for tariff hike.

2.199 VAT on diesel usage for generator may be given as subsidy.

2.200 Huts are using 1000 units whereas 40 units are reimbursed by the Government.

2.201 Subsidy for educational institutions to be given.

2.202 Provide subsidy to industrial and commercial establishments' upto 500 units as in the case of domestic consumers.

2.203 Provide subsidy to industrial consumers who are affected due to load shedding so as to compensate the loss.

2.204 Free supply may be removed completely as in Gujarat; action may be taken to give uninterrupted power supply.

2.205 Subsidy to be provided for 1000 units bimonthly consumption as in the case of Rajasthan.

Commission's View:

2.206 Subsidy determined by the Commission has been fully given by GoTN. Granting of any kind of subsidy is within the domain of the GoTN.

8. Incentives, Surcharges and Rebates

Stakeholder Comments

2.207 High power factor incentive needs to be reintroduced for industrial consumer category that was discontinued abruptly in 2012, while disincentives and penalties have been retained for low power factors.

2.208 Minimum power factor stipulated for LT category should be at least equal to the HT and EHT category if it cannot be fixed more than that for HT and EHT consumers.

2.209 Night time rebate of 5% now maintained is abnormally low.

2.210 Decrease surcharges during peak hours and increase rebates that are offered to the industrial consumers for consumption during non-peak hours.

Commission's View

2.211 As per the amended TNERC's Terms and Condition for determination of tariff regulation, 2005 the Power factor incentive have been dispensed with.

2.212 The TANGEDCO has submitted a study report on ToD Charges. While taking a decision on the study report, the Peak hour charges and Off-peak hour rebate will be taken care of.

9. Peak hour tariff

Stakeholder Comments

2.213 No effort has been undertaken in this year tariff setting exercise to establish if there was any justification for imposition of peak hour tariff.

2.214 The peak hour surcharge so far maintained at 20% altogether needs to be revisited this time, as it is being enforced at various other States. The 20% of peak hour charges was not calculated considering any material facts supported for such collections and there is no demonstrated rationality available behind it. Hence it needs to be reduced considerably by comparing the status available in other States and actual data.

2.215 The present charging of 20% extra during peak hours and allowing 5% discount during night hours is unjustifiable. Through and equal importance given for the off peak hours and peak hours the HT consumers are incentivized and naturally the load curve will shift. The Hon'ble Commission could have noticed the IEX / PXIL trading wherein the power purchase cost is lower during the night hours. Therefore, the HT consumers have to be incentivized by providing 20% rebate during the night hour usage to shift their load which will ultimately result in the reduction of load in the peak hours.

2.216 The 5% reduction for HT industries for Off peak hour consumption may be increased to 20% equivalent to the peak hour surcharge with a view to encourage consumption during off peak hour which would help to have a better balance in consumption and also increase revenue for TANGEDCO.

2.217 Determination of tariff should not proceed till TNERC relooks at the consumption during peak hours and accordingly switch to "time of day" tariff to rationalize the revenue stream.

2.218 Rationalise TOD tariff, revise timings of peak hours and provide additional rebate for non-peak hours.

2.219 TANGEDCO shall aggressively implement TOD metering and demand side management.

2.220 Time of day meters should be introduced so that higher rates are fixed during peak hours and lower rates during off-peak hours.

Commission's View

2.221 The TANGEDCO has submitted a study report on ToD Charges. While taking a decision on the study report, the Peak hour charges and Off-peak hour rebate will be taken care of.

10. Billing and collection

Stakeholder Comments

2.175 TNERC should look at outsourcing of billing and collection activities to save costs for the utility. The outsourcing of these functions must be made through a competitive bidding process.

2.176 Consumers may also be given the freedom to check their own meters to give their readings once a month to TANGEDCO. This will help to save manpower and also costs. TANGEDCO may send its personnel at periodic times to check for differences in meter readings and bill accordingly.

2.177 Introduce monthly billing instead of bi-monthly billing.

2.178 It is requested to give 30 days' time for payment of bills.

2.179 Incorrect calculation of consumer contribution charges and improper collection by TANGEDCO.

TANGEDCO's reply

2.180 There is no variation in monthly billing and bi-monthly billing. The example given below will show that there is no variation between monthly and bi-monthly billing.

Tariff Calculation Methodology for Monthly and Bi-Monthly Billing

Monthly billing	Bi-monthly billing
Example – 1 Monthly 90 units Unit Amount 0 to 90 Units 90 x 1.50 = 135/- In case of monthly billing Rs.135/-	Bimonthly 180 units Unit Amount 0 to 180 units 180*1.50 = 270/- In case of bimonthly billing Rs.270/-(two times)
Example 2 Monthly 255 units Units Amount(Rs.) 0 to 100 units 100 * 3.00 = 300/-	Bimonthly 510 units Units Amount(Rs.) 0 to 200 units 200 * 3 = 600/-

101- 250 units 150 * 4.00 = 600/- 251 to 255units 5 * 5.75 = 29/- ----------- ------------ Total = 255 929/- ------------- ------------ In case of monthly billing Rs.929/-	201 to 500 units 300 * 4 = 1200/- 501 to 510 units 10 * 5.75= 58/- ------- ------------- Total = 510 = 1858/- -------- ------------ In case of bimonthly billing Rs.1858/-(two times)

2.181 Tariff schedule is available for monthly and bimonthly separately. So there is no variation between the monthly billing and bimonthly billing.

Commission's View

2.182 There is no difference in monthly billing and bimonthly billing. Since the number of units permitted in each slab is exactly half the quantity of the Units permitted under Bimonthly billing period.

11. Industry related issues

Stakeholder Comments

Harmonics control

2.183 Harmonics control has to be made available only to consumers connected to bulk supply lines and who fall under the definition of "Bulk Suppliers".

2.184 Consumers connected at 11/22 kV may be excluded from the harmonic control obligations.

2.185 TANGEDCO should develop enough technical capabilities to implement harmonic measurements to maintain power quality, which would save energy cost up to 10% every month.

2.186 Harmonics compensation charges to be increased gradually.

Commission's View

2.187 Harmonics has been discussed in detail in Tariff Schedule and the same is in force from 2013-14 Order. CEA's regulation on Technical Standards for Connectivity to Grid stipulates certain voltage and current harmonics that is applicable to distribution systems and bulk consumers. This has been incorporated in the Commission regulation.

12. Renewable Power

Stakeholder Comments

2.188 Back outs of windmills should be avoided, and TANGEDCO should be encouraged to procure more of such wind energy, which is available at cheaper rates than the conventional energy.

2.189 There is no proper accounting of wind mill power generation in TANGEDCO. Slot wise energy accounting, banking and CPP position based on equity composition to be verified.

2.190 Solar parks should be promoted in Government lands by collecting funds from MNCs and lavish illumination consumers.

2.191 Reintroduce the 30% subsidy given by the GOI for solar equipment.

2.192 Provide 20% subsidy for solar equipment by the GoTN.

2.193 Street lights under the control of local body and corporation should be energized by Solar Power.

2.194 Subsidy given to drip irrigation powered by solar energy may be given to all agricultural activities powered by solar.

2.195 During wind season, wind mill feeders having agricultural services are backed down. Steps to be taken to avail wind power fully.

Commission's View

2.196 Backing down of Renewable Energy Power should not be resorted to by the licensee otherwise than for Technical reasons like Grid safety.

2.197 Providing subsidy is within the domain of the GoTN.

2.198 Suggestions for promoting renewable energy shall be examined separately

13. Restriction & Control measures

Stakeholder Comments

2.199 Despite the strict implementation of R&C measures and high levels of load shedding, TANGEDCO is unable to supply quality power to the contracted level on a continuous basis. In order to reduce the gap between quota and sanctioned demand and also the source power for restricted and load shedding periods, HT industries are going to open access, which in turn increases the cost of energy to industries in Tamil Nadu.

2.200 Enforcement of such R&C measures that inadvertently increase the cost of power procurement should be relaxed.

2.201 A Committee should be formed to decide on load shedding protocol and opinion of public should be taken into account for maintaining transparency.

2.202 Power is purchased for Rs. 25,000 crores and supplied to Chennai and to the MNCs whereas other parts of the state were deprived of power.

TANGEDCO's Reply

2.203 TANGEDCO introduced R&C measures to certain categories of consumers from the year 2008-09. During FY 2013-14 new plant of Mettur Stage III got commissioned. In addition to this several new Central generating plants got commissioned during this period. Due to these reasons, the power scenario was better in FY 2013-14 as compared to FY 2012-13

Commission's View

2.204 A committee has been formed to study the Maharashtra model of Load Shedding protocol.

14. Sales

Stakeholder Comments

Unmetered sales

2.205 Unmetered hut consumption, which constitutes 5.9% of the total unmetered consumption. When agricultural consumption is added up to such consumption, total unmetered consumption works out to be 14.28%. Meters for such unmetered consumption have to be provided for all the existing and new services.

2.206 Meter should be fixed in hut services and they may be charged 50 paise for the first 100 units and Re.1 beyond 100 units and with Government subsidy as applicable.

Metered sales

2.207 The sales estimated by the Commission for FY 2011-12 and FY 2012-13 is at 13657 MU and 10918 MU respectively whereas the actual sales as per audited accounts is at 21106 MU and 20088 MU respectively, showing the actual sales to be higher by 54% and 84% for FY 2011-12 and FY 2012-13 respectively.

2.208 The HT consumption for FY 2014-15 as estimated in the ARR summary is 14962 MU which shows a modest 4% increase over previous year actual consumption. It is submitted to the Commission to make a realistic estimate of sales to HT category.

Commission's View

Unmetered sales

2.209 Master Metering Plan for metering agriculture and hut services have been sought by the Commission and time extension were given by the Commission and at present a report was called for from the TANGEDCO on current status.

2.210 Further the consumption for hut categories has been calculated based on the wattage for various electrical appliances as specified in the Government Order (G.O.)Ms. No. 2 dated 03-06-2011 issued by the GoTN and the hours of use and number of connections as given by TANGEDCO. The agriculture consumption was estimated on the basis of the 5% sample study data that was submitted by TANGEDCO.

2.211 As stated by TANGEDCO subsidy is paid in advance by GoTN.

Metered sales

2.212 The sales taken by the Commission under HT category is after wheeling and after sale to Puduchery. TANGEDCO is taking the units wheeled and units procured for Puduchery under sales as well as in power purchase.

15. Tariff related Comments

a. Tariff for HT Industries

Stakeholder Comments

2.213 Tariff should not be increased since the textile industry is already under recession and facing power shortages due to R&C measures. The textile companies are running diesel generators or buying costly power from third party leading to additional burden and increase in production cost.

2.214 Plantation industry has been classified under HT-I consumer category, which includes high energy consuming industries such as steel plants, refineries, etc. Tea and coffee plantation industry should be classified as a separate consumer category of HT consumers and tariff should be retained at the current level of Rs.5.50 per unit of energy consumed.

2.215 Coffee curing industry should be reclassified under agriculture and the same tariff should be prescribed. Similarly, rubber factories should be changed to a lower tariff rate in LT category.

2.216 Tariff for HT Industry, Railway Traction, Government and Government Aided Education Institutes and Private Institutes has been proposed to be Rs.7.22/kWh, resulting in a steep hike of 31.27%. The proposed hike is much higher than an increase of 7.36% and 5.97% in the WPI for March 2013 and 2014 respectively. In addition, Indices for Electricity for March 2014 and August 2014 have increased by only 5.61%. The tariff cannot be increased beyond the annual increase of WPI or increase in Index of Electricity for the current year.

2.217 Generator drawing up start-up power shall not be treated merely as a normal consumer. The tariff for start-up power may either be charged on a single-part basis or its demand charges may be pro-rata to the actual days of usage. Alternatively, annual demand charges can be pro-rated to 42 days rather than for full year.

2.218 A separate power policy should be introduced for small and tiny industries whereby tariff is fixed for a definite span of years and also is cost effective. In addition, separate feeders shall be provided to all small and tiny industries.

2.219 Similar to Karnataka it is requested that TNERC may introduce at least two slabs in HT Industrial Tariff and also offer a higher rate of discount for consumption during off peak hours. Moreover, like in Kerala, the billing demand shall be the recorded maximum demand for the month in KVA or 75% of the contract demand (as per agreement whichever is higher).

2.220 No justice to increase the demand charges for HT services.

2.221 The existing tariff for industrial and commercial consumers are high as compared to tariff of AP, Karnataka and Kerala. The cross subsidy surcharge is high.

Commission's view

2.222 In the present Order, tariff categorization is dealt in detail in the tariff schedule.

2.223 Determination of tariff has to be made according to section 62 of the Electricity Act, 2003. Further, the tariff is determined based on the Annual Revenue Requirement of the licensee after prudence check considering all the components of variable charges and fixed charges. Due to price escalation in fuel cost, plant load factor, auxiliaries, primary fuel cost, secondary fuel cost, O & M, Depreciation, Interest on Loan, Interest on Working Capital, Return on Equity, etc., the increase in tariff is stipulated.

2.224 The tariff for start-up power is from the last tariff order. There is a case before the Hon'ble High Court of Madras.

2.225 Separate power policy to be introduced for small and tiny industries whereby tariff is fixed for a definite span of years is beyond the scope of the tariff order.

2.226 Recovery of Demand Charges is in the Tamil Nadu Electricity Supply Code, 2004. 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 contracted demand whichever is higher.

2.227 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 measure, whichever is higher.

2.228 Further, the inter-state tariff comparisons can be made but the tariff for the licensee is fixed based on the Annual Revenue Requirement of that licensee.

b. Tariff for Domestic

Stakeholder Comments

2.229 Slab for consumption up to 500 units should be increased to an extent of 1,000 units. In addition, alternate source of energy such as solar roof top generator has to be provided to reduce the energy consumption and cost.

2.230 Billing should be done on monthly basis and not on bi-monthly basis.

Commission's View

2.231 There is no variation between monthly billing and bimonthly billing and the same has been explained with an example by TANGEDCO and Commission also reiterates that there is no change in the monthly billing and bimonthly billing.

Demand Charges

2.232 The demand charges are towards recovery of fixed charges of the distribution licensee towards the cost of infrastructure provided to meet the maximum demand recorded by a consumer and are not related to the hours of actual supply to the consumer. In any case as highlighted by the consumer himself the State Commission has ordered to collect the demand charges in relation to the quota demand instead of sanctioned demand during the period the Restriction and Control measures are in force, which means the consumer is not paying any excess demand charges if he restricts his maximum demand to demand quota. The same is upheld by Hon'ble ATE in its order on the same matter on 09-04-2013. Relevant para of the order is extracted below:

10.7 Imposition of Demand charges is perfectly legal. The Demand charges are imposed on the basis of maximum demand actually recorded or 90% of the demand quota during the period of restriction and control. We do not find any illegality in the impugned order in this regard".

c. Tariff for Agriculture

Stakeholder Comments

2.233 A separate tariff schedule with a minimum charge for agriculture and allied activities such as sericulture, floriculture, mushroom cultivation, cattle farming, poultry & bird farming and fish/prawn culture under LT Tariff III A(1).

2.234 Agriculture services should be metered to avoid misuse and electric pumpsets should be replaced with solar panels.

2.235 For agriculture services there should be no tariff, it should be free.

2.236 Nurseries to be treated as agriculture.

2.237 Services for fish/prawn farming were effected under TF IIIA1/IIIA2 during 1990s and requested that the same may be converted to agricultural service by maintaining seniority of the respective year during which TF IIIA was effected.

Commission's view

2.238 Already concession has been extended to the agriculture and allied activities such as sericulture, floriculture, mushroom cultivation, cattle farming, poultry & bird farming and fish/prawn culture under LT Tariff IIIA(1) and the same is discussed under Tariff Schedule in the present Tariff Order.

2.239 Master Metering Plan for metering of agriculture and hut services have been sought by the Commission and time extension were given by the Commission and at present a report was called for from the TANGEDCO on current status.

2.240 In respect of agriculture, the Government is already granting subsidy to the agriculture consumers and the subsidy is paid directly to TANGEDCO.

d. Tariff for Power looms/hand looms

Stakeholder Comments

2.241 The proposed tariff hike has to be withdrawn.

2.242 The existing load limit of 7.4 kW may be increased to 12 kW; else tariff for exceeding the existing load limit may be postponed till the installation of static meters is completed.

2.243 Handloom services under Tariff I(A)may be charged at 50 paise per unit for the first 100 units and Government subsidy be obtained from the same.

Commission's View

2.244 Handloom services are already charged under Domestic category and subsidy is already provided for consumption up to 100 units bimonthly.

e. Tariff General

Stakeholder Comments

2.245 Provision of concessional tariff for electricity consumption made by 24x7 Blood Bank, Indian Red Cross Society, Day Care Hospital, Physiotherapy & Fitness Centre and Artificial Limb Centre may be considered.

2.246 In TNERC Tariff Order dated 20.06.2013, NTADCL (New Tripura Area Development Corporation Limited) has been classified under the category IIA for both High Tension and Low Tension supply. The proposed revision in HT tariff will increase NTADCL electricity bill from Rs. 2.2 crores to around Rs. 3.5 crores. The steep increase in HT tariff will substantially affect the financial position of NTADCL and in turn force the company to pass on the same to the customer, which include urban and rural local bodies.

2.247 NTADCL has appealed to TNERC to consider the increase in HT tariff only to the extent equivalent to the increase proposed for LT supply i.e., to consider an increase of only 15% as against proposed 60%.

2.248 Hotel industry should be reclassified under Industrial tariff category.

2.249 Minimum amount shall be collected from huts that use more bulbs, mixie etc.

2.250 The tariff should not be raised above 5%.

2.251 Tariff should not be hiked for people below poverty line.

2.252 Slabs may be removed in cottage and tiny industries and power looms. It is suggested that tariffs of other States should be compared and equivalent tariffs fixed.

2.253 The Hon'ble Commission has proposed two part tariff for all categories of LT consumers except Agriculture and Hut. It is requested to provide justification for proposing only fixed charges. The increase in tariff proposed works out to a whopping 31.27% over the existing tariff for energy charges for both the HT and LT industries. The proposed increase in the demand charges and the fixed charges for HT and LT industries respectively works out to 16.66%.

2.254 TNERC has proposed increase in tariff merely on the basis of overcoming revenue shortfall projected for FY 2014-15 to the tune of Rs. 6,854 crores rather than to incentivize TANGEDCO to promote efficiency in operations.

2.255 Commission should increase the tariff incrementally or marginally so as to enable consumers to be able to bear the burden of tariff increase. Therefore, it is submitted that any tariff increase should be linked to the Retail Price Index and Consumer Price Index.

2.256 The Commission has increased tariff to bridge the revenue shortfall as the losses should not be parcelled off as regulatory assets. However, it is submitted that in order to avoid tariff shock to consumers regulatory asset should be created and the same be amortized over a period of years.

2.257 Commission has proposed tariff under two part citing Section 62 of the Electricity Act 2003. But under Section 45(3) of the Act, Commission has no powers to fix fixed charges and only Licensee has the power to do the same. It is requested that the Commission empowers the Licensee to fix the above charges framing suitable regulations.

2.258 The ceiling of consumption of 500 units bimonthly at subsidized tariffs in domestic category may be raised to 800 units or 1000 units bimonthly.

2.259 LTCT services should be charged a demand charge. Regulations may be framed such that two or more LTCT services cannot be effected in the same premises.

2.260 In the case of high end HT consumers tariff should be hiked at Re.1/- per unit.

2.261 Potters and goldsmiths may be allowed to continue to use the domestic service for the works done from their dwellings and Tariff IIIA category may be continued for carpenters.

2.262 Two part tariff may be introduced to LTCT consumers on par with HT consumers.

2.263 The proposed tariff increase is about 30% for salt manufacturers. No increase in tariff for salt manufacturers.

2.264 To provide free power to places of public worship or atleast continue existing tariff.

2.265 No concessional/free tariff to be given to MNCs, tariff can be increased to MNCs instead of increasing to common public. Tariff can be increased based on average cost of supply.

2.266 It is improper to treat small and big power commercial consumers at par.

2.267 No tariff hike upto 200 units, concessional tariff upto 600 units and tariff hike can be made above 600 units.

2.268 Tariff hike cannot be more than +/- 20% as per National Electricity Policy.

2.269 Rate per unit for temporary services for construction purposes is too high.

2.270 Tariff for steel rolling industry is high as compared to other states.

2.271 Tariff should be proportionately levied for consumers who enjoy longer duration of supply as in Chennai and to MNCs.

2.272 Government says that there is surplus power available in the state that being the case tariff hike for domestic consumers will not be tolerated.

2.273 Modern tailoring units run by women below poverty line may be permitted to have the units in their residence by availing domestic tariff instead of separate connection.

Commission's View

2.274 Categorisation of certain categories or concessional treatment sought for by some consumers/class of consumers is to be studied in detail after taking the views of the Licensee.

2.275 It has been represented to recognise the Hotels under Industrial tariff instead of Commercial tariff and the license issued for tourism cannot be extended for hotels as it does not fall under the category of LT III B.

2.276 Fixed charges are collected in respect of LTCT services and hence the collection of demand charges does not arise.

2.277 Framing of Regulation such that two or more LTCT services cannot be effected in the same premises is under the consideration of the Commission.

2.278 Further the consumption for hut categories has been calculated based on the wattage for various electrical appliances as specified in the Government Order (G.O.) Ms. No. 2 dated 03-06-2011 issued by the GoTN and the hours of use and number of connections as given by TANGEDCO. The subsidy in respect of hut consumption is being paid by the GoTN in advance to TANGEDCO.

2.279 The tariff is fixed based on the Cost of Supply and no comparison can be made with the tariff of other state as the Annual Revenue Requirement for the licensees may vary based on the various factors.

2.280 In respect of LTCT services, the energy charges and fixed charges are collected and other charges such as PF Penalty, excess demand charges apply wherever necessary.

2.281 In respect of places of public worship, already concession has been provided by the Commission and the same is discussed in detail under Tariff Schedule.

2.282 Depending on the contracted load and nature of usage, the tariff category applies.

2.283 In case of HT supply under IA, IIA, IIB and III, the supply used for any additional construction of building within the consumer's premises not exceeding 2000 square feet may be allowed from the existing service and charged under the existing tariff. The use of electricity for the additional construction beyond 2000 square feet shall be metered separately by the licensee and only the energy shall be charged under LT Tariff VI.

2.284 Supply used for any additional construction of building not exceeding 2000 square feet within the consumer's premises shall be charged under the respective existing tariff except in case of LT tariff IB and IV. The use of electricity for the additional construction purposes beyond 2000 square feet shall be provided with a separate service connection by the licensee and charged under LT Tariff VI.

2.285 No concession in tariff has been extended to MNCs.

16. Regulatory Asset

Stakeholder Comments

2.286 Revenue gap may be taken as regulatory asset and it may be recouped in a span of five years.

2.287 The regulator may choose to create regulatory asset equivalent to the uncovered expenses and allow the licensee to amortize the same within a period of time.

2.288 The Commission can increase tariff to bridge the revenue shortfall after determining the conversion of losses as regulatory asset and useful concept to cushion against tariff shocks.

Commission's View

2.289 Commission has already approved Regulatory Asset of Rs.24611 Crores after considering the amortized regulatory asset. Further, the GoTN as per Point 4(f) of Letter (Ms) No. 59/C2/2012, dated 7th June 2013 has agreed in principle with a request for amortisation of regulatory assets.

2.290 Further inclusion of regulatory asset to the extent of revenue gap is not possible due to above reason.

17. Request for Separate Category

Stakeholder Comments

2.291 As per TNERC Tariff Order dated 31.07.2010 and Order No. 1 of 2012 dated 30-03-2012, the energy charges for Railway Traction is same as energy charges for Industrial Establishments, which clearly shows that the transport sector(Railways) has been considered as industrial sector. But Airport is charged at commercial tariff by TANGEDCO at present. Telecom towers should be categorized under IT enables services instead of commercial.

2.292 To encourage sports, swimming pools, they may be categorized under the tariff category IIB1/IIIA1 instead of commercial tariff.

2.293 To classify the advocate chamber and private consulting rooms under LT tariff IA.

2.294 The rice mill Association represented that they are not able to operate their rice mill under LT service within the limit of 112 KW stipulated for LT services. Going for HT service is not feasible. Hence, load limit for continuing in LT service has to be enhanced to 200 KW. Requested for separate tariff for rice mills.

2.295 Separate tariff may be fixed for lavish illumination.

2.296 Considering the unique economic structure of the plantation industry tea factories which are now under HT tariff I should be reclassified as a separate category of HT consumers and thereby retaining the current tariff rate of Rs. 5.50. Agriculture tariff should be prescribed for electricity used in the curing process of coffee. Classification of rubber factories should be changed to a lower tariff rate in the LT category.

Airports Authority of India's comments

2.297 The airports in Tamilnadu are getting electricity supply from local electricity Board and uses for various function of AAI.

2.298 These services are feeding supply to airport and allied services like air traffic services, AAI operational offices and air cargo, etc.

2.299 TANGEDCO is charging on commercial tariff HT tariff II/III basis.

2.300 There are multi-functional agencies working at airports and AAI is extending supply to them on chargeable basis without any profit. The other user agency for airport for smooth functioning of airport could not get supply directly from TANGEDCO.

2.301 In accordance with section 2 of The Industrial Disputes Act 1947, Airports Authority of India is considered as an industry and comes under the purview of the Act. Considering this provision of the Act, the electricity tariff for airport should be under industrial category

2.302 TNERC may kindly categorize Airport either into Special Category of consumer or public utility services category and accordingly the tariff may be determined for Airports not more than industrial tariff but lower than commercial tariff immediately.

Commission's View

2.303 The supply of power to aerodromes contains mixed load and is composite in nature involving both aviation and non-aviation activities (commercial activities) such as shops, restaurants services. The main issue involved is on the determination of the quantum of power used for aeronautical and non-aeronautical activities. Commission directs the appellant to file a separate petition substantiating the request with appropriate supporting information. Commission will take a decision on this after reviewing the petition. Till such time the status quo may continue.

2.304 As regards submission by different consumers for creation of new categories is to protect their own interest, the past experience has shown that whenever the Commission created some new categories, the same was challenged on the ground that such creation of new category was neither proposed by the Utility nor the public or the concerned consumer was put to notice. In the result such matters were remanded to the Commission for reconsideration by the concerned Appellate authorities. Hence, in case the distribution licensee feels the justification and necessity for the creation of a new category, then it should submit the necessary data on consumer and consumption pattern and also ensure that the categorisation is in accordance with the criteria for differentiation provided under Section 62(3) of the EA 2003, for the Commission's consideration.

TWAD Board's comments

2.305 The proposed hike for HT connections (60.44%) are too heavy for public water supply systems (from Rs.4.50/unit to Rs. 7.22 /unit) and for LT connection, it is 15.45% increase (from Rs.5.50 to Rs.6.35/unit)

2.306 As TWAD Board is a service oriented department under Tamil Nadu Government, both the LT/HT connections revision of tariff may be exempted considering public drinking water needs.

2.307 TWAD Board may be categorized separately as a service Oriented Govt. department and special subsidized Tariff may be fixed below the present one.

Commission's View

2.308 The Commission would like to mention that the average cost of supply for FY 2014-15 is at Rs. 5.77/unit when compared to Rs. 5.24/unit last year for FY 2013-14, is a 10% increase. If the last year tariff was one which allowed full recovery of ARR, it would further have to be increased by 10% at a minimum, for all categories to meet the increase in average cost. Since this is not the case and a substantial gap was left uncovered in the last tariff order itself, a higher increase was necessitated to enable the utility to recover its costs.

2.309 This being said, the Commission taking cognisance of the fact that a disproportionate increase to only the subsidising categories would cause them a tariff shock, has increased the retail tariffs for all consumer categories equitably, thus attempting to retain the cross subsidy atleast at the existing levels and not higher as compared to last year.

2.310 For Tariff design of FY 2014-15, the Commission has carried out prudence check of each of the cost elements of ARR and the data submitted by TANGEDCO. Based on this prudence check, the Commission has determined Net Revenue Requirement recoverable from tariff. The Commission in this Order has adopted a Tariff Philosophy to allow incremental revenue from approved tariff matching with the net additional revenue requirement, thereby designing the tariff for FY 2014-15 on revenue neutral basis.

18. Quality of Supply

Stakeholder Comments

2.305 Inefficiencies or common problems including low voltage, overloading and burning of transformers, cable failures, load shedding etc may be contributory factor to the revenue gap of Rs.6854 Crores determined for FY 2014-15. An investigation of the above will enable TNERC to further reduce the revenue gap internally rather than charging it on the consumers.

2.306 Continuous power supply of 24 hours is being provided to Multinational Companies (MNCs) and the local industries are being deprived of such continuous power. It is requested to provide uninterrupted power supply to local industries also.

2.307 Whether any socio economic study has been conducted on the impact of power cut on students especially.

2.308 Separate feeders for domestic, industries and agriculture shall be provided.

2.309 Replace the worn out overhead lines in the town areas.

2.310 Provide uninterrupted power supply for industrial development.

2.311 Provide underground cables in municipalities and towns as in the case of Chennai city.

2.312 Provide one transformer for 50 KV demand in the urban areas and 100 KV demand for other areas.

2.313 Reintroduce power holidays to reduce load shedding.

2.314 The load shedding protocol should be evolved for equitable distribution of power after obtaining public opinion and it should be made transparent.

2.315 Provide separate feeder for free power and paid power and the paid power may be permitted to use continuously for 24 hours.

2.316 Security deposits can be collected from MNCs.

2.317 In order to improve load management efforts should be made towards installation of smart grid system.

TANGEDCO's Reply

2.318 Measures are taken to maintain uninterrupted power supply

2.319 In order to give adequate power supply to the State, the following projects have been commissioned during the year 2013-14

(i) Mettur Thermal Power Project, Stage – III - 600 MW

(ii) North Chennai Thermal Project, Stage II(unit-1) - 600 MW

(iii) NTPC -TNEB JV project (units 1 & 2) - 694 MW

2.320 In the year 2014-15, North Chennai Thermal Project, Stage II (unit 1) - 600 MW was commissioned to tide over the power crisis, TANGEDCO is taking full effort in capacity addition. It is expected that additional capacity of power of about 4812 MW before end of this financial year 2014-15 through allocation from Central Generating Station and also through competitive tender process

Sl. No.	Projects	MW	COD/Expected COD
1	TNEB-NTPC JV at Vallur Unit -3	347	November 2014
2	NLC TNEB JV unit 1	193.5	December 2014
3	NLC TNEB JV Unit 2	193.5	January 2015
4	NLC expansion Unit 1	115	December 2014
5	NLC expansion Unit 2	115	January 2014
6	Kudankulam unit 1	563	November 2014
7	Kudankulam unit 2	462	January 2015.

Purchase through Open Access:

Sl.No.	Sources	Capacity (MW)	Availed from/Expected Month
1	LTOA	74	July 2014
		150	September 2014
		773	November 2014
		650	December 2014
2	MTOA	500	2014-15
3	STOA	1100	October to December 2014
		1250	January 2015 Only
		1400	February and March 2015

Commission's View

2.321 The concern expressed by various consumers with regard to quality of supply is very relevant. The Commission has already notified the Standards of Performance Regulations, which stipulate the quality of supply levels to be maintained by the Utility. While overall standards may be maintained by the Utility, it is quite possible that some chronic problems may exist in the system. TANGEDCO should take adequate efforts to attend to these problems.

2.322 The Commission believes that TANGEDCO has its own in-house guidelines with regard to operation and maintenance of distribution system. Adequate transformation ratio will have to be created depending on the requirement.

2.323 The distribution planning should be done by the TANGEDCO; duly taking into account the requirements of Supply Code, Distribution Code, etc. would go a long way in improving the quality of supply.

2.324 The voltage at tail end needs to be monitored at regular intervals. Proactive action on the part of TANGEDCO will go a long way in reducing the consumers' complaints and improving their satisfaction.

2.325 Applicable Security Deposit shall be collected if not already done so from MNCs and there is no exemption from payment of Security Deposit by them.

Southern Railway

2.326 Train operation in southern region is more loss making as the traffic is mainly passenger oriented and there is no appreciable goods traffic due to non-availability of natural resources and lack of large scale industrialization necessitating bulk movement by rail.

2.327 As per para 8.3(2) of the National Tariff Policy wherein it is stipulated that the tariff for all categories should be within + 20% of the average cost of supply by the year 2010-11 and the tariff should progressively reflect the cost by gradual reduction in cross subsidy.

2.328 Levy of Low PF surcharge is unwarranted as the Demand charges are levied on kVA Demand (not on kW Demand as being done internationally), which accounts for kW, kVA lag and kVA lead. If power is drawn at poor power factor it increases the kVA demand and thus increases the Demand charges. Hence levying low power factor surcharge on Demand and Energy charges again amounts to double charging.

2.329 Levying of Demand charges on kVA demand, whether on "Lag only" or "Lag + Lead" logic, is very stringent, in that it raises exponentially if the power factor becomes poor. As such incentive and disincentive for power factor is built in levy of Demand Charges on kVA Demand. Hence levy of low PF surcharge on Energy and Demand charges over and above Demand charges on kVA Demand and that too on inflated energy charges due to high cross subsidy to the order of 164.19% is unwarranted and amounts to multiple over charging, giving undue monetary benefit to the licensee.

2.330 Many utilities not only adopting lag only logic for metering and also allowing "Incentive" for higher power factor under "lag only logic". Fixed capacitors which are fetching incentives in Kerala and Maharashtra (including TATA Power Company) are getting penalized in Tamilnadu which is hard to accept. Further, AP DISCOMs who are adopting kVAh based billing are also ignoring leading power factor for computing kVAh consumption in the Tariff Order for the year 2013-14.

2.331 MPERC and UPERC have accorded specific relaxation in the Tariff Orders that leading reactive power is ignored for billing purposes as far as Railway Traction is concerned though it is applicable for other consumers. All other SEBs in the country are following lag only logic of metering for all consumers.

2.332 In case of power supply failure at any Traction Substation, either due to failure of equipment at TANGEDCO's Grid Substation or at Railway Traction substation or incoming power supply failure to TNGEDCO substation, it is necessary to extend power supply from the adjacent Traction substation over the failed Traction substation feeding zone in order to maintain the train services. Due to such feed extensions the Recorded MD at the adjacent substation, from where power supply is extended, increases and at times exceeds the CMD of that traction Substation, but the total load on the grid is not getting increased as it is only gets shifted from one point of supply to another. However the increased MD is now charged for one day on proportionate basis for supply failures due to TANGEDCO only.

2.333 A Writ petition has been filed before the Hon'ble High Court of Madras in W.P.No.5076 of 2014 and as per the directive of the Hon'ble High Court a Petition has already been filed before the Hon'ble Commission in M.P.No.28 of 2014.

2.334 The Recorded MD during feed extensions due to power supply failures due to maintenance shutdowns, failure of equipment and other reasons attributable to TANGEDCO/TANTRANSCO be ignored for billing purposes. Similarly the Recorded MD during feed extensions due to failure of equipment at Railway Traction Substation, accident or other extraneous reasons beyond the control of Railways is allowed without any surcharge up to the sum of the CMDs at the failed and feed extending traction substations. It is submitted that considering the importance of maintaining uninterrupted power supply to train services Hon'ble APERC has approved the above requests vide their Order in R.P. No.9 of 2009 in O.P.No.17 to 20 of 2008 dated 10.03.2011

2.335 The Hon'ble Commission may please incorporate suitable conditions in the Terms conditions of Tariff for Railway Traction such that Recorded MD during feed extensions due to reasons attributable to TANGEDCO are ignored for billing purposes.

2.336 The average cost is around Rs.16-Rs.18/unit as against the all India average of Rs.6.00/unit. Many DISCOMs of other states are giving sops for electrification projects whereas in Tamil Nadu, traction services are penalized for light operating loads.

2.337 The billing demand for demand charges towards excess demand over and above the sum total of Contracted Maximum Demands of supply failed and supply extended Traction Substations arising due to transfer of loads on account of reasons attributable to TANGEDCO/TANTRANSCO may be restricted to the day(s) of occurrence only on proportionate basis.

2.338 If the reasons for such excess demand are attributable to the Railways, then penal levy may be levied for such excess demand, besides billing under normal rates of tariff as provided for in the Terms and Conditions of Supply of Electricity.

2.339 Requested to consider directing TANGEDCO to treat leading power factor as unity power factor and dispense with levy of Low Power factor surcharge on the basis of leading reactive power.

2.340 To consider allowing Recorded Demand upto 120% of Contracted Maximum Demand without any surcharge for occasional exceeding above Contracted Maximum Demand.

2.341 To allow net metering to account for occasional export of active energy due to regenerative braking in modern Electric Locomotives.

2.343 The lag only logic alone be implemented for traction services in reactive power measurements which will make the average cost per unit on par with other Railways/States thereby attracting further electrification projects in Tamil Nadu area under Southern Railway.

2.344 Southern railways is consuming 824 MU from Tamil Nadu and paying Rs.540 crores per year. Due to the proposed tariff revision, Railways will have to pay Rs.704 crores to TANGEDCO. The additional burden due to the revision is Rs.160 crores. The hike in tariff has dampened their spirits of introducing traction to a greater extent in the State.

2.345 Excess demand charges are higher; power factor penalty levied for lead logic has increased their charges. Requested to take it as Unit power factor in the case of Railways.

2.346 Due to bunching movement of trains at times, the demand exceeds the limit and therefore to avoid excess demand charges suggested that three sub stations may be grouped and demand limit fixed.

Commission's View

Cost to serve Railway Traction at 110 kV

2.347 Taking into consideration the views and objections, the Hon'ble TNERC in its Tariff Orders dated 31-07-2010, 30-03-2012 and 20-06-2013 have the demand charges for Railway traction as Rs. 250/KVA i.e. less by Rs.50/KVA compared to HT Industrial consumers. However, the energy charges were fixed on par with the HT Industries.

2.348 In any month if the recorded demand exceeds the contracted (sanctioned) demand, the Tamil Nadu Electricity Supply Code permits the licensee to levy surcharge on the excess over contracted maximum demand charges. Accordingly, the TANGEDCO levies the surcharge for excess over contracted maximum demand.

2.349 The request of the Southern Railway not to levy any penalty for occasional exceeding above to the Contracted Maximum Demand is not related to the tariff order and can be considered only by way of amendment to Tamil Nadu Electricity Supply Code.

2.350 As the Southern Railway has already filed M.P.No.38 of 2014, the prayers of the petition will be addressed while issuing an Order for M.P.38 of 2014.

2.351 Regarding the low power factor surcharge, it is stated that the railways filed a petition MP. No. 5 of 2006 with the Commission for restoration of old system of computation of power factor. The Commission did not accept the plea of the railways in its Order dated 2-4-2007 and directed the railways to introduce the dynamic compensation system within a period of three years. Two years later Railways filed another petition MP No. 3 of 2009 pleading to permit them to adopt "Lag only" logic for metering and to use only static capacitor compensation for their traction sub-stations. This petition was dismissed by the Commission in its Order dated 29-6-2009. Against this Order, the railways filed a review petition RP No. 2 of 2009. The review petition was disposed of by a reasoned order on merits by the Commission in its Order dated 1-4-2010. The Railways preferred an appeal against Commission's Order on RP No. 2 of 2009 dated 1-4-2010. But the APTEL dismissed the Appeal No. 122 of 2010 by its Order dated 4-11-2011.

2.352 The Commission approved demand charges of Rs.250/- per kVA in its 2012 tariff order against Rs.300/- per kVA approved for other consumers considering the special nature of the traction load. The Commission is of the view that the Railways, request to permit 120% of the contracted demand is not supported by reasons and is not in line with the Regulations.

2.353 Regarding the net metering facilities requested for accounting of power exported from re-generative breaking, Southern Railways may approach the distribution licensee to study the proposal for implementation. The TANGEDCO and the railways are directed to assist each other and resolve the issue and this issue may be brought before the Commission.

2.354 Regarding charging of tariff on the basis of voltage wise cost to serve it is stated that the issue has been dealt within detail separately in this order.

II. Specific Comments

Suo-motu tariff determination and undue delay in process

2.355 It is submitted that the provisions of Tariff Policy regarding suo-motu determination of tariff has to be seen in consonance with the provisions of the Act. The Tariff Policy being a sub-ordinate legislation under the Act cannot give powers to the Regulatory Commission which were not granted to it by the Act itself.

2.356 Mere initiation of suo-motu proceedings by the Regulatory Commission does not exempt the licensee / generating company or the Regulatory Commission itself from the procedure laid out in Section 64 of the Act which consists of filing of a tariff petition, payment of fees, publication of notice etc.

2.357 The Hon'ble Commission had conducted its suo-motu determination of tariff by referring to the judgment of the Hon'ble Appellate Tribunal for Electricity (ATE)'s order on O.P. No. 1 of 2011 dated 11th November 2011. However, it may be noted that the Hon'ble ATE also has given a directive only with regard to the initiation of the proceedings.

2.358 Further, it may be noted that even this procedure for initiating suo-motu determination of tariff should have been taken by 31st December 2013, which would have provided adequate time for the licensee to provide all relevant tariff filings which might have been made use of by the consumers of the state while analysing the tariff proposals. Instead, the Hon'ble Commission has decided neither to comply with the directions of the Hon'ble ATE nor to take any concrete action for force the licensees to file tariff petitions.

2.359 Once the licensees themselves have not filed any tariff petition, even though Hon'ble Commission has decided to proceed with a suo-motu determination of tariff, tariff revision should not be determined without proper scrutiny/prudence check of various parameters submitted by the TANGEDCO

2.360 The Hon'ble Commission also had powers under Section 142 and Section 146 to provide adequate punishment for non-compliance of its directions. If the Hon'ble Commission has directed the filing of tariff petition, and if the licensee have not complied to the same, the same should have also been treated as a serious violation of the terms and conditions under which the license was granted to them, as they are duty bound to prepare the annual accounts and submit any information as demanded by the Hon'ble Commission.

2.361 As per regulations, TANGEDCO and TANTRANSCO were supposed to file their petitions for approval of cost and tariff by November 30th 2013. As per the judgment of the Hon'ble ATE, in the absence of a timely petition from the utility, the Hon'ble Commission was to have commenced the suo moto exercise if there was a delay by the utility of a month in this regulatory requirement.

2.362 Further, any tariff approved by the Hon'ble Commission can be made applicable only from the date of notification of the appropriate orders of the Hon'ble Commission. Going by the delay already incurred, this can reasonably be expected to occur towards the end of December. A mere 3 months of applicability for the revised tariff, when the gap/surplus approved is for the entire year will result in resulting in continuing gap or surplus for the year, when APR is done for FY15.

2.363 Further, when does the Hon'ble Commission expect to commence the exercise for FY16? Are Tariff Orders issued three quarters of the way into a financial year to be the new norm?

2.364 We submit that the practical approach should be to roll this exercise into the one for FY16 and issue the Order as applicable from 1st April 2015 onwards, as it provides clarity and tariff certainty for a financial year for all stakeholders.

2.365 Tariff hike exercise is proposed without ensuring any transparency by providing any figures from the realistic sources accordingly, no application was directed to be filed by TANGEDCO which is a clear violation of its obligation under Section 64(1) of the Act

2.366 Even though Suo-moto proposals are initiated by the Hon'ble Commission to hike the tariff with a view to compensate the so called revenue gap, the Hon'ble Commission has not pained to work out the realistic figures for consideration.

2.367 TANGEDCO has failed to perform its statutory function and has violated the provisions of its assigned obligation as enumerated under Section 62(1) read with section 64 (1)(2) of the Act. Therefore it has made itself rendered for punishment under Section 146 of Act on which Honourable Commission has to take suitable proceedings by pulling licensee to perform its statutory functions. For continuous default of TANGEDCO in each and every sphere, the Hon'ble Commission atleast by now may invoke action under Section 24.

Non-compliance of directives issued by the Commission

2.368 The Hon'ble ATE's directives in terms of suo-motu determination of tariff is being utilized as justification for the existing process, but no reference is made to the very fact that the Hon'ble ATE itself has contemplated initiating such process by 31st December.

2.369 It is to be noted that the Hon'ble Commission has not taken up many other issues stipulated by the Electricity Act, National Tariff Policy, ATE directives and its own orders.

2.370 In addition to the non-compliance of the statutory provisions and directives by the Hon'ble Commission, the licensees themselves are in grave non-compliance of various statutes and directives.

Absence of reliable and adequate data and information

2.371 Unlike previous years where a detailed tariff petition filed by licensees along with related annexures such as audited accounts forms the basis for elicitation of comments and objections, only a summary of the ARR and tariff proposal is made available to the stakeholders.

2.372 As per the Hon'ble Commission, the expenses for FY 2011-12 and FY 2012-13 are provisionally trued up based on the audited accounts. However the Hon'ble Commission has not made these audited accounts available for scrutiny by the stakeholders. Considering that more than six months have elapsed since the end of FY 2013-14, the failure of the Hon'ble Commission to direct the licensees to at least submit the provisional accounts for FY 2013-14 is also be noted.

2.373 A tariff petition filed by licensee would have contained detailed information and reasoning for each claim for cost. However in this instance there is no petition to rely on and the summary released by the Hon'ble Commission merely has numbers under different heads of cost. We submit that this is a gross violation of Section 86(3) of the Act

2.374 In the existing tariff determination process the Hon'ble Commission has not gone by the right spirit of Tariff Regulations with regard to making relevant documents available to the public. Only limited information is made available for perusal of stakeholders

Transfer scheme and Inflated Asset base

2.375 The successor entities had claimed and the Hon'ble TNERC has accepted that as per Section 131(3) (b) of Electricity Act, 2003 the transfer scheme is binding even on the Hon'ble State Commission adjudicating on the tariff for successor entities

2.376 The binding nature of the transfer scheme on the Hon'ble Commission, viz-a-viz the vast powers vested in the Hon'ble Commission by the entirety of the Electricity Act 2003, is misconceived and incorrect. A bare reading of Section 131(3) (b) of Electricity Act 2003 will reveal that Section 131(3) (b) is not a restrictive clause as far as other sections of the Act are concerned

2.377 Even if Hon'ble Commission accepts the balance sheet prepared as per transfer scheme, it is still not necessary that all the costs as per balance sheet needs to be passed on to the consumers.

2.378 It is pertinent to note that the opening balance sheet dated 1st November 2010 in the first transfer scheme for reorganization of the TNEB vide GO MS No. 100 dated 19th October 2010 has been prepared on the basis of accounts for FY09, and reflects the losses incurred due to revenue deficits, which have been incurred solely due to absence of tariff revision to reflect prudent costs, and runaway growth in expenditure

2.379 This has led to borrowings for capital expenditure being diverted to cover revenue deficits and debt repayments, as recognised by the Hon'ble Commission itself in its Order No. 2 of 2012 dated 30th March 2012, with associated drastic rise in interest costs. These costs were loaded onto consumers through tariff in FY13 through Order No. 2 of 2012 dated 30th March 2012. This same principle was applied for FY14 as well in the Order dated 20th June 2013.

Energy Sales

2.380 It can be seen that there is a 14.65% increase in sales from 2012-13 to 2013-14 when R&C measures were still in vogue in Tamil Nadu. This seems to be on the higher side. The Commission is requested to direct the TANGEDCO to provide a detailed breakup of the power supply across categories with clear reference being made to time slots when R&C measures were active.

2.381 We would also like to draw the Commission's attention to the absence of the Wheeling Adjustments in the present tariff proposal. TANGEDCO may be directed to rework the calculations taking into account units that have been wheeled by consumers.

Energy Balance

2.382 Honourable Commission should ascertain TANGEDCO's compliance to directives - on T&D loss studies and DT and feeder metering and any deterioration in loss levels due to non-compliance should be accounted to the utility and not passed onto the consumers.

2.383 Further, as per table 7 of the Summary, there is an availability of 76,200 MU. As per TANTRANSCO website the Average availability is 240 MU / day which works out to 87,600 MU. The captive power in this is 8,200 MU for year 2012-13 as per Table 312 of page 312 of Tariff order 2013. After deduction of captive energy there is a shortfall of nearly 3,200 MU which is not accounted for in the summary. If the sale of this additional energy is also taken into account, most of the additional revenue requirement will already be met from it.

Generation and Power Purchase

2.384 The generation and consumption statement as provided in the TANGEDCO grid details for the year FY 2013-14 is 88,509 MUs and the average consumption per day is 242 MU. As against 88,509 MUs of consumption, the Commission in its energy balance has identified energy input at TN periphery for FY 2013-14 as 78,675 MUs including captive consumption by HT consumers.

2.385 The gap of around 10,000 MUs has been left without any accounting and if these units are brought under revenue to TANGEDCO, the loss can be substantially reduced.

2.386 TANGEDCO is neglecting the purchase of low cost power and purchasing high cost power thus leading to increase in losses. Asking wind generators to back out when the low cost power is available.

O&M Expenses

2.387 Per unit O&M cost for TANGEDCO comes out to 6.52 paise/kWh in 2013-14 and 6.63 paise/kWh in 2014-15. The corresponding value for MSEDCL with roughly double the sales of TANGEDCO are 5.21 paise/kWh and 5.87 paise/kWh. This establishes the fact that TANGEDCO system is much more inefficient than MSEDCL system.

2.388 We submit before the Commission that TANGEDCO's O&M be benchmarked to the MSEDCL and the additional O&M to the extent of 1.31 paise/kWh in 2013-14 and 0.77 paise/kWh be treated as TANGEDCO's inefficiency and should be disallowed.

2.389 While TANGEDCO works on the principle of averaged O&M expense which is escalated, Distribution utilities across the country are mandated to perform according to norms set for the wires and retail supply business.

2.390 We would also like to draw the attention to the need to scrutinize the A&G expense for 2012-13 in greater detail. This figure of Rs. 101.03 crore represents a huge increase of 77% on the preceding year's cost. TANGEDCO will have to justify the reason for such an increase.

Capital Expenditure, Capitalisation and Issue of filing separate petitions for new generating stations

2.391 Request that the Hon'ble Commission release detailed data and calculations, in the interests of maintaining utmost transparency as mandated by Section 86(3) of the Electricity Act 2003 and subsequent amendments

2.392 The Hon'ble Commission has proposed to approve capital expenditure and capitalization as below. However, there is absolutely no information provided, as was done in the previous year. How many of the schemes that were proposed have been completed and commissioned? Which have been delayed? In the proposed capex for FY15, which are new schemes and which are spill over from earlier years?

2.393 What is the status of compliance to these directives of the Hon'ble Commission? If, as is the norm, compliance is pending, on what basis is the Hon'ble Commission approving capital expenditure and capitalization plans, which have significant impact on the RoE, debt and depreciation allowable for recovery through tariff?

2.394 We wish to submit before the Commission that TANGEDCO has once again failed to submit its capital expenditure plan for timely approval by the Commission. In addition, the transfer scheme has not been finalized until now. In lieu of this, the Commission may kindly disallow the capitalization of TANGEDCO pending further scrutiny of the capital expenditure and finalization of transfer scheme.

Fixed expense and variable charge calculations

2.395 When the total fixed cost is calculated (summation of the listed components), it is observed that there are differences between the Commission's determined values and the values that we obtain. There is an average shortfall of Rs. 150 crores across the four years – 2011-12, 2012-13, 2013-14 and 2014-15.

2.396 The Commission has aggregated the individual fixed costs and allowed a pro-rata amount based upon the PLFs achieved. It is essential that the PLF figures considered by the Commission for arriving at these final Allowable Fixed Costs be shared with the public.

2.397 The tariff regulations specify that the target PLF for Ennore station is 50% while for the other thermal stations it would stand at 80%. This means that for generation equalling or in excess of the amount derived based on the target PLF, the full fixed cost is allowed for the generator. For generation falling short of the target, fixed cost is reduced on a pro-rata basis. This clearly indicates a need for drastic reworking of the fixed cost component of the generating plants. In the interest of transparency, the Commission must direct TANGEDCO to submit loss of generation data for all years under consideration.

2.398 In addition, we would like to highlight the following aspects – On page 21, it is mentioned that the variable cost of new CGS stations is considered as Rs. 2 per unit for FY 2014-15. However, in the Table 23, we observe that a value of Rs. 2.50 per unit has been considered. The Hon'ble Commission is requested to redress this.

Power Purchase from Non-Conventional sources

2.399 As per Table 23 of the summary of ARR, in the year 2012-13, a total of 9,524 MU was purchased by TANGEDCO from Non-conventional sources at an average rate of 3.46 Rs./kWh. However for 2014-15, the Hon'ble Commission has estimated availability of only 6,575 MU from such sources at an average rate of 3.48 Rs./kWh. Therefore a cheaper source of power, with an average rate of only 3.48 Rs./kWh is being under-estimated to the tune of 3,000 MU resulting in unnecessary inflation of power purchase expenses in the ARR. It is non conceivable how only 6,575 MU will be available from non-conventional sources when 9,524 MU was available merely two years back.

Power Purchase and Sales

2.400 The power purchase cost in respect of own generation has seen a significant hike when compared to the numbers approved for FY 2014-15 in June 2013 tariff orders for which no rationale is provided.

2.401 TANGEDCO is continuously attempting to buy high cost power by neglecting the low cost power from wind etc. Hence while arriving at what cost, such power was purchased and the background of such purchases by neglecting the low cost power available, needed to be fully studied.

2.402 Estimated sales figures have also been not found taken as per realistic approach. TANGEDCO is likely to handle roughly 90000 MU. Hence there is a vast difference in providing saleable units.

Tariff shock to Industrial Consumers and absence of Cross Subsidy reduction roadmap

2.403 It is a matter of deep concern that while the industrial consumers in the state are reeling from R&C measures and unscheduled load shedding, the Hon'ble Commission has proposed a significant tariff hike on the industrial consumers, which is nothing less than a tariff shock.

2.404 In addition to the above increase, there will be further increase due to the increase in peak hour charges which is calculated as 20% of energy charges. Therefore the total tariff increase applicable to Industrial Consumers is way higher than 31% whereas no improvement in performance of the licensee is envisaged even under such high tariff.

2.405 We strongly register our objection to the proposed tariff increase to industrial consumers, as the increase in costs of TANGEDCO is totally on account of its own inefficiencies and incompetence which shall not be allowed to be passed on to the consumers of the state. The proposed tariff increase is also against the Tariff Policy which clearly states that cross subsidies shall be gradually reduced. As per the Tariff Policy, the tariff of the consumers should be + / - 20% of the average cost of supply. However in case of industrial consumers, what is being proposed is an increase in cross subsidy from 42% to 56%

2.406 In the Tariff order dated 20th June 2013, the Hon'ble Commission noted that TANGEDCO has not calculated voltage-wise cost of supply as mandated under TNERC Tariff Regulations and ATE directives quoted above. However this failure of TANGEDCO was completely ignored by the Hon'ble Commission and it went forward for voltage wise segregation of costs on its own

2.407 In the suo-motu tariff proposal, neither is any reference being made to voltage wise cost of supply study conducted by TANGEDCO, nor is even the variation in cross subsidy of various consumer categories on account of tariff revision provided by the Hon'ble Commission. Therefore both the licensee and the Hon'ble Commission are in violation of Sections 84 and 85 of the TNERC Tariff Regulations 2005, and the judgments and directives of the Hon'ble ATE in Appeal Nos.102, 103 and 112 of 2010 dated 30th May 2011, Appeal Nos. 192 & 206 of 2010 dated 28th July 2011 and on Appeal No. 257 of 2012 dated 09th April 2013.

2.408 Further, if the Hon'ble Commission has published a road map for reduction of cross subsidy as mandated by the TNERC Tariff Regulations, instead of increasing the tariff for categories such as HT Industry, there would have been scope for further reduction in their tariff.

2.409 In this regard, it may also be noted that for a few subsidized categories, the cross subsidy provided is more than 20% which is not at all fair to the subsidizing category of consumers. For example the Hut, LT Domestic and LT Agriculture categories. If the tariff of these categories alone are brought to 80% of average cost of supply, more than Rs. 4,000 crore additional revenue will be available which by itself should be enough to cover the entire additional revenue requirement of TANGEDCO for 2014-15.

2.410 HT consumers have been burdened by 31% tariff hike compared to other categories like domestic, huts, agriculture, etc. for which the increase is only 15%.

2.411 The Commission is requested to analyse and improve the performance of TANGEDCO rather than increasing the tariff to meet out their expenditure.

2.412 Commission should reconsider the tariff hike of 10% proposed for unmetered categories of Hut and agriculture as huge amount can be received from the Government in this regard.

2.413 As per the tariff regulation and Electricity Act 2003 the tariff for any category of consumer shall be within +/- 20% of the average cost of supply. Hence HT consumers should not be burdened further by upward revision.

2.414 It is requested to the Hon'ble Commission not to impose cross subsidy surcharge during the R&C period and give retrospective effect in this regard.

2.415 Tariff determination depends on arriving at figures such as Cost to Serve. The voltage level cost to serve will enable apportionment of the losses to each consumer category while keeping in mind welfare. It is submitted that the tariff determination should not proceed as TNERC should not go according to TANGEDCO's 'cost of service' but should go about on the basis 'cost to serve'

2.416 It is submitted that the tariff determination should not be proceeded with as no progress has been made to realise element of cross subsidy is instilled in the policies so that sector becomes self-sustaining without creating need for external support (subsidies). A road map for reduction of cross subsidy within the band of +/- 20% of the average cost of supply is needed to promote efficiency and rationalisation of tariff.

Increase in tariff

2.417 We welcome the proactive approach of the TNERC for initiating suo-moto proceedings for tariff determination in spite of the lethargic attitude of the Licensee.

2.418 The increase in tariff proposed works out to a whopping 31.27% over the existing tariff for energy charges for both the HT and LT industries. The proposed increase in the demand charges and the fixed charges for HT and LT industries respectively works out to 16.66%.

2.419 In spite of various directions from the Hon'ble APTEL neither TANGEDCO nor the Hon'ble TNERC has made any attempt to arrive voltage wise cost of supply even now. Hon'ble TNERC should take necessary action against TANGEDCO to furnish the relevant details transparently to the Hon'ble TNERC to arrive at Voltage wise cost of Supply before proceeding any further in the proposed tariff hike.

2.420 The TANGEDCO lifted the R & C measures for a very short period from 6/2014 and 9/2014 and have again reintroduced the same since then. We pray the Hon'ble TNERC that proposing another huge tariff hike on already suffering industrial sector would be a major blow to their very survival.

2.421 Comparison of tariffs as fixed by other State Commission and UT shows that the proposed tariff hike of the Hon'ble Commission is really exorbitant even when compared only to similar industrially developed states.

2.422 The R&C measures have come into force in2008 and are continuing and when they were lifted it was only for a short duration. Because of shortage industries are procuring from various sources at very high prices and the average cost on power is increasing for industries. If TANGEDCO is allowed to increase the tariffs exorbitantly as proposed, the market price of power from outside, and R&C is expected to get even more stringent in which case the industries will come to a halt.

2.423 Commission should increase the tariff incrementally or marginally so as to enable consumers to be able to bear the burden. Hence tariff increase may be linked to prevailing Retail Price Index (RPI) or Consumer Price Index (CPI)

Time of Day Tariff

2.424 The Hon'ble ATE in its judgment on Appeal No. 257 of 2012 dated 09th April 2013 in the matter of The Southern India Mills' Association vs TNERC and TANGEDCO has directed the Hon'ble Commission to re-examine the Time of Day tariff prevailing in the State. The Hon'ble ATE had noted that the existing rates were not supported by any scientific study and had directed the Hon'ble Commission to reconsider and re-determine the differential pricing of energy during peak and off-peak hours.

2.425 It is requested to the Hon'ble Commission to provide 20% discount during the night hour consumption between 10 pm and 5 am vis-à-vis the current discount of 5%. Through an equal importance given for off peak and peak hours consumption, HT consumers would be incentivized for night hour usage and automatically the load curve would shift.

2.426 TANGEDCO has never demonstrated how it would call the hours 6:00 AM to 9:00 AM as peak hours. Till such time TANGEDCO demonstrate that there is a peak load existing during such hours, allowing collecting peak hour charges would be unjust.

2.427 Further the 20% surcharge so far maintained needs to be revisited this time. The night time rebate is abnormally low. Propose to increase the timings of night hour from the present 7 hours to 8 hours i.e. from 10:00 PM to 6:00 AM.

2.428 It is submitted that basis of determining peak-hour tariff has been done in a skewed manner without arriving proper pricing of electricity.

Demand Charges

2.429 The demand charges is already one of the highest in the country and therefore the proposed increase in demand charges it totally uncalled for. The Demand Charges that have been proposed are very high compared to what has been allowed by other regulatory commissions in the Country.

2.430 In Tamil Nadu, the consumers outside Chennai area are charged the same rate as the consumers in Chennai. The same demand charges are collected from urban consumers and rural consumers. Admittedly it costs more money to create infrastructure in urban areas due to higher land cost and so on. Thus Demand Charges are determined unscientifically and collected unfairly.

2.431 Request that the Demand Charges be abolished and a single charge based on the energy supplied (KVAh) on a monthly basis be imposed.

2.432 We are also concerned that the increase in demand charges will serve as a serious disincentive to the development of a competitive market as viability of open access purchases by the industries may be adversely affected.

2.433 Demand charges for any month will be levied on the KVA demand actually recorded in that month or 90% of sanctioned demand whichever is higher. We request the Commission to reduce the present billing percentage of 90% to 80% of the sanctioned demand, as prevailing in Andhra Pradesh.

2.434 It has also been periodically held that the demand charges are intended to cover the fixed costs incurred by TANGEDCO to maintain the supply infrastructure. Whenever, the HT consumers get a new connection or an increase in sanctioned demand, TANGEDCO is collecting the development charges for creating the infrastructure. Therefore, once the development charge has been paid by the consumer and the capacity cost has been collected, TANGEDCO should not collect interest and depreciation charges as a part of demand charges.

2.435 TNERC had kept this charge at the same rate as in the past for 10 years and now proposes to raise it by an amount not scientifically determined. This is in contravention to its own regulations and policy guidelines in this matter.

2.436 The demand charges is already one of the highest in the country and therefore the proposed increase in demand charges it totally uncalled for. The Demand Charges that have been proposed are very high compared to what has been allowed by other regulatory commissions in the Country.

2.437 We are also concerned that the increase in demand charges will serve as a serious disincentive to the development of a competitive market as viability of open access purchases by the industries may be adversely affected.

2.438 According to the Commission the demand charges are towards recovery of fixed charges of distribution licensees towards the cost of infrastructure provided to meet the maximum demand recorded by the consumer. However it is submitted that there is no reason to increase demand charges for HT consumers when all the expenses are already factored in the revenue expenditure and is apportioned for the energy and other charges.

Harmonics

2.439 In its last tariff order, TNERC has approved the imposition of penal charges in respect of harmonics. We request that it may be explicitly clarified that the imposition of such penalty is applicable to consumers whose supply voltage is 33 KV or above only.

2.440 Both the CEA (Technical Standards for Connectivity to the Grid) Regulations 2007 and CEA (Grid Standards) Regulations 2010 clearly specify that limits of harmonics are applicable only to bulk consumers whereas bulk consumers are clearly defined in those Regulations as consumers who avail supply at voltage of 33 KV and above.

2.441 The CEA regulation pertaining to maintenance of permissible limit of Harmonics applies only to distribution at 11 kV supply and others are considered as bulk supply, wherein CEA regulation would not be applicable. In this regard the Commission is requested to clarify the applicability for each supply of voltage level as per CEA regulation. It is also requested to relax the present charges of 15% as compensation charges and re-fix it as 5% in the initial stage.

Power Factor Incentive

2.442 The Hon'ble Commission is requested to rectify its past error of not allowing any power factor incentive to the consumers, when the same consumers are being penalized if they are not able to maintain their power factor within prescribed limits.

The Hon'ble Commission is requested to rectify its past error of not allowing any power factor incentive to the consumers, when the same consumers are being penalized if they are not able to maintain their power factor within prescribed limits.

Cross Subsidy Surcharge

2.443 In line with the ATE ruling on Appeal No. 38 of 2013 dated 01st August 2014 (Steel Furnace Assn vs PSERC), and considering the dismal state of power supply in the State of Tamil Nadu, with or without R&C measures, we request the Hon'ble Commission to determine the cross subsidy surcharge as zero till a date when TNERC determines that the situation has improved considerable. We also request that the exemption of cross subsidy be provided to the entire quantum of power procured from open market instead of restricting the same to those beyond quota, as it is not always practical for the consumers to continuously match their open market purchases with the quota restrictions.

Regulatory Asset

2.444 The Hon'ble Commission has proposed to increase the tariff to bring in additional revenue to the tune of 6,805 Rs. Crs to cover the estimated revenue gap of 6,854 Rs. Crs. In this manner it may be noted that considering the inadequacy of supporting reliable data, the ARR determined under these proceedings can at best be seen only as provisional and the actual scenario is expected to differ significantly from these projections.

2.445 It will not be in the interests of the consumers if revenue gap is recovered through tariff increase in the year only to find in the next year that there ought not have been any revenue gap. Therefore we feel that the current circumstances are exceptional which calls for creation of regulatory asset for the entire estimated revenue gap, which may then be properly re-estimated next year when the licensee files a proper tariff petition supported by audited financial results and related information.

2.446 The Commission can increase tariff to bridge the revenue shortfall only after determining the conversion of losses as regulatory assets. It is submitted here that regulatory assets is a very valid and useful concept to cushion consumers against revenue shocks.

Manner of billing of start-up power

2.447 TANGEDCO issued a circular stating that start up power to generators has to be billed under HT Tariff V under two-part tariff system i.e. demand charges and energy charges separately.

2.448 Start-up power is drawn only occasionally whenever the requirement is owing to complete shutdown of the station. Under such circumstance it cannot be treated similar to other categories wherein demand charges can be billed for entire month.

2.449 Generator drawing up start-up power shall not be treated merely as a normal consumer. ATE Judgement on Appeal no 166 of 2010 also states this clearly. The tariff for start-up power may either be charged on a single-part consisting of energy plus energy demand charges of start-up power or issues a clarification that in case of drawal, the demand charge component in tariff shall be based on Rs./KVA/day with days being the actual days of usage. Alternatively, annual demand charges can be pro-rated to 42 days rather than for full year.

Energy charges for start-up power

The Hon'ble Commission along with proposing an increase in demand charges by Rs. 50 /KVA/month for HT-V category also proposed a drastic increase in the energy charges from Rs. 9/kWh to Rs. 11/kWh. This corresponds to an increase of 22% in energy charges itself even though the average cost of supply has increased only by 15% and this amounts to tariff shock to the HT-V category which may kindly be avoided

Public hearing locations

2.450 The Hon'ble TNERC has notified the schedules for Public Hearing at Chennai, Erode and Tirunelveli on various dates. During earlier occasions, such hearings were held at Chennai, Coimbatore, Trichy and Madurai where the industrial concentration is high. The rationale to change the locations this time to other towns has not been provided anywhere and we feel that we have been deprived to represent our views before the Hon'ble TNERC.

2.451 The Commission notified public hearings in places such as Erode and Tirunelveli unlike the previous years where the hearings were at Coimbatore Trichy and Madurai where industrial concentration is high and the accessibility to attend hearings by public is better.

TANGEDCO's Reply

Suo-motu tariff determination and undue delay in process

2.452 It is informed that the Hon'ble Commission has initiated suo-moto proceedings in accordance with the powers vested in it in the provisions of the Electricity Act and directions of APTEL vide order in O.P 1 of 2011 dated 11th November 2011. The following are the extract of the order.

"(iii) In the event of delay in filing of the ARR, truing-up and Annual Performance Review, one month beyond the scheduled date of submission of the petition, the State Commission must initiate suo-moto proceedings for tariff determination in accordance with Section 64 of the Act read with clause 8.1 (7) of the Tariff Policy."

2.453 The Hon'ble Commission has therefore acted in line with the directions of the APTEL and had initiated suo-moto proceedings. The Hon'ble Commission has called for various information /data from TANGEDCO and the Utility have submitted the same.

2.454 The Hon'ble Commission has also invited public comments from the consumers on revision of tariff.

2.455 The Hon'ble Commission after scrutinizing the data available with them directed TANGEDCO to submit some additional data required for further analysis. Accordingly TANGEDCO submitted the additional data.

2.456 The Hon'ble Commission also conducted public hearings at three different locations in Tamil Nadu to hear the views of the public.

2.457 Therefore the procedure followed by the Hon'ble Commission is in line with the provisions laid down in the Electricity Act and other rules / regulations. The Hon'ble Commission has not deviated from any of the provisions/Regulations in this regard and has duly complied with the legal provisions.

Non-compliance of directives issued by the Commission

2.458 The Commission issued the directives to the TANGEDCO in the Tariff Order dated 30-03-2012 and revised the directives in Tariff Order dated 20-06-2013. Some of the directives are on-going in nature and some of the directives can be completed within the year of time specified by the Commission. The Details of consolidated directives and compliance are:

1. To file the Tariff Petition on a timely basis every year, as per the TNERC Tariff Regulations.

   TANGEDCO has filed tariff petition for 2012-13 and 2013-14. Commission has already initiated the suo-motu tariff revision process for 2014-15.

2. To maintain quality of supply as specified in Tamil Nadu Electricity Distribution Standards of Performance Regulations dated 21-07-2004.

   This is ongoing in nature. Action is being taken to maintain quality supply

3. To effectively monitor the on-going projects so that they are commissioned without further delay. The projects which were scheduled to get commissioned last year but have not been so far have to be commissioned at the earliest. TANGEDCO should also ensure that the TANTRANSCO also simultaneously completes all the associated transmission system for evacuation of power from the generating stations which are getting commissioned during the year 2013-14, so that power generated is transmitted up to the load Centers without any bottle necks. TANGEDCO should also ensure that the power should be delivered to the consumption points by way of appropriate distribution network. All these capacity addition as well as system strengthening plans will have to be carried out through a well-structured cohesive business plan and detailed individual schemes catering to the need of the business plan. All such plans and schemes shall be submitted to the Commission in accordance with the Terms and Conditions of Tariff Regulations 2005, MYT Tariff Regulations 2009, as well as Licensing Regulations 2005. The submission for approval in this regard so far has been highly unsatisfactory. The Commission has been addressing the utilities by way of letters as well as by way of directions. The compliance to such letters and directions will have to be serious and without fail.

   This is ongoing in nature. Regular review meetings are being conducted by the CMD/TANGEDCO, Secretary/Energy/ GOTN & Director/Projects to speed up the progress of all projects. The progress of the projects is also being monitored by TANGEDCO officials with the contractors of the respective projects at site and at Headquarters.

   Due to continuous monitoring, Units 1 & 2 of Vallur TPP have achieved COD on 29.11.2012 & 25.08.2013 respectively. COD of MTPP – Stage III was achieved on 12.10.2013. Further, Units 1 & 2 of NCTPP Stage II have achieved COD on 20.03.2014 & 08.05.2014 respectively. All the above Units are generating power on sustained basis

4. To file separate petition for the approval of capital cost and tariff determination of new power plants including hydro stations, within 90 days of issuance of this Order.

   Separate petition filed before the Commission in Time. The petition has been admitted and numbered as MAP No 1 of 2013 and MAP No.2 of 2013

5. To file the progress of the capital expenditure and capitalization on a quarterly basis.

   (a) Reconcile its accounts with respect to capital expenditure and prepare the scheme wise data as per the formats specified by the Commission.

   - The Capital Investment Plan for Generation, 33 kV Sub-stations, Distribution schemes and projects in four different formats as specified by the commission are being furnished.

- The hearing on M.P. No.39 of 2012 regarding finalisaion of capital expenditure and are regularly attended and required additional details as called for by the commission are being submitted.
- In the daily order for the latest hearing held on 14.7.2014, the commission has directed TANGEDCO to furnish details for the year 2010-11 to 2012-13 separately for verification. The same will be filed shortly

6. The amount approved for R&M expenses should not be diverted for any other purpose.

   This is ongoing in nature. This directive is being complied with.

7. To comply with the Order on SMP 3 dated 4thJune 2013 for accurate measurement of T&D Loss and unmetered consumption.

   TANGEDCO has proposed to provide meters with AMR facility in all the Distribution Transformers at an approximate cost of Rs. 355 Crores. Necessary Detailed

8. To submit a time bound program for 100% metering at feeder level and at distribution transformer level.

   Project Reports are prepared, and the process of tie up with financial institution is in progress.

   Out of 8781 feeder (covering from 230 kV to 11 kV) 8765 feeders were metered.

   For-RAPDRP area: The details of time bound programme of 100% metering at feeder level and Distribution Transformer level in respect of 110 towns covered under R-APDRP is mentioned as below:

Category	Quantity	Completed	% of completion
Feeder meters	2193	2193	100
DT Meters (As on meters)	49533	48080	97
Balance 1453 nos. of DT meters will be completed within 3 months period.			

9. To submit data on ToD consumption along with the subsequent Tariff Application for all consumers where ToD meters have been installed.

10. The power purchase for meeting this demand should also be studied by TANGEDCO, while taking into consideration the R&C measures in vogue.

Complied with. A detailed study report on ToD tariff and justification for collecting peak hour surcharge submitted with the Commission.

11. To introduce kVAh billing for LT and HT consumers.

    Complied with. Detailed report submitted with the Commission with the explanation of problems in implementation of kVAh billing.

12. To provide the monthly energy demand and availability and its plan of scheduling power in accordance to MoD on quarterly basis.

    Being submitted to the Commission on monthly basis.

13. To take prior approval for purchasing energy from unapproved sources for quantum and rate than that specified by the Commission in this Tariff Order.

14. To take prior approval for power procurement with variable cost more than Rs.3.50 from un approved sources and sources not getting dispatched under MoD, before purchasing energy.

    Based on the generation requirement from SLDC, a Miscellaneous petition for tentative dispatching of power from the high cost IPPs and traders were submitted before the Hon'ble TNERC.

15. To pay transmission charges determined by the Commission to TANTRANSCO based on the allotted transmission capacity for FY 2013-14.

    Due to critical financial position of TANGEDCO, the payment commitment to TANTRANSCO could not be met fully. However the monthly payment commitment of TANTRANSCO is being met by the TANGEDCO. The entire obligation of TANGEDCO towards TANTRANSCO would be met in due course of time.

16. To file quarterly FPCA petitions starting this October, to recover the actual cost of fuel incurred and the actual cost of power purchase.

    Necessary action is being taken.

17. To start maintaining regulatory accounts for the purpose of ARR.

    A detailed report submitted with the Commission

18. To comply with various provision of Energy Conservation Act 2001 pertaining to energy audit.

As per the provisions made available in the EC Act 2001, the State Designated Agency (SDA) i.e., the Tamil Nadu Electrical Inspectorate (TNEI) has been nominated by Bureau of Energy Efficiency (BEE) in consultation with GoTN to carry out the schemes on Energy Conservation and other allied activities in the state of Tamil Nadu.

TANGEDCO as such could not insist for energy audit among industries/ commercial establishments on its own.

GoTN had already been addressed in this regard. Subsequently the Secretary to Government, Energy Dept in his letter dated 28.02.2013 has directed CMD/TANGEDCO and CEIG to initiate action for implementing energy conservation on all the consumers with electrical installations exceeding 650 V other than Designated Consumers (DCs).

As directed by GoTN, TANGEDCO extends all possible co-operation to CEIG in implementation of Energy Audit for the above said consumers.

TANGEDCO Board has initiated all possible steps in all Thermal & Gas Power Plants of TANGEDCO being a Designated Consumer (DC) to meet out Energy Consumption (EC) norms and specified standards based on the notifications issued by the Ministry of Power (MOP), Govt. of India on Perform, Achieve and Trade (PAT) scheme as part of National Mission of Enhanced Energy Efficiency (NMEEE) vide S.O. 687(E) dt.30.03.201 and PAT Rules vide GSR No. 269(E) dt.30.03.2012. The first cycle period is from 01.04.2012 to 31.03.2015. Action is being taken by the concerned Chief Engineers of Thermal and Gas power stations in this regard.

19. To submit a study report on computation of voltage wise ‘cost to serve’(CoS) along with the basis of allocation of different costs and losses to various voltage levels. The Commission also directs TANGEDCO to submit the action taken report within 90 days of the issuance of this order.

    Has been complied with.

20. Finalize its transfer scheme through GoTN at the earliest and reconcile the GFA, CWIP and capitalization schedules

    Final transfer scheme for assets and liabilities has been submitted to GOTN on 05.11.14. Approval is awaited.

    To conduct a third party scientific study to arrive at the reasonable consumption of unmetered services and thereby the technical losses of their network.

Anna University was entrusted with a consultancy work contract to arrive at the Agricultural and hut service consumption and T&D loss of TANGEDCO. In this connection Anna University has selected V.M.Natham feeder of Sethiathope 110/11 KV SS in Cuddalore EDC for the study and to develop the software model.

All the required data pertaining to the V.M. Natham feeder and the service connections connected in the DTs of the feeder were furnished to Anna University. Anna University has submitted the preliminary report on 23.04.13. The total distribution loss for the feeder was worked out to 15.6% of feeder loads with load shedding. A presentation was given by Anna University on the above report to CMD on 02.07.13. CMD during the meeting directed to furnish one more set of data of the feeder without load shedding to Anna University for the month of Aug'13 & Sep'13 so as to revalidate the model.

As per the direction of CMD/TANGEDCO all the readings of the V.M Natham feeder without load shedding as per the required format were furnished to Anna University to complete the formulation of software model.

Anna University will be doing the presentation on the final report and user model developed by them shortly.

Absence of reliable and adequate data and information

2.459 The Hon'ble Commission had posted TANGEDCO's audited annual accounts for the year 2011-12 and 2012-13 in Commission website.

2.460 The Accounts for the year 2013-14 was submitted to AG for certification. The provisional accounts for the year 2013-14 have been submitted to the Hon'ble Commission.

2.461 Further, TANGEDCO submitted the periodical information such as sales, power purchase, performance of generating stations, reliability index, etc. to the Commission. Based on available data, the Commission initiated the suo-motu tariff revision for the year 2014-15.

2.462 In addition to that TANGEDCO has submitted necessary details with regard to tariff proposal to the Hon'ble Commission.

2.463 With the available information, Commission arrived at provisional ARR for the year 2014-15 and published in their website.

Transfer scheme and Inflated Asset base

2.464 The opening balances considered by the Hon'ble Commission in its last tariff orders are in line with the provisional transfer scheme approved by the Government of Tamil Nadu vide G.O. No. 100, Dt.02.01.2012.

2.465 Report on Final transfer scheme has been submitted to the GOTN on 05.11.14. Pending approval of final transfer scheme by GOTN. The opening balances are considered based on the provisionally approved transfer scheme by the Government.

2.466 Pending approval of final transfer of assets by Board of TNEB Ltd and issuance of Government Order on Assets Transfer Scheme, further 6 months of time extension i.e. time up to 30-04-2015 has been sought for from GoTN.

2.467 Once, the final transfer scheme is notified the same will be taken into account.

2.468 Reasons for purchase of high cost power

(i) In Tamil Nadu, the demand for electricity is on the increasing trend during the last few years. In the year 2012-13, the electricity consumption was 67208 million units. This increased to 76445 million units in the year 2013-14 which was about 14% increase over the previous year. But, the estimated consumption for the FY 2014-15 is 91642 million units. The estimation is about 20% higher than that of the previous year of 2013-14.

(ii) The total requirement of 91642 million units is expected to be met through the following sources. Around 34253 million units (37.37% of total estimated requirement) from TANGEDCO's own generating stations, 30534 million units (33.32% of total estimated requirement) from Central Generating Stations and 6082 million units (6.64% of total estimated requirement) from Non-Conventional Energy Sources. The balance requirement of power up to 16.28% of total demand is purchased through open tender system which covers 5007 million units through Long Term Agreements, 3723million units from Medium Term Agreements and 6185 million units from Short Term Agreements. Apart from the above,2829 million units (3.08% of estimated consumption) is purchased from low cost Independent Power Producers (IPPs) and 2950million units (3.21% of estimated consumption) from high cost IPPs.

(iii) TANGEDCO is giving top priority for purchase of required power from these low cost IPPs in the first instance and then power from high cost IPPs is purchased through step by step upward increase in the pricing trend till our demand is met. Such Merit Order Dispatch has been stipulated by TNERC and strictly followed by TANGEDCO.

(iv) From the above, it could be seen that only after exhausting power from TANGEDCO's own generating stations and share from Central Generating Stations totaling together up to 70% of the total estimated demand, the balance 30% of power is purchased through other sources till the State's demand is fulfilled. However, top priority is being given for purchase of low cost power from other sources.

(v) Through this low cost power purchase, 6082 million units of power is purchased from Non-Conventional Energy Sources which contributes only 6.64% of total estimated demand. In particular, power from wind mill sources is 4650 million units and the average cost of purchase is Rs.3.15 per unit. Normally, wind mills are capable of producing maximum power only for about 4 months period particularly from June to September. Apart from the above, 1432 million units is purchased from other Non-Conventional sources which contributes only 1.56% of total estimated demand of 91642 million units. Such power is purchased at the rate already fixed by the TNERC and thereby complying the Renewable Purchase Obligations (RPO) Regulations as well.

(vi) It is further submitted that2829 million units of power is purchased from other Private Power Producers, viz. ST-CMS, Pioneer (Penna) and Lanco ABAN at the next lower rate of Rs.4.04 per unit.

(vii) It is further submitted that 3000 MW of power from the already entered Long Term Agreements for about 15 years will be purchased at the levelised tariff rate of Rs.4.91 per unit. At present, TANGEDCO is getting 224 MW of power from the above agreement and by the end of this Financial Year, TANGEDCO is expected to get 1423 MW of power. Through Long Term Agreements, totally 5007 million units is expected to be purchased.

(viii) Further to the above, 3723 million units is being purchased at Rs.4.96 per unit on Medium Term Agreements.

(ix) Apart from the above, power is purchased from Private Power Producers from both Tamil Nadu and other States through Open Tender basis in accordance with the Tamil Nadu Transparency in Tenders Act, 1998 and the Tamil Nadu Transparency in Tenders Rules made thereunder. By this process, 773MW of power at the rate of Rs. 4.93 per unit is purchase from other state IPPs.

(x) It is further submitted that 1393 MW of power at the rate of Rs.5.50 per unit is purchased from local Private Power Producers through open tender system. Such producers are generating power by using the imported coal. Hence, their cost of production is slightly higher than the power producers from other States. As far as other State Power Producers are concerned, they generate power by using indigenous coal available in their States. Moreover, their generating stations are located near the coal mines and the cost of transportation of coal from the mines to their respective stations is considerably minimum. Hence, they are capable of supplying power at a lower cost when compared to the private power producers in Tamil Nadu. Further, there are lot of constraints in bringing power from other States to Tamil Nadu including due to lack of required Interstate Transmission Corridors. In view of such difficulties, TANGEDCO is not able to bring the full quantity of 773 MW of power for which agreements have already been entered. As present, power from other States availed through Short Term Agreements is 150 MW only.

(xi) After exhausting the low cost power purchase to the maximum extent possible, TANGEDCO in order to meet the balance shortage of power, is purchasing 2950 million units (3% of total estimated demand) of power from local private power producers with whom Long Term Agreement have already been entered. Even though, power from such producers is not purchased on permanent basis but only at the time of school/college students night study, examination times, festival seasons and at all times of crisis. However, such procurement is subject to exhausting power from all other sources. Purchase of power from these sources varies day to day and time to time. Whenever, Power is available at low cost, purchase of power from these producers is stopped immediately.

(xii) It could be relevant to point out that power from such sources is purchased only upto 40% of their production capacity. Their average production cost is around Rs.14.00per unit, out of which Rs.12.50 is being spent by them for variable cost (i.e. fuel cost). Such variable cost, directly goes to the Public Sector Undertakings, viz IOC and BPCL. Only the balance cost of Rs.1.50 per unit goes to the producers.

(xiii) Based on the Central Government's Policy evolved during the year 1992 with a view to promote Private Sector participation in generation of power, an agreements were entered into between 1996 and 1999 for purchase of power from 7 Independent Power Producers, out of which, three IPPs are using LSHS as fuel and one IPP is using Naptha as fuel. Of the remaining three IPPs, only two IPPs are using Natural gas as fuel and one IPP is using Lignite. At the time of initial operation of their plant, the cost of LSHS per Metric Tonne was Rs.8400 and the cost of Naptha per metric Tonne was 14,780. But, the prices of above fuels have considerably increased over the years and at present the rates are Rs.54,000/- and Rs.73,100/- per metric tonne respective which is the main reason for their high cost of power production. Hence, their cost of supply is at the rate Rs.14.00 per unit.

(xiv) As far as short term agreements are concerned, power is purchased from February 2008 from other State power producers and from March 2009 from power producers within the State.

(xv) During 2007 to 2008, power from other State power producers was purchased at the rate of Rs.7.25 per unit. However, at present, power is purchased at a lower cost of Rs.4.93 per unit. In the same manner, power from local private power producers were purchased from 2009 at the rate of Rs.6.70 per unit. But the present rate of power purchase cost isRs.5.50per unit and power is purchased during the last three years at the same rate.

(xvi) It also submitted that power is also purchased through the power traders, viz, Indian Energy Exchange (IEX) and Power Exchange of India (PEX). However, TANGEDCO is not able to purchase sufficient quantity of power from them in view of non-availability of Inter-State Transmission Corridors and also instability in their prices. In view of lack of Inter-State Transmission Corridors, TANGEDCO is not able to bring sufficient quantity of power from Andhra and Karnataka to Tamil Nadu and Kerala through the Southern Grid.

(xvii) It is also submitted that if power is purchased at the rate of Rs.3.50 per unit as fixed by the TNERC, then TANGEDCO will be in a position to distribute only around 9800 MW of power (75% of estimated power) and, inturn, TANGEDCO would have to resort to load shedding. In the event of not meeting the balance demand, the industries, agriculture sector, students and domestic users will be severely affected. Taking into account the above reasons and in order to avoid enforcing such hardships to all categories of consumers, power is being purchased from all the sources to meet the demand.

Energy Sales

2.469 TANGEDCO introduced R&C measures to certain categories of consumers from the year 2007-08. During FY 2013-14 new plant of Mettur Stage III got commissioned. In addition to this several new Central generating plants got commissioned during this period. Due to these reasons, the power scenario was better in FY 2013-14 as compared to FY 2012-13

2.470 The actual sales data for the year 2013-14 have also been submitted to the Commission

2.471 Considering the plants commissioned during 2013-14 and upcoming new projects during FY 2014-15, the Commission projected the sales for the year 2014-15.

2.472 The sales are further expected to increase in FY 2014-15 considering the new upcoming plant NCTPS Stage II and several new CGS stations.

O&M Expenses

2.473 It is informed that the escalations considered for deriving the O&M expenses are based on the escalation rates mentioned in the TNERC Tariff Regulations.

2.474 (ii) The Regulations were notified after considering all the comments from the stakeholders and then finalized. It is therefore submitted that these expenses may be allowed in line with the Regulations.

Capital Expenditure, Capitalisation and Issue of filing separate petitions for new generating stations

2.475 The breakup of details actual Capital Expenditure and Capitalization has already been submitted to the Commission on quarterly basis in the format prescribed by the Commission. The actual capital expenditure has been submitted upto 1st quarter of 2014-15.

Fixed expense and variable charge calculations

2.476 The Commission is allowing the fixed cost based on norms specified in the TNERC Tariff Regulations; Further the fixed cost have been subject to availability of plant as specified in the Regulations.

2.477 In case the licensee is able to achieve the target availability; they are eligible for full cost recovery. It is therefore submitted that fixed cost have been derived based on these components.

Commission's view

Matter of Suo-motu proceedings

2.478 It is important to understand the underlying provisions of Tariff Policy instead of giving a plain vanilla reading of the guidelines. The tariff policy envisages that the tariff determination process is a timely and a continuous process.

2.479 Commission also would like to draw attention to the same APTEL order on OP No. 1 of 2011 dated 11th November 2011. Interestingly this Commission raised similar queries to the APTEL with reference to the same matter of tariff revision. The question as aptly summarised and framed by Honorable APTEL in its Order was:

17. (i)Whether the State Regulatory Commissions have the jurisdiction to suo-motu initiate proceedings for determination of tariff under section 62, 64 and 86 of the Electricity Act, 2003 in the absence of the Tariff application to be filed by the Utilities under Section 64 of the Act ?

....

20. (i) Whether the State Commissions can initiate suo-motu proceedings for determination of tariff ?

(ii) If so, can the State Commissions determine the tariff without such filing of tariff application by the Utilities?

2.480 Discussing the queries Hon'ble ATE made some important observations and remarks on the same queries:

(22)If there is any lack of diligence on the part of the utility which led to the delay, then the State Commissions have to intervene and to play a proactive role in accordance with the Regulations framed and the Statutory policy issued for the tariff determination in time.

(41) The Hon'ble Supreme Court has held that the Regulations framed by the Commissions are binding as a delegated legislation on the Commissions and as such the Regulatory Commissions are obliged to determine tariff in exercise of the powers in accordance with these Regulations.

(43) It is settled position of law that the procedures as provided under section 64 of the Act are to be considered as handmaid of justice which cannot be read in a manner to frustrate the letter and spirit of the underlying statutory provisions and substantive rights related to regular, cost reflective tariff determination and the statements of objects and reasons read with Section 62 of the Electricity Act. Further, as held by the Hon'ble Supreme Court as well as this Tribunal in various decisions that the quasi-judicial authorities (like the State Electricity Regulatory Commissions) are vested with more liberal powers to adopt more flexible processes to fulfil their statutory objectives with purposeful efficiency.

2.481 And APTEL has ruled on the matter as follows:

44. In view of the ratio laid down in these decisions, the contention of these three State Commissions that the only option available with the Commission is merely to ask the licensee to comply with the provision of the Act and to file the tariff petition under section 64 and nothing more is wholly misconceived and misplaced. Therefore, we are to conclude that the State Commissions can initiate suo-motu proceedings and collect the data and information and give suitable directions and then to determine the tariff even in the absence of the application filed by the utilities by exercising the powers under the provisions of the Act as well as the tariff regulations.

2.482 The important section of this decision is "even in absence of application" the Commission can determine tariff by collecting data and information and the second most important observation in (43) above is that *quasi-judicial authorities (like State Electricity Regulatory Commissions) are vested with more liberal powers to adopt more flexible processes to fulfil their statutory objectives with purposeful efficiency.* This Commission would like to reiterate that the procedures of Section 64 are not be read in a manner that frustrates the letter and spirit of the underlying statutory provisions. The above ruling also makes it amply clear that this Commission has got the jurisdiction to suo-motu determine the tariff in the absence of tariff application filed by the Utilities. The Commission would now like to state that

- TNERC had followed Tariff Regulations 2005 which provides the Commission powers to initiate tariff determination on Suo-motu basis, which followed the National Tariff Policy which are in consonance with the provisions of the Electricity Act, 2003.

- Suo-motu tariff determination initiated by the TNERC as it is, is not violative of section 64 of the Electricity Act.

- TNERC can undertake tariff determination even when the tariff application is not filed by the Utilities before the Commission. Regulatory Commissions should not restrict themselves merely to ask the Utilities to comply with the provisions of the Act and to file a tariff petition and nothing more.

2.483 In addition it is pertinent to note the history of accumulated losses of TANGEDCO. The first tariff petition was filed by in September, 2002 on the basis of which the State Commission passed the tariff order dated 15.3.2003. Thereafter, the petition for determination of tariff was filed only on 18.1.2010 for the Control Period 2010-13. During the intervening period the TANGEDCO has accumulated huge financial losses. The reasons also have been discussed in great detail in the past orders passed by this Commission. While the load has been growing continuously, the capacity addition has not kept pace with the increasing demand. Consequently power was purchased from the market. Similar problems were faced by most other States as well. The spare capacity available in the market was scarce. The market became a seller market and power had to be purchased at a hefty premium. The tariff has not kept pace with the increase in costs with tariff revisions only in 2003 and then in 2010.

2.484 The Commission in its earlier Orders through its various Statutory advices has suggested to the Government of Tamil Nadu to take care of the accumulated losses up to the unbundling period so that the burden of the same is not passed on to the consumers. Government has agreed to the request of the Commission for amortization of regulatory asset.

2.485 Given the above this Commission is fully aware of consequences of unaddressed revenue gap and regulatory asset. In order to ensure smooth operation of the system and in the larger interest of consumers receiving reliable power supply from the utility, the Commission has decided to suo-motu determine the ARR and Tariff for FY 2014-15 by virtue of powers vested in it under the TNERC Regulations and the Act.

Non-compliance of directives issued by the Commission

2.486 Certain Directives are ongoing in nature like maintenance of Quality of supply, monitoring the on-going projects so that they are commissioned without further delay, amount approved for R&M expenses should not be diverted for any other purpose, etc. These are being monitored regularly by the Commission. Please refer to the reply of TNAGEDCO in this regard. It can be inferred that some of the directives have been complied with, some are ongoing and some are not complied with, which are being taken up by the Commission.

Matter of Undue Delay

2.487 This Commission is fully aware that APTEL in its Judgement OP No 1 of 2011 has directed that State Commissions must initiate suo-motu proceedings for tariff determination if utilities fail to submit the petition beyond one month of scheduled date submission i.e. in this case after 31st December 2013.

2.488 With TANGEDCO not filing any petition the Commission decided to go ahead with the information already available as submitted by TANGEDCO under compliance to directives issued in the previous orders.

2.489 It is also important to understand that suo-motu tariff determination is not an easy process by any measure. A large amount of data is required for determination of tariff and without a tariff petition by the licensee, the Commission had to put in significant efforts to collect and collate the necessary data.

Absence of reliable and adequate data and information

2.490 The Commission has published an abridged document in various newspapers. A detailed summary of various items of ARR viz. Generation expenses, Power purchase costs, Depreciation, O&M expenses, Interest on long term loans, Return on Equity, etc. and additionally revenue from sale of power, other income etc. were all provided in the Summary document hosted in the website of the Commission.

2.491 Post issuance of public notice, the Commission had hosted on the its website the Annual reports of FY 11-12 and FY 12-13, and Budget Estimates for FY 14-15, MIS Reports in respect of power purchase, Quarterly sales return and Generation details.

Transfer scheme and Inflated Asset base

2.492 The Tariff Petition TP 1 of 2011 filed by TANGEDCO was the first Tariff Petition for fixation of retail tariff for the year 2012-13 after the unbundling and issue of transfer scheme by the Government of Tamil Nadu. The Transfer scheme dated 19-10-2010 is a provisional Transfer Scheme, addresses various issues like transfer of assets, revaluation of assets and partly address the accumulated losses. This Transfer Scheme also envisages deployment of staff of the erstwhile TNEB in the TANGEDCO and TANTRANSCO. The Commission in its earlier Tariff Order No. 3 of 2010 dated 31-07-2010 had suggested in line with the National Electricity Policy (para 5.4.3) and Tariff Policy that the accumulated losses should not be passed on to the successor entities and financial restructuring has to be resorted to clean up the Balance Sheet of the successor companies and allow them to start on a clean slate so that the successor entities can start performing better.

2.493 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 October 2012. The same has been appended as Annexure VIII.

2.494 This Transfer Scheme is also provisional and is subject to revision. The transactions for 7 months i.e. from 1st April 2010 to 30th October, 2010 do not get reflected in the opening balance sheet of the TANGEDCO as specified in the Transfer Scheme

2.495 In the absence of availability of opening balances based on the final Notification of GoTN, as per transfer scheme, TANGEDCO in the last tariff petition has considered the opening balance as per the provisional transfer scheme notified on 2nd January 2012. Hence, Commission is of the view that once the final transfer scheme is notified by the State Government, the impact due to revision in the opening balance of Fixed Assets, Loan and Equity may have to be revisited and accounted during the tariff determination process of the concerned year.

2.496 During the discussion, TANGEDCO has informed that revaluation of assets is still underway and the GFA as on Nov 2010 will be only finalized in the final transfer scheme. The GFA in the TANGEDCO Petition was inclusive of revaluation reserve as per provisional transfer scheme. However, in reply to data gaps, TANGEDCO has revised the GFA excluding the revaluation reserve and segregated the loans and other expenses between generation business and distribution business based on the GFA prior to revaluation reserve. TANGEDCO also clarified that revaluation reserve will not have any major impact in depreciation calculations as the increase in GFA was majorly due to revaluation of land.

2.497 Commission is of the view that revaluation of assets is just a book adjustment that neither requires any fund nor generates additional cash flow. Also as revaluation of assets being not finalized, Commission in the said order accepted TANGEDCO's revised submission and based its calculations on GFA without revaluation reserve. The opening GFA as on November 2010 is considered by the Commission for the purpose of determination of ARR.

2.498 However Commission has undertaken thorough diligence while approving expenses. Commission allowed depreciation after considering GFA without revaluation reserve and without assets which have already lived their useful life. RoE was calculated based on actual equity pumped in 2009-10 and Interest on long term loans based on actual borrowings and repayments function wise in 2009-10. It is evident that the Commission has not accepted any and every submission provided by TANGEDCO.

2.499 Commission in its Order in 2012, given the financial crisis that the utilities were undergoing and the fact they were still in transition and any disallowance on interest expenses would impeded their ability to borrow funds from the market, has decided to allow the interest expenses.

2.500 However in its order in 2013, the Commission has undertaken a detailed exercise to identify the long term loans and repayments towards capital expenditure and allowed interests only on such expense and disallowed expenses on funds diverted for revenue expenses. The same principles highlighted in the last order are applied for determination of interest expense for FY 2014-15 as well to ensure imprudent costs are not passed on to consumers.

2.501 The approach adopted by the State Commission has already been accepted by the Tribunal in its judgment in Appeal No. 102 of 2012. The State Commission has considered the opening balance of loans as on 01.11.2010 based on the Provisional Transfer Scheme notified as on 02.01.2012. The State Commission has not allowed return on equity for the distribution licensee. This has led to net reduction of expenditure.

Energy Sales

2.502 The Commission has approved the energy sales only after carrying out necessary prudence checks. The broad principles are as highlighted below:

- The Commission has approved sales based on data available in audited accounts for FY 2011-12, FY 2012-13 and annual statement of accounts for FY 2013-14 and after adjusting for wheeled units in sales and power purchase for all 3 years. The wheeling units have been adjusted against three consumer categories namely; HT IA, HT III and HT IIB.

- While adjusting wheeled units Commission has taken due cognizance of the R&C imposed on HT consumers and Load shedding imposed on various other categories of consumers.

- Commission has not considered the sale of power to Puducherry as well as wheeled units in its sales estimate.

- Sales to Agricultural and Hut consumers have been considered at the same level as estimated in its previous Tariff Order dated June 20 2013.

- For un-metered categories of Hut and Agriculture, the Commission has considered the numbers as approved by it for FY 2013-14 in its last tariff order.

2.503 The increase in sales to HT Industrial Category in FY 2013-14 is attributed to the relaxation of R&C and load shedding during the year. As per Lr. (Ms.) No. 81/A1/2013 dated 13.08.2013, R&C was totally relaxed for HT IA and HT III services other than peak hours. During peak hours only 40% cut (instead of 90%) was imposed as a temporary measure upto 30.09.2013. Further according to Lr. (Ms.) No. 97 dt. 30.09.2013, 20% Power cut was proposed for HT IA and HT III services except peak hours. During Peak hours all HT IA and HT III consumers were permitted to draw 10% quota for lighting and security purpose.

2.504 The sales figures for 2014-15 have been approved by the Commission on the following basis.

a) Sale to Metered categories: The Commission has accepted the category-wise sales data submitted by TANGEDCO for FY 2014-15 except for sales to Puducherry.

b) Sale to Un-Metered categories: For un-metered categories of Hut and Agriculture, the Commission has relied on the numbers as approved by it for FY 2014-15 in its last Tariff Order.

Energy Balance, Generation and Power Purchase

2.505 Commission had initiated the suo-motu proceedings against TANGEDCO for noncompliance in the matter of T&D loss determination as directed by it and as per the directions of the Hon'ble APTEL. After the suo-mot review this Commission has passed the following judgement:

"The Commission in its Order No.1 of 2012 dated 30-3-2012, had adopted the T&D loss of 17.6% for 2010-11 and 17.2% for 2011-12. Commission adopted T&D loss of 16.80% for 2012-13. By the same analogy, T&D loss of 16.40% is approved for 2013-14. As and when the TANGEDCO comes out with the scientific study on T&D loss as specified in the Regulations, the Commission may review and refix the T&D loss norms subject to prudent check. If no study report is submitted for consideration of the Commission, T&D loss for FY 2014-15 shall be reckoned as 16% and for FY 2015-16 shall be reckoned as 15.6%.

2.506 Commission has arrived at the energy requirement for TANGEDCO considering the approved sales and losses as per Suo-Motu order on distribution losses dated 4th June 2013.

2.507 With regard to Energy availability, the Commission has estimated the availability from own generating stations after considering energy available from both existing as well as new generation stations. The Commission has accepted the PLFs and Auxiliary consumption numbers as submitted by TANGEDCO for the purpose estimating energy availability for FY 2012-13 and FY 2013-14.

2.508 In case of Power purchase from other sources for FY 2011-12, Commission is considering power purchase quantum that was approved in last year's tariff order due to unavailability of source wise procurement details.

2.509 For FY 2012-13 and FY 2013-14, Commission has accepted the data as submitted by TANGEDCO on actual power purchased by source since it is in accordance with the approach adopted by the Commission in its last order.

O&M Expenses

2.510 Commission is guided by following regulations

2.78 Regulation-25 of TNERC Tariff Regulations:

"25. Operation and Maintenance Expenses

The operation and maintenance expenses shall be derived on the basis of actual operation and maintenance expenses for the past five years previous to current year based on the audited Annual Accounts excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission. The Commission may, if considered necessary engage Consultant / Auditors in the process of prudence check for correctness.

The average of such normative operation and maintenance expenses after prudence check shall be escalated at the rate of 4% per annum to arrive at operation and maintenance expenses for current year i.e. base year and ensuing year.

The base operation and maintenance expenses so determined shall be escalated further at the rate of 4% per annum to arrive at permissible operation and maintenance expenses for the relevant years of tariff period…"

2.511 TANGEDCO has submitted its audited accounts for FY 2011-12, FY 2012-13, and annual statement of accounts for FY 2013-14 that provides information on the actual O&M expenses (incl. employee expenses, R&M expenses and A&G expenses) incurred by TANGEDCO. However, the segregated amounts for generation and distribution businesses were not provided.

2.512 Hence the Commission has considered the O&M expenses as approved in its last Tariff Order passed on 20th June 2013, for the years FY 2011-12 to FY 2013-14 for A&G and R&M Expenses and for FY 2011-12 and FY 2012-13 for Employee expenses. Employee Expenses for FY 2013-14 were approved by applying 4% escalation based on the regulation except for DA. DA rates for FY 2013-14 have been updated as per the latest Government Orders. This was also upheld by Hon'ble ATE in Appeal Petition No. 196 and 199 of 2013, dated 27-10-2014.

2.513 Commission acknowledges the usefulness of benchmarking expenses as a tool but opines that a simple comparison across utilities is meaningless, as factors like, vintage of the plants, make of the plants etc. will largely vary across utilities hence rendering it incomparable.

Capital Expenditure, Capitalisation and Issue of filing separate petitions for new generating stations

2.514 The Commission has examined the capital expenditure and capitalisation in general and has allowed all prudent expenditure on provisional basis subject to further scrutiny.

2.515 TANGEDCO has filed quarterly capex plans and resource reviews. However, the information provided does not cover all Stations and actual total capitalisation and Capital Work in progress for each station.

2.516 TANGEDCO has provided information about the capital expenditure incurred for new plants i.e. NCTPS Stage II (Unit 1 & Unit 2) and MTPS Stage III for FY 2012-13 onwards. Hence pending the filing of a detailed investment plan and approval of the same, for the existing and new stations Commission has considered the capex as approved in its last tariff order. Additions to GFA have also been considered the same as approved in last tariff order.

2.517 For FY 2014-15 TANGEDCO has provided a brief resource review plan that briefed the expected capital expenditure for new plants. In the absence of a detailed report from TANGEDCO on scheme wise capital investment and capitalization, Commission has considered the capital expenditure and capitalisation as approved for FY 2014-15, in its last tariff order.

2.518 Commission in its last tariff order directed TANGEDCO to file separate petitions based on TNERC Regulations duly certified by the statutory auditor along with relevant generating station accounts within 90 days of issuance of the Order. In accordance with the directive TANGEDCO has submitted petitions for all the new hydro generating stations as well the thermal stations. The petitions have been admitted and numbered as MAP No 1 of 2013 and MAP No.2 of 2013. The petitions are in the process of being reviewed by the Commission.

2.519 Commission has directed TANGEDCO to reconcile its accounts with respect to capital expenditure and prepare the scheme wise data as per the formats specified by the Commission and also file the progress of the capital expenditure and capitalization on quarterly basis.

Fixed expense and variable charge calculations

2.520 Commission's approved approach for PLFs for FY 2011-12, 2012-13 and FY 2013-14 is already explained in response to stakeholder comment on Energy Balance.

2.521 For FY 2014-15 Commission has observed that PLFs provided by TANGEDCO for all thermal plants except for Ennore TPS, Tuticorin TPS and Mettur TPS are not in line with the norms set by the tariff regulation. The Commission took a stance that in the existing power deficit scenario, all thermal power generating stations need to perform at optimal PLFs in order to avoid any additional power purchases from other costly sources. Hence the Commission considered PLFs either as approved in last tariff order or as projected by TANGEDCO, whichever is higher, for FY 2014-15.

2.522 While the Commission has approved higher PLFs based on historical performance and stipulated regulation for own generating stations for estimating energy availability, the recovery of capacity charges will be guided by the norms mentioned in Tariff Regulations.

2.523 For new CGS, TANGEDCO has considered a bundled tariff of Rs. 4.25 per unit. Commission has provisionally considered a fixed cost of Rs. 1.75 per unit and variable cost of Rs. 2.50 per unit for all new CGS which includes coal based as well as nuclear stations.

Power Purchase from Non-Conventional sources

2.524 TANGEDCO has projected availability of 8,385 MUs from non-conventional energy, captive and co-generation sources. In view of implementation of stringent Grid Code, which was necessitated due to the occurrence of blackout of several Northern States on 30th and 31st July, 2012 and Southern Grid now having been connected with NEW Grid to have a single integrated National grid, they have expressed major difficulty in consuming extra infirm power from Wind Energy Generators which is generated in bulk during June to September. Given the lack of clarity on ability of TANGEDCCO to consume the energy in full, Commission has considered the energy availability for FY 2014-15 as equal to that as approved for FY 2013-14 along with new capacity additions during the year.

Tariff Hike, Voltage wise cot to serve, Cross Subsidy reduction, Cross Subsidy Surcharge calculation

2.525 All these aspects are inter-related and have been dealt with in detail in tariff order No 1 of 2012. However Commission is reiterating the approach towards the three issues. The provisions regarding these three issues are extensively covered in the Order of Hon'ble Appellate Tribunal of Electricity dated 11th June 2012 in Appeal Nos. 57 of 2008, 155 of 2007, 125 of 2008, 45 of 2010, 40 of 2010, 196 of 2009, 199 of 2009, 163 of 2010, 6 of 2011 and 144 of 2010.

2.526 Cost to Serve, Average Cost of Supply and Cross Subsidy are also discussed extensively in the above referred Order of the Hon'ble Appellate Tribunal of Electricity in paragraphs, 36, 37, 38 and 39 and also in Appeal no.196 and 199 of 2013 Order dated 27-10-2014.

2.527 The Commission would like to mention that the average cost of supply for FY 2014-15 is at Rs. 5.77/unit when compared to Rs. 5.24/unit last year for FY 2013-14, is a 10% increase. If the last year tariff was one which allowed full recovery of ARR, it would further have to be increased by 10% at a minimum, for all categories to meet the increase in average cost. Since this is not the case and a substantial gap was left uncovered in the last tariff order itself, a higher increase was necessitated to enable the utility to recover its costs. This being said, the Commission taking cognisance of the fact that a disproportionate increase to only the subsidising categories would cause them a tariff shock, has increased the retail tariffs for all consumer categories equitably, thus attempting to retain the cross subsidy atleast at the existing levels and not higher as compared to last year.

2.528 The Commission is also underway in reviewing the study report submitted by TANGEDCO for voltage wise cost to serve. It intends to use the findings of this study as the basis for chalking out the said roadmap which will have intermediate milestones with an intention of gradual reduction in cross subsidy levels. Hence the Commission shall along with the determination of cross subsidy for 2012-13 to 2014-15 for all consumer categories also design a forward looking road map along with its next tariff order.

2.529 There is a need to understand the tenets of ARR and Tariff Determination. Section 62 of the Act vests power with the Commission to determine tariffs for generation, transmission and distribution of power and Section 61 of the Act outlines specific guidelines for determination of tariff. Based on the same the Commission has issued the Regulation on Terms and Conditions of Tariff. Principles outlined in this regulation take into consideration a number of factors for determining the costs and returns for each of the businesses.

2.530 For Tariff design of FY 2014-15, the Commission has allowed only reasonable cost elements of ARR. Based on this allowance; the Commission has determined Net Revenue Requirement recoverable from tariff. The Commission in this Order has adopted a Tariff Philosophy to allow incremental revenue from approved tariff matching with the net additional revenue requirement, thereby designing the tariff for FY 2014-15 on revenue neutral basis.

2.531 With regard to Cross subsidy surcharge calculation, the Commission has taken cognisance of the Appellate Tribunal's direction on this matter in its judgement on Appeal 196 & 199 dated 27th Oct, 2014. The correction of the Cross Subsidy Surcharge for FY 2013-14 as per the above judgement of the Appellate Tribunal, has been addressed in this Order. In the current order the Commission has followed the methodology as stipulated.

Time of Day Tariff

2.532 With regards to peak hour charge of 20% of energy charge, the Commission opines that during the Peak hours, marginal cost of power procurement is higher and being a revenue neutral regulated business, a pass through mechanism has to be made available to the Utility to recover its cost and also to disincentives the avoidable consumption during the peak period. Further TANGEDCO in line with the direction given by the Commission in its last tariff order, has submitted a preliminary study report assessing the cost of power purchase during various time slabs during the day, for the year 2013-14 with the aim of determining any variations in power purchase cost during such time intervals and with the imposition of R&C on consumers. The Commission pending the scrutiny of this report will continue with the present peak and off-peak charges.

2.533 As per APTEL's Order it will be incorporated in FY2015-16 Order after taking a decision on the stand taken by TANGEDCO.

Demand Charges

2.534 Recovery of Demand Charges is in the Tamil Nadu Electricity Supply Code, 2004. 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 contracted demand whichever is higher.

2.535 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 measure, whichever is higher.

Harmonics

2.536 Harmonics has been discussed in detail in Tariff Schedule and the same is in force from 2013-14 Order. CEA's regulation on Technical Standards for Connectivity to Grid stipulates certain voltage and current harmonics that is applicable to distribution systems and bulk consumers. This has been incorporated in the Commission regulation.

Power Factor Incentive

2.537 The TNERC Terms and conditions of tariff regulations or the Distribution Supply Code do not contain any provisions for providing Power Factor Incentive.

2.538 The relevant extract from the Regulations is as below:

12. Power factor - The Commission may direct certain categories of consumers to maintain power factor at a prescribed level and levy disincentive for maintaining below the prescribed level.

Regulatory Asset

2.539 The Tariff Policy stipulates creation of the regulatory asset only as an exception subject to the guidelines specified above. According to the guidelines the circumstances under which the regulatory assets should be created are under natural causes or force majeure conditions. The relevant extract is as given below:

8.2.2. The facility of a regulatory asset has been adopted by some Regulatory Commissions in the past to limit tariff impact in a particular year. This should be done only as exception, and subject to the following guidelines:

a. The circumstances should be clearly defined through regulations, and should only include natural causes or force majeure conditions. Under business as usual conditions, the opening balances of uncovered gap must be covered through transition financing arrangement or capital restructuring;

b. Carrying cost of Regulatory Asset should be allowed to the utilities;

c. Recovery of Regulatory Asset should be time-bound and within a period not exceeding three years at the most and preferably within control period;

d. The use of the facility of Regulatory Asset should not be repetitive.

e. 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".

2.540 Commission has estimated Regulatory Asset of Rs. 25,686 Crs at the end of FY 2014-15 Crores after considering the amortized regulatory asset. Further, the GoTN as per Point 4(f) of Letter (Ms) No. 59/C2/2012, dated 7th June 2013 has agreed in principle with a request for amortisation of regulatory assets.

2.541 Further inclusion of regulatory asset to the extent of revenue gap is not possible.

Public hearing locations

2.542 Depending upon the time availability and other requirements every year, the places of Public Hearing will be decided by the Commission. Conducting of Public Hearing in all district headquarters is not feasible. The places of Public Hearing and time of the public hearing are published well in advance in two leading English and two Tamil daily Newspapers which have a wide coverage to reach the public.

2.543 The details of tariff have been published as Public Notice in English and Tamil Newspapers. Further, the English and Tamil version of the Public Notice and Summary for determination of tariff is also hosted in the Commission's website.

A3: PROVISIONAL TRUE-UP FOR FY 2011-12, 2012-13 AND ANNUAL PERFORMANCE REVIEW FOR FY 2013-14

3.1 In the absence of a tariff petition from TANGEDCO, the Commission has sought for a suo-motu proceeding for Provisionally Truing up the expenditure and revenue for FY 2011-12 and FY 2012-13 based on the actual expenditure and revenue as per the Audited Accounts for the respective years. It has also sought to undertake the Annual Performance Review for the year FY 2013-14 based on the annual accounts as well as the estimates furnished by TANGEDCO. In this Section, the Commission has analysed all the elements of revenue and expenses for FY 2011-12, FY 2012-13 and FY 2013-14. However, in the absence of a detailed petition from TANGEDCO leading to limited availability of information, the Commission has undertaken to provisionally true-up the expenses and revenue in this order.

3.2 This chapter summarizes the stance taken by the Commission for provisional true-up for FY 12 and FY 13 and Annual Performance Review for FY 14.

Energy Sales – FY 12 and FY 13

3.3 The Commission in its previous Tariff Order had approved the category-wise energy sales after deducting the wheeled units and considering the past trend in the growth of category-wise sales. For FY 2011-12 and FY 2012-13, the Commission had relied upon Provisional accounts and actual sales till February respectively.

3.4 This year the Commission has considered the numbers as per Audited accounts for FY 2011-12 and FY 2012-13 for approving the sales quantum in the respective years. The category-wise energy sales (excluding wheeled units) as approved by the Commission last year vis-à-vis the sales quantum in the Audited accounts of TANGEDCO for FY 2011-12 and FY 2012-13 are tabulated below.

Table 1: Comparison of category-wise sales approved in the last Tariff Order and actual as per Audited accounts (MUs)

Particulars		2011-12		2012-13	
		Approved in the last order	Actual as per Audited account	Approved in the last order	Actual as per Audited account
High Tension Supply(HT)					
I-A	HT Industries	9,581	9,581	7,111	7747
I-B	Railway Traction	708	708	709	711
II-A	Govt. Educational Inst. Etc.	1251	1251	903	973
II-B	Pvt. Educational Inst. Etc.	227	227	224	232
II-C	Places of Public Worship	28	28	-	-
III	HT Commercial	1856	1856	1,312	1,341
IV	Lift Irrigation	6	6	4	5
V	Supply to Puducherry and Other	-	400	-	381

	States				
VI	Temporary	-	-	165	165
	Sub Total HT	**13,657**	**14,057**	**10,427**	**11,554**
Low Tension Supply(LT)					
I-A	Domestic	17,507	17,507	17,540	17,834
I-B	Huts	395	395	462	425
I-C	LT bulk supply	21	21	10	25
II-A	Public Lighting and Water Supply	1,700	1,700	1,652	1,468
II-B-1	Govt. Educational Inst. etc.	574	574	109	499
II-B-2	Pvt. Educational Inst. etc.	247	247	192	192
IIC	Places of Public Worship	101	101	93	95
IIIA 1	Cottage and Tiny Industries	562	562	134	463
IIIA 2	Power Looms	782	782	713	719
IIIB	L.T. Industries	3,953	3,953	4,280	3,880
IV	L.T. Agriculture	10,118	10,118	10,206	11,248
V	L.T. Commercial	4,296	4,296	4,841	4,691
VI	Temporary supply	25	25	36	36
	Sub Total LT	**40,281**	**40,281**	**40,268**	**41,574**
	Total HT + LT	**53,938**	**54,338**	**50,695**	**53,128**

3.5 The steep decrease in actual consumption for HT Consumer category in FY 2012-13 over FY 2011-12 can be attributed to the severe energy shortage in the State which led to imposing of additional R&C measures and Load shedding. This in turn has further led to consumers procuring more energy through open access.

3.6 The Commission after scrutiny of the audited accounts has approved the sales for FY 2011-12 and FY 2012-13 based on factors as noted below:

a) **Sale to Metered categories**: The Commission accepts the actual sales as per the audited accounts adjusted for wheeled units for all relevant metered categories of consumers. This is in light of the R&C imposed on HT Industries and Load shedding imposed on various other categories of consumers.

b) **Sales to Un-metered categories**: Sales to Agricultural and Hut consumers have been considered at the same level as estimated in its previous Tariff Order dated June 20 2013.

The estimation of sales to un-metered categories for FY 2012-13 was discussed in Section 3.17 of last year Tariff Order. The excerpt from the Order is given below:

***Un-metered categories**: TANGEDCO furnished the following information regarding sales to Hut and Agricultural consumption.*

c) ***Hut category (LT I-B)**: In its reply to the data gaps identified by the Commission, TANGEDCO submitted the revised details towards Hut consumption for FY 2012-13. The Commission observed that TANGEDCO has furnished its calculation of 426 MU, towards hut consumption on the basis of certain assumptions which are not in conformity with the Government Order (G.O.).Ms. No.2 dated 03-06-2011 issued by GoTN.*

Therefore the Commission recalculated consumption based on the details in the above mentioned G.O. The Commission has considered the wattage as specified by the GoTN and the hours of use as considered by TANGEDCO. Data furnished by TANGEDCO on the number of huts to which specific electrical appliances were distributed, has been considered by the Commission to arrive at consumption. The total quantum of huts was kept equal to that of FY 2011-12 in the wake of a decreasing trend in number of hut connections from FY 2010-11 onwards.

Table 2: Hut consumption as re-estimated by the Commission for FY 2012-13

Sl. No.	Appliance type	Numbers	Wattage	Hours	Days	Consumption (MUs)
1	Light	1,367,171	40.00	6.00	365.00	119.76
2	TV	859,690	70.00	10.00	365.00	219.65
3	CF Lamp	89,044	11.00	6.00	365.00	2.15
4	Mixie	267,741	550.00	0.50	365.00	26.87
5	Grinder	267,817	300.00	2.00	156.00	25.07
6	Fan	256,390	61.00	12.00	365.00	68.50
7	RGGVY Huts	373	40.00	12.00	365.00	0.07
	Total Consumption					**462**

d) *Agricultural category (LT IV): In its reply to data gaps identified by the Commission, TANGEDCO submitted the revised details of Agricultural consumption for FY 2012-13. The Commission observed that there was a significant downward revision in the number of agricultural service connections submitted in comparison to data in Form F-2 (Sales) of the petition. The revised agricultural load in HP at the end of the year had only increased marginally. However TANGEDCO increased its estimate of agricultural consumption by 1,382 MUs, i.e. from 9,707 MUs to 11,089 MUs.*

The Commission re-estimated the agricultural consumption based on the average capacity of pumpset in the middle of the year as calculated below. The data on actual additional connections given as well as corresponding increase in load as submitted by TANGEDCO in its reply to data gaps has been considered. It has been assumed by the Commission that 50% of the connections and corresponding capacity would get added in the first half of *the year. The average consumption in kWh/ HP has been capped at the level as it stood for FY 2011-12 based on the 5% sample study data submitted last year at 923 units. Based on the above assumptions the agricultural consumption for the year FY 2012-13 has been estimated as 10,206 MUs by the Commission.*

Based on the average consumption per HP/ Annum as per the 5% sample data for FY 2012-13, TANGEDCO has estimated the annual consumption as 11,089 MUs. The Commission has calculated the average hours of daily supply to agricultural consumers based on this data. It was noticed that the average hours of daily supply for FY 2012-13 worked out to be higher than that of FY 2011-12. The Commission opines that this situation is improbable given the facts that the year 2012-13 saw higher shortage of power as compared to the previous year as well as that 2012-13 was a drought year. Given that additional connection to the tune of 15,539 were given in the State during the year, it is evident that the 5% sample data for FY 2012-13 cannot be considered for estimating annual consumption. Hence the Commission did not take into consideration the 5% sample study data submitted for FY 2012-13.

Table 3: Agricultural consumption as re-estimated by the Commission for FY 2012-13

Sl. No.	Particulars	2012-13
1	No. of service connections at the end of the year	2,036,898
2	YoY Increase	15,539
	% added in the first half	50.0%
3	No. of service connections in the middle of the year	2,029,129
4	Connected load in HP at the end of the year	11,084,004
5	YoY Increase	54,545
6	Connected load in HP at the middle of the year	11,056,732
7	Average capacity of pumpset in HP at the middle of the year (6 / 3)	5.45
8	Average consumption in KWh /HP / Annum	923
9	**Consumption in MUs (3 x 7 x 8)**	**10,206**

3.7 The Commission maintains its stance on disallowance of sale to Puducherry based on its ruling in its Tariff Order dated July 31, 2010. TANGEDCO in its Audited accounts has included sale of power to Puducherry. The issue of supply of power to the Union Territory of Puducherry was discussed in the Tariff Order dated 31st July 2010. This issue was discussed in para 3.2.6 of the Order. This relevant extracted is as below.

"3.2.6 Supply to Puducherry

3.2.6.1 The Tariff petition filed by TNEB includes sale of power to the Union Territory of Puducherry and the projection for various years are as follows:

(a) 2007-08 393 MU

(b) 2008-09 373 MU

(c) 2009-10 420 MU

(d) 2010-11 445 MU

(e) 2011-12 471 MU

(f) 2012-13 499 MU

3.2.6.2 The Commission desired to know the basis on which power is being supplied to Puducherry and sought details regarding agreement if any entered into between the two States. The TNEB has not been able to produce any agreement for sale of power to Puducherry. In this backdrop the Commission had examined the tariff orders issued by the Commission in 2003.

3.2.6.3 The position taken by Government of Puducherry during the earlier tariff determination exercise was that the tariff for supply of energy to Puducherry should be as per the Tamil Nadu Revision of Tariff Rates on Supply of Electrical Energy Act, 1978 and the supply shall be charged at the rates supplied by NLC to the TNEB plus wheeling charge at 10 Paise per KWh plus 4% on the energy wheeling towards transmission loss. The State of Puducherry also disputed the jurisdiction of the TNERC to decide the tariff for Puducherry. The TNEB had expressed a view that the agreement between TNEB and NLC is a bilateral agreement and the Government of Puducherry is not a party to this agreement. Since the cost of supply at the HT end worked out to 303.69 paise, they proposed to continue charging Puducherry @ Rs.3.00 per kWh under HT Tariff V. The Commission maintained status quo and continued the then prevailing tariff of Rs.3 per kWh.

3.2.6.4 Since the Joint Electricity Regulatory Commission for the State of Goa and Union Territory of Puducherry had issued an order on ARR and Retail tariff for the electricity department, Government of Puducherry for the financial year 2009-10 on 5-2-2010 the Commission had examined that order too and the relevant portion with reference to sale of power by TNEB to Puducherry is extracted below:

"In respect of purchase of power from TNEB the EDP has submitted that initially the power availed from TNEB was charged at the rate paid by TNEB to NLC plus wheeling charges. The TNEB has revised the tariff to Rs.3.00per kWh with effect from 01/12/2001 treating EDP as a HT consumer. The EDP has challenged this decision by filing a petition before Hon'ble TNERC. The Hon'ble TNERC concluded that the sale of power between EDP and TNEB was in the nature of interstate sale of power and EDP cannot be treated as a HT consumer and ordered to maintain status quo. The EDP has challenged this in the Hon'ble High Court of Judicature at Madras and stay was granted and the Hon'ble High Court directed payment to TNEB at the rate charged by NLC plus wheeling charges. The EDP made the payment accordingly. The main issue is yet to be decided."

3.2.6.5 The Commission would like to observe that in the absence of firm sale contract between TNEB and the Government of Puducherry and with the ever increasing sale of electricity to Puducherry by the TNEB, a situation is being created which has resulted in the TNEB subsidizing the electricity consumers of Puducherry at the expense of electricity consumers of Tamil Nadu. Currently, the TNEB itself is facing an acute shortage of power and has been purchasing power in the open market in the range of Rs. 5 to 7 per unit. Whereas the sale to Puducherry is at the rate of Rs.1.94 per unit. TNEB needs to protect the electricity consumers of Tamil Nadu."

3.8 The Commission understands that a case is pending before the Hon'ble High Court of Madras and the TANGEDCO is supplying power to Puducherry at the rate of Rs.3.28 per unit (Rs.3.18 NLC TS-1 rate fixed by CERC and 10 paise for wheeling charges). Under these circumstances, the Commission has no other choice but to consider the transaction with Puducherry as outside the purview of this Tariff Order. For doing this, the Commission will consider the total energy sales to Puducherry grossed by the transmission loss as a reduction in the total power purchase. Further, corresponding to the energy actually supplied to Puducherry at the Tamil Nadu interface point, revenue will not be taken into account for the purpose of Annual Revenue Requirement. The Commission hopes that this issue will be settled at the earliest, once the Order of the Hon'ble High Court of Madras in this issue becomes available.

3.9 The following table shows the category-wise sales for 2011-12 and for FY 2012-13 as approved by the Commission.

Table 4: Category wise Sales for FY 2011-12 and FY 2012-13 as approved by the Commission (MUs)

Consumer Category		FY 2011-12	FY 2012-13
	High Tension Supply (HT)		
I-A	HT Industries	9,581	7,747
I-B	Railway Traction	708	711
II-A	Govt. Educational Inst. Hospitals, water supply etc.	1251	973
II-B	Pvt. Educational Inst., Cinema theatres & Studios	227	232
II-C	Actual places of public worship, Mutts and Religious Inst.	28	-
III	HT Commercial	1856	1,341
IV	Lift Irrigation, Co-operative societies	6	5
V	Temporary	-	165
	Sub Total HT	**13,657**	**11,174**
	Low Tension Supply (LT)		
I-A	Domestic Purposes	17,507	17,834
I-B	Huts in Village Panchayats, TAHDCO etc.	395	462
I-C	Defence Colonies etc. Notified Tariff	21	25
II-A	Public Lighting and Public Water Supply & Sewerage	1,700	1,468
II-B-1	Govt. Educational Inst., Hospitals, water supply etc.	574	499

II-B-2	Private Educational Inst., Cinema theatres & Studios	247	192
IIC	Actual places of public worship	101	95
IIIA 1	Cottage and Tiny Industries,	562	463
IIIA 2	Power Looms	782	719
IIIB	Coffee grinding and Ice factories etc. and Industries not covered under LT Tariff IIIA	3,953	3,880
IV	Agriculture and Govt. seed farms	10,118	10,206
V	Commercial and all categories of Consumers not covered under IA, IB,IC, IIA, IIB, IIIA, III B and IV	4,296	4,691
VI	Temporary supply: (a) Lighting and combined installation, (b) Lavish illuminations	25	36
	Sub Total LT	**40,281**	**40,569**
	Total HT and LT	**53,938**	**51,743**

Impact of Wheeling units and Cost – FY 2011-12 and FY 2012-13

3.10 The Commission has not included the wheeled units in sales and power purchase for FY 2011-12 and FY 2012-13, and based on data available in audited accounts, the wheeling units have been adjusted against three consumer categories namely; HT Industrial, HT Commercial and HT Private Educational institutions.

3.11 The total sales adjusted for wheeled units as approved by the Commission for FY 2011-12 and FY 2012-13 is as follows.

Table 5: Total sales as approved by the Commission for FY 2011-12 and FY 2012-13 (MUs)

Particulars	FY 2011-12	FY 2012-13
Total Sales as per Accounts	**61,387**	**61,662**
Wheeling for HT Industries	6,750	8,148
Wheeling for Private Educational Institutions	10	-
Wheeling for HT Commercial	289	386
Less: Total Wheeling Adjustments	**7,049**	**8,534**
Total Sales without wheeling units	**54,338**	**53,128**
Less: Total Sales to Puducherry	400	381
Less: Adjustment for un-metered sales	-	1,004
Total Sales as approved	**53,938**	**51,743**

3.12 Hence, Commission has not considered the sale of power to Puducherry as well as wheeled units in its sales estimate. It has approved sales quantum of 53,938 MUs for FY 2011-12 and 51,743 MUs for FY 2012-13.

Energy Sales – FY 2013-14

3.13 TANGEDCO has furnished its annual statement of accounts for FY 2013-14. The table below captures the energy sales (excluding wheeled units) as approved by the Commission in the last Tariff order and the actual sales as per its annual statement of accounts.

Table 6: Comparison of category-wise sales approved in the last Tariff Order and actual as per audited accounts for FY 2013-14 (MUs)

Particulars		2013-14	
		Approved in the last order	Actual as per annual statement of account
HT Consumer Category			
I-A	HT Industries	8,337	9,674
I-B	Railway Traction	813	766
II-A	Govt. Educational Inst. etc.	1,035	1,111
II-B	Pvt. Educational Inst. etc.	256	280
III	HT Commercial	1,626	1,505
IV	Lift Irrigation	5	6
	Supply to Puducherry and Other States	-	237
V	Temporary supply	175	294
	Total HT	**12,247**	**13,874**
LT Consumer Category			
I-A	Domestic	20,002	20,201
I-B	Huts	501	460
I-C	LT bulk supply	10	11
II-A	Public Lighting and Water Supply	1,750	1,917
II-B-1	Govt. Educational Inst. etc.	124	345
II-B-2	Pvt. Educational Inst. etc.	220	229
IIC	Places of Public Worship	120	105
IIIA 1	Cottage and Tiny Industries	141	406
IIIA 2	Power Looms	863	801
IIIB	L.T. Industries	4,837	4,761
IV	L.T. Agriculture	10,821	12,295
V	L.T. Commercial	5,521	5,393
VI	Temporary supply	43	71
	Total LT	**44,953**	**46,994**
	Total HT + LT	**57,199**	**60,867**

3.14 The percentage change in category-wise actual sales as of FY 2013-14 over that of FY 2012-13 is as follows:

Table 7: Growth rate of sales in FY 2013-14 over the actual sales of FY 2012-13

Particulars		2012-13	2013-14	% growth
HT Consumer Category				
I-A	HT Industries	7,747	9,674	25%

I-B	Railway Traction	711	766	8%
II-A	Govt. Educational Inst. etc.	973	1,111	14%
II-B	Pvt. Educational Inst. etc.	232	280	21%
III	HT Commercial	1,341	1,505	12%
IV	Lift Irrigation	5	6	20%
	Supply to Puducherry and Other States	-	237	-
V	Temporary supply	165	294	78%
	Total HT	**11,174**	**13,874**	**24%**
LT Consumer Category				
I-A	Domestic	17,834	20,201	13%
I-B	Huts	462	460	0%
I-C	LT bulk supply	25	11	-56%
II-A	Public Lighting and Water Supply	1,468	1,917	31%
II-B-1	Govt. Educational Inst. etc.	499	345	-31%
II-B-2	Pvt. Educational Inst. etc.	192	229	19%
IIC	Places of Public Worship	95	105	11%
IIIA 1	Cottage and Tiny Industries	463	406	-12%
IIIA 2	Power Looms	719	801	11%
IIIB	L.T. Industries	3,880	4,761	23%
IV	L.T. Agriculture	10,026	12,295	23%
V	L.T. Commercial	4,691	5,393	15%
VI	Temporary supply	36	71	97%
	Total LT	**40,569**	**46,994**	**16%**

3.15 The increase in sales to HT Industrial Category is attributed to the relaxation of R&C and load shedding during FY 2013-14. As per Lr. (Ms.) No. 81/A1/2013 dt. 13.08.2013, R&C was totally relaxed for HT Industrial & Commercial services other than peak hours. During peak hours only 40% cut (instead of 90%) was imposed as a temporary measure upto 30.09.2013. Further according to Lr. (Ms.) No. 97 dt. 30.09.2013, 20% Power cut was proposed for HT Industrial & Commercial services except peak hours. During Peak hours all HT Industrial and Commercial consumers were permitted to draw 10% quota for lighting and security purpose.

3.16 The Commission has scrutinized the category wise energy sales data as per annual statement of accounts of TANGEDCO for FY 2013-14 and has approved sales based on the following factors.

3.17 **Metered categories:** The Commission accepts the actual sales as per the annual statement of accounts adjusted for wheeled units for all relevant metered categories of consumers. As treated in the previous years, sales to Puducherry have not been allowed by the Commission for the year FY 2013-14 as well.

3.18 **Un-metered categories**: For un-metered categories of Hut and Agriculture, the Commission has considered the numbers as approved by it for FY 2013-14 in its last tariff order. The detail methodology and calculation adopted in last Tariff Order is outlined below.

a) **Hut category (LT I-B):** As per last year Tariff Order, the Commission has made reasonable assumptions to undertake this calculation. To project the total number of hut connections for FY 2013-14, the 3 year CAGR rate of 1.6% in hut connections between FY 2009-10 to FY 2012-13 has been considered. It has been assumed that an equal number of CFL as distributed in FY 2012-13 will be distributed in FY 2013-14. It has been assumed that 75,000 mixies, grinders and fans will be distributed to hut consumers in FY 2013-14. Based on these assumptions the hut consumption of 501MUs has been arrived at for FY 2013-14.

Table 8: Hut consumption as re-estimated by the Commission for FY 2013-14

Sl. No.	Appliance type	Numbers	Wattage	Hours	Days	Consumption (MUs)
1	Light	1,300,159	40	6	365	113.89
2	TV	891,391	70	10	365	227.75
3	CF Lamp	178,088	11	6	365	4.29
4	Mixie	342,741	550	0.50	365	34.40
5	Grinder	342,817	300	2	156	32.09
6	Fan	331,390	61	12	365	88.54
7	RGGVY Huts	373	40	12	365	0.07
	Total Consumption					**501**

b) **Agricultural category (LT IV)**: The Commission re-estimated the agricultural consumption based on the average capacity of pumpset in the middle of the year as calculated below. It has been assumed that 50% of the connections and corresponding capacity gets added in the first half of the year.

To estimate the number of consumers and load profile of connections for FY 2013-14, the Commission has accepted the addition of 40,000 connections per year as submitted by TANGEDCO. To project load, the Commission has considered the load of 5.4 HP per connection for FY 2012-13 and used the same for the FY 2013-14.

To calculate the average consumption per HP per annum, the Commission has relied on the actual average consumption data for FY 2010-11 and FY 2011-12. The Commission has observed that growth in average consumption in FY 2011-12 over FY 2010-11 was 4.7%, this rate has been used to project average consumption per HP per annum for FY 2013-14 i.e. 966 kWh/ HP/Annum. Based on the above assumptions the consumption for FY 2013-14 has been worked out as 10,821 MUs.

Table 9: Agricultural consumption as re-estimated by the Commission for FY 2013-14

Sl. No.	Particulars	2013-14
1	No. of service connections at the end of the year	2,076,898
2	YoY Increase	40,000
	% added in the first half	50.0%
3	No. of service connections in the middle of the year	2,056,898
4	Connected load in HP at the end of the year	11,317,028
5	YoY Increase	233,024
6	Connected load in HP at the middle of the year	11,200,516
7	Average capacity of pumpset in HP at the middle of the year (6 / 3)	5.45
8	Average consumption in KWh /HP / Annum	966
9	**Consumption in MUs (3 x 7 x 8)**	**10,821**

3.19 The following table shows the category-wise sales approved by the Commission for FY 2013-14 based on revised sales estimates for un-metered categories and adjustment for wheeled units for relevant metered categories.

Table 10: Sales for FY 2013-14 approved by the Commission (MUs)

Particulars		Sales
HT Consumer Category		
I-A	HT Industries	9,674
I-B	Railway Traction	766
II-A	Govt. Educational Inst. etc.	1,111
II-B	Pvt. Educational Inst. etc.	280
III	HT Commercial	1,505
IV	Lift Irrigation	6
V	Temporary supply	294
	Total HT	**13,637**
LT Consumer Category		
I-A	Domestic	20,201
I-B	Huts	501
I-C	LT bulk supply	11
II-A	Public Lighting and Water Supply	1,917
II-B-1	Govt. Educational Inst. etc.	345
II-B-2	Pvt. Educational Inst. etc.	229
IIC	Places of Public Worship	105
IIIA 1	Cottage and Tiny Industries	406
IIIA 2	Power Looms	801
IIIB	L.T. Industries	4,761
IV	L.T. Agriculture	10,821
V	L.T. Commercial	5,393

VI	Temporary supply	71
	Total LT	**45,561**
	Total HT + LT	**59,198**

3.20 Therefore the total sale for FY 2013-14 as approved by the Commission is 59,198 MUs.

Energy Availability

3.21 TANGEDCO meets its energy requirements from its own generating stations, purchases from central generating stations, IPPs and other sources.

3.22 TANGEDCO has submitted its audited accounts for FY 2011-12, FY 2012-13 and annual statement of accounts for FY 2013-14. As part of the monthly MIS reporting, the licensee has also submitted actual energy available from various sources.

3.23 Based on the information available from the audited accounts, annual statement of accounts, revised estimates and MIS reports, Commission in this Section has analysed the performance of TANGEDCO's own generating stations. In addition, for the period FY 2011-12 to FY 2013-14, the energy availability from Own Generating stations as well as from other sources is discussed. The availability of energy is discussed source wise in the following order:

1 Own Generation
   a) Thermal Generation
   b) Hydro Generation
   c) Wind Generation
   d) New generating stations

2 Other Sources
   a) Central Generating Stations
   b) IPPs
   c) Captive/Cogeneration and Non-Conventional energy sources
   d) Other sources such as Trading – Bilateral & Exchange, NTPC NVVN and UI

Own Generation

3.24 The total installed capacity of generating stations of TANGEDCO as on June 2014 was 7,453 MW. The detailed break up of generation capacity of TANGEDCO stations is as tabulated below:

Table 11: Installed capacity of existing TANGEDCO stations (As on June 2014)

Name of the power plant	Installed capacity (in MW)
Coal based generating stations	
Ennore Thermal Power Station (ETPS)	340
Tuticorin Thermal Power Station (TTPS)	1,050
Mettur Thermal Power Station (MTPS)	840
North Chennai Thermal Power Station (NCTPS)	630
NCTPS Stage-II** (Unit 1)	600
NCTPS Stage-II** (Unit 2)	600
MTPS Stage-III**	600
Sub total	**4,660**
Gas based generating stations	
Tirumakottai Gas based Power Station (TKGTPS)	108
Kuttalam Gas based Power Station (KGTPS)	101
Valuthur - Unit 1 Gas based power station (VGTPS – 1)	95
Valuthur - Unit 2 Gas based power station (VGTPS – 2)	92
Basin Bridge Gas turbine power station (BBGTPS)	120
Sub total	**516**
Hydro Generating Circles	
Kundah Hydro Generating Circle	833
Kadamparai Hydro Generating Circle	595
Erode Hydro Generating Circle	484
Tirunelveli Hydro Generating Circle	348
Sub Total	**2,260**
Wind Energy - Tirunelveli and Udumalpet	17
Total	**7,453**

3.25 Energy availability from generation stations is mainly dependant on operational parameters such as plant load factor and auxiliary consumption. The methodology adopted by the Commission to assess and compute energy availability from TANGEDCO's generation stations has been discussed as under.

Thermal generation

3.26 For FY 2011-12, only limited information such as overall PLF, auxiliary consumption and energy generation of thermal and hydel power plants have been provided. Information on plant wise performance parameters was not made available, hence the Commission has apportioned the aggregate thermal generation in the same proportion as allowed in the last tariff order for FY 2011-12. The Commission has considered auxiliary consumption as approved in the last tariff order for calculating plant-wise PLFs.

3.27 TANGEDCO has provided plant wise PLFs for FY 2012-13. Commission has observed that while the thermal plants namely NCTPS, TTPS, MTPS, TKGTPS, BBGTPS and Valuthur GTPS have recorded PLFs higher than the approved numbers, ETPS and KGTPS have performed below their expected capacities. It is also to be noted that TANGEDCO has received infirm power from the new plants - MTPS Stage III and NCTPS Stage II (Unit1 & Unit 2) to the tune of 359 MUs, during their stabilisation period. Therefore for the year FY 2012-13 Commission is approving actuals provided by TANGEDCO.

3.28 For FY 2013-14, TANGEDCO has provided plant wise actual energy procured for the full year, as part of the monthly power purchase information filing. The Commission has calculated the PLFs as per the energy procured and auxiliary consumption details given by TANGEDCO for the year. It is observed that NCTPS and most of the gas based plants have not been able to perform as approved in last tariff order. Reasons for the non-performance of the plants are yet to be provided by the licensee. However, based on the actual energy procured data available for FY 2013-14, Commission is considering the PLFs so calculated for the existing plants.

3.29 With respect to the new plants i.e. MTPS Stage III and NCTPS Stage II (Unit 1) were commissioned during FY 2013-14. TANGEDCO had also been receiving infirm power from new plants during plant stabilisation period. In its revised estimates for FY 2013-14, TANGEDCO has estimated energy availability from such new plants to be 3,671 MUs. Commission is considering and approving the corresponding PLFs and auxiliary consumption of new plants that have been used to estimate energy availability from MTPS Stage III and NCTPS Stage II (Unit 1 & Unit 2) for FY2013-14.

3.30 In view of the fact that FY 2011-12 , FY 2012-13 and FY 2013-14 are already over, the Commission has considered the PLFs and Auxiliary consumption numbers as submitted by TANGEDCO for the purpose estimating energy availability.

3.31 The following table summarizes PLFs and auxiliary consumption of the own generating plants as provided by TANGEDCO.

Table 12: Summary of PLF and auxiliary consumption provided by TANGEDCO and approved by the Commission for thermal stations (%)

Name of the power plant	Plant Load Factor (%)			Auxiliary Consumption (%)		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12*	FY 2012-13	FY 2013-14
ETPS	23%	19%	29%	17%	14%	13%
TTPS	86%	90%	86%	8%	8%	8%
MTPS	93%	84%	88%	8%	9%	8%
NCTPS	85%	92%	73%	8%	8%	8%
MTPS Stage-III	0%	0%	19%	0%	6%	10%
NCTPS Stage-II (Unit 1)	0%	0%	19%	0%	6%	10%
NCTPS Stage-II (Unit 2)	0%	7%	40%	0%	7%	10%
TKGTPS	75%	77%	51%	7%	7%	7%
KGTPS	47%	6%	73%	7%	9%	7%
BBGTPS	3%	0%	0%	1%	0%	3%

VGTPS (Unit 1)	66%	54%	88%	7%	7%	7%
VGTPS (Unit 2)	66%	59%	64%	7%	6%	7%

** Note: Taken as approved in the last tariff order.*

3.32 **However variable charges will be calculated considering approved auxiliary consumption as per last tariff order and allocation of capacity charges will be done in accordance with regulation-37 of TNERC tariff regulations, 2005.**

3.33 The summary of energy availability approved by the Commission in this order for TANGEDCO thermal stations is tabulated below:

Table 13: Summary of energy availability from TANGEDCO's thermal stations (MUs)

Name of the power plant	FY 2011-12			FY 2012-13			FY 2013-14		
	Last TO	TANGEDCO	Commission	Last TO	TANGEDCO	Commission	Last TO	TANGEDCO	Commission
ETPS	744		744	610	635	635	652	1,011	1,011
TTPS	7,262		7,262	7,620	7,630	7,630	7,154	7,253	7,253
MTPS	6,279		6,279	5,684	5,658	5,658	5,992	5,928	5,928
NCTPS	4,301		4,301	4,634	4,651	4,651	4,494	3,720	3,720
MTPS Stage-III	-		-	-	10	10	5,429	891	891
NCTPS Stage-II (Unit 1)	-		-	-	10	10	-	891	891
NCTPS Stage-II (Unit 2)	-		-	-	340	340	2,878	1,889	1,889
Total Coal	**18,586**	**18,587**	**18,587**	**18,548**	**18,933**	**18,933**	**26,599**	**21,583**	**21,583**
TKGTPS	660		660	682	678	678	711	453	453
KGTPS	383		383	51	51	51	665	598	598
BBGTPS	29		29	0.41	0	0	59	1	1
VGTPS (Unit 1)	1,027		514	879	416	416	1,232	687	687
VGTPS (Unit 2)	-		514	-	457	457	-	494	494
Total Gas	**2,099**	**2,099**	**2,099**	**1,612**	**1,602**	**1,602**	**2,667**	**2,232**	**2,232**
Total Thermal	**20,685**	**20,686**	**20,686**	**20,160**	**20,536**	**20,536**	**29,266**	**23,816**	**23,816**

Hydro Generation Circles

3.34 In the last order Commission had approved hydro generation excluding generation from Kadamparai PSHES. Commission has also considered net energy available on account of Kadamparai PSHES in FY 2011-12, FY 2012-13 and FY 2013-14.

3.35 TANGEDCO in its annual accounts for FY 2011-12 and FY 2012-13 has provided information on total generation from hydro plants excluding generation from Kadamparai PSHES in line with Commission's consideration.

3.36 TANGEDCO has provided plant wise actual energy procured from hydro stations for FY 2013-14 along with the auxiliary consumption. It has been observed that most of the hydro generation circles have PLFs higher than what was approved in last tariff order.

Table 14: Plant Load Factors (PLFs) of hydro generation circles approved by the Commission (%)

Name of the power plant	PLFs approved by the Commission		
	2011-12	2012-13	2013-14
Erode	35.89%	22.95%	22.32%
Kundah	33.89%	14.24%	30.12%
Tirunelveli	32.16%	22.67%	30.45%

3.37 In order to approve power available from hydro generating stations, Commission has gone ahead with the following assumptions:

a) For FY 2011-12 due to unavailability of plant wise information, Commission is considering the energy availability numbers approved in the last tariff order.

b) For FY 2012-13, Commission has recomputed plant wise PLFs and net availability with the help of the total generation information available along with Kadamparai plant's consumption given separately. Commission is approving the PLFs computed based on the above plant-wise net energy availability.

c) For FY 2013-14, Commission has however, relied on the actual plant wise power procurement information provided by TANGEDCO. Therefore, Commission is approving actuals submitted by TANGEDCO for FY 2013-14.

3.38 Based on the submissions made and the approach adopted in last tariff order, Commission is approving the following generation numbers for the purpose of energy availability from hydro generation circles.

Table 15: Summary of energy availability – Hydro generation circles (MUs)

Name of the power plant	FY 2011-12		FY 2012-13		FY 2013-14	
	Last TO	Commission	Last TO	Commission	Last TO	Commission
Net Hydel Gen. on account of hydro plants excluding Kadamparai	4,823	4,823	2,576	2,576	4,844	4,049

3.39 For Kadamparai PSHES, in the last tariff order Commission had approved the additional energy required. In its audited annual accounts for FY 2011-12 and FY 2012-13 and its revised estimates for FY 2013-14, TANGEDCO has provided information on the consumption by Kadamparai in Pump Mode. It is observed that TANGEDCO has considered Pump mode consumption as approved in the last year's tariff order.

3.40 Based on the information available, Commission has approved net energy requirement as that approved in the last year's tariff order.

Table 16: Kadamparai Generation and power consumption – in MUs

Particulars	FY 2011-12		FY 2012-13		FY 2013-14	
	Last TO	Commission	Last TO	Commission	Last TO	Commission
Additional energy required for Kadamparai PSHES	28	26	26	26	32	32

Wind Generation

3.41 The Commission in last tariff order approved net generation of 12 MU for FY 2011-12, 13 MU in FY 2012-13 and 12 MU in FY 2013-14 corresponding to 17.55 MW installed capacity of wind mills owned by TANGEDCO.

3.42 TANGEDCO in its audited accounts for 2011-12 and 2012-13 has an availability of units equal to that approved by the Commission in last year's tariff order. Therefore, Commission is accepting actuals as provided by TANGEDCO for FY 2011-12 and FY 2012-13.

3.43 TANGEDCO in its estimates has submitted an availability of 268 MUs for 2013-14. However Commission has accepted the availability of 12 MUs as per last tariff order.

Table 17: Net Energy available from wind as approved by Commission (MUs)

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Wind Generation	12	13	12

Power Purchase from other sources

3.44 TANGEDCO in its audited accounts and revised estimates has included power purchase quantum from the following sources:

i. Central Generating Stations (CGS)

ii. Independent Power Producers (IPPs)

iii. Captive/Cogeneration and Non-Conventional energy sources

iv. Other sources such as Trading – Bilateral & Exchange, NTPC-NVVN and UI

3.45 In the last tariff order, Commission has estimated the energy availability from CGS plants for FY 2011-12 and FY 2012-13 based on the actual energy availability data submitted by TANGEDCO, while for FY 2013-14, energy availability was estimated based on CERC regulations. For the new additions of CGS, Commission estimated the energy availability based on the CoD dates submitted by TANGEDCO.

3.46 Similarly in case of IPPs, captive and non-conventional energy sources, Commission adopted the following approach for estimation of energy availability.

i. Commission has considered the actual power purchase from IPPs in FY 2011-12, FY 2012-13 and FY 2013-14.

ii. For estimating the energy availability from captive and non-conventional energy sources, Commission has not considered wheeling units and has taken into consideration only the energy directly purchased from Wind, CPP, Co-generation and Biomass plants.

3.47 For FY 2011-12, with the available information in TANGEDCO's audited accounts Commission is unable to ascertain source wise power purchases. Therefore, Commission is considering power purchase quantum that was approved in last year's tariff order.

3.48 For FY 2012-13 and FY 2013-14, TANGEDCO has provided actual power purchased from various sources under the categories of CGS, IPPs, non-conventional energy and other short term sources. As the information on actual power purchased by source is available and is in accordance with the approach adopted by the Commission in its last order, Commission is accepting the data as submitted by TANGEDCO.

3.49 The summary of energy available from other sources approved by the Commission is tabulated below:

Table 18: Summary of approved energy availability from other sources (MUs)

Name of the Power Station	Last TO	TANGEDCO	Commission
2011-12*			
Central Generating Stations	20,630	21,347	20,630
IPPs	5,731	5,731	5,731
Captive and Non-conventional energy sources	7,637	9,858	7,637
Other sources	9,839	6,900	9,839
Total	**43,836**	**43,836**	**43,836**
2012-13			
Central Generating Stations	21,567	21,566	21,566
IPPs	5,971	5,972	5,972
Captive and Non-conventional energy sources	9,195	9,535	9,535
Other sources	7,051	7,036	7,036

Total	**43,784**	**44,109**	**44,109**
2013-14			
Central Generating Stations	27,954	24,524	24,524
IPPs	6,775	5,662	5,662
Captive and Non-conventional energy sources	9,697	6,373	6,373
Other sources	3,503	12,785	12,785
Total	**47,930**	**49,344**	**49,344**

** As source wise power purchases are not available, considered last tariff order numbers*

Total energy available from all sources

3.50 Based on the above the energy available from all sources as per the submissions of TANGEDCO and as approved in this Order is tabulated below:

Table 19: Summary of energy available from all sources in FY 2011-12 (MUs)

Source	Last Tariff Order	Actuals provided by TANGEDCO	Commission
Own Generating Stations			
Coal Based Power Plants			
Ennore Thermal Power Station	744	-	744
Tuticorin Thermal Power Station	7,262	-	7,262
Mettur Thermal Power Station	6,279	-	6,279
North Chennai Thermal Power Station	4,301	-	4,301
Sub Total	**18,586**	**18,587**	**18,587**
Gas Based Power Plants			
Tirumokottai Kovilkalappal Gas Power Plant	660	-	660
Kuttalum Gas Power Plant	383	-	383
Basin Bridge Gas Power Plant	29	-	29
Vallathur Gas Power Plant	1,027	-	1027
Sub Total	**2,099**	**2,099**	**2,099**
Hydro Generation Circles*			
Erode Hydro Generation Circle Kundah Hydro Generation Circle Tirunelveli Hydro Generation Circle	4,823	5,329	4,823
Wind Mills	12	12	12
Sub Total - Existing Stations	**25,520**	**26,027**	**25,521**
New Stations			
North Chennai TPS Stage – II (Unit 1)	-	-	-
North Chennai TPS Stage – II (Unit 2)	-	-	-
Mettur Stage – III	-	-	-
Sub Total	**-**	**-**	**-**
Total - Own Generation	**25,520**	**26,027**	**25,521**
Central Generation Stations			

NTPC SR (I&II)	4,106	-	4,106
NTPC SR III	1,048	-	1,048
NLC TS - I	3,146	-	3,146
NLC TS - II	3,167	-	3,167
NLC TS I Expansion	1,526	-	1,526
NTPC Talcher	3,622	-	3,622
NTPC Simhadri	468	-	468
MAPS	1,604	-	1,604
KAIGA	1,171	-	1,171
NTPC Kayakulum	205	-	205
NTPC ER	465	-	465
NTPC Dadri	101	-	101
NTPC Vallur	-	-	-
Kudankulum	-	-	-
NLC TS - II Expansion	-	-	-
NLC - Tuticorin	-	-	-
Sub Total	**20,629**	**21,347**	**20,630**
IPPs			
GMR	858	-	858
Samalpatti	292	-	292
Madurai	282	-	282
PPN	1,491	-	1491
ST-CMS	1,688	-	1688
ABAN	760	-	760
Penna	360	-	360
Sub Total	**5,731**	**5,731**	**5,731**
CPP and Renewable Energy Sources			
Captive	557	-	557
Wind	5,711	-	5,711
Biomass	73	-	73
Cogeneration	1,285	-	1,285
Solar	11	-	11.00
Sub Total	**7,637**	**9,858**	**7,637**
Other Sources			
Trading - Bilateral & Exchange	8,427	6,900	8,427
UI	718	-	718
NTPC NVVN	694	-	694
Sub Total	**9,839**	**6,900**	**9,839**
Total - Other Power Purchase	**43,836**	**43,836**	**43,836**
Grand Total	**69,356**	**69,462**	**69,357**

**Net Hydro generation is shown without considering power generated from Kadamparai PSHES*

Table 20: Summary of energy available from all sources in FY 2012-13 (MUs)

Source	Last Tariff Order	Actuals provided by TANGEDCO	Commission
Own Generating Stations			
Coal Based Power Plants			
Ennore Thermal Power Station	610	635	635
Tuticorin Thermal Power Station	7,620	7,630	7,630
Mettur Thermal Power Station	5,684	5,658	5,658
North Chennai Thermal Power Station	4,634	4,651	4,651
Sub Total	**18,548**	**18,574**	**18,574**
Gas Based Power Plants			
Tirumokottai Kovilkalappal Gas Power Plant	682	678	678
Kuttalum Gas Power Plant	51	51	51
Basin Bridge Gas Power Plant	0	0	0
Vallathur Gas Power Plant	879	873	873
Sub Total	**1,612**	**1,602**	**1,602**
Hydro Generation Circles*			
Erode Hydro Generation Circle	2,576	2,576	2,576
Kundah Hydro Generation Circle			
Tirunelveli Hydro Generation Circle			
Wind Mills	13	13	13
Sub Total - Existing Stations	**22,749**	**22,765**	**22,765**
New Stations			
North Chennai TPS Stage – II (Unit 1)	-	10	10
North Chennai TPS Stage – II (Unit 2)	-	10	10
Mettur Stage – III	-	340	340
Sub Total	-	359	359
Total - Own Generation	**22,749**	**23,125**	**23,125**
Central Generation Stations			
NTPC SR (I&II)	4,149	4,149	4,149
NTPC SR III	982	981	981
NLC TS - I	3,189	3,189	3,189
NLC TS - II	3,291	3,291	3,291
NLC TS I Expansion	1,629	1,629	1,629
NTPC Talcher	3,405	3,405	3,405
NTPC Simhadri	1,079	1,079	1,079
MAPS	1,775	1,775	1,775
KAIGA	1,261	1,261	1,261
NTPC Kayakulum	-		-
NTPC ER	319	319	319
NTPC Dadri	-	-	-

NTPC Vallur	488	488	488
Kudankulum	-	-	-
NLC TS - II Expansion	-	-	-
NLC - Tuticorin	-	-	-
Sub Total	**21,567**	**21,566**	**21,566**
IPPs			
GMR	610	610	610
Samalpatti	329	329	329
Madurai	357	357	357
PPN	1,785	1,785	1,785
ST-CMS	1,665	1,666	1,666
ABAN	850	850	850
Penna	375	375	375
Sub Total	**5,972**	**5,972**	**5,972**
CPP and Renewable Energy Sources			
Captive	595	595	595
Wind	7,145	7,474	7,474
Biomass	11	11	11
Cogeneration	1,428	1,439	1,439
Solar	16	16	16
Sub Total	**9,195**	**9,535**	**9,535**
Other Sources			
Trading - Bilateral & Exchange	6,935	6925	6,925
UI	81	111	111
NTPC NVVN **	35	-	-
Sub Total	**7,051**	**7,036**	**7,036**
Total - Other Power Purchase	**43,785**	**44,109**	**44,109**
Grand Total	**66,534**	**67,234**	**67,234**

**Net Hydro generation is shown without considering power generated from Kadamparai PSHES*

Table 21: Summary of energy available from all sources in FY 2013-14 (MUs)

Source	Last Tariff Order	Actuals provided by TANGEDCO	Commission
Own Generating Stations			
Coal Based Power Plants			
Ennore Thermal Power Station	652	1,011	1,011
Tuticorin Thermal Power Station	7,154	7,253	7,253
Mettur Thermal Power Station	5,992	5,928	5,928
North Chennai Thermal Power Station	4,494	3,720	3,720
Sub Total	**18,292**	**17,912**	**17,912**
Gas Based Power Plants			

Tirumokottai Kovilkalappal Gas Power Plant	711	453	453
Kuttalum Gas Power Plant	665	598	598
Basin Bridge Gas Power Plant	59	1	1
Vallathur Gas Power Plant	1,232	1,181	1,181
Sub Total	**2,667**	**2,232**	**2,232**
Hydro Generation Circles*			
Erode Hydro Generation Circle Kundah Hydro Generation Circle Tirunelveli Hydro Generation Circle	4,844	4,049	4,049
Wind Mills	12	268	12
Sub Total - Existing Stations	**25,815**	**24,461**	**24,205**
New Stations			
North Chennai TPS Stage – II (Unit 1)	5,429	891	891
North Chennai TPS Stage – II (Unit 2)	-	891	891
Mettur Stage – III	2,878	1,889	1,889
Sub Total	**8,307**	**3,671**	**3,671**
Total - Own Generation	**34,122**	**28,132**	**27,876**
Central Generation Stations			
NTPC SR (I&II)	3,952	4,005	4,005
NTPC SR III	988	1,054	1,054
NLC TS - I	3,469	3,271	3,271
NLC TS - II	3,188	3,347	3,347
NLC TS I Expansion	1,470	1,636	1,636
NTPC Talcher	3,361	3,475	3,475
NTPC Simhadri	1,556	1,572	1,572
MAPS	1,568	1,332	1,332
KAIGA	1,176	1,581	1,581
NTPC Dadri	-	-	-
NTPC Vallur	4,955	2,561	2,561
Kudunkulum	1,663	423	423
NTPC ER	-	267	267
NLC TS - II Expansion	89	-	-
NLC - Tuticorin	518	-	-
Sub Total	**27,953**	**24,524**	**24,524**
IPPs			
GMR	945	807	807
Samalpatti	472	299	299
Madurai	455	345	345
PPN	2,103	1,429	1,429
ST-CMS	1,665	1,721	1,721
ABAN	783	696	696
Penna	353	364	364

Sub Total	**6,775**	**5,662**	**5,662**
CPP and Renewable Energy Sources			
Captive	595	427	427
Wind	7,145	5,110	5,110
Biomass	11	6	6
Cogeneration	1,428	817	817
New Cogeneration Plants	502	-	-
Solar	16	14	14
Sub Total	**9,697**	**6,373**	**6,373**
Other Sources			
Trading - Bilateral & Exchange	-	5,454	5,454
Case 1 - Bidding			
Jindal Power	3,468	414	414
Adani Power		407	407
Lanco Power (NETS)		204	204
NTPC NVVN	35	12	12
UI	-	139	139
Short Term Open Access	-	563	563
CPP Traders	-	5,591	5,591
Sub Total	**3,503**	**12,784**	**12,785**
Total - Other Power Purchase	**47,928**	**49,344**	**49,344**
Grand Total	**82,050**	**77,476**	**77,220**

**Net Hydro generation is shown without considering power generated from Kadamparai PSHES*

Renewable Purchase Obligation

3.51 In Para 8.18.4 of the comprehensive tariff order on wind energy (OrderNo.1 of 2009, dated 20-03-2009), the Commission has fixed the Renewable Purchase Obligation (RPO) at a minimum of 14% for 2010-11 in the area of distribution licensee in accordance to section 86 (1) (e) of the Electricity Act 2003.

Section 86 (1) (e) of The Electricity Act, 2003

"86. (1) The State Commission shall discharge the following functions, namely: -

(e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution license;"

3.52 As regards FY 2011-12, the Commission in the first Amendment to Renewable Energy Purchase Obligation Regulations, 2010 had fixed the RPO of 9% for all sources of Renewable Energy put together and 0.05% for Solar separately.

3.53 As regards target for RPO in future years, Tamil Nadu Electricity Regulatory Commission (Renewable Energy Purchase Obligation) Regulations, 2010 states as under:

"2.If the RPO for any of the year is not specified by the Commission, the RPO specified for the previous year shall be continued beyond the period till any revision is effected by the Commission in this regard."

3.54 For FY 2012-13 and FY 2013-14, the Commission has not prescribed any RPO Target. Therefore, Commission has considered the same RPO Obligations as prescribed for FY 2011-12.

3.55 Accordingly, Commission has calculated the quantum to be purchased through RPO. The details of power purchase quantum in FY 2011-12, FY 2012-13 and FY 2013-14 are tabulated below. The Commission has applied the above mentioned percentages of RPO from FY 2011-12 to FY 2013-14 on the energy requirement determined for respective years in this Order.

Table 22: Renewable energy purchase requirement from FY 2011-12 to FY 2013-14 - in MUs

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Energy consumption	53,964	51,769	59,230
RPO% from all sources	9%	9%	9%
RPO% from solar	0.05%	0.05%	0.05%
Purchase from renewable requirement	**4,857**	**4,659**	**5,331**

3.56 The energy purchased through Renewable Energy sources for FY 2011-12 to FY 2013-14 (net of wheeling units) on the basis of quantum of energy approved through various sources in this Order is tabulated below:

Table 23: RPO Compliance of TANGEDCO for FY 2011-12, FY 2012-13 and FY 2013-14

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Wind	5,711	7,474	5,110
Small Hydro	200	113	157
Cogeneration	1,285	1,439	817
Biomass	73	11	6
Own wind generation	12	12	12
Total except solar	7,281	9,049	6,101
Solar	11	16	14
NVVN Bundled Solar Power	694	0	12
Total including solar	7,986	9,065	6,127
RPO % actually achieved for all sources except solar	13.49%	17.48%	10.30%
Solar	1.31%	0.03%	0.04%
RPO% actually achieved for all sources	14.80%	17.51%	10.34%

3.57 From the above table it can be observed that TANGEDCO has met the target of RPO in FY 2011-12 to FY 2013-14. It had achieved 14.80%, 17.51% and 10.34% in FY 2011-12 to FY 2032-14 respectively against a target of 9.00% (including target of 0.05% for solar RPO).

Energy Balance and Distribution Loss

3.58 Commission in its first order on Multi Year Tariff determination dated 31st July 2010 has approved transmission and distribution losses together and has set a loss reduction strategy for reduction of T&D losses.

Table 24: T&D Loss trajectory set by the Commission

Particulars	2010-11	2011-12	2012-13	2013-14
T&D Loss %	17.60	17.20	16.80	16.40

3.59 Also, Commission had initiated the suo-motu proceedings against TANGEDCO for non-compliance in the matter of T&D loss determination as directed by it and the Hon'ble APTEL. The Commission had in the absence of scientific data for loss determination; fixed the T&D loss level as above, if the necessary data is not furnished by TANGEDCO.

The relevant extracts of that order are given below:

"The Commission in its Order No.1 of 2012 dated 30-3-2012, had adopted the T&D loss of 17.6% for 2010-11 and 17.2% for 2011-12. Commission adopted T&D loss of 16.80% for 2012-13. By the same analogy, T&D loss of 16.40% is approved for 2013-14. As and when the TANGEDCO comes out with the scientific study on T&D loss as specified in the Regulations, the Commission may review and refix the T&D loss norms subject to prudent check. If no study report is submitted for consideration of the Commission, T&D loss for FY 2014-15 shall be reckoned as 16% and for FY 2015-16 shall be reckoned as 15.6%. Out of the above T&D loss limit, the distribution loss shall be arrived at after deducting the transmission loss as approved by the Commission in the respective tariff order.

3.60 Hence Commission has arrived at the energy requirement for TANGEDCO considering the approved sales and losses as per Suo-Motu order on distribution losses dated 4th June 2013. Commission is not treating the distribution loss and transmission loss separately and is estimating the total energy loss at the prescribed percentage to arrive at the total energy requirement. The energy balance and energy required by TANGEDCO for FY 12 to FY 14 is tabulated below. The energy requirement has been arrived considering approved sales and losses.

Table 25: Energy required by TANGEDCO at TN Periphery for FY 12 to FY 14

Parameter	FY 2011-12	FY 2012-13	FY 2013-14
Total Sale (MU)	53,938	51,743	59,198
Additional Power to Kadamparai (MU)	26	26	32
Total Energy required (MU)	**53,964**	**51,769**	**59,230**
Total Losses (%)	17.20%	16.80%	16.40%
Total Losses (MU)	11,210	10,453	11,619
Energy input at TN Periphery (MU)	**65,174**	**62,222**	**70,849**

Table 26: Excess energy available for FY 12 to FY 14 (MUs)

Parameter	FY 2011-12	FY 2012-13	FY 2013-14
Energy availability			
Interstate Purchase	20,630	21,566	24,524
Interstate transmission loss	4.34%	4.34%	4.34%
Intrastate Generation	48,727	45,668	52,696
Actual available energy at TN	**68,462**	**66,298**	**76,156**
Energy required at TN periphery			
Energy input required at TN Periphery	**65,174**	**62,222**	**70,849**
Excess Energy available	**3,288**	**4,076**	**5,306**

3.61 The Commission observed that the actual T&D loss for FY 2011-12, FY 2012-13 and FY 2013-14 are higher than the approved losses. Commission's approach on additional cost incurred by TANGEDCO on account of increased T&D losses has been discussed later in this Chapter.

Fixed Expenses

3.62 In this section, expenses related to fixed cost for FY 2012, FY 2013 and FY 2014 has been computed and analysed by the Commission. The fixed expenses are broadly divided into the following heads:

i. Operation and Maintenance Expenses

ii. Depreciation

iii. Interest on long term loans

iv. Return on Equity

v. Interest on working capital loans

vi. Other debits

Operation and Maintenance Expenses

3.63 It is pertinent to mention that the Commission has followed the guidelines of Regulation – 14 of TNERC Tariff Regulations to approve O&M expenses for TANGEDCO. The Regulation states:

"14. Multiyear tariff

(5) *All the uncontrollable costs shall be allowed as pass through in tariff and the uncontrollable costs will include the following:*

(a) Cost of fuel;

(b) Costs on account of inflation;

(c) Taxes and duties; and

(d)Variation in power purchase unit cost from base line level including on account of hydro-thermal mix in case of force majure and adverse natural events like drought

(6) The Operation and Maintenance cost shall be ***controllable cost*** *and be based on escalation indices or other mode determined during determination of tariff for the base year.*

Regulation-25 of TNERC Tariff Regulations:

"25. Operation and Maintenance Expenses

1. *The operation and maintenance expenses shall be derived on the basis of actual operation and maintenance expenses for the past five years previous to current year based on the audited Annual Accounts excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission. The Commission may, if considered necessary engage Consultant / Auditors in the process of prudence check for correctness.*
2. *The average of such normative operation and maintenance expenses after prudence check shall be escalated at the rate of 4% per annum to arrive at operation and maintenance expenses for current year i.e. base year and ensuing year.*
3. *The base operation and maintenance expenses so determined shall be escalated further at the rate of 4% per annum to arrive at permissible operation and maintenance expenses for the relevant years of tariff period.*

…"

3.64 TANGEDCO has submitted its audited accounts for FY 2011-12, FY 2012-13, and annual statement of accounts for FY 2013-14 that provides information on the actual O&M expenses (including employee expenses, R&M expenses and A&G expenses) incurred by TANGEDCO.

3.65 Commission, in the following paragraphs would discuss the procedure adopted to approve O&M costs of TANGEDCO.

Employee Expenses

3.66 The Commission has considered the Employee expenses as approved in its last Tariff Order passed in June 2013 for the years FY 2011-12 and FY 2012-13.

3.67 Commission in its last tariff order have bifurcated the terminal benefits based on the employee ratio of 6:1 (TANGEDCO to TANTRANSCO) in consultation with TANGEDCO and TANTRANSCO officials. Since no segregation of pensioner's liability has been finalized yet in the provisional transfer scheme, the terminal benefits re-estimated for FY 2011-12 based on employee ratio of 6:1 has been escalated at 4% Y-o-Y to arrive at terminal benefits for FY 2012-13 and FY 2013-14.

3.68 Commission in accordance with its regulations has escalated employee expenses, except DA of FY 2012-13 at 4% to arrive at employee expenses of FY2013-14.

3.69 As per the TNERC regulations, only, the increase in costs due to inflation is required to be passed through in tariff. DA percentage notified by the GoTN is dependent on inflation and hence increase in employee costs to the extent of DA variation should be allowed as a pass through in tariff. Therefore, the DA rates as notified by GoTN have been used for estimating the dearness allowance instead of taking an escalation of 4% as per TNERC regulations. The DA rate applicable for FY 2013-14 is given in the table below.

Table 27: Estimation of average DA rate applicable for FY 2013-14

Year	Eff. Date	Rate of DA	Months	Avg Rate
2013-14	1/1/2013	80%	3	90%
	1/7/2013	90%	6	
	1/1/2014	100%	3	

3.70 The employee expense capitalization for FY 2011-12 to FY 2013-14 of generating stations has been arrived by taking the same percentage as considered in the last tariff order. However, for distribution business the Commission has relied on average employee capitalization of 9% based on historical data.

3.71 Based on the above approach and methodology, the employee costs approved by the Commission is tabulated below:

Table 28: Employee expenses approved by the Commission (Rs. Cr.)

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	62.08	65.94	74.04
Tuticorin TPS	82.06	91.46	103.28
Mettur TPS	73.04	81.52	92.10
North Chennai TPS	50.49	59.41	66.77
Total Thermal	**267.67**	**298.33**	**336.18**
Tirumakottai GTPS	3.90	4.33	4.90
Kuttalam GTPS	3.10	2.31	2.61
Basin Bridge GTPS	3.53	3.90	4.38
Valuthur GTPS	5.86	6.56	7.36
Total Gas	**16.39**	**17.10**	**19.26**
Erode HEP	22.88	28.84	32.71
Kadamparai HEP	15.08	16.79	18.82

Kundah HEP	24.50	26.85	30.12
Tirunelveli HEP	19.60	21.79	24.43
Total Hydro	**82.06**	**94.27**	**106.08**
Total Generation	**366.12**	**409.70**	**461.52**
Distribution	**3,206.77**	**3,360.21**	**3,683.52**
TANGEDCO	**3,572.89**	**3,769.91**	**4,145.04**

Repair and Maintenance Expenses

3.72 In the tariff order dated March 2012, the average R&M expenses of last five financial years i.e. from FY 2005-06 to FY 2009-10 was taken into account in order to arrive at the R&M expenses for the base year as per tariff regulations. In this process of averaging, the R&M expenses arrived will correspond to the median year i.e. FY 2007-08 and hence average expenses must be escalated at 4% year on year for arriving at the R&M expenses for the base year FY 2010-11. In the last order for TTPS, MTPS and VGTPS generating stations, Commission had approved additional R&M expenses to the extent of this correction. The same is being retained in this year order also.

3.73 Commission has maintained its stance followed in tariff order dated June 20th 2013 while approving the R&M expenses for the distribution business, i.e increase in R&M expenses of TANGEDCO only to the tune of decrease in R&M expenses of TANTRANSCO compared to that approved in tariff order dated March 2012 has been allowed.

3.74 The Commission has considered the R&M expenses as approved in its last Tariff Order passed on 20th June 2013, for the years FY 2011-12 to FY 2013-14. R&M expenses approved by Commission have been tabulated below:

Table 29: R&M expenses approved by Commission (Rs. Cr.)

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	33.36	34.69	41.44
Tuticorin TPS	37.23	38.72	40.26
Mettur TPS	30.62	31.84	29.21
North Chennai TPS	56.35	58.61	60.91
Total Coal	**157.56**	**163.86**	**171.82**
Tirumakottai GTPS	1.60	1.66	4.50
Kuttalam GTPS	3.57	3.71	3.86
Basin Bridge GTPS	0.82	0.85	1.89
Valuthur GTPS	2.25	2.34	1.44
Total Gas	**8.24**	**8.56**	**11.69**
Erode HEP	1.09	1.13	1.08
Kadamparai HEP	1.91	1.98	1.74
Kundah HEP	2.23	2.32	1.76
Tirunelveli HEP	1.78	1.85	1.40
Total Hydro	**7.01**	**7.28**	**5.98**
Total Generation	**172.81**	**179.70**	**189.49**

Distribution	**58.80**	**60.07**	**67.82**
TANGEDCO	**231.61**	**239.77**	**257.31**

Administrative and General Expenses

3.75 In the tariff order dated March 2012, the average A&G expenses of last five financial years i.e. from FY 2005-06 to FY 2009-10 was taken into account in order to arrive at the A&G expenses for the base year as per tariff regulations. In this process of averaging, the A&G expenses arrived will correspond to the median year i.e. FY 2007-08 and hence average expenses must be escalated at 4% year on year for arriving at the A&G expenses for the base year FY 2010-11. In the last order for TTPS, MTPS and VGTPS generating stations, Commission had approved additional R&M expenses to the extent of this correction. The same is being retained in this year order also.

3.76 Commission has maintained its stance followed in tariff order dated June 20th 2013 while approving the A&G expenses for the distribution business, i.e. increase in A&G expenses of TANGEDCO only to the tune of decrease in A&G expenses of TANTRANSCO compared to that approved in tariff order dated March 2012 has been allowed.

3.77 The Commission has considered the A&G expenses as approved in its last Tariff Order passed on 20th June 2013, for the years FY 2011-12 to FY 2013-14. A&G expenses approved by Commission have been tabulated below:

Table 30: A&G expenses approved by Commission (Rs. Cr.)

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	9.28	9.65	9.15
Tuticorin TPS	22.90	23.82	15.93
Mettur TPS	12.95	13.46	12.91
North Chennai TPS	10.80	11.24	10.41
Total Coal	**55.93**	**58.17**	**48.40**
Tirumakottai GTPS	2.42	2.51	2.50
Kuttalam GTPS	3.15	3.28	1.72
Basin Bridge GTPS	1.58	1.64	1.81
Valuthur GTPS	5.93	6.16	4.01
Total Gas	**13.08**	**13.59**	**10.04**
Erode HEP	4.91	5.10	5.51
Kadamparai HEP	2.83	2.95	8.01
Kundah HEP	15.15	15.76	15.84
Tirunelveli HEP	3.38	3.51	5.14
Total Hydro	**26.27**	**27.32**	**34.50**
Total Generation	**95.28**	**99.08**	**92.94**
Distribution	**61.79**	**57.14**	**101.03**
TANGEDCO	**157.07**	**156.22**	**193.97**

Operation and Maintenance expenses for new generating stations

3.78 The TNERC tariff regulations sets the following guidelines for determination of O&M expenses of the new generating stations:

"25. Operation and Maintenance Expenses

In case of the thermal power generating stations declared under commercial operation on or after the notification of these Regulations, the base operation and maintenance expenses shall be fixed at 1.0% of the actual capital cost (as admitted by the Commission), in the year of commissioning and shall be subject to an annual escalation of 4% per annum for the subsequent years."

3.79 Commission for last tariff order had provisionally approved capital costs submitted by TANGEDCO of the new power plants. Based on the submissions made and the actual CoD's of the new plants, Commission has computed the following O&M expenses for the new generating stations.

Table 31: O&M expenses for new thermal stations approved by the Commission (Rs. Cr)

Name of the power plant	Capital cost as filed (including IDC) – Rs. Crore	O&M expenses at 1% of capital cost – Rs. Crore	Date of Commissioning	O&M expenses approved for the financial year of commissioning – Rs. Crore
MTPS Stage – III	3550	35.50	October 2013	17.75
NCTPS Stage II – Unit 1	5814	58.14	March 2014	2.42
NCTPS Stage III – Unit 2			May 2014	26.65
Ennore Expansion	4012	40.12	January 2016	10.03

3.80 Based on the actual CoD of the new generating stations, O&M expenses approved for FY 2011-12, FY 2012-13 and FY 2013-14 are tabulated below:

Table 32: O&M expenses for new thermal stations approved by the Commission (Rs. Cr)

Name of the power plant	FY 2011-12	FY 2012-13	FY 2013-14
MTPS Stage – III	-	-	17.75
NCTPS Stage II – Unit 1	-	-	2.42
NCTPS Stage III – Unit 2	-	-	-
Ennore Expansion	-	-	-

3.81 The O&M expenses approved by the Commission both for existing and new generating stations for FY 2011-12, FY 2012-13 and FY 2013-14 are tabulated below:

Table 33: O&M expenses approved by Commission (Rs. Cr.)

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	104.72	110.28	124.63
Tuticorin TPS	142.19	154.00	159.47
Mettur TPS	116.61	126.82	134.22

North Chennai TPS	117.64	129.26	138.09
NCTPS Stage-II (Unit 1)	-	-	2.42
NCTPS Stage-II (Unit 2)	-	-	-
MTPS Stage-III	-	-	17.75
Total Coal	**481.16**	**520.36**	**576.57**
Tirumakottai GTPS	7.92	8.50	11.90
Kuttalam GTPS	9.82	9.30	8.19
Basin Bridge GTPS	5.93	6.39	8.08
Valuthur GTPS	14.04	15.06	12.81
Total Gas	**37.71**	**39.25**	**40.99**
Erode HEP	28.88	35.07	39.30
Kadamparai HEP	19.82	21.72	28.57
Kundah HEP	41.88	44.93	47.72
Tirunelveli HEP	24.76	27.15	30.97
Total Hydro	**115.34**	**128.87**	**146.56**
Total Generation	**634.21**	**688.48**	**764.12**
Distribution	3,327.36	3,477.42	3,852.37
TANGEDCO	**3,961.57**	**4,165.90**	**4,616.49**

Segregation of accounts

3.82 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, does not get reflected in the opening balance sheet of the TANGEDCO as specified in the Transfer Scheme.

3.83 As per last tariff order, the opening GFA as on November 2010 is considered equal to the closing GFA as on March 2010.

3.84 In addition, the opening GFA as on November 2010 includes the revaluation reserve of Rs. 5579.40 Crs. The summary of opening GFA as per provisional transfer scheme dated 2nd January 2012 is tabulated below:

Table 34: TANGEDCO GFA as on Nov 2010 - based on provisional transfer scheme (Rs. Cr)

Particulars	Generation	Distribution	Total G&D
Before Revaluation	10,558.49	7,668.03	18,226.52
Revaluation Reserve as on Nov 2010	1889.76	3689.64	5,579.40
Including Revaluation	**12,448.25**	**11,357.67**	**23,805.92**

3.85 Currently the revaluation of assets is still going on and the GFA as on Nov 2010 will be finalized only in the final transfer scheme. According to last tariff order, TANGEDCO has revised the GFA excluding the revaluation reserve and segregated the loans and other expenses between generation business and distribution business based on the GFA prior to revaluation reserve. TANGEDCO also clarified that revaluation reserve will not have any major impact in depreciation calculations as the increase in GFA was majorly due to revaluation of land.

3.86 Commission is of the view that revaluation of assets is just a book adjustment that neither requires any fund nor generates additional cash flow. Also as revaluation of assets being not finalized, Commission has based its calculations on GFA without revaluation reserve. The opening GFA as on November 2010 considered by the Commission is tabulated below:

Table 35: Opening GFA as on November 2010 (Rs. Cr)

Power Station	GFA (W/o Revaluation Reserve)
Ennore TPS	1,056.84
Tuticorin TPS	1,853.70
Mettur TPS	1,049.19
North Chennai TPS	1,987.19
Total Thermal	**5,946.92**
Tirumakottai GTPS	450.75
Kuttalam GTPS	351.05
Basin Bridge GTPS	549.01
Valuthur GTPS	540.82
Total Gas	**1,891.63**
Erode HEP	672.31
Kadamparai HEP	363.48
Kundah HEP	953.74
Tirunelveli HEP	330.58
New Hydro Addition	
Bhavani Barrage	6.92
Bhavani Katlai	16.28
Periyar	33.75
Total Hydro	**2,377.07**
Tirunelveli	206.45
Udumalpet	136.41
Total Wind	**342.86**
Total Generation	**10,558.49**
Total Distribution	**7668.03**
Total G&D – without revaluation reserve	**18,226.52**
Revaluation reserve	5579.40
Total G&D – inclusive of revaluation reserve	**23805.92**

Capital Expenditure and capitalization

3.87 Regulation 17 (5) of the Tariff Regulations, 2005 and Regulation 3 (v) of the Tariff Regulation under MYT framework specifies that the licensee shall get the capital investment plan approved by the Commission before filing ARR and Application for determination of Tariff.

3.88 The Appellate Tribunal for Electricity (APTEL) in its order on Appeal No 196 of 2013 dated 18th October 2014 has given its judgment regarding capital investment plan approval. The relevant extracts of the APTEL order are reproduced below.

"*18. We find that the State Commission has provisionally accepted capital expenditure and capitalization for the first Control Period i.e. FY 2010-11 to 2012-13 and for the second Control Period i.e. FY 2013-14 to FY 2015-16 as submitted by the Appellant without any prudence check. The capitalization and capital expenditure for the second Control Period has been accepted without considering the past performance of the TANGEDCO.*

…………………………..

The capital expenditure and capitalization for the second Control Period appears to be highly optimistic considering the past performance of TANGEDCO. We feel that the State Commission erred in approving the capital expenditure/ capitalization without considering the details of the Capital Investment Plan and the past performance of TANGEDCO.

*We, therefore, direct the State Commission to true up/provisionally true up the capitalization for FY 2013-14 immediately and the short fall if any should be accounted for while determining the tariff for the FY 2015-16, with carrying cost on the impact of the variation on this account in the ARR**.** We direct TANGEDCO to submit the actual accounts of capital expenditure and capitalization during FY 2013-14 by 30.11.2014 to the State Commission.* ***TANGEDCO shall also submit the application for capital investment plan for FY 2014-15 and 2015-16 in the requisite formats to the state commission for approval as per the tariff regulations by 30.11.2014, if not already done. The state commission shall approve the capital investment plan of TANGEDCO for the FY 2014-15 and 2015-16 after following due process of law, if not already done, and consider the same while approving the tariff for the FY 2015-16. "***

3.89 The Commission has taken cognisance of the above APTEL directive and shall approve the capital investment plan and account for the shortfall if any in capex and capitalization while determining tariff for FY 2015-16 along with impact of carrying cost.

3.90 TANGEDCO has filed quarterly capex plans and resource reviews only for selective stations, which provided inconsistent information on capitalization and capital works in progress (CWIP) for each of the plants.

3.91 It is also pertinent to mention that TANGEDCO has finalized its audited accounts based on the provisional transfer scheme and the opening CWIP and GFA does take into consideration the actual capital expenditure and expenses incurred during the first seven months of FY 2010-11. Hence, this mismatch and ambiguity in the capital expenditure and capitalization is majorly due to non-finalization of transfer scheme and hence **Commission directs the power utilities to get the transfer scheme finalized through GoTN at the earliest.**

3.92 As per the APTEL directive the Commission has relooked at the approach for considering capex and capitalization and would require the capital investment plan to be submitted by TANGEDCO pending which it has provisionally considered the capex and capitalization for all generation plants and distribution business same as last tariff order. However the capitalization of Rs. 2907.02 crores for NCTPS Stage-II unit-II which was accounted in FY 2013-14 as per last tariff order has been taken to FY 2014-15 since the plant got commissioned in May 2014. Also as indicated in last tariff order the capital expenditure for Ennore expansion has been revised based on budgeted estimates.

3.93 The capital expenditure and capitalization considered in this order is tabulated below. Any variation in capital expenditure and capitalization due to prudence verification based on the data submitted by the TANGEDCO and finalization of transfer scheme will be addressed during the next tariff order.

Table 36: Capital expenditure and capitalization approved by Commission for generating stations and distribution businesses (Rs. Cr)

Plant	Capital Expenditure			Capitalization		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	7.39	4.06	9.00	0.21	2.43	57.02
Tuticorin TPS	24.21	92.36	99.44	8.97	55.42	96.61
Mettur TPS	17.71	103.15	95.06	11.89	61.89	98.30
North Chennai TPS	-	41.44	54.30	24.66	24.86	49.15
NCTPS Stage-II (Unit 1)	1,823.48	209.45	134.73	-	-	2,907.02
NCTPS Stage-II (Unit 2)	1,823.48	209.45	134.73	-	-	-
MTPS Stage-III	595.67	426.56	774.25	-	-	3,550.00
Ennore Expansion	0.20	0.10	9.25	-	-	-
Total Thermal	**4,292.14**	**1,086.57**	**1,310.76**	**45.73**	**144.60**	**6,758.11**
Tirumakottai GTPS	1.08	5.27	5.82	3.79	3.16	5.60
Kuttalam GTPS	0.82	137.42	3.84	14.79	137.42	2.30
Basin Bridge GTPS	-	-	0.90	-	-	1.72
Valuthur Unit-I Valuthur Unit-II	60.24	13.86	5.42	11.02	70.89	8.80
Total Gas	**62.14**	**156.55**	**15.98**	**29.60**	**211.47**	**18.42**
Erode HEP	238.96	171.61	31.31	1.59	35.55	1,144.18
Kadamparai HEP	1.58	0.11	1.02	2.83	0.06	0.66
Kundah HEP	4.26	6.05	25.82	4.43	1.35	1.39

Plant	Capital Expenditure			Capitalization		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Tirunelveli HEP	79.93	39.74	27.67	15.08	25.94	137.48
Total Hydro	**324.73**	**217.51**	**85.82**	**23.93**	**62.90**	**1283.71**
Tirunelveli	0.94	-	-	-	-	-
Udumalpet	0.03	-	-	-		
Total Wind	**0.97**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Cogen Sugar Mills Under Modernisation	447.11	208.26	205.44	-	-	711.46
Total Generation	**5,127.09**	**1,668.89**	**1,618.00**	**99.26**	**418.98**	**8,771.70**
Total Distribution	**1,506.92**	**1,528.10**	**2,449.59**	**1,021.16**	**1,797.94**	**2,174.23**
TANGEDCO	**6,634.01**	**3,196.99**	**4,067.59**	**1,120.42**	**2,216.92**	**10,945.93**

Depreciation

3.94 Commission has considered opening gross block for each of the generating plants and for distribution function for FY 2010-11 (5 months) in line with the provisional transfer scheme notified by the Government of Tamil Nadu vide notification dated 2nd January 2012.

3.95 Currently the revaluation of assets is still in process and the impact due to revaluation reserve can be addressed on finalization of transfer scheme. According to last tariff order, TANGEDCO has clarified that there will not be any major change in depreciation due to change in opening GFA as the revaluation reserve majorly corresponds to land. However, Commission is of the view that revaluation of assets should not result in tariff increase. Hence, Commission has not considered the revaluation reserve in the opening GFA while estimating the depreciation.

3.96 In order to determine depreciation the Commission has used the weighted average depreciation rate for the particular group of asset arrived based on depreciation rates specified in the Tariff Regulations.

3.97 TNERC Tariff Regulations 2005 specifies following guidelines for calculation of depreciation:

24. Depreciation

For the purpose of tariff, depreciation shall be computed in the following manners:

i. *The value base for the purpose of depreciation shall be historical cost of the asset.*
ii. *The depreciation shall be calculated at the rates as per the Annexure to these Regulations.*

iii. *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.*

iv. *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.*

v. *The historical cost of the asset shall include additional capitalisation.*

vi. *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.*

vii. *After the assets are fully depreciated the benefit of reduced tariff shall be made available to the consumer.*

3.98 The Commission, for the existing plants has considered opening GFA, additions and deductions to GFA that were approved in its last tariff order. For new plants, capitalization has been re-apportioned between years based on CoD as indicated in the above section. For new generating stations, Commission has allowed depreciation on pro-rata basis based on CoD during the first year of operation. The opening GFA considered and estimated depreciation is tabulated below:

Table 37: Opening GFA and depreciation approved by the Commission (Rs. Crore)

Power Station	FY 2011-12		FY 2012-13		FY 2013-14	
	Opening GFA	Depreciation	Opening GFA	Depreciation	Opening GFA	Depreciation
Ennore TPS	1,056.84	37.45	1,057.05	37.46	1,059.48	37.54
Tuticorin TPS	1,861.47	64.21	1,869.64	64.45	1,925.06	66.36
Mettur TPS	1,105.21	36.04	1,085.40	35.35	1,147.29	37.37
North Chennai TPS	1,989.04	61.66	2,013.70	62.50	2,038.57	63.27
NCTPS Stage-II (Unit 1)*	-	-	-	-	-	7.79
NCTPS Stage-II (Unit 2)	-	-	-	-	-	-
MTPS Stage-III*	-	-	-	-	-	54.17
Ennore Expansion	-	-	-	-	-	-
Total Coal	**6,012.57**	**199.36**	**6,025.80**	**199.76**	**6,170.40**	**266.50**
Tirumakottai GTPS	450.84	15.90	454.63	16.03	457.79	16.14
Kuttalam GTPS	351.05	12.32	365.84	12.82	503.27	17.63
Basin Bridge GTPS	551.33	19.81	551.33	19.81	551.33	19.81
Valuthur GTPS	540.82	19.11	551.84	19.48	622.73	21.99
Total Gas	**1,894.04**	**67.14**	**1,923.64**	**68.14**	**2,135.12**	**75.57**
Erode HEP - (incl. Bhavani Barrage and Bhavani Khattai)	696.07	20.36	697.66	20.41	733.21	21.45
Kadamparai HEP	363.51	10.52	365.97	10.58	366.04	10.58
Kundah HEP	955.88	25.16	956.37	25.16	957.72	25.19
Tirunelveli HEP (incl -	381.73	10.99	394.39	11.44	420.34	12.19

Power Station	FY 2011-12		FY 2012-13		FY 2013-14	
	Opening GFA	Depreciation	Opening GFA	Depreciation	Opening GFA	Depreciation
Periyar)						
Total Hydro	**2,397.19**	**67.03**	**2,414.41**	**67.59**	**2,477.31**	**69.41**
Tirunelveli	206.45	0	206.45	0	206.45	0
Udumalpet	136.41	0	136.41	0	136.41	0
Total Wind	**342.86**	**0**	**342.86**	**0**	**342.86**	**0**
Total Generation	**10,646.67**	**333.54**	**10,706.71**	**335.49**	**11,125.68**	**411.48**
Total Distribution	**7,941.09**	**272.78**	**8,797.18**	**302.13**	**10,595.12**	**362.39**
TANGEDCO	**18,587.75**	**606.32**	**19,503.89**	**637.62**	**21,720.80**	**773.89**

**Depreciation allowed on pro-rata basis based on CoD during the first year of operation*

Interest on long term loans and other financing charges

3.99 In the last tariff order Commission has treated revenue account and capital account separately as TANGEDCO has started working independently. The Commission, in its last tariff order, has considered the following assumptions for the determination of interest expenses on long term loans:

xi. *Revised opening loans as on 1st November 2010 has been arrived considering the net addition during first seven months of FY 11 based on information provided by TANGEDCO.*

xii. *The repayment of existing loans as per audited accounts also includes the repayment of loans borrowed for revenue account. Commission is treating the revenue account separately and also allowing the interest expenses on account of regulatory asset approved in its last tariff order. Hence, allowing the borrowings and interest expenses corresponding to the repayment of loans borrowed for funding of revenue account will result in double accounting of the interest expenses allowed for funding the revenue gap. In view of this, Commission is accepting the opening loans as on 1st November 2010 and is assuming a repayment period of 10 years.*

xiii. *The repayment period of new loans borrowed during the control period is assumed to be 10 years*

xiv. *The borrowings required for loan repayment will be estimated after taking into account the depreciation allowed during the year.*

xv. *Loans required for the capital works will be arrived after considering the approved capital expenditure and available grants and consumer contribution during the control period. Equity required for funding the capital expenditure is assumed to be nil as Commission is not allowing any return on equity.*

xvi. *The consumer contribution and grants for FY 11 and FY 12 has been considered as per audited accounts while for FY 13 they are approved based on historical data.*

xvii. *Interest expenses on account of capital works for wind assets has not been considered as borrowings on account of wind assets cannot be loaded on tariff for other generating stations and distribution business. Commission has already approved generation cost for wind assets based on transfer price mechanism.*

xviii. *Interest on cogeneration sugar mills is also not considered as the tariff for these generating stations is taken as per Commission's tariff order for procurement of power from cogeneration.*

xix. *Average interest rate for FY 11 and FY 12 is estimated based on interest expenses as per audited accounts and revised loan profile considering the borrowings during the first seven months of FY 11. Interest rate for FY 13 is assumed as 11.98% i.e. the average interest rate of FY 11 and FY 12.*

xx. *Interest during construction (IDC) is approved based on capital works in progress."*

3.100 Since any further information on the nature of existing and new loans is unavailable, Commission is retaining the same loan structure and interest rates as approved in its last tariff order. However, for new plants, Commission has considered addition to loans based on their respective CoDs and capital expenditure required for such new plants.

3.101 The details of loan profile and interest expenses approved by the Commission corresponding to capital expenditure and repayment of loans are given below.

Table 38: Loan profile and Interest expenses approved by the Commission (Rs. Cr)

Particulars	2011-12	2012-13	2013-14
Loan Profile			
Op. Balance	**20,726**	**26,046**	**28,294**
Add: Addition for CAPEX	5,926	2,886	3,666
Add: Addition for Loan Repayment	2,409	2,962	3,547
Less: Loan Repayment	3,015	3,600	4,321
Closing Balance	**26,046**	**28,294**	**31,187**
Gross Interest Expenses	2,504	3,256	3,569
Less: IDC	938	1,439	1,121
Net Interest Expenses	**1,566**	**1,817**	**2,448**

3.102 The Commission has retained project wise long term loan allocation as approved in last tariff order, including new plants where allocation has been made based on their revised capex numbers.

Table 39: Interest expenses on long term loans for TANGEDCO approved by Commission (Rs. Cr)

Power Station	2011-12	2012-13	2013-14

Power Station	2011-12	2012-13	2013-14
Ennore TPS	98.62	106.03	105.25
Tuticorin TPS	120.48	130.98	132.45
Mettur TPS	62.18	69.73	75.08
North Chennai TPS	105.15	113.19	110.26
NCTPS Stage-II (Unit 1)	-	-	173.95
NCTPS Stage-II (Unit 2)	-	-	-
MTPS Stage-III	-	-	175.67
Total Coal	**386.43**	**419.94**	**772.67**
Tirumakottai GTPS	43.34	47.00	45.67
Kuttalam GTPS	37.14	49.18	55.81
Basin Bridge GTPS	18.69	18.54	16.29
Valuthur GTPS	93.72	107.47	109.92
Total Gas	**192.89**	**222.19**	**227.69**
Erode HEP - (incl. Bhavani Barrage and Bhavani Khattai)	75.13	83.86	152.26
Kadamparai HEP	32.98	35.82	34.64
Kundah HEP	115.65	126.75	124.08
Tirunelveli HEP (incl - Periyar)	44.62	51.04	59.51
Total Hydro	**268.38**	**297.48**	**370.49**
Cogen Sugar Mills Under Modernization	**-**	**-**	**42.69**
Total Generation	**847.70**	**939.61**	**1,413.53**
Distribution	**718.40**	**877.39**	**1,034.39**
TANGEDCO	**1,566.09**	**1,817.01**	**2,447.92**

3.103 The Commission has approved the interest expenses incurred on consumer security deposits to the extent of working capital requirement determined based on the norms specified in the TNERC Tariff Regulation, 2005 for distribution business. Commission has considered an average interest rate of 7.00% for FY 2011-12 based on audited accounts and 9.00% for FY 2012-13 and FY 2013-14 in accordance to its order on interest on consumer security deposit dated 5th February 2013.

3.104 As per last tariff order Commission has not allowed the interest expenses on GPF as it has not considered GPF reserve for funding of capital expenditure. The interest expenses on consumer security deposits and other finance charges approved by the Commission are tabulated below.

Table 40: Interest on consumer deposits and other finance charges approved by the Commission (Rs. Cr)

Parameter	2011-12		2012-13		2013-14	
	Last TO	Commission	Last TO	Commission	Last TO	Commission
Interest on consumer security Deposits	247.60	247.55	380.81	401.68	449.6	480.05
Guarantee charges	39.04	39.04	39.04	62.11	39.04	62.11
Other charges	48.10	48.10	48.10	33.83	48.10	33.83
Total	**334.74**	**334.69**	**467.95**	**497.62**	**536.74**	**576.00**

3.105 The overall interest and other finance charges approved by the Commission for the distribution business during FY 2011-12 to FY 2013-14 are given below.

Table 41: Interest and other finance charges approved for distribution business (Rs. Cr)

Parameter	2011-12		2012-13		2013-14	
	Last TO	Commission	Last TO	Commission	Last TO	Commission
Interest on long term loans	718.40	718.40	861.15	877.39	988.31	1,034.39
Interest on consumer security Deposits	247.60	247.55	380.81	401.68	449.6	480.05
Other finance charges	87.14	87.14	87.14	95.94	87.14	95.94
Total interest and finance charges	**1053.14**	**1053.08**	**1329.10**	**1375.01**	**1525.05**	**1610.39**

Return on Equity

3.106 In last year order Commission has not considered the equity requirement while approving the funding requirement of capital expenditure. This stand was taken because Commission is of the view that TANGEDCO is mixing the revenue account with capital account and the equity approved may be again diverted to revenue account. This can also be observed from TANGEDCO audited accounts wherein the actual borrowings for FY 11 and FY 12 are significantly higher than capital expenditure. TNERC Tariff Regulations also allow the Commission for approving the equity below the norms of 30% requirement. The relevant extracts of the regulation are reproduced below:

"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."*

3.107 Based on the above submissions, Commission has not allowed any return on equity due to the following reasons:

i. *Commission has approved interest on total outstanding loans as on November 2010*
ii. *Based on available sources of funding, equity has been diverted towards revenue account from FY 2003 and hence the addition in equity base as per*

audited accounts is on account of funding the revenue expenditure and not for creation of capital assets.

iii. Loans approved for funding the capital expenditure for generating stations and distribution business during the control period are without considering the equity

3.108 The Commission continues to take the same stand and is not allowing any return on equity for the current tariff order also.

Interest on Working Capital

3.109 Commission in line with last year tariff order has considered it appropriate to approve and segregate the loans based on purpose and in accordance with its Tariff Regulations. Hence, Commission approves the interest expenses based on its Tariff Regulations and relevant guidelines are reproduced below:

"26. Working Capital

(2) Till such a formula is evolved, the norms for Working Capital shall be as below:

(a) For Coal based / Lignite fired Generating Stations

(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; and

(v) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on .target availability.

(b) For Gas Turbine / combined cycle Generating Stations

(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) For Hydro Power Generating Stations

The working Capital shall cover:

(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.

(e) For Distribution System

(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 day consumption charges.

27. Interest on Working Capital

The short term rate of interest on working capital shall be on normative basis and shall be equivalent to the primary lending rate of State Bank of India as on 1st April of the relevant year."

3.110 Commission has estimated the interest on working capital for generating stations considering the variable costs and fixed costs approved in this Order and interest rates as considered in last year tariff order.

Table 42: Interest on working capital approved by the Commission (Rs. Cr)

Power Station	FY 2011-12		FY 2012-13		FY 2013-14	
	Last TO	Commission	Last TO	Commission	Last TO	Commission
Ennore TPS	18.83	18.94	20.31	21.90	21.37	25.33
Tuticorin TPS	115.83	112.27	129.86	123.07	120.66	130.77
Mettur TPS	97.84	108.01	97.1	113.24	99.7	114.72
North Chennai TPS	54.89	50.69	73.63	74.05	70.61	61.06
NCTPS Stage-II (Unit 1)	-	-	-	-	93.13	1.37
NCTPS Stage-II (Unit 2)	-	-	-	-	-	-
MTPS Stage-III	-	-	-	-	56.55	18.95
Tirumakottai GTPS	6.75	7.36	6.78	8.94	7.5	7.66
Kuttalam GTPS	4.2	4.97	2.83	3.43	7.45	9.98
Basin Bridge GTPS	3.41	3.93	2.06	2.08	4.75	2.09
Valuthur GTPS	8.68	10.49	10.48	12.61	12.51	18.83
Erode HEP - (incl. Bhavani Barrage and Bhavani Khattai)	4.00	4.00	5.01	5.01	6.78	6.83
Kadamparai HEP	2.10	2.10	2.54	2.54	2.69	2.71
Kundah HEP	5.76	5.77	6.95	6.96	6.81	6.86
Tirunelveli HEP (incl - Periyar)	2.48	2.49	3.1	3.11	3.41	3.47
Total Generation	**324.76**	**331.01**	**360.65**	**376.94**	**513.92**	**410.62**

3.111 For Distribution business, Commission has approved interest on security deposits to the extent of working capital requirement under interest on loans and hence Commission is of the view that interest on working capital for distribution business can only be allowed on working capital requirement above the consumer security deposits.

3.112 Consumer security deposits upto FY 2011-12 and FY 2012-13 are taken as per audited accounts and for FY 2013-14 they are projected based on historical trend in increase of consumer security deposit. The working capital requirement and available consumer security deposit for FY 2011-12 to FY 2013-14 is tabulated below.

Table 43: Approved working capital requirement and available consumer security deposits (Rs. Cr)

Particulars	2011-12		2012-13		2013-14	
	Last TO	Commission	Last TO	Commission	Last TO	Commission
O & M expenses	277.28	277.28	289.78	289.78	314.90	321.03
Maintenance Spares	13.24	13.24	14.66	14.66	17.66	17.66
Receivables	3,245.88	3,245.88	3,926.82	4,158.64	4,663.04	4,995.23
Total Working Capital	3,536.39	3,536.39	4,231.27	4,463.08	4,995.60	5,333.92
Available Consumer Security Deposits	5,335.35	5,335.35	5,842.57	5,903.84	6,237.27	6,423.24
Net Requirement	**(1,798.96)**	**(1,798.96)**	**(1,611.30)**	**(1,440.75)**	**(1,241.67)**	**(1,089.32)**

3.113 From the above table it can be observed that available consumer security deposits are more than the working capital requirement. In view of this Commission is not approving any interest on working capital as it has already approved interest on consumer security deposits to the extent of working capital requirement under interest and finance charges.

Other Debits

3.114 Commission in it last order had not allowed any increase in other debits due to minimum guarantee off take of natural gas and other operational charges. The Commission had observed that the minimum guarantee charge has been accounted as prior period income in FY 12.

3.115 Commission retains its stand for the current tariff order by considering the same expenses that were allowed in last tariff order and is not allowing any escalation for such expenses. The approved other debits for FY 2011-12 to FY 2013-14 is tabulated below.

Table 44: Other debits approved by the Commission for generating stations (Rs. Cr)

Power Station	FY 2011-12		FY 2012-13		FY 2013-14	
	Last TO	Commission	Last TO	Commission	Last TO	Commission
Ennore TPS	0.20	0.20	0.20	0.20	0.20	0.20
Tuticorin TPS	0.30	0.30	0.30	0.30	0.30	0.30
Mettur TPS	0.20	0.20	0.20	0.20	0.20	0.20
North Chennai TPS	0.40	0.40	0.40	0.40	0.40	0.40
Tirumakottai GTPS	0.10	0.10	0.10	0.10	0.10	0.10
Kuttalam GTPS	0.06	0.06	0.06	0.06	0.06	0.06

Power Station	FY 2011-12		FY 2012-13		FY 2013-14	
	Last TO	Commission	Last TO	Commission	Last TO	Commission
Basin Bridge GTPS	0.10	0.10	0.10	0.10	0.10	0.10
Valuthur GTPS	0.20	0.20	0.20	0.20	0.20	0.20
Erode HEP - (incl. Bhavani Barrage and Bhavani Khattai)	0.12	0.12	0.12	0.12	0.12	0.12
Kadamparai HEP	0.10	0.10	0.10	0.10	0.10	0.10
Kundah HEP	0.20	0.20	0.20	0.20	0.20	0.20
Tirunelveli HEP (incl - Periyar)	0.10	0.10	0.10	0.10	0.10	0.10
Total Generation	**2.08**	**2.08**	**2.08**	**2.08**	**2.08**	**2.08**

3.116 For distribution business, in last year order TANGEDCO had included extraordinary debits and DSM under other debits in its petition.

3.117 However on review of audited accounts of TANGEDO, Commission had observed that there was extraordinary credit corresponding to extraordinary debits and TANGEDCO had claimed the expenses under other debits without considering this credit. Hence, Commission had not allowed this expense in other debits and had directed TANGEDCO to reconcile expenses pertaining to extraordinary items appropriately.

3.118 Also TANGEDCO had not provided any information regarding DSM measures taken by it and hence Commission had not allowed any DSM expenses.

3.119 As any information on other debit expenses is not available, Commission is considering expenses that were approved in last tariff order.

Table 45: Other Debits for Distribution business approved by the Commission (Rs. Cr)

Parameter	2011-12		2012-13		2013-14	
	Last Order	Commission	Last Order	Comm.	Last Order	Comm.
Distribution	14.26	14.26	16.9	16.90	19.93	19.93

Prior Period Expenses

3.120 Commission in its last tariff order had not allowed any prior period expenses as these charges were corresponding to the period prior to functioning of TANGEDCO as a separate entity and was of the opinion that such charges should be addressed in the financial restructuring plan by TANGEDCO. Commission retains its stance and is not allowing any net prior period expenses for FY 2011-12, FY 2012-13 and FY 2013-14.

Contribution for Contingency reserves

3.121 It is pertinent to mention that provision for contingency reserve is appropriate when utility is in revenue surplus and some portion of this surplus revenue can be contributed for contingency reserve. However, TANGEDCO has a revenue gap for FY 2011-12 to FY 2013-14 and in this situation it is inapt to allow the expenses on account of contingency reserve. Hence, Commission has not allowed any contingency reserve.

Summary of fixed Cost approved for Distribution function

3.122 Based on the above approach adopted, the summary of fixed cost approved for distribution function is tabulated below:

Table 46: Summary of fixed costs for Distribution business approved by the Commission (Rs. Cr)

	Last Tariff Order			Commission		
Particulars	**FY 2011-12**	**FY 2012-13**	**FY 2013-14**	**FY 2011-12**	**FY 2012-13**	**FY 2013-14**
Operation and Maintenance Expenses	3,327	3,477	3,779	3,327	3,477	3,852
Depreciation	273	302	362	273	302	362
Interest and other finance charges	1,053	1,329	1,525	1,053	1,375	1,610
Other Debits	14	17	20	14	17	20
Prior Period Debit/(Credit) Charges	-	-	-	-	-	-
Reasonable Return / Return on Equity	-	-	-	-	-	-
Interest on Working Capital	-	-	-	-	-	-
Demand side management	-	-	-	-	-	-
Contribution for contingency reserve	-	-	-	-	-	-
Total	**4,667**	**5,125**	**5,686**	**4,667**	**5,171**	**5,845**

Expenses on account of Generation

3.123 In this Section, the Commission in accordance with TNERC (Terms and Conditions for determination of Tariff) Regulations, 2005 has analysed the expenses on account of Generation business of TANGEDCO from FY 2011-12 to FY 2013-14 and with reference to the Tariff Order dated June 20, 2013.

3.124 In respect of components of Tariff for Generating Stations, Regulation-36 of TNERC Tariff Regulations, 2005 states as under:

"36. Components of Tariff

1. *The tariff for sale of power by the Generating Companies shall be of two part namely the Fixed Charges (recovery of annual capacity charges) and variable (energy) charges.*
2. *The Fixed (annual capacity) charges shall consist of the following elements:*
   a) *Interest on Loan Capital;*
   b) *Depreciation*
   c) *Return on Equity;*
   d) *Operation and Maintenance expenses; and*
   e) *Interest on Working Capital:*
3. *The energy (variable) charges shall cover fuel cost."*

3.125 Commission in accordance with its regulations is approving the capacity charges and variable cost on account of own generating stations and approach for the same is detailed below.

Capacity charges for own generating stations

3.126 In above sections, Commission has approved the fixed expenses with respect to generating stations for FY 2011-12 to FY 2013-14.

a) O&M expenses – Refer to Table 28, Table 29and Table 30

b) Depreciation – Refer to Table 37

c) Interest on long term loans – Refer to Table 39

d) Return on Equity – Refer to Point 3.106

e) Interest on Working Capital – Refer to Table 42

f) Other Debits – Refer to Table 44

3.127 With respect to other income, Commission is relying on the totals as per audited accounts and plant wise proportions as per last year tariff order for approving the same for generation stations.

3.128 For new thermal stations, Commission is not approving any fixed cost for FY 2011-12 and FY 2012-13. While for FY 2013-14 Commission is allowing fixed expenses as estimated in the above section. For new hydro stations, TANGEDCO has included their fixed costs in the fixed costs of respective hydro generating circles and hence Commission is not separately approving the fixed costs for new hydro stations.

3.129 Based on above submissions, the summary of fixed expenses for own generating stations as approved by the Commission in this order for FY 2011-12, FY 2012-13 and FY 2013-14 are tabulated below.

ETPS

Table 47: Fixed charges approved for ETPS (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	37.5	37.5	37.5	37.4	37.5	37.5
Interest on Loan Capital	98.6	106.0	105.1	98.6	106.0	105.3
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	104.7	110.3	122.5	104.7	110.3	124.6
Interest on Working Capital	18.8	20.3	21.4	18.9	21.9	25.3
Other Debit	0.2	0.2	0.2	0.1	0.2	0.2
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	26.4	27.4	28.5	26.4	27.4	24.8
Total	**233.4**	**246.9**	**258.2**	**233.4**	**248.4**	**268.1**

TTPS

Table 48: Fixed charges approved for TTPS (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	64.2	64.5	66.4	64.2	64.5	66.4
Interest on Loan Capital	120.5	131.0	132.3	120.5	131.0	132.4
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	142.2	154.0	156.3	142.2	154.0	159.5
Interest on Working Capital	115.8	129.9	120.7	112.3	123.1	130.7
Other Debit	0.3	0.3	0.3	0.1	0.3	0.3
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	41.6	43.3	45.0	40.1	41.7	37.7
Total	**401.4**	**436.3**	**431.0**	**399.2**	**431.1**	**451.6**

MTPS

Table 49: Fixed charges approved for MTPS (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	36.0	35.4	37.4	36.0	35.3	37.4
Interest on Loan Capital	62.2	69.7	75.0	62.2	69.7	75.1
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	116.6	126.8	131.4	116.6	126.8	134.2

Interest on Working Capital	97.8	97.1	99.7	108.0	113.2	114.72
Other Debit	0.2	0.2	0.2	0.1	0.2	0.2
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	40.1	41.7	43.3	41.6	43.3	39.2
Total	**272.8**	**287.5**	**300.4**	**281.3**	**302.0**	**322.4**

NCTPS

Table 50: Fixed charges approved for NCTPS (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	61.7	62.5	63.3	61.7	62.5	63.3
Interest on Loan Capital	105.2	113.2	110.1	105.1	113.2	110.3
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	117.7	129.3	136.2	117.6	129.3	138.1
Interest on Working Capital	54.9	73.6	70.6	50.7	74.1	61.06
Other Debit	0.4	0.4	0.4	0.1	0.4	0.4
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	19.6	20.4	21.2	19.6	20.4	18.5
Total	**320.2**	**358.6**	**359.3**	**315.6**	**359.0**	**354.6**

NCTPS Stage II (Unit 1 & Unit 2)

Table 51: Fixed charges approved for NCTPS Stage II (Unit 1 & Unit 2) (Rs. Cr)

Parameter	Last Order			Commission*		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation			124.6	-	-	7.8
Interest on Loan Capital			340.9	-	-	173.9
Return on Equity			-			-
Operation and maintenance exp			43.6	-	-	2.4
Interest on Working Capital			93.1	-	-	1.4
Other Debit			-	-	-	-
Net Prior Period Expenses			-			-
Less: other income			-	-	-	-
Total	**-**	**-**	**602.2**	**0.0**	**0.0**	**185.5**

**Costs pertaining to Unit 1only since it achieved CoD in May 2014 and Unit 2 is not yet commissioned*

MTPS Stage III

Table 52: Fixed charges approved for MTPS Stage III (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation			86.4	-	-	54.17
Interest on Loan Capital			173.5	-	-	175.67
Return on Equity			-			-
Operation and maintenance exp			26.6	-	-	17.8
Interest on Working Capital			56.6	-	-	18.9
Other Debit			-	-	-	-
Net Prior Period Expenses			-			-
Less: other income			-	-	-	-
Total	**-**	**-**	**343.1**	**-**	**-**	**266.5**

TKGTPS

Table 53: Fixed charges approved for TKGTPS (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	15.9	16.0	16.1	15.9	16.0	16.1
Interest on Loan Capital	43.3	47.0	45.6	43.3	47.0	45.7
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	7.9	8.5	11.8	7.9	8.5	11.9
Interest on Working Capital	6.8	6.8	7.5	7.4	8.9	7.7
Other Debit	0.1	0.1	0.1	0.0	0.1	0.1
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	1.6	1.6	1.7	1.5	1.6	1.5
Total	**72.4**	**76.8**	**79.4**	**73.0**	**79.0**	**80.0**

KGTPS

Table 54: Fixed charges approved for KGTPS (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	12.3	12.8	17.6	12.3	12.8	17.6
Interest on Loan Capital	37.1	49.2	55.7	37.1	49.2	55.8
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	9.8	9.3	8.1	9.8	9.3	8.2
Interest on Working Capital	4.2	2.8	7.5	5.0	3.4	10.0
Other Debit	0.1	0.1	0.1	0.0	0.1	0.1

Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	-	-	-	0.0	0.0	0.0
Total	**63.5**	**74.2**	**89.0**	**64.3**	**74.8**	**91.7**

BBGTPS

Table 55: Fixed charges approved for BBGTPS (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	19.8	19.8	19.8	19.8	19.8	19.8
Interest on Loan Capital	18.7	18.5	16.3	18.7	18.5	16.3
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	5.9	6.4	7.9	5.9	6.4	8.1
Interest on Working Capital	3.4	2.1	4.8	3.9	2.1	2.1
Other Debit	0.1	0.1	0.1	0.0	0.1	0.1
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	0.2	0.2	0.2	0.2	0.2	0.2
Total	**47.7**	**46.7**	**48.7**	**48.2**	**46.7**	**46.2**

VGTPS

Table 56: Fixed charges approved for VGTPS (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	19.1	19.5	22.0	19.1	19.5	22.0
Interest on Loan Capital	93.7	107.5	109.8	93.7	107.5	109.9
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	14.0	15.1	12.6	14.0	15.1	12.8
Interest on Working Capital	8.7	10.5	12.5	10.5	12.6	18.8
Other Debit	0.2	0.2	0.2	0.0	0.2	0.2
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	0.1	0.1	0.1	0.0	0.0	0.0
Total	**135.7**	**152.7**	**157.0**	**137.4**	**154.8**	**163.7**

Erode Hydro Generation Circle

Table 57: Fixed charges approved for Erode Hydro Generation Circle (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14

Depreciation	20.4	20.4	21.5	20.4	20.4	21.5
Interest on Loan Capital	75.1	83.9	152.0	75.1	83.9	152.3
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	28.9	35.1	38.3	28.9	35.1	39.3
Interest on Working Capital	4.0	5.0	6.8	4.0	5.0	6.8
Other Debit	0.1	0.1	0.1	0.1	0.1	0.1
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	0.3	0.3	0.3	0.3	0.3	0.2
Total	**128.2**	**144.2**	**218.4**	**128.2**	**144.2**	**219.8**

Kadamparai Hydro Generation Circle

Table 58: Fixed charges approved for Kadamparai Hydro Generation Circle (Rs. Cr)

Parameter		Last Order			Commission	
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	10.5	10.6	10.6	10.5	10.6	10.6
Interest on Loan Capital	33.0	35.8	34.6	33.0	35.8	34.6
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	19.8	21.7	28.0	19.8	21.7	28.6
Interest on Working Capital	2.1	2.5	2.7	2.1	2.5	2.7
Other Debit	0.1	0.1	0.1	0.0	0.1	0.1
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	0.3	0.3	0.3	0.3	0.3	0.3
Total	**65.2**	**70.4**	**75.7**	**65.2**	**70.4**	**76.3**

Kundah Hydro Generation Circle

Table 59: Fixed charges approved for Kundah Hydro Generation Circle (Rs. Cr)

Parameter		Last Order			Commission	
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	25.2	25.2	25.2	25.2	25.2	25.2
Interest on Loan Capital	115.7	126.8	123.9	115.6	126.8	124.1
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	41.9	44.9	46.9	41.9	44.9	47.7
Interest on Working Capital	5.8	7.0	6.8	5.8	7.0	6.9
Other Debit	0.2	0.2	0.2	0.1	0.2	0.2
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	1.1	1.1	1.2	1.1	1.1	1.0
Total	**187.7**	**203.0**	**201.8**	**187.5**	**202.9**	**203.1**

Tirunelvelli Hydro Generation Circle

Table 60: Fixed charges approved for Tirunelvelli Hydro Generation Circle (Rs. Cr)

Parameter	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Depreciation	11.0	11.4	12.2	11.0	11.4	12.2
Interest on Loan Capital	44.6	51.0	59.4	44.6	51.0	59.5
Return on Equity	-	-	-	-	-	-
Operation and maintenance exp	24.8	27.2	30.3	24.8	27.2	31.0
Interest on Working Capital	2.5	3.1	3.4	2.5	3.1	3.5
Other Debit	0.1	0.1	0.1	0.0	0.1	0.1
Net Prior Period Expenses	-	-	-	-	-	-
Less: other income	3.8	3.9	4.1	3.8	3.9	3.6
Total	**79.2**	**88.9**	**101.3**	**79.1**	**88.9**	**102.7**

3.130 The recovery of capacity charges are governed by Regulation-42 of TNERC Tariff Regulations, 2005 which states as under:

"42. Recovery of Capacity Charges

1. *Full capacity charges (Fixed Charges) shall be recoverable at target availability specified in clause (1) of Regulation 37.*
2. *Recovery of capacity charges below the level of target availability will be on pro rata basis. At zero availability, no capacity charges shall be payable.…"*

3.131 The above capacity charges as determined by the Commission are to be recovered when TANGEDCO is able to meet the target in terms of norms set by the Commission. The norms specified for recovery of fixed charges as per TNERC regulation are stipulated below:

"37. Norms of Operation

The norms of operation for the Thermal Generating Stations shall be as under:

(i) Target availability for recovery of full capacity (fixed) charges

(a) All Thermal Generating stations in Tamil Nadu except Ennore Thermal Power Generating Station 80%

(b) Ennore Thermal Power Generating Station 50% (Till Renovation and Modernization works in all units are completed)

………"

3.132 Commission recognises that there can be instances where the availability cannot be equated to the plant load factor, but under normal conditions opines that there cannot be marked differences in plant availability factor and plant load factor for own generation stations except for BBGTPS the reasons for which as given in last tariff order is outlined below:

a) *Commission in its last order had not considered power generation from own stations under merit order dispatch.*
b) *Due to prevailing power-deficit in the state, it is unlikely that SLDC may ask the own generating stations to back down.*
c) *Also, any information regarding TANGEDCO backing down its own generating stations is unavailable with the Commission.*

3.133 Commission is allowing fixed charges for own generating stations on pro-rata basis with respect to actual PLFs achieved. Based on the performance of the generating stations it has been observed that all the gas based stations have not met the performance targets while ETPS (in 2012-13) and NCTPS (in 2013-14) were the coal based stations that did not meet the targets set.

3.134 Hence, Commission is adopting the approach as adopted in the last tariff order and is allowing the capacity charges only to the extent of actual performance of the generating stations. The actual PLFs achieved and allowable capacity charges for FY 2011-12 to FY 2013-14 are tabulated below:

Table 61: Targets availability and actual PLF achieved by own generating stations

Name of the Power Station	Targets	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	50.00%	22.66%	18.67%	29.42%
Tuticorin TPS	80.00%	85.80%	90.04%	85.94%
Mettur TPS	80.00%	93.02%	84.26%	87.71%
North Chennai TPS	80.00%	85.05%	91.67%	73.35%
Tirumakottai GTPS	80.00%	74.71%	76.93%	51.29%
Kuttalum GTPS	80.00%	47.18%	6.39%	73.43%
Valathur GTPS	80.00%	66.36%	53.95%	88.31%

Table 62: Allowable capacity charges for FY 2012, FY 2013 and FY 2014 (Rs. Cr)

Name of the Power Station	Approved Capacity Charges			Allowable Capacity Charges		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	233.4	248.4	268.1	105.8	92.8	157.8
Tuticorin TPS	399.2	431.1	451.6	399.2	431.1	451.6
Mettur TPS	281.3	302.0	322.4	281.3	302.0	322.4
North Chennai TPS	315.6	359.0	354.6	315.6	359.0	325.1
NCTPS Stage-II (Unit 1)	-	-	185.5	-	-	43.4
NCTPS Stage-II (Unit 2)	-	-	-	-	-	-
MTPS Stage-III	-	-	266.5	-	-	132.3

Name of the Power Station	Approved Capacity Charges			Allowable Capacity Charges		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Tirumakottai GTPS	73.0	79.0	80.0	68.2	75.9	51.3
Kuttalum GTPS	64.3	74.8	91.7	37.9	6.0	84.1
Basin Bridge GTPS	48.2	46.7	46.2	48.2	44.4	46.2
Valathur – GTPS	137.4	154.8	163.7	113.9	104.4	163.7
Total	**1,552.4**	**1,695.9**	**2,230.4**	**1,370.2**	**1,415.7**	**1,778**

Variable cost for own generating stations

3.135 The Commission has computed the variable cost for various generating stations on the basis of data submitted to the Commission in its audited accounts, revised estimates and other MIS submissions. The variable cost as determined by the Commission in respect of various generating stations of TANGEDCO is detailed as under:

Coal based generating stations

3.136 As per Regulation 43 (ii) of the Tarff Regulation, the Energy (Variable) charges shall be computed based on the ex-bus energy delivered / sent out from the generating station. Rate of energy charges is based on the following elements:

a) Price of primary fuel
b) Quantum of primary fuel (coal) in kg required for generation of one kWh of electricity at generator terminals, which shall be computed on the basis of Gross Station Heat Rate (less heat contributed by secondary fuel oil) and gross calorific value of coal.
c) Price of secondary fuel oil
d) Normative quantity of secondary fuel
e) Normative auxiliary consumption

The above elements have been discussed in detail as under:

Price of primary fuel

3.137 Commission in its last order has approved the fuel cost based on actuals for FY 2011-12 and revised submissions for FY 2012-13, while for FY 2013-14 Commission had considered fuel cost that was approved for FY 2012-13. This approach was followed as TANGEDCO could claim any variance in such fuel costs through Fuel Price Cost Adjustment (FPCA) mechanism approved by Commission.

Table 63: Coal price in Rs./Tonne approved by the Commission in last order

Name of the Power Station	As per last year tariff order		
	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	2,507	2,841	2,841
Tuticorin TPS	4,057	3,659	3,659

Mettur TPS	4,196	3,916	3,916
North Chennai TPS	3,188	3,407	3,407
NCTPS – Stage II			3,407
MTPS – Stage III			3,916

3.138 For the current tariff order, as the Commission has initiated Suo-motu proceedings, fuel costs have been calculated based on the information available in TANGEDCO's annual accounts and estimates given, for all the plants.

3.139 For FY 2011-12, no new information on plant wise fuel cost has been made available. Therefore, the Commission is approving the same cost that was approved in the last tariff order, which was based on actuals provided.

3.140 For FY 2012-13, TANGEDCO has provided station wise actual landed cost of coal and oil. Therefore, Commission is approving actual cost provided by TANGEDCO.

3.141 For FY 2013-14, TANGEDCO provided the Commission with three sets of information.

a) Quarterly review report of coal based plants with details about plant performance and fuel cost. However, details such as quantity of fuel purchased, cost per ton of coal and cost per kilo litre of secondary fuel are not available.

b) Monthly report with station wise and month wise details for indigenous and imported coal has been provided as part of their MIS reporting system.

c) Revised Estimates detailing quantity of primary and secondary fuel consumption (both indigenous and imported coal) and landed cost of primary and secondary fuel has been provided.

3.142 Commission after scrutiny of the information made available, observed that details provided in the MIS reports and the Quarterly reports are not consistent and many information gaps exist. TANGEDCO has also provided coal cost information for all the thermal power plants in its revised estimates; hence Commission is considering the same for the purpose of this order.

3.143 The blending ratio of its coal based plants for FY 2013-14 as provided in the revised estimates is as follows.

Table 64: Blending ratio of coal for FY 2013-14 as submitted by TANGEDCO

Power Plant	Blending Ratio
ETPS	100:0
TTPS	79:21
MTPS	71:29
NCTPS	64:36

MTPS Stage III	52:48
NCTPS Stage II	65:35

3.144 Based on the above considerations, fuel cost approved by Commission for FY 2011-12, FY 2012-13 and FY 2013-14 is tabulated below:

Table 65: Landed cost approved by the Commission – Rs. /Tonne

Name of the Power Station	TANGEDCO's submission			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12*	FY 2012-13	FY 2013-14
Ennore TPS	-	3,020	2,434	2,507	3,020	2,434
Tuticorin TPS	-	3,551	4,013	4,057	3,551	4,013
Mettur TPS	-	4,248	3,998	4,196	4,248	3,998
North Chennai TPS	-	3,491	3,623	3,188	3,491	3,623
NCTPS – Stage II (Unit 1)	-	-	3,606	-	-	3,606
NCTPS – Stage II (Unit 2)	-	-	3,606	-	-	3,606
MTPS – Stage III	-	4,826	4400	-	4,826	4,400

** Taken as approved in last tariff order*

Gross calorific value

3.145 For FY 2011-12, FY 2012-13 and FY 2013-14 TANGEDCO provided gross calorific value of coal consumed by different thermal plants in its audited and annual statement of accounts for the respective years. Commission is accepting the information available in the audited and annual statement of accounts for the respective years.

3.146 However, it is observed that TANGEDCO has not provided any details for new stations i.e. NCTPS – Stage II-Unit 1 (CoD: March 2014), NCTPS – Stage II-Unit 2 (CoD: May 2014) and Mettur – Stage III (CoD: October 2013) from which it has received unscheduled and firm power during FY 2013-14. As neither actuals nor estimates are available for new plants, Commission is considering GCV that was approved in the last tariff order. Gross calorific value considered by the Commission for FY 2011-12, FY 2012-13 and FY 2013-14 is tabulated below:

Table 66: Gross calorific value of coal approved by the Commission – kCal/kg

Name of the Power Station	Last Order			TANGEDCO's submission			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	3,213	3,235	3,235	3,203	3,235	3,105	3,203	3,235	3,105
Tuticorin TPS	3,486	3,405	3,405	3,505	3,405	3,285	3,505	3,405	3,285
Mettur TPS	3,562	3,551	3,551	3,152	3,179	3,019	3,152	3,179	3,019
North Chennai TPS	3,768	3,615	3,615	3,924	3,476	3,621	3,924	3,476	3,621

NCTPS - Stage II (Unit 1)	-	-	3,615	-	-	-	-	-	3,615
NCTPS - Stage II (Unit 2)	-	-	3,615	-	-	-	-	-	3,615
Mettur Stage III	-	-	3,551	-	-	-	-	-	3,551

Station heat rate

3.147 For FY 2011-12 and FY 2012-13, TANGEDCO has not provided any information on Station Heat Rate (SHR) based on which Commission can analyse the performance of thermal plants. However, based on the actual generation information available through submissions made by TANGEDCO, Commission has computed the SHR for these years. For FY 2013-14, TANGEDCO has provided actual SHR details in its monthly and quarterly MIS filings. Commission has observed that the SHR as submitted by TANGEDCO is much higher than the norms set by the Commission.

3.148 Norms specified by Commission in its Regulation for "Terms and Conditions for Determination of Tariff Regulations – 2005" states:

"(iii) Gross Station Heat Rate

(a) Norms for the existing Coal-based Thermal Power Generating Stations

Station	*Heat Rate*
1. ETPS	*3200 kcal/kwh*
2. TTPS	*2453 kcal/kwh*
3. MTPS	*2500 kcal/kwh*
4. NCTPS	*2393 kcal/kw*

....."

3.149 Commission would like to mention that TANGEDCO is required to manage its units at appropriate loads and maintain quality of coal to achieve the desired generation levels at optimum costs.

3.150 For FY 2011-12, FY 2012-13 and FY 2013-14, as the SHRs computed based on available information are higher in most cases than the norms set in the regulation, Commission is considering SHR as approved in its last tariff order for the purposes of calculating variable cost per unit.

Table 67: Station heat rate approved by the Commission (kCal/kWh)

Name of the Power Station	Last Order			TANGEDCO's submission*			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	3,200	3,200	3,200	3,691	3,453	3,855	3,200	3,200	3,200
Tuticorin TPS	2,453	2,453	2,453	2,597	2,236	2,601	2,453	2,453	2,453
Mettur TPS	2,500	2,500	2,500	2,139	2,626	2,718	2,500	2,500	2,500
North Chennai TPS	2,393	2,393	2,393	1,712	2,257	2,535	2,393	2,393	2,393
NCTPS - Stage II (Unit 1)	-	-	2,500	-	-	-	-	-	2,500
NCTPS - Stage II (Unit 2)	-	-	2,500	-	-	-	-	-	2,500
Mettur Stage III	-	-	2,500	-	-	-	-	-	2,500

** SHR Computed by Commission based on the actual generation and coal consumption data provided by TANGEDCO*

Auxiliary consumption and Secondary fuel oil consumption

3.151 Commission has stated that it is considering the actual auxiliary consumption as submitted by TANGEDCO for the purpose of calculation of energy availability. However, for the purpose of estimation of variable cost per unit, Commission has used the normative auxiliary consumption as approved in the last tariff order.

Table 68: Auxiliary consumption considered by the Commission for the purpose of variable cost calculations

Name of the Power Station	Last Order			TANGEDCO's submission			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	16.32%	15.00%	15.00%	-	13.72%	12.80%	16.32%	15.00%	15.00%
Tuticorin TPS	8.50%	8.50%	8.50%	-	7.87%	8.25%	8.50%	8.50%	8.50%
Mettur TPS	8.31%	9.00%	8.50%	-	8.74%	8.15%	8.31%	9.00%	8.50%
North Chennai TPS	8.50%	8.50%	8.50%	-	8.06%	8.10%	8.50%	8.50%	8.50%
NCTPS - Stage II (Unit 1)	-	-	8.88%	-	6.30%	9.50%	-	-	8.88%
NCTPS - Stage II (Unit 2)	-	-	8.83%	-	6.30%	9.50%	-	-	8.83%
Mettur Stage III	-	-	8.83%	-	6.85%	9.50%	-	9.00%	8.83%

3.152 TANGEDCO in its Audited accounts has provided Secondary Fuel Oil (SFO) consumption for the years FY 2011-12 and FY 2012-13. For FY 2013-14, TANGEDCO has provided month wise actuals. Commission has observed that SFO consumption for all thermal power plants is maintained at the desired levels as per the norms set by the regulations. Hence, the Commission is accepting the numbers submitted by TANGEDCO. The SFO consumption considered by the Commission is given below:

Table 69: Secondary fuel oil consumption approved by the Commission (ml/kWh)

Name of the Power Station	Last Order			TANGEDCO's submission			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	10.00	10.00	12.00	10.50	7.90	6.03	10.50	7.90	6.03
Tuticorin TPS	2.00	2.00	2.00	1.92	0.90	0.71	1.92	0.90	0.71
Mettur TPS	2.00	2.00	2.00	0.53	0.60	0.51	0.53	0.60	0.51
North Chennai TPS	2.00	2.00	2.00	0.62	0.51	1.87	0.62	0.51	1.87
NCTPS - Stage II (Unit 1)	-	-	3.25	-	-	1.76			1.76
NCTPS - Stage II (Unit 2)	-	-	2.00	-	-	-			-
Mettur Stage III	-	-	3.25	-	-	1.40			1.40

Price of secondary fuel

3.153 Information on cost of secondary fuel incurred by TANGEDCO is unavailable for FY 2011-12. Therefore, Commission is considering price of secondary fuel that was approved in last tariff order based on actuals.

3.154 For FY 2012-13 and FY 2013-14, TANGEDCO has provided plant wise actual and estimated cost of specific consumption of secondary fuel for the respective years. Commission finds discrepancies in the cost of SFO for MTPS for FY 2012-13 and hence is relying on the cost approved in the last tariff order for the same. Commission is accepting the actuals and estimates provided by TANGEDCO except for MTPS for the purpose of calculation of variable cost for FY 2012-13 and FY 2013-14.

3.155 The cost of secondary fuel approved by the Commission is tabulated below:

Table 70: Cost of secondary fuel approved by the Commission (Rs. /kL)

Name of the Power Station	Last Order			TANGEDCO's submission			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	50,691	49,112	49,112	-	59,060	50,528	50,691	59,060	50,528
Tuticorin TPS	42,678	47,916	47,916	-	48,371	41,352	42,678	48,371	41,352

Mettur TPS	42,678	47,417	47,417	-	147,761	38,124	42,678	47,417	38,124
North Chennai TPS	38,806	47,346	47,346	-	49,623	38,162	38,806	49,623	38,162
NCTPS - Stage II (Unit 1)	-	-	47,346	-	-	38,162	-	-	38,162
NCTPS - Stage II (Unit 2)	-	-	47,346	-	-	38,162	-	-	38,162
Mettur Stage III	-	-	47,417	-	147,761	38,124	-	-	38,124

GCV of the secondary fuel

3.156 TANGEDCO, in its audited and annual statement of accounts for FY 2011-12, FY 2012-13 and FY 2013-14 has provided actual GCV of secondary fuel oil consumed by existing power stations during the respective years. Commission is accepting actual GCV of secondary fuel as per audited and annual statement of accounts.

3.157 For new plants i.e. MTPS Stage III and NCTPS Stage II (Unit 1&2), as neither actuals nor estimated GCV of secondary fuel is given, Commission is considering GCV as approved in last tariff order.

3.158 The GCV of secondary fuel approved by the Commission is tabulated below:

Table 71: GCV of secondary fuel approved by the Commission (kCal/lt)

Name of the Power Station	Last Order			TANGEDCO's submission			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Ennore TPS	10,480	10,502	10,502	10,484	10,483	10,404	10,484	10,483	10,404
Tuticorin TPS	10,560	10,639	10,639	10,560	10,640	10,575	10,560	10,640	10,575
Mettur TPS	10,104	10,466	10,466	10,507	10,472	10,923	10,507	10,472	10,923
North Chennai TPS	10,359	10,343	10,343	10,314	10,387	10,357	10,314	10,387	10,357
NCTPS - Stage II (Unit 1)	-	-	10,343	-	-	-	-	-	10,343
NCTPS - Stage II (Unit 2)	-	-	10,343	-	-	-	-	-	10,355
Mettur Stage III	-	-	10,466	-	-	-	-	-	10,466

Variable Cost for Coal based stations

3.159 On the basis of above considerations, Commission has calculated the variable cost for various coal based power stations of TANGEDCO which is tabulated as under. Commission has estimated the variable cost – ex bus considering the entire fuel cost including oil.

ETPS

Table 72: Variable Cost approved by the Commission for ETPS

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	450	450	340
Gross Station Heat Rate	Kcal/kWh	3,200	3,200	3,200
Secondary fuel oil consumption	ml/kWh	10.5	10.5	6.0
Average calorific value of oil	Kcal/l	10,484	10,483	10,404
Average calorific value of Coal	Kcal/Kg	3,203	3,235	3,105
Weighted average price of oil	Rs./Kl	50,691	59,060	50,528
Average landed cost of coal	Rs./MT	2,507	3,020	2,434
Rate energy charges from Oil	Paisa/kWh	53	62	30
Heat contributed from Oil	Kcal/kWh	110	110	63
Heat contributed from Coal	Kcal/kWh	3,090	3,090	3,137
Specific consumption of coal	Kg/kWh	1.0	1.0	1.0
Rate of energy from Coal	Paisa/kWh	241.8	288.5	245.9
Variable Cost – Gross	Paisa/kWh	295.1	350.5	276.4
Auxiliary Consumption	%	16.32%	15.00%	15.00%
Variable Cost - Ex bus	**Paisa/kWh**	**352.62**	**412.33**	**325.15**
Previous Tariff Order	Paisa/kWh	349.19	377.55	386.93

TTPS

Table 73: Variable cost approved by the Commission for TTPS

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	1,050	1,050	1,050
Gross Station Heat Rate	Kcal/kWh	2,453	2,453	2,453
Secondary fuel oil consumption	ml/kWh	1.9	1.9	0.7
Average calorific value of oil	Kcal/l	10,560	10,640	10,575
Average calorific value of Coal	Kcal/Kg	3,505	3,405	3,285
Weighted average price of oil	Rs./Kl	42,678	48,371	41,352
Average landed cost of coal	Rs./MT	4,057	3,551	4,013
Rate energy charges from Oil	Paisa/kWh	8	9	3
Heat contributed from Oil	Kcal/kWh	20	20	8
Heat contributed from Coal	Kcal/kWh	2,433	2,433	2,445
Specific consumption of coal	Kg/kWh	0.7	0.7	0.7

Rate of energy from Coal	Paisa/kWh	281.6	253.7	298.8
Variable Cost - Gross	Paisa/kWh	289.8	263.0	301.7
Auxiliary Consumption	%	8.50%	8.50%	8.50%
Variable Cost - Ex bus	**Paisa/kWh**	**316.70**	**287.42**	**329.75**
Previous Tariff Order	Paisa/kWh	318.64	296.06	296.06

MTPS

Table 74: Variable cost approved by the Commission for MTPS

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	840	840	840
Gross Station Heat Rate	Kcal/kWh	2,500	2,500	2,500
Secondary fuel oil consumption	ml/kWh	0.5	0.5	0.5
Average calorific value of oil	Kcal/l	10,507	10,472	10,923
Average calorific value of Coal	Kcal/Kg	3,152	3,179	3,019
Weighted average price of oil	Rs./Kl	42,678	47,417	38,124
Average landed cost of coal	Rs./MT	4,196	4,248	3,998
Rate energy charges from Oil	Paisa/kWh	2	2	2
Heat contributed from Oil	Kcal/kWh	6	6	6
Heat contributed from Coal	Kcal/kWh	2,494	2,494	2,494
Specific consumption of coal	Kg/kWh	0.8	0.8	0.8
Rate of energy from Coal	Paisa/kWh	332.1	333.3	330.3
Variable Cost - Gross	Paisa/kWh	334.3	335.8	332.2
Auxiliary Consumption	%	8.31%	9.00%	8.50%
Variable Cost - Ex bus	**Paisa/kWh**	**364.61**	**369.03**	**363.11**
Previous Tariff Order	Paisa/kWh	327.90	310.85	309.15

NCTPS

Table 75: Variable cost approved by the Commission for NCTPS

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	630	630	630
Gross Station Heat Rate	Kcal/kWh	2,393	2,393	2,393
Secondary fuel oil consumption	ml/kWh	0.6	0.6	1.9
Average calorific value of oil	Kcal/l	10,314	10,387	10,357
Average calorific value of Coal	Kcal/Kg	3,924	3,476	3,621
Weighted average price of oil	Rs./Kl	38,806	49,623	38,162
Average landed cost of coal	Rs./MT	3,188	3,491	3,623
Rate energy charges from Oil	Paisa/kWh	2	3	7
Heat contributed from Oil	Kcal/kWh	6	6	19
Heat contributed from Coal	Kcal/kWh	2,387	2,387	2,374
Specific consumption of coal	Kg/kWh	0.6	0.7	0.7
Rate of energy from Coal	Paisa/kWh	193.9	239.7	237.5

Variable Cost - Gross	Paisa/kWh	196.3	242.8	244.6
Auxiliary Consumption	%	8.50%	8.50%	8.50%
Variable Cost - Ex bus	**Paisa/kWh**	**214.54**	**265.31**	**267.37**
Previous Tariff Order	Paisa/kWh	227.84	254.70	254.70

MTPS Stage III

Table 76: Variable cost approved by the Commission for MTPS Stage III

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW			600
Gross Station Heat Rate	Kcal/kWh			2,500
Secondary fuel oil consumption	ml/kWh			1.4
Average calorific value of oil	Kcal/l			10,466
Average calorific value of Coal	Kcal/Kg			3,551
Weighted average price of oil	Rs./Kl			38,124
Average landed cost of coal	Rs./MT			4,400
Rate energy charges from Oil	Paisa/kWh			5
Heat contributed from Oil	Kcal/kWh			15
Heat contributed from Coal	Kcal/kWh			2,485
Specific consumption of coal	Kg/kWh			0.7
Rate of energy from Coal	Paisa/kWh			308.0
Variable Cost - Gross	Paisa/kWh			313.3
Auxiliary Consumption	%			8.83%
Variable Cost - Ex bus	**Paisa/kWh**			**343.69**
Previous Tariff Order	Paisa/kWh			315.20

NCTPS Stage II (Unit 1)

Table 77: Variable cost approved by the Commission for NCTPS Stage II (Unit 1)

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW			600
Gross Station Heat Rate	Kcal/kWh			2,500
Secondary fuel oil consumption	ml/kWh			1.8
Average calorific value of oil	Kcal/l			10,343
Average calorific value of Coal	Kcal/Kg			3,615
Weighted average price of oil	Rs./Kl			38,162
Average landed cost of coal	Rs./MT			3,606
Rate energy charges from Oil	Paisa/kWh			7
Heat contributed from Oil	Kcal/kWh			18
Heat contributed from Coal	Kcal/kWh			2,482
Specific consumption of coal	Kg/kWh			0.7
Rate of energy from Coal	Paisa/kWh			247.6
Variable Cost - Gross	Paisa/kWh			254.3

Auxiliary Consumption	%			8.88%
Variable Cost - Ex bus	**Paisa/kWh**			**279.05**
Previous Tariff Order	Paisa/kWh			271.97

NCTPS Stage II (Unit 2)

Table 78: Variable cost approved by the Commission for NCTPS Stage II (Unit 2) *

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW			600
Gross Station Heat Rate	Kcal/kWh			2,500
Secondary fuel oil consumption	ml/kWh			-
Average calorific value of oil	Kcal/l			10,355
Average calorific value of Coal	Kcal/Kg			3,615
Weighted average price of oil	Rs./Kl			38,162
Average landed cost of coal	Rs./MT			3,606
Rate energy charges from Oil	Paisa/kWh			-
Heat contributed from Oil	Kcal/kWh			-
Heat contributed from Coal	Kcal/kWh			2,450
Specific consumption of coal	Kg/kWh			0.7
Rate of energy from Coal	Paisa/kWh			244.4
Variable Cost - Gross	Paisa/kWh			244.4
Auxiliary Consumption	%			8.83%
Variable Cost - Ex bus	**Paisa/kWh**			**268.08**
Previous Tariff Order	Paisa/kWh			298.66

** Variable cost for NCTPS Stage II (Unit 2) is being calculated for infirm power that is being produced and made available for consumption*

Gas based generating stations

Price of primary fuel

3.160 Commission in its last order has approved the fuel cost for FY 2011-12 based on actual cost for FY 2011-12, and estimated fuel costs for FY 2012-13 and FY 2013-14 based on submissions of TANGEDCO.

3.161 This year for FY 2011-12, TANGEDCO has not submitted any information claiming any variance in the costs incurred last year. While for FY 2012-13 and FY 2013-14, actuals are provided by TANGEDCO.

3.162 For FY 2011-12, as the costs approved in last order were based on actuals Commission is considering the same costs as approved in the last tariff order. For FY 2012-13 and FY 2013-14, Commission is accepting actuals that have been submitted by TANGEDCO.

3.163 The fuel cost for gas based stations approved by the Commission for FY 2011-12, FY 2012-13 and FY 2013-14 is tabulated below:

Table 79: Fuel cost approved by the Commission for gas based stations (Rs,/SCM)

Name of the Power Station	Last Order			TANGEDCO's submission			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Tirumakottai GTPS	8.45	9.32	9.32	-	9.33	10.84	8.45	9.33	10.84
Kuttalum GTPS	8.55	9.32	9.32	-	18.80	11.26	8.55	18.80	11.26
Basin Bridge GTPS	56,890	40,625	40,625	-	61,210	67,063	56,890	61,210	67,063
Valathur - Unit 1	8.00	8.76	8.76	-	8.94	10.60	8.00	8.94	10.60
Valathur - Unit 2	8.00	8.78	8.78	-	8.94	10.60	8.00	8.94	10.60

Gross calorific value

3.164 For gas based stations, Commission in its last order has approved a gross calorific value of 10,000 kCal/SCM considering the fact that TANGEDCO is making payment corresponding to GCV of 10000 Kcal / SCM and whenever the GCV is lesser than 10,000 kcal/SCM, proportionate rebate is allowed.

3.165 For FY 2011-12 and FY 2012-13, TANGEDCO has not provided any information regarding GCV for gas used by their gas-based power stations. However for FY 2013-14, TANGEDCO provided actual GCV of gas consumed for two quarters. This information has been apportioned for FY 2013-14. In the absence of any other data, Commission is considering GCV value of 10,000 kCal /SCM for FY 2011-12 and FY 2012-13 as approved in last tariff order, while for FY 2013-14, Commission is accepting GCV as per actuals submitted.

Table 80: Gross calorific value of primary fuel approved for gas based stations

Name of the Power Station	Units	Last Order			TANGEDCO's submission			Commission		
		FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Tirumakottai GTPS	kCal/SCM	10,000	10,000	10,000	-	-	9,573	10,000	10,000	9,573
Kuttalum GTPS	kCal/SCM	10,000	10,000	10,000	-	-	9,304	10,000	10,000	9,304
Basin Bridge GTPS	kCal/Kg	10,972	10,572	10,572	-	-	10,260	10,972	10,572	10,260
Valathur - Unit 1	kCal/SCM	11,000	10,000	10,000	-	-	8,783	10,000	10,000	8,783
Valathur - Unit 2	kCal/SCM	11,000	10,000	10,000	-	-	8,783	10,000	10,000	8,783

Station heat rate

3.166 TANGEDCO has not provided any information for station heat rate for any of the years under consideration. In the absence of such information, Commission is considering SHR for gas based stations as approved in its last tariff order.

Table 81: Station heat rate approved by the Commission for gas based stations

Name of the Power Station	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Tirumakottai GTPS	1,850	1,850	1,850	1,850	1,850	1,850
Kuttalum GTPS	1,850	1,850	1,850	1,850	1,850	1,850
Basin Bridge GTPS	3,219	3,219	3,219	3,219	3,219	3,219
Valathur - Unit 1	1,850	1,850	1,850	1,850	1,850	1,850
Valathur - Unit 2	1,850	1,850	1,850	1,850	1,850	1,850

3.167 Commission has stated that it is considering the auxiliary consumption as provided by TANGEDCO only for arriving at the energy availability purposes. For the purpose of estimation of variable cost per unit, Commission has used the auxiliary consumption as approved in the last tariff order.

Table 82: Auxiliary consumption approved for the purpose of variable cost calculations

Name of the Power Station	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2012-13	FY 2011-12	FY 2013-14
Tirumakottai GTPS	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Kuttalum GTPS	6.67%	6.00%	6.00%	6.67%	6.00%	6.00%
Basin Bridge GTPS	0.30%	0.51%	0.99%	0.30%	0.51%	0.99%
Valathur - Unit 1	5.87%	6.00%	6.00%	5.87%	6.00%	6.00%
Valathur - Unit 2	5.84%	6.00%	6.00%	5.84%	6.00%	6.00%

Variable Cost for Gas based stations

3.168 Based on above considerations, the Commission has calculated the variable cost for various gas based power stations of TANGEDCO which is tabulated as under. For transportation charges, Commission has considered the costs as approved in the last tariff order.

TKGTPS

Table 83: Variable cost approved for TKGTPS

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	108	108	108
Gross Station Heat Rate	Kcal/kWh	1,850	1,850	1,850
Average calorific value of gas	Kcal/SCM	10,000	10,000	9,573
Average Cost of Gas	Rs./ SCM	8.5	9.3	10.8
Rate of energy from Gas	Ps/ kWh	156.3	172.5	209.5
Auxiliary Consumption	%	6.0%	6.0%	6.0%

Rate of energy - Net Ex bus	Ps/ kWh	1.7	1.8	2.2
Net Generation	MU	575.6	611.4	711.5
Total Cost excluding Transportation	Rs. Crore	95.7	112.2	158.6
Transportation Cost	Rs. Crore	7.1	1.9	2.0
Total Cost	Rs. Crore	102.8	114.1	160.5
Variable Cost	**Ps/ kWh**	**178.7**	**186.6**	**225.6**
Previous Tariff Order	Ps/ kWh	177.1	186.2	186.2

KGTPS

Table 84: Variable cost approved for KGTPS

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	101	101	101
Gross Station Heat Rate	Kcal/kWh	1,850	1,850	1,850
Average calorific value of gas	Kcal/SCM	10,000	10,000	9,304
Average Cost of Gas	Rs./ SCM	8.6	18.8	11.3
Rate of energy from Gas	Ps/ kWh	158.2	347.8	223.8
Auxiliary Consumption	%	6.7%	6.0%	6.0%
Rate of energy - Net Ex bus	Ps/ kWh	1.7	3.7	2.4
Net Generation	MU	599.9	592.2	665.3
Total Cost excluding Transportation	Rs. Crore	101.7	219.1	158.4
Transportation Cost	Rs. Crore	7.1	1.9	2.0
Total Cost	Rs. Crore	108.8	221.0	160.4
Variable Cost	**Ps/ kWh**	**181.3**	**373.2**	**241.0**
Previous Tariff Order	Ps/ kWh	188.0	220.0	186.4

BBGTPS

Table 85: Variable cost approved for BBGTPS

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	120	120	120
Gross Station Heat Rate	Kcal/kWh	3,219	3,219	3,219
Average calorific value of gas	Kcal/Kg	10,972	10,572	10,260
Average Cost of Fuel	Rs./ MT	56,890.0	61,209.7	67,063.0
Rate of energy from Fuel	Ps/ kWh	1,669.1	1,863.7	2,104.1
Auxiliary Consumption	%	0.3%	0.5%	1.0%
Rate of energy - Net Ex bus	Ps/ kWh	16.7	18.7	21.3
Net Generation	MU	60.0	60.1	59.4
Total Cost excluding Transportation	Rs. Crore	100.5	112.7	126.3
Transportation Cost	Rs. Crore	-	-	-
Total Cost	Rs. Crore	100.5	112.7	126.3

Variable Cost	**Ps/ kWh**	**1674.08**	**1873.29**	**2125.09**
Previous Tariff Order	Ps/ kWh	1674.08	1243.31	1249.33

VGTPS - 1

Table 86: Variable cost approved for VGTPS - 1

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	95	95	95
Gross Station Heat Rate	Kcal/kWh	1,850	1,850	1,850
Average calorific value of gas	Kcal/SCM	11,000	10,000	8,783
Average Cost of Gas	Rs./ SCM	8.0	8.9	10.6
Rate of energy from Gas	Ps/ kWh	134.5	165.5	223.2
Auxiliary Consumption	%	5.9%	6.0%	6.0%
Rate of energy - Net Ex bus	Ps/ kWh	1.4	1.8	2.4
Net Generation	MU	528.6	614.1	625.8
Total Cost excluding Transportation	Rs. Crore	75.6	108.1	148.6
Transportation Cost	Rs. Crore	3.6	3.7	3.7
Total Cost	Rs. Crore	79.1	111.7	152.2
Variable Cost	**Ps/ kWh**	**149.7**	**182.0**	**243.2**
Previous Tariff Order	Ps/ kWh	148.8	181.0	178.2

VGTPS - 2

Table 87: Variable cost approved for VGTPS – 2

Description	Unit	FY 2011-12	FY 2012-13	FY 2013-14
Capacity	MW	92	92	92
Gross Station Heat Rate	Kcal/kWh	1,850	1,850	1,850
Average calorific value of gas	Kcal/SCM	11,000	10,000	8,783
Average Cost of Gas	Rs./ SCM	8.0	8.9	10.6
Rate of energy from Gas	Ps/ kWh	134.5	165.5	223.2
Auxiliary Consumption	%	5.8%	6.0%	6.0%
Rate of energy - Net Ex bus	Ps/ kWh	1.4	1.8	2.4
Net Generation	MU	420.2	593.2	606.1
Total Cost excluding Transportation	Rs. Crore	60.0	104.4	143.9
Transportation Cost	Rs. Crore	-	-	3.7
Total Cost	Rs. Crore	60.0	104.4	147.5
Variable Cost	**Ps/ kWh**	**142.9**	**176.0**	**243.4**
Previous Tariff Order	Ps/ kWh	142.9	172.8	178.8

Hydro Generation Circles

3.169 The Commission in last tariff order has determined the primary energy charges for hydro generating stations on account of water charges, lubricants etc. TANGEDCO has not provided any information regarding primary energy charges being paid by them. In the absence of such information, Commission has considered the primary energy charges as approved in its last tariff order.

Table 88: Primary energy charges approved for Hydro Generation Circles (Rs. Cr)

Name of the Power Station	Last Order			Commission		
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2011-12	FY 2012-13	FY 2013-14
Erode	0.04	0.04	0.04	0.04	0.04	0.04
Kundah	0.22	0.23	0.23	0.22	0.23	0.23
Kadamparai	0.00	0.00	0.00	0.00	0.00	0.00
Tirunelveli	0.25	0.26	0.26	0.25	0.26	0.26

Wind Generating Stations

3.170 The Commission as per Tariff Order dated 31st July 2010 ruled that in the order No.3 dated 15-05-2006, the Commission has determined a tariff of Rs.2.75 / unit for the wind power projects commissioned, and to be commissioned based on agreements executed prior to May 15, 2006. Accordingly the Commission allowed the rate of Rs. 2.75/ Unit in 30th June 2013 order. Similarly, Commission is approving the cost of wind generation from its own wind mills at Rs.2.75 per unit.

Power Purchase from other sources

3.171 Commission in its last order has approved the power purchase for FY 2011-12 based on provisional accounts of TANGEDCO and for FY 2012-13 based on the provisional estimate of power purchase expense submitted by TANGEDCO.

3.172 This section details out the approach adopted by the Commission in this true-up and review exercise for the years FY 2011-12, FY 2012-13 and FY 2013-14.

Central generating stations

3.173 Commission in its last order has approved quantity and cost of power purchase for FY 2011-12 based on their provisional accounts, while for FY 2012-13 and FY 2013-14, Commission approved based on actual power purchase and provisional estimate of submitted by TANGEDCO.

Table 89: Power purchase expenses approved from central generating stations in last tariff order

Particulars	2011-12		2012-13		2013-14	
	Quantum MU	Total Cost Rs. Crore	Quantum MU	Total Cost Rs. Crore	Quantum MU	Total Cost Rs. Crore
NTPC SR (I&II)	4,106	869	4,149	947	3,952	891
NTPC SR III	1,048	284	982	306	988	290
NLC TS - I	3,146	676	3,189	1,033	3,469	1,069
NLC TS - II	3,167	812	3,291	855	3,188	808
NLC TS Expansion I	1,526	489	1,629	507	1,470	459
NTPC Talcher	3,622	1,025	3,405	763	3,361	752
NTPC Simhadri	468	176	1,079	405	1,556	581
MAPS	1,604	319	1,775	362	1,568	320
KAIGA	1,171	366	1,261	381	1,176	355
NTPC Kayakulum	205	268	-	-		
NTPC ER	465	178	319	94	-	-
NTPC Dadri	101	41	-	-	-	-
NTPC Vallur			488	227	4,955	1,734
Kudunkulum			-		1,663	502
PFBR Kalpakkam					-	-
NLC TS - II Expansion			-		89	31
NLC - Tuticorin					518	181
Total	**20,630**	**5,503**	**21,567**	**5,880**	**27,954**	**7,973**

3.174 TANGEDCO, for the current tariff order has not provided any information regarding its power purchases from CGS for FY 2011-12. Therefore, Commission is considering quantity and cost of power purchases from Central Generating stations that were approved in last tariff order.

3.175 For FY 2012-13, Commission is approving actual power purchases and related expenses provided by TANGEDCO. .

3.176 For FY 2013-14, Commission is approving actual power purchase data furnished by TANGEDCO as part of its regular submissions to the Commission. The power purchase expenses approved by the Commission during the period FY 2011-12 to FY 2013-14 are tabulated below.

Table 90: Cost of energy available from CGS approved by the Commission for FY 2011-12 *

Source	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
NTPC SR (I&II)	4,106	217	1.59	652	869

NTPC SR III	1,048	88	1.87	196	284
NLC TS – I	3,146	155	1.65	521	676
NLC TS - II	3,167	197	1.94	615	812
NLC TS Expansion I	1,526	212	1.82	277	489
NTPC Talcher	3,622	284	2.04	741	1,025
NTPC Simhadri	468	74	2.19	103	176
MAPS	1,604	-	1.99	319	319
KAIGA	1,171	-	3.12	366	366
NTPC Kayankulum	205	65	9.87	203	268
NTPC ER	465	43	2.89	135	178
NTPC Dadri	101	15	2.62	26	41
Total	**20,630**	**1,352**	**2.01**	**4,152**	**5,503**

** Same as last tariff order as actuals are not available*

Table 91: Cost of energy available from CGS approved by the Commission in FY 2012-13

Source	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
NTPC SR (I&II)	4,149	250	1.72	712	963
NTPC SR III	981	110	2.02	198	308
NLC TS - I	3,189	333	2.24	713	1,047
NLC TS - II	3,291	217	1.97	648	865
NLC TS Expansion I	1,629	219	1.81	295	513
NTPC Talcher	3,405	283	1.47	502	785
NTPC Simhadri	1,079	191	2.03	219	410
MAPS	1,775	-	2.03	361	361
KAIGA	1,261	-	3.37	425	425
NTPC Vallur - Unit 1 & Unit 2	488	126	2.08	102	227
NTPC ER	319	33	2.15	68	101
Total	**21,566**	**1,761**	**1.97**	**4,243**	**6,004**

Table 92: Cost of energy available from CGS approved by the Commission in FY 2013-14

Source	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
NTPC SR (I&II)	4,005	248	2.09	838	1,085
NTPC SR III	1,054	100	2.71	285	385
NLC TS - I	3,271	309	2.57	842	1,151
NLC TS - II	3,347	220	2.15	718	938
NLC TS Expansion I	1,636	212	2.22	363	575
NTPC Talcher	3,475	294	1.51	526	819
NTPC Simhadri	1,572	274	2.35	370	643
MAPS	1,332	3	2.04	272	275
KAIGA	1,581	4	3.01	475	480

NTPC Vallur - Unit 1 & Unit 2	2,561	625	2.12	544	1,169
Kudankulum - Unit 1`	423	-	1.23	52	52
NTPC Kayankulum	-	1	-	-	1
NTPC ER	267	32	2.67	71	103
Total CGS	**24,524**	**2,321**	**2.18**	**5,356**	**7,677**

Independent Power Producers

3.177 Commission in its last order has approved the power purchase quantum based on the actuals submitted for FY 2011-12 and provisional estimate provided by TANGEDCO. The power purchase expenses allowed by the Commission in its last tariff order have been tabulated below.

Table 93: Power purchase expenses approved for IPPs in last tariff order

Particulars	2011-12		2012-13		2013-14	
	Quantum (in MUs)	Total Cost (Rs. Crore)	Quantum (in MUs)	Total Cost (Rs. Crore)	Quantum (in MUs)	Total Cost (Rs. Crore)
GMR Vasavi	858	969	610	802	945	1,130
Samalpatti	292	413	329	444	472	589
Madurai Power	282	419	357	502	455	609
PPN	1,491	1,252	1,785	1,818	2,103	2,090
ST-CMS	1,688	691	1,665	749	1,665	749
ABAN	760	241	850	288	783	274
Penna	360	121	375	135	353	130
Total	**5,731**	**4,107**	**5,972**	**4,738**	**6,775**	**5,571**

3.178 For FY 2011-12, as no information is available, Commission is considering quantum of power purchases and power purchase expenses as per last tariff order.

3.179 For FY 2012-13, TANGEDCO has provided actual power purchases. On scrutiny it appears that there is some discrepancy in the variable cost estimation. Hence for FY 2012-13 the Commission is approving the cost of power purchase as approved in its last tariff order.

3.180 For FY 2013-14, TANGEDCO has filed its monthly power purchase expenses as one of the mandatory filings with the Commission. On scrutiny it appears that there is some discrepancy in the variable cost estimation. Hence Commission is approving the variable cost estimation as approved in its last tariff order, while considering the capacity charges as estimated.

3.181 The power purchase expenses approved by the Commission for FY 2011-12 to FY 2013-14 are tabulated below.

Table 94: Cost of energy available from IPPs approved by the Commission in FY 2011-12

Source	Units (MU)	Capacity Charges (Rs. Crore)*	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
GMR Vasavi	858	159	9.45	811	969
Samalpatti	292	116	10.18	298	414
Madurai Power	282	124	10.47	295	419
PPN	1,491	286	6.48	966	1252
ST-CMS	1,688	315	2.23	376	691
ABAN	760	107	1.77	134	241
Penna	360	56	1.79	64	121
Total	**5,731**	**1,162**	**5.14**	**2945**	**4107**

Table 95: Cost of energy available from IPPs approved by the Commission in FY 2012-13

Source	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
GMR Vasavi	610	167	10.41	635	802
Samalpatti	329	109	10.18	335	444
Madurai Power	357	110	10.96	391	501
PPN	1,785	292	8.55	1,526	1,818
ST-CMS	1,666	364	2.32	386	749
ABAN	850	118	2.00	170	287
Penna	375	58	2.04	77	134
Total	**5,972**	**1,216**	**5.89**	**3,519**	**4,736**

Table 96: Cost of energy available from IPPs approved by the Commission in FY 2013-14

Source	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
GMR Vasavi	807	154	10.41	840	994
Samalpatti	299	93	10.18	304	397
Madurai Power	345	111	10.96	378	489
PPN	1,429	85	8.55	1,222	1,307
ST-CMS	1,721	360	2.32	398	758
ABAN	696	107	2.00	139	246
Penna	364	56	2.04	74	130
Total	**5,662**	**966**	**5.93**	**3,357**	**4,323**

Non-conventional energy sources and Captive power plants

3.182 Commission in its last order has approved the power purchase expenses from renewable energy sources and captive power plants based on the submissions of TANGEDCO and considering rates approved by the Commission for procurement of power from renewable energy sources. Also, Commission has not considered the wheeling energy while approving the power purchase expenses for renewable energy sources and captive power plants. The power purchase expenses allowed by the Commission in its last tariff order from these sources have been tabulated below.

Table 97: Power purchase expenses approved from non-conventional energy sources and captive power plants in last tariff order

Particulars	2011-12		2012-13		2013-14	
	Quantum (in MUs)	Total Cost (Rs. Crore)	Quantum (in MUs)	Total Cost (Rs. Crore)	Quantum (in MUs)	Total Cost (Rs. Crore)
CPP	557	232	595	234	595	234
Solar	11	4.59	16	7.39	16	7
Wind	5,711	1,759	7,145	2,229	7,145	2,229
Biomass	73	24	11	5	11	5
Cogeneration	1,285	482	1,428	501	1,428	501
New Cogeneration Plants	-	-	-	-	502	193
NTPC NVVN	-	-	-	-	35	16
Total	**7,637**	**2,502**	**9,195**	**2,977**	**9,732**	**3,186**

3.183 For FY 2011-12, as no new information has been made available by TANGEDCO, Commission has considered power purchase cost as per last year's tariff order. Whereas for FY 2012-13 and FY 2013-14, Commission is considering actuals as provided by TANGEDCO.

3.184 The approved power purchase expenses from non-conventional sources are tabulated below.

Table 98: Cost of energy available from renewable energy sources and CPP approved by the Commission for FY 2011-12

Particulars	Commission		
	Quantum (in MUs)	Total Cost (Rs. Crore)	Cost (Rs./Unit)
Wind	5,711	1,759	3.08
Biomass	73	24	3.35
Cogeneration	1,285	482	3.75
Captive	557	232	4.17
Solar	11	5	4.17
Total	**7,637**	**2,502**	**3.28**

Table 99: Power purchase cost of energy available from renewable energy sources and CPP estimated by the Commission for FY 2012-13

Particulars	Commission		
	Quantum (in MUs)	Total Cost (Rs. Crore)	Cost (Rs./Unit)
Wind	7,474	2,549	3.41
Biomass	11	5	4.25
Cogeneration	1,439	517	3.59
Captive	595	223	3.75
Solar	16	9	5.37
Total	**9,535**	**3,302**	**3.46**

Table 100: Power purchase cost of energy available from renewable energy sources and CPP estimated by the Commission for FY 2013-14

Particulars	Commission		
	Quantum (in MUs)	Total Cost (Rs. Crore)	Cost (Rs./Unit)
Wind	5,110	1,466	2.87
Biomass	6	1	1.60
Cogeneration *	817	292	3.58
Captive	427	179	4.20
Solar	14	7	5.31
Total	**6,373**	**1,946**	**3.05**

** New Co-generation plants are included*

Power purchase from traders and other sources

3.185 In last tariff order Commission has approved quantity of power purchases as per the submissions of TANGEDCO, while an average cost of Rs. 4.50 per unit and Rs.5.14 per unit for FY 2011-12 and FY 2012-13 respectively was considered.

Table 101: Power purchases expenses from other sources approved in last tariff order

Particulars	2011-12			2012-13		
	Quantum (MUs)	Cost (Rs. Crores)	Cost (Rs./Unit)	Quantum (MUs)	Cost (Rs. Crores)	Cost (Rs./Unit)
Traders - Bilateral & Exchange	8427	3838	4.55	6935	3560	5.13
UI	718	327	4.56	81	49	6.09
NTPC NVVN	694	262	3.78	35	16	4.45
Total	**9838**	**4427**	**4.50**	**7051**	**3625**	**5.14**

3.186 For FY 2013-14, Commission has approved power procurement through Case-1 bidding from bilateral transactions with M/s National Energy Trading and Services (Lanco), M/s Adani Enterprises Ltd and M/s Jindal Power Limited. Levelized tariff for procurement of such power was considered for estimation of power purchase expenses. The following table details the capacity and levelized tariff that was approved in last tariff order.

Table 102: Levelized tariff approved by the Commission for case-1 bidding in last tariff order

Source	Capacity (MW)	Duration	Levelized Tariff (in Rs./Unit)
M/s Jindal Power	200	June 16, 2013 to Nov 30, 2015	4.92
M/s Adani Power	200	June 16, 2013 to Dec 31, 2015	4.99
M/s Lanco Power	100	June 16, 2013 to May, 2016	4.88

3.187 The power purchase expenses approved by the Commission for FY 2013-14 in last tariff order are given below:

Table 103: Power purchase expenses approved in last tariff order for case 1-bidding and traders – FY 2013-14

Source	Last Tariff Order		
	Units (MU)	Total Cost (Rs./Unit)	Total Cost (Rs. Crore)
Traders			
Case - 1 Bidding	3468	4.94	1713
Total	**3468**	**4.94**	**1713**

3.188 In the current tariff order, due to unavailability of information for FY 2011-12, Commission is considering the same power purchase quantity and expenses that were approved in last year's tariff order. For FY 2012-13 and FY 2013-14, actual quantity of power procured and the expense incurred for such procurement as provided by TANGEDCO is being provisionally accepted by Commission. The power purchase expenses from these sources approved for the control period are tabulated below.

Table 104: Cost of energy available from other sources approved by the Commission

Particulars	2011-12			2012-13			2013-14		
	Quantum (MUs)	Total Cost (Rs. Crore)	Cost (Rs./Unit)	Quantum (MUs)	Total Cost (Rs. Crore)	Cost (Rs./Unit)	Quantum (MUs)	Total Cost (Rs. Crore)	Cost (Rs./Unit)
Trading - Bilateral & Exchange	8,427	3,838	4.55	6,925	3,560	5.14	5,454	3,313	6.07
UI	718	327	4.55	111	49	4.44	139	45	3.26
STOA	-	-	-	-	-	-	563	309	5.50
CPP Traders	-	-	-	-	-	-	5,591	2,966	5.30
Case 1 - Bidding (MTOA)		-	-	-	-	-	-	-	-
Jindal Power	-	-	-	-	-	-	414	165	3.98
Adani Power	-	-	-	-	-	-	407	171	4.20
Lanco Power (NETS)	-	-	-	-	-	-	204	96	4.69
NTPC NVVN	694	262	3.78	-	-	-	12	5	3.93
Total	**9,839**	**4,428**	**4.50**	**7,036**	**3,609**	**5.13**	**12,785**	**7,070**	**5.53**

3.189 With respect to power purchase expenses, Commission would like to reiterate the following directives that were passed in last tariff order:

a) Commission directs TANGEDCO to properly maintain the power purchase expenses with and without wheeling units.

b) Commission directs TANGEDCO to take serious note of the expenses and file its petition from next tariff filing.

Power Grid Corporation of India Limited (PGCIL) Charges

3.190 Commission, in its last tariff order, has approved submissions of TANGEDCO. However, provision for ABT PGCIL charges under PGCIL charges proposed by TANGEDCO was not approved.

3.191 In the current tariff order, Commission for FY 2011-12 and FY 2012-13 is considering PGCIL charges that were approved in last tariff order, as relevant information has not been provided by the utility.

3.192 For FY 2013-14 also, TANGEDCO has not provided actual PGCIL charges, hence Commission is estimating the PGCIL charges based on the energy procured from CGS stations at a rate equal to the average of last three years charges.

Table 105: PGCIL charges approved by the Commission for FY 2011-12 to FY 2013-14 (Rs. Cr.)

Parameter	FY 2011-12			FY 2012-13			FY 2013-14		
	Last Order	Actual	Comm.	Last Order	Actual	Comm.	Last Order	Actual	Comm.
PGCIL - SR and ER wheeling	524	-	524	540	-	540	578	-	648
PGCIL - Reactive energy	17	-	17	15	-	15	-	-	18
Total	541	-	541	555	-	556	578	-	666

Intrastate Transmission Charges

3.193 For FY 2011-12, Commission has considered the actual payment made by TANGEDCO to TANTRANSCO as per its audited accounts. For FY 2012-13, the Commission observed that there were discrepancies in the total revenue booked in the accounts of TANTRANSCO and expenses paid by TANGEDCO in this regard. Hence, the Commission is relying on the TANGEDCO share of the total TANTRANSCO ARR as approved in its last tariff order. For FY 2013-14 the Commission has estimated transmission charges payable by TANGEDCO based on its share in the allotted transmission capacity and tariff applicable for the period. The following table summarizes total transmission charges approved by Commission in this order.

Table 106: Transmission Charges payable to TANTRANSCO as approved by Commission (Rs. Cr.)

Parameter	FY 2011-12	FY 2012-13	FY 2013-14
Transmission charges payable to TANTRANSCO	1,500	2,847	1,415

Merit order Dispatch

3.194 The Commission in accordance with Regulation 75 (1) of TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005 has determined the cost of power purchase for various sources for FY 2012 to FY 14. Regulation 75(1) of the TNERC (Terms and Condition for Determination of Tariff) Regulation, 2005 states as under:

"75. Cost of Power Purchase

1. *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".*

3.195 For the purpose of determination of cost of energy procured from own generation stations and power purchase from other sources, the Commission has followed the methodology given below:

i. Energy available from Must-Run Power plants will be dispatched first.

ii. Energy availability from Hydro generating plants will not be subjected to MoD.

Summary of power purchase costs

3.196 It is pertinent to mention here that the Commission is of the view that additional power purchase cost due to higher T&D loss above the rate stipulated by it in its suo-motu order cannot be passed onto consumers. Hence, Commission is allowing T&D loss only to the extent as determined by it. The relevant extract from the tariff regulation is produced below.

Regulation (25) of TNERC (Terms and Conditions for Determination of Tariff for Intra state Transmission / Distribution of Electricity under MYT Framework) Regulations, 2009, states as under:

"25) Aggregate Technical and Commercial loss (AT & C)

The Commission shall fix benchmarks for reduction of losses and the licensee shall achieve the target fixed for each year of the control period.

The AT & C loss is a ***controllable item*** *and the financial loss, if any, on account of failure to achieve the target shall be borne by the Distribution licensee. The gains, if any, on account of achieving the loss below the targeted level shall be shared with the consumers……"*

3.197 The summary of total cost of power procured from own generating stations and other sources approved by the Commission for FY 2011-12 to FY 2013-14 after considering the allowable T&D loss levels and corresponding MoD for the energy requirement is tabulated below:

Table 107: Summary of power purchase cost approved by the Commission for FY 2011-12

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
Own Generation Stations					
Ennore TPS	744	105.78	262.36	3.53	368.14
Tuticorin TPS	7,262	399.23	2,299.94	3.17	2,699.18
Mettur TPS	6,279	281.28	2,289.48	3.65	2,570.76
North Chennai TPS	4,301	315.65	922.76	2.15	1,238.41
NCTPS Stage-II (Unit 1)	-	-	-	-	-
NCTPS Stage-II (Unit 2)	-	-	-	-	-
MTPS Stage-III	-	-	-	-	-
Total Thermal	**18,587**	**1,101.95**	**5,774.54**	**3.11**	**6,876.49**
Tirumakottai GTPS	660	68.18	117.93	1.79	186.11
Kuttalam GTPS	383	37.90	69.46	1.81	107.36
Basin Bridge GTPS	-	48.20	-	16.74	48.20
Valuthur GTPS	1,027	113.93	153.77	1.50	267.71
Total Gas	**2,070**	**268.22**	**341.16**	**1.65**	**609.39**
Erode HEP	1,416	128.16	0.04	0.00	128.20
Kadamparai HEP	-	65.16	-	-	65.16
Kundah HEP	2,455	187.46	0.22	0.00	187.68
Tirunelveli HEP	952	79.10	0.25	0.00	79.35
Total Hydro	**4,823**	**459.88**	**0.51**	**0.00**	**460.39**
Wind mills	12	3.30	-	-	3.30
Total Own Generation	**25,492**	**1,833.35**	**6,116.22**	**2.40**	**7,949.57**
Central Generation Stations					
NTPC SR (I&II)	4,106	217.32	652.05	1.59	869.37
NTPC SR III	1,048	88.23	195.87	1.87	284.10
NLC TS - I	3,146	155.25	520.51	1.65	675.76
NLC TS - II	3,167	197.24	614.56	1.94	811.80
NLC TS Expansion I	1,526	212.37	277.03	1.82	489.40
NTPC Talcher	3,622	283.95	740.58	2.04	1,024.53
NTPC Simhadri	468	73.73	102.50	2.19	176.23
MAPS	1,604	-	319.21	1.99	319.21
KAIGA	1,171	-	365.66	3.12	365.66
NTPC Kayankulum	-	65.44	-	9.87	65.44
NTPC ER	465	43.24	134.66	2.89	177.90
NTPC Dadri	101	15.11	26.38	2.62	41.49
Total CGS	**20,424**	**1,351.88**	**3,949.02**	**1.93**	**5,300.90**

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
Renewables					
Wind	5,711		1,758.99	3.08	1,758.99
Biomass	73		24.37	3.35	24.37
Cogeneration	1,285		482.01	3.75	482.01
Captive	557		232.23	4.17	232.23
Solar	11		4.59	4.17	4.59
Total Renewable	**7,637**	**-**	**2,502.19**	**3.28**	**2,502.19**
IPPs					
GMR Vasavi	-	158.55	-	9.54	158.55
Samalpatti	-	115.86	-	10.68	115.86
Madurai Power Corpn	-	124.3	-	10.77	124.3
Pillaiperumalnallur	-	285.5	-	5.16	285.5
STCMS – Neyveli	1,688	314.62	376.47	2.23	691.09
LANCO Power (Aban co)	760	106.5	134.45	3.17	240.95
PIONEER Power co. (Penna)	360	56.29	64.37	3.3	120.66
Total IPPs	**2,807**	**1,161.62**	**575.29**	**2.05**	**1,736.91**
Other Sources					
Trading - Bilateral & Exchange	8,297		3,779.24	4.55	3,838.42
UI	718		327.04	4.55	327.04
NTPC NVVN	694		262.49	3.78	262.49
Total Other sources	**9,709**	**-**	**4,368.77**	**4.50**	**4,368.77**
PGCIL charges					
PGCIL - ER & SR					524.12
PGCIL - Reactive Energy Charges					16.98
Total transmission charges					**541.10**
Total Power Purchases	**40,578**	**2,513.50**	**11,395.27**	**2.81**	**14,449.87**
Total Own generation & Power Purchase	**66,070**	**4,346.85**	**17,511.49**	**2.65**	**22,399.44**

Table 108: Summary of power purchase cost approved by the Commission for FY 2012-13

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
Own Generation Stations					
Ennore TPS	635	92.77	261.83	4.12	354.60
Tuticorin TPS	7,630	431.14	2,192.98	2.87	2,624.12
Mettur TPS	5,658	302.05	2,087.95	3.69	2,390.00
North Chennai TPS	4,651	359.00	1,233.94	2.65	1,592.94

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
NCTPS Stage-II (Unit 1)	10	0.00	2.57	2.65	2.57
NCTPS Stage-II (Unit 2)	10	0.00	2.57	2.65	2.57
MTPS Stage-III	340	-	144.36	4.25	144.36
Total Thermal	**18,933**	**1,184.96**	**5,926.20**	**3.13**	**7,111.17**
Tirumakottai GTPS	678	75.93	126.53	1.87	202.46
Kuttalam GTPS	51	5.98	19.03	3.73	25.01
Basin Bridge GTPS	-	44.44	-	18.73	44.44
Valuthur GTPS	873	104.39	158.86	1.82	263.25
Total Gas	**1,602**	**230.73**	**304.42**	**1.90**	**535.15**
Erode HEP	845	144.21	0.04	0.00	144.25
Kadamparai HEP	-	70.44	-	-	70.44
Kundah HEP	1,032	202.88	0.23	0.00	203.11
Tirunelveli HEP	699	88.90	0.26	0.00	89.16
Total Hydro	**2,576**	**506.43**	**0.53**	0.00	**506.96**
Wind mills	13	3.58	-	-	3.58
Total Own Generation	**23,124**	**1,925.70**	**6,231.15**	**2.69**	**8,156.85**
Central Generation Stations					
NTPC SR (I&II)	4,149	250.30	712.47	1.72	962.77
NTPC SR III	981	110.39	197.71	2.02	308.10
NLC TS – I	3,189	333.07	713.47	2.24	1,046.54
NLC TS – II	3,291	217.08	648.33	1.97	865.41
NLC TS Expansion I	1,629	218.51	294.72	1.81	513.23
NTPC Talcher	3,405	282.73	501.96	1.47	784.69
NTPC Simhadri	1,079	190.56	219.40	2.03	409.96
MAPS	1,775	-	360.68	2.03	360.68
KAIGA	1,261	-	424.69	3.37	424.69
NTPC Vallur - Unit 1 & Unit 2	488	125.63	101.52	2.08	227.15
NTPC ER	319	32.63	68.43	2.15	101.06
Total CGS	**21,566**	**1760.90**	**4243.37**	**1.97**	**6004.28**
Renewables					
Wind	7,474		2,548.63	3.41	2,548.63
Biomass	11		4.68	4.25	4.68
Cogeneration	1,439		516.60	3.59	516.60
Captive	595		223.13	3.75	223.13
Solar	16		8.59	5.37	8.59
Total Renewable	**9,535**	**-**	**3,301.63**	**3.46**	**3,301.63**
IPPs					
GMR Vasavi	-	167	-	10.41	167
Samalpatti	-	109	-	10.18	109
Madurai Power Corpn	-	292	-	10.96	292

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
Pillaiperumalnallur	-	110	-	8.55	110
STCMS - Neyveli	1,666	364	386	2.32	749.36
LANCO Power (Aban co)	850	118	170	2.00	287.45
PIONEER Power co. (Penna)	375	58	77	2.04	134.49
Total IPPs	**2,891**	**1,216.15**	**632.34**	**2.19**	**1,848.49**
Other Sources					
Trading - Bilateral & Exchange	5,931	0	3,048.49	5.14	3,048.49
UI	111	0	49.33	4.44	49.33
Total Other sources	**6,042**	**0**	**3,097.82**	**5.13**	**3,097.82**
PGCIL charges					
PGCIL - ER & SR					540.47
PGCIL - Reactive Energy Charges					15.05
Total transmission charges					**555.52**
Total Power Purchases	**40,034**	**2,977.05**	**11,275.16**	**2.82**	**14,807.73**
Total Own generation & Power Purchase	**63,158**	**4,902.75**	**17,506.31**	**2.77**	**22,964.57**

Table 109: Summary of power purchase cost approved by the Commission for FY 2013-14

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
Own Generation Stations					
Ennore TPS	1,011	157.77	328.83	3.25	486.59
Tuticorin TPS	7,253	451.62	2,391.57	3.30	2,843.19
Mettur TPS	5,928	322.38	2,152.56	3.63	2,474.94
North Chennai TPS	3,720	325.11	994.64	2.67	1,319.75
NCTPS Stage-II (Unit 1)	891	43.44	248.61	2.79	292.05
NCTPS Stage-II (Unit 2)	891	-	238.84	2.68	238.84
MTPS Stage-III	1,889	132.30	649.18	3.44	781.49
Total Thermal	**21,583**	**1,432.62**	**7,004.24**	**3.25**	**8,436.85**
Tirumakottai GTPS	453	51.30	102.24	2.26	153.39
Kuttalam GTPS	598	84.13	144.13	2.41	228.26
Basin Bridge GTPS	-	46.19	-	21.25	46.16
Valuthur GTPS	1,181	163.71	287.22	2.43	450.92
Total Gas	**2,232**	**345.33**	**533.59**	**2.39**	**878.92**
Erode HEP	940	219.72	0.04	0	219.72
Kadamparai HEP	-	76.32	-		76.32
Kundah HEP	2,187	203.04	0.23	0	203.27

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
Tirunelveli HEP	922	102.66	0.26	0	102.92
Total Hydro	**4,049**	**601.74**	**0.53**	**0.01**	**602.27**
Wind mills	12	3.3	-	-	3.3
Total Own Generation	**27,875**	**2,382.98**	**7,538.36**	**2.70**	**9,921.34**
Central Generation Stations					
NTPC SR (I&II)	4,005	247.53	837.93	2.09	1,085.46
NTPC SR III	1,054	99.54	285.47	2.71	385.01
NLC TS – I	3,271	309.45	841.76	2.57	1,151.21
NLC TS – II	3,347	219.58	718.02	2.15	937.60
NLC TS Expansion I	1,636	211.90	362.66	2.22	574.55
NTPC Talcher	3,475	293.70	525.65	1.51	819.35
NTPC Simhadri	1,572	273.57	369.78	2.35	643.34
MAPS	1,332	2.78	272.06	2.04	274.84
KAIGA	1,581	4.37	475.49	3.01	479.86
NTPC Vallur - Unit 1 & Unit 2	2,561	624.79	543.80	2.12	1,168.59
Kudankulum - Unit 1`	423	-	52.18	1.23	52.18
NTPC Kayankulum	-	1.20	-	-	1.20
NTPC ER	267	32.17	71.22	2.67	103.39
NTPC Dadri	-	0.01	-	-	0.01
Total CGS	**24,524**	**2320.59**	**5356.01**	**2.18**	**7676.61**
Renewables					
Wind	5,110		1,466.44	2.87	1,466.44
Biomass	6		1.03	1.60	1.03
Cogeneration	817		292.43	3.58	292.43
Captive	427		179.23	4.20	179.23
Solar	14		7.32	5.31	7.32
Total Renewable	**6,373**	**-**	**1,946.46**	**3.05**	**1,946.46**
IPPs					
GMR Vasavi	-	154	-	10.41	154
Samalpatti	-	93	-	10.18	93
Madurai Power Corpn	-	111	-	10.96	111
Pillaiperumalnallur	-	85	-	8.55	85
STCMS - Neyveli	1,721	360	398	2.32	758.25
LANCO Power (Aban co)	696	107	139	2.00	246.37
PIONEER Power co. (Penna)	364	56	74	2.04	130.15
Total IPPs	**2,781**	**965.72**	**612.04**	**2.20**	**1,577.76**
Other Sources					
Trading - Bilateral & Exchange	3,030	278.28	1,685.89	5.56	1,964.17
UI	139	3.98	41.47	2.97	45.45

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
STOA	563	-	309.41	5.50	309.41
CPP Traders	5,591	-	2,965.53	5.30	2,965.53
Case 1 - Bidding (MTOA)					
Jindal Power	414	77.48	87.12	2.10	164.59
Adani Power	407	55.08	116.09	2.85	171.17
Lanco Power (NETS)	204	32.36	63.18	3.10	95.54
NTPC NVVN	12	-	4.77	3.93	4.77
Total Other sources	**10,360**	**447.18**	**5,273.44**	**5.09**	**5,720.62**
PGCIL charges					
PGCIL - ER & SR					647.93
PGCIL - Reactive Energy Charges					17.89
Total transmission charges					**665.81**
Total Power Purchases	**44,038**	**3,733.49**	**13,187.96**	**2.99**	**17,587.26**
Total Own generation & Power Purchase	**71,914**	**6,116.47**	**20,726.31**	**2.88**	**27,508.60**

Aggregate Revenue Requirement and Revenue Gap for FY12, FY13 and FY14

3.198 Regulation 70 of the Tariff Regulations 2005 specifies the following:

"70. The Aggregate Revenue Requirement of Distribution licensee

The Aggregate Revenue Requirement of Distribution licensee consists of the following:-

(i) Cost of Power Purchase

(ii) Operation and Maintenance expenses

(iii) Depreciation

(iv) Interest and cost of finance

(v) Income Tax

(vi) Provision for Bad and Doubtful Debts

(vii) Provision for Insurance

(viii) Provision for contingency reserve

(ix) Other expenses

(x) Return on equity / Reasonable rate of return"

3.199 Based on the approved expenses in the above sections of this Chapter, the Aggregate Revenue Requirement approved by the Commission for FY 2011-12, FY 2012-13 and FY 2013-14 is tabulated below:

Table 110: ARR approved by the Commission for FY 2011-12, FY 2012-13 and FY 2013-14 (Rs. Cr.)

Parameter	Last year order			Commission		
	FY 2012	FY 2013	FY 2014	FY 2012	FY 2013	FY 2014
Expenses in respect of own Generation	7,830	7,635	9,401	7,950	8,157	9,921
Power Purchase Cost	17,082	17,775	14,324	14,450	14,808	17,587
Annual Transmission Charges payable to TANTRANSCO	1,665	2,847	1,533	1,500	2,847	1,415
Operation and Maintenance Expenses	3,327	3,477	3,779	3,327	3,477	3,852
Depreciation	273	302	362	273	302	362
Interest on Long term loan	1,053	1,329	1,525	1,053	1,375	1,610
Other Debits & extra ordinary items	14	17	20	14	17	20
Prior Period Debit/(Credit) Charges	-	-	-	-	-	-
Reasonable Return / Return on Equity	-	-	-	-	-	-
Interest on Working Capital	-	-	-	-	-	-
Contribution to Contingency Reserves	-	-	-	-	-	-
ARR	**31,244**	**33,382**	**30,945**	**28,567**	**30,983**	**34,769**

Non-Tariff and Other Income

3.200 Information regarding non-tariff income was provided by TANGEDCO in their audited accounts. The Commission has considered the non-tariff income as per the audited and annual statement of accounts for the years FY 2011-12, FY 2012-13 and FY 2013-14.

3.201 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.

3.202 Though TANGEDCO has provided information on other income received during the respective years. However, it has not provided a further breakup for distribution and generation businesses. Therefore, Commission has considered the consolidated other income as per the audited accounts for the years FY 2011-12, FY 2012-13 and FY 2013-14 and has segregated it between generation and distribution business in the proportion as approved in its last tariff order.

3.203 The following table summarizes the information available in the audited and annual statement of accounts and approved Non-Tariff Income and Other Income

Table 111: Non-Tariff and Other Income for distribution business approved by the Commission (Rs. Cr)

Particulars	Last TO			TANGEDCO's submission			Commission		
	FY 12	FY 13	FY 14	FY 12	FY 13	FY 14	FY 12	FY 13	FY 14
Non-Tariff Income	553	592	635	553	936	822	553	936	822
Other Income	141	132	303	141	197	-*	141	197	264
Total	**694**	**725**	**938**	**694**	**1,133**	**822**	**694**	**1,133**	**1,087**

** Information for distribution business is not provided by TANGEDCO*

3.204 The net ARR approved for FY 2012, FY 2013 and FY 2014 is tabulated below:

Table 112: Net Revenue Requirement approved by the Commission for FY 12, FY 13 and FY 14 (Rs. Cr.)

Parameter	Last year order			Commission		
	FY 2012	FY 2013	FY 2014	FY 2012	FY 2013	FY 2014
Aggregate Revenue requirement	29,647	31,197	30,884	28,567	30,983	34,769
Less: Other income and NTI	694	725	938	694	1,133	1,087
Net Revenue Requirement	**28,953**	**30,472**	**29,946**	**27,873**	**29,850**	**33,682**

Revenue from Sale of Power – FY 2011-12, FY 2012-13 and FY 2013-14

3.205 The following table shows the category-wise revenue for FY 2011-12, FY 2012-13 and FY 2013-14 as approved by the Commission. The revenue shown in the table is based on the tariffs approved by the Commission for the respective years and is exclusive of subsidy. The numbers are as per the audited accounts of TANGEDCO for the respective years after adjusting revenue from wheeled units.

Table 113: Category wise Revenue for FY 2011-12, FY 2012-13 and FY 2013-14 as approved by the Commission (Rs. Cr.)

Consumer Category		FY 2011-12	FY 2012-13	FY 2013-14
	High Tension Supply (HT)			
I-A	HT Industries	5,649	5,881	6,992
I-B	Railway Traction	347	393	483
II-A	Govt. Educational Inst. Hospitals, water supply etc.	581	566	599
II-B	Pvt. Educational Inst., Cinema theatres & Studios	123	143	188
II-C	Actual places of public worship, Mutts and Religious Inst.	9	4	13
III	HT Commercial	1,311	1,288	1,651
IV	Lift Irrigation, Co-operative societies	-	-	-
V	Supply to Other States (SWAP)	219	-	-
VI	Temporary	-	173	313
	Sub Total HT	**8,239**	**8,448**	**10,240**
	Low Tension Supply (LT)			
I-A	Domestic Purposes	2,889	4,462	5,342
I-B	Huts in Village Panchayats, TAHDCO etc.	-	-	-
I-C	Defence Colonies etc. Notified Tariff	9	10	4
II-A	Public Lighting and Public Water Supply & Sewerage	526	861	1,074
II-B-1	Govt. Educational Inst., Hospitals, water supply etc.	279	298	204
II-B-2	Private Educational Inst., Cinema theatres & Studios	136	131	164
IIC	Actual places of public worship	25	27	52
IIIA 1	Cottage and Tiny Industries,	152	193	196
IIIA 2	Power Looms	121	153	184
IIIB	Coffee grinding and Ice factories etc. and Industries not covered under LT Tariff IIIA	1,968	2,461	2,986
IV	Agriculture and Govt. seed farms	-	-	-
V	Commercial and all categories of Consumers not covered under IA, IB,IC, IIA, IIB, IIIA, III B and IV	3,035	3,801	4,446
VI	Temporary supply: (a) Lighting and combined installation, (b) Lavish illuminations	25	25	95
	Sub Total LT	**9,165**	**12,422**	**14,746**
	Total HT and LT	**17,404**	**20,870**	**24,986**

3.206 The Commission has accepted the actual revenue earned but has not allowed the revenue corresponding to sale of power to Puducherry and wheeled units.

3.207 Commission has also considered the actual subsidy received by TANGEDCO in FY 2011-12, FY 2012-13 and FY 2013-14 as per Audited and annual statement of accounts. The total revenue approved by the Commission is given below.

Table 114: Revenue approved by the Commission for FY 2011-12, FY 2012-13 and FY 2013-14 (Rs. Cr)

Parameter	2011-12	2012-13	2013-14
Revenue from Sale of Power	17,404	20,870	24,986
Govt. Subsidy	2,071	4,082	4,985
Total	**19,475**	**24,952**	**29,971**

3.208 Therefore the Revenue from sales for FY 2011-12, FY 2012-13 and FY 2013-14 as approved by the Commission are Rs. 19,475, Rs. 24,952 and Rs. 29,971 Crores respectively. This revenue is inclusive of the subsidy component.

Revenue Gap for FY 2011-12, FY 2012-13 and FY 2013-14

3.209 On the basis of net revenue requirement and revenue approved by the Commission, the Revenue Gap approved by the Commission for FY 2011-12, FY 2012-13 and FY 2013-14 is tabulated below.

Table 115: Revenue gap approved by the Commission (Rs. Cr.)

Parameter	Last year order			Commission		
	FY 2012	FY 2013	FY 2014	FY 2012	FY 2013	FY 2014
Net Revenue Requirement	28,953	30,472	29,946	27,873	29,850	33,682
Less: Revenue from Tariffs (including subsidy)	19,475	23,561	27,978	19,475	24,952	29,971
Revenue Gap	**9,478**	**6,911**	**1,968**	**8,398**	**4,898**	**3,711**

A4: AGGREGATE REVENUE REQUIREMENT FOR FY 2014-15

Energy Sales

4.1 The Commission has determined the customer category wise sales figures for FY 2014-15 based on the following methodology.

a) **Sale to Metered categories:** The Commission has accepted the category-wise sales data submitted by TANGEDCO for FY 2014-15 except for sales to Puducherry. The Commission maintains its stance on disallowance of sale to Puducherry along with the corresponding revenue booked and has disallowed 264 MUs.

b) **Sale to Un-Metered categories:** For un-metered categories of Hut and Agriculture, the Commission has relied on the numbers as approved by it for FY 2014-15 in its last Tariff Order. The Commission has followed the following methodology for calculating the consumption for Hut consumers and Agricultural consumers.

- **Hut category (LT I-B)**: The Commission has recalculated the consumption for FY 2014-15, based on the details in Government Order (G.O.).Ms. No.2 dated 03-06-2011 issued by GoTN. The Commission has considered the wattage as specified by the GoTN and the hours as considered by TANGEDCO.

  The Commission has made some reasonable assumptions to undertake this calculation. To project the total number of hut connections, the 3 year CAGR rate of 1.6% in hut connections between FY 2009-10 to FY 2012-13 has been considered. It has been assumed that an equal number of CFL as distributed in FY 2012-13 will be distributed each year. It has been assumed that 75,000 mixies, grinders and fans will be distributed to hut consumers each year. Based on these assumptions the hut consumption of 540 MUs has been arrived at for FY 2014-15.

Table 116: LT Hut consumption for the period FY2014-15

Sl. No.	Appliance type	Number of hut connections	Wattage	Hours	Days	Consumption (MUs)
1	Light	1,232,067	40	6	365	107.93
2	TV	924,262	70	10	365	236.15
3	CF Lamp	267,132	11	6	365	6.44
4	Mixie	417,741	550	0.50	365	41.93
5	Grinder	417,817	300	2	156	39.11
6	Fan	406,390	61	12	365	108.58
7	RGGVY Huts	373	40	12	365	0.07
	Total Consumption					**540**

- **Agricultural category (LT IV)**: The Commission has recalculated the consumption for FY 2014-15 based on the same methodology as adopted for calculating Agricultural consumption for FY 2013-14.

  The Commission has re-estimated the agricultural consumption based on the average capacity of pumpset in the middle of the year as calculated below. It has been assumed that 50% of the connections and corresponding capacity gets added in the first half of the year.

  To estimate the number of consumers and load profile of connections for the control period, the Commission has accepted the addition of 40,000 connections per year as submitted by TANGEDCO. To project load, the Commission has considered the load of 5.4 HP per connection for FY 2012-13 and used the same for FY 2014-15.

  To calculate the average consumption per HP per annum, the Commission has relied on the actual average consumption data for FY 2010-11 and FY 2011-12. The Commission has observed that growth in average consumption in FY 2011-12 over FY 2010-11 was 4.7%, this rate has been used to project average consumption per HP per annum for the control period and the average consumption has been capped at the level of 966 kWh/ HP/Annum. Based on the above assumptions the consumption for FY 2014-15 has been worked out as 11,039 MUs.

Table 117: LT Agricultural consumption for the period FY2014-15

Sl. No.	Particulars	2014-15
1	No. of service connections at the end of the year	2,116,898
2	YoY Increase	40,000
	% added in the first half	50.0%
3	No. of service connections in the middle of the year	2,096,898
4	Connected load in HP at the end of the year	11,534,988
5	YoY Increase	217,960
6	Connected load in HP at the middle of the year	11,426,008
7	Average capacity of pumpset in HP at the middle of the year (6/3)	5.45
8	Average consumption in kWh /HP / Annum	966
9	**Consumption in MUs (3 x 7 x 8)**	**11,039**

4.2 Based on the above assumptions and revised calculations, the total sales as approved by the commission for the period FY 2014-15 is as follows.

Table 118: Sales as approved by the Commission for FY 2014-15 (MUs)

Particulars		As per Last T.O.	As approved by Commission
HT Consumer Category			
I-A	HT Industries	9,615	10,564

I-B	Railway Traction	911	800
II-A	Govt. Educational Inst. etc.	1,159	1,218
II-B	Pvt. Educational Inst. etc.	287	308
III	HT Commercial	1,951	1,749
IV	Lift Irrigation	6	7
V	Temporary supply	186	316
	Total HT	**14,114**	**14,962**
LT Consumer Category			
I-A	Domestic	21,704	22,837
I-B	Huts	540	540
I-C	LT bulk supply	11	12
II-A	Public Lighting and Water Supply	1,951	2,104
II-B-1	Govt. Educational Inst. etc.	141	130
II-B-2	Pvt. Educational Inst. etc.	254	251
IIC	Places of Public Worship	136	114
IIIA 1	Cottage and Tiny Industries	157	168
IIIA 2	Power Looms	993	881
IIIB	L.T. Industries	5,385	5,516
IV	L.T. Agriculture	11,039	11,039
V	L.T. Commercial	6427	6,215
VI	Temporary supply	50	74
	Total LT	**48,787**	**49,882**
	Total HT + LT	**62,901**	**64,844**

4.3 Therefore the total sale approved by the Commission for FY 2014-15 is 64,844 MUs. The overall sales is estimated to increase by 10% in FY 2014-15 over FY 2013-14.

Energy Availability

4.4 In this section, Commission has analysed the energy availability at TANGEDCO's periphery. The methodology adopted by Commission in determining energy availability in the absence of any tariff petition from TANGEDCO has been detailed in the following sections.

Own Generation

4.5 TANGEDCO had commissioned three new thermal units and a few hydro stations by end of June 2014. Energy availability from own generating stations has been estimated after considering energy available from both existing as well as new generation stations.

4.6 The total installed capacity of generating stations of TANGEDCO for FY 2014-15 is 7,480 MW. The detailed break up of generation capacity of TANGEDCO stations is as tabulated below:

Table 119: Installed capacity of existing TANGEDCO stations (As on June 2014)

Name of the power plant	Installed capacity (in MW)
Coal based generating stations	
Ennore Thermal Power Station (ETPS)	340
Tuticorin Thermal Power Station (TTPS)	1,050
Mettur Thermal Power Station (MTPS)	840
North Chennai Thermal Power Station (NCTPS)	630
NCTPS Stage-II** (Unit 1)	600
NCTPS Stage-II** (Unit 2)	600
MTPS Stage-III**	600
Sub total	**4,660**
Gas based generating stations	
Tirumakottai Gas based Power Station (TKGTPS)	108
Kuttalam Gas based Power Station (KGTPS)	101
Valuthur - Unit 1 Gas based power station (VGTPS – 1)	95
Valuthur - Unit 2 Gas based power station (VGTPS – 2)	92
Basin Bridge Gas turbine power station (BBGTPS)	120
Sub total	**516**
Hydro Generating Circles	
Kundah Hydro Generating Circle	833
Kadamparai Hydro Generating Circle	595
Erode Hydro Generating Circle	504
Tirunelveli Hydro Generating Circle	354
Sub Total	**2,287**
Wind Energy - Tirunelveli and Udumalpet	17
Total	**7,480**

Thermal generation

4.7 Plant performance parameters such as plant load factor, auxiliary consumption and net generation that were approved by the Commission in last tariff order is tabulated below.

Table 120: Plant load factor, auxiliary consumption and net generation approved in last tariff order for existing and new thermal stations (FY 2014-15)

Name of the power plant	Plant Load Factor (%)	Auxiliary Consumption (%)	Net Generation (MUs)
ETPS	25.00%	15.00%	652
TTPS	85.00%	8.50%	7,154
MTPS	89.00%	8.50%	5,992

NCTPS	89.00%	8.50%	4,494
NCTPS Stage-II (Unit 1)	85.00%	8.50%	8,176
NCTPS Stage-II (Unit 2)			
MTPS Stage-III	85.00%	8.50%	4,088
TKGTPS	80.00%	6.00%	711
KGTPS	80.00%	6.00%	665
BBGTPS	5.71%	0.99%	59
VGTPS (Unit 1)	80.00%	6.00%	1,232
VGTPS (Unit 2)			

4.8 TANGEDCO has provided its projections of PLF, auxiliary consumption and net generation from thermal power plants. Details of the same have been tabulated below.

Table 121: Plant load factor, auxiliary consumption and net generation of existing and new thermal stations provided by TANGEDCO for FY 2014-15

Name of the power plant	Plant Load Factor (%)	Auxiliary Consumption (%)	Net Generation (MUs)
ETPS	31.08%	13.50%	1,060
TTPS	85.34%	8.50%	7,183
MTPS	88.95%	8.30%	6,002
NCTPS	82.45%	8.35%	4,170
NCTPS Stage-II (Unit 1)	62.67%	9.15%	2,993
NCTPS Stage-II (Unit 2)	62.67%	9.15%	2,993
MTPS Stage-III	69.86%	9.15%	3,336
TKGTPS	69.84%	6.65%	616
KGTPS	74.20%	7.15%	604
BBGTPS	2.38%	2.50%	24
VGTPS (Unit 1)	78.11%	6.65%	607
VGTPS (Unit 2)	77.51%	6.70%	602

Plant load factors

4.9 Regulation-37 of TNERC Tariff Regulations, 2005 states the target PLFs that are to be achieved by thermal power stations. The regulation states that:

"**37. Norms of Operation**

The norms of operation for Thermal Generating Stations shall be as under:

(i) *Target Availability for recovery of full capacity (fixed) charges:*

(a) *All Thermal Generating stations in Tamil Nadu except Ennore Thermal Power Generating Station - 80%*

(b) Ennore Thermal Power Generating Station (Till Renovation and Modernization works in all units are completed) - 50%

(c) In respect of Generating Stations of Independent Power Producers -As per PPA
(d) New Thermal Stations - 80%

(ii) Target Plant Load Factor for incentive –

(a) All the Thermal Power Generating Stations except the existing Stations of IPPs covered under PPA- 80%

(b) Power Generating Stations of IPPs covered under Existing PPA - As per PPA

4.10 Commission has observed that PLFs for most of the thermal stations are not in line with the norms set by the tariff regulation. Therefore, Commission has taken a stance of approving PLFs as approved in last tariff order or as projected by TANGEDCO, whichever is higher, for projecting energy availability for FY 2014-15.

Auxiliary Consumption

4.11 Regulation-37 of TNERC Tariff Regulations, 2005, as a part of "Norms of Operation" details the desired auxiliary consumption levels that are to be maintained by thermal power stations. The regulation states that:

"37. Norms of Operation

The norms of operation for Thermal Generating Stations shall be as under:

…

(v) Auxiliary Energy Consumption

(a) Coal based generating station

	With Cooling tower	Without Cooling tower
(i) 200 MW Series	*9.00%*	*8.50%*
(ii) 500 MW Series		
Steam driven Boiler Feed Pumps	*7.50%*	*7.00%*
Electrically driven BFPs	*9.00%*	*8.50%*

…"

(b)Gas-based and Naphtha based Generating Stations:

(i) Combined Cycle: 3%

(ii) Open Cycle: 1%

4.12 For existing coal based thermal generating stations, TANGEDCO has projected auxiliary consumption levels in line with the normative levels, while for the new stations they are projected higher than the normative levels. For gas based thermal generating stations, auxiliary consumption levels have been projected higher than the normative levels despite the relaxations provided by the Commission in the last tariff order.

4.13 However, in order to provide for the limitations of the plants, the Commission is approving auxiliary consumption as projected by TANGEDCO for FY 2014-15.

4.14 Based on the approved PLFs and auxiliary consumption, net generation from thermal generating stations has been computed. The following table summarizes PLF, auxiliary consumption and net generation of own generating plants that are approved by the Commission.

Table 122: Summary of PLF, auxiliary consumption and net generation approved by Commission for thermal stations for FY 2014-15

Name of the power plant	Plant Load Factor (%)	Auxiliary Consumption (%)	Net Generation (MUs)
ETPS	31.08%	13.50%	801
TTPS	85.34%	8.50%	7,183
MTPS	89.00%	8.30%	6,005
NCTPS	89.00%	8.35%	4,502
NCTPS Stage-II (Unit 1)	85.00%	9.15%	4,059
NCTPS Stage-II (Unit 2)	85.00%	9.15%	3,725
MTPS Stage-III	85.00%	9.15%	4,059
TKGTPS	80.00%	6.65%	706
KGTPS	80.00%	7.15%	651
BBGTPS	5.71%	2.50%	59
VGTPS (Unit 1)	80.00%	6.65%	621
VGTPS (Unit 2)	80.00%	6.70%	621

Hydro Generation Circles

4.15 In the last order Commission has approved hydro generation of 4,386 MUs excluding generation from Kadamparai PSHES, while for Kadamparai PSHES an additional energy requirement of 32 MUs has been approved.

4.16 TANGEDCO has projected total generation of 4,586 MUs at an average PLF of 31.1% excluding generation from Kadamparai PSHES, while for Kadamparai PSHES an additional energy requirement of 32 MUs have been projected.

4.17 Commission is accepting TANGEDCO’s projections for FY 2014-15. The net hydro energy and additional energy requirement for Kadamparai PSHES approved by the Commission for FY 2014-15 is tabulated below:

Table 123: Summary of energy availability approved by Commission for Hydro generation circles for FY 2014-15 (in MUs)

Name of the power plant	Last TO	TANGEDCO's submission	Commission
Net Hydel Gen. on account of hydro plants excluding Kadamparai	4,386	4,586	4,586
Additional energy requirement for Kadamparai PSHES	32	32	32

Wind Generation

4.18 TANGEDCO has projected 12 MUs from the current installed capacity, which is in line with the generation that was approved by the Commission in last tariff order.

Table 124: Net Energy available from wind as approved by Commission for FY 2014-15 (in MUs)

Particulars	Last TO	TANGEDCO's submission	Commission
Wind Generation	12	12	12

Power Purchase from other sources

Central Generating Stations (CGS)

4.19 To determine the total energy available from CGS, Commission has determined the allocation of power from CGS to the state of Tamil Nadu based on CERC published reports. The allocation of firm power to TANGEDCO from central generating stations is tabulated below:

Table 125: TANGEDCO share in central generating stations

Power Station	Installed Capacity (in MW)	Firm Share (in MW)	Total share including unallocated power (%)*
Existing Stations			
Neyvelli TS - I	600	600	100.00%
Neyvelli TS - II - Stage 1	630	207	32.84%
Neyvelli TS - II - Stage 2	840	276	32.84%
Neyvelli TS - I Expansion	420	226	53.82%
Ramagundam super thermal power station I & II	2,100	552	26.29%
Ramagundam super thermal power station III	500	138	27.61%
Simhadri Stage 2 , Units 3	500	112	22.48%
Simhadri Stage 2 , Units 4	500	112	22.48%
NTPC-TNEB JV - Unit 1 (Vallur)	500	358	71.66%
Talcher - II	2000	499	24.94%
Madras APS	440	333	75.57%

Power Station	Installed Capacity (in MW)	Firm Share (in MW)	Total share including unallocated power (%)*
Kaiga APS	880	236	26.85%
Sub Total	**9,910**	**3,650**	
New Stations			
NTPC – TNEB JV - Unit 2 (Vallur)	500	358	71.66%
NTPC – TNEB JV - Unit 3 (Vallur)	500	358	71.66%
Kudankulam APS - Unit 1	1,000	463	46.25%
Kudankulam APS - Unit 2	1,000	463	46.25%
PFBR Kalpakkam	500	167	33.40%
Neyveli TS - II Expansion Unit I	250	163	65.20%
Neyveli TS - II Expansion Unit II	250	162	64.80%
NLC-TNEB - Tuticorin Unit 1	500	194	38.80%
NLC-TNEB - Tuticorin Unit 2	500	194	38.80%
Sub Total	**5,000**	**2,522**	
Total	**14,910**	**6,171**	

4.20 Energy availability from the allocated CGS has been calculated based on the PLFs and auxiliary consumptions as per the norms set by CERC in its tariff regulation.

Table 126: PLFs and Auxiliary consumption considered by the Commission for CGS stations

Power Station	Plant load factors	Auxiliary Consumption
	2014-15	
Existing Stations		
Neyvelli TS - I	75.00%	12.00%
Neyvelli TS - II	85.00%	10.00%
Neyvelli TS - I Expansion	82.00%	9.50%
Ramagundam super thermal power station I & II	90.00%	8.50%
Ramagundam super thermal power station III	90.00%	8.50%
Simhadri Stage 2	85.00%	8.50%
NTPC-TNEB JV - Unit 1 (Vallur)	85.00%	8.50%
Talcher - II	85.00%	10.50%
Madras APS	60.00%	10.00%
Kaiga APS	65.00%	10.00%
New Stations		
NTPC – TNEB JV - Unit 2 (Vallur)	85.00%	8.50%
NTPC – TNEB JV - Unit 3 (Vallur)	85.00%	8.50%
Kudankulam APS - Unit 1	60.00%	10.00%
Kudankulam APS - Unit 2	50.00%	10.00%
PFBR Kalpakkam	50.00%	10.00%

Power Station	Plant load factors	Auxiliary Consumption
	2014-15	
Neyveli TS - II Expansion Unit I	80.00%	8.50%
Neyveli TS - II Expansion Unit II	80.00%	8.50%
NLC-TNEB - Tuticorin Unit 1	80.00%	8.50%
NLC-TNEB - Tuticorin Unit 2	80.00%	8.50%

4.21 The summary of power purchase from other CGS approved by the Commission is tabulated below:

Table 127: Summary of approved energy availability from CGS (MUs)

Name of the Power Station	Last TO	TANGEDCO's submission	Commission
NTPC SR (I&II)	3,952	4,075	3,983
NTPC SR III	988	1,110	996
NLC TS - I	3,469	3,105	3,469
NLC TS - II	3,188	3,435	3,235
NLC TS Expansion I	1,470	1,575	1,469
NTPC Talcher	3,361	3,550	3,323
NTPC Simhadri	1,556	1,650	1,532
MAPS	1,568	1,925	1,573
KAIGA	1,176	1,650	1,211
NTPC Vallur - Unit 1 & Unit 2	7,092	6,264	4,882
Kudankulum - Unit 1	4,376	3,229	2,188
New Plants	4,889	3,176	4,988
NTPC ER		365	363
Total CGS	**37,085**	**35,109**	**33,212**

Independent Power Producers (IPPs)

4.22 TANGEDCO has estimated energy availability from IPPs such as GMR, Samalpatti, Madurai Power, Pillaiperumalnallur, STCMS, Aban Power and Penna to an extent of 3,663 MUs for FY 2014-15.

4.23 In its petition submitted for last tariff order, TANGEDCO had informed the Commission that PPA with M/s GMR is upto 15th February 2014. Hence, Commission has considered the energy availability from this plant only upto the date the PPA exists.

4.24 In the absence of any other information regarding energy availability from IPPs, Commission has projected the same based on the actuals for FY 2008-09 to FY 2012-13. It has considered average energy availability from these IPPs in the past five financial years.

4.25 The summary of net energy availability approved by the Commission is tabulated below.

Table 128: Summary of approved energy availability from IPPs (MUs)

Name of the Power Station	Last TO	TANGEDCO's submission	Commission
GMR Vasavi	-	212	-
Samalpatti	472	116	434
Madurai Power Corpn	455	114	424
Pillaiperumalnallur	2,103	356	2,036
STCMS – Neyveli	1,665	1,750	1,660
LANCO Power (Aban co)	783	725	783
PIONEER Power co. (Penna)	353	390	356
Total IPPs	**5,830**	**3,663**	**5,693**

Captive/ Cogeneration and Non-Conventional energy sources

4.26 TANGEDCO has estimated energy available from renewable sources at 8,385 MUs for FY 2014-15. Commission has observed that as compared to its approved figures of 9,697 MUs for FY 2013-14 in its last tariff order, actual energy procured was only to the tune of 6,373 MUs. It has also come to the notice of the Commission that an additional capacity of 100MW has been added to Solar (50 MW) and Wind (50 MW) technologies respectively during the year. Hence, for approving power purchase from renewable energy, the Commission has considered the actual energy procured during FY 2013-14 as the base, over which additional energy to be available from the new capacity, was added. Energy availability from NCE has been tabulated below:

Table 129: Summary of energy availability approved by the Commission from captive and renewable energy sources (MUs)

Name of the Power Station	Last TO	TANGEDCO's submission	Commission
Wind	7,145	6,575	5,228
Biomass	11	45	6
Cogeneration	2,230	1393	817
Captive	595	210	427
Solar	16	162	97
Total Renewable	**9,997**	**8,385**	**6,575**

From Other Sources

4.27 TANGEDCO has projected availability of 13,763 MUs from other sources. The Commission is not considering projections provided by TANGEDCO, as it cannot assess the prudence of such procurement due to unavailability of any additional information. Therefore, Commission is considering numbers approved in its last tariff order.

Table 130: Summary of energy availability approved by the Commission from other sources (MUs)

Name of the Power Station	Last TO	TANGEDCO	Commission
Unscheduled Interchange		50	

Power Traders		11,938	
Local CPPs		1,080	
Power Exchanges		100	
KSEB Power		595	
Case 1 - Bidding (MTOA)			
Jindal Power	1,752		1,752
Adani Power	1,752		1,752
Lanco Power (NETS)	876		876
NTPC NVVN	35		35
Total Other sources	**4,415**	**13,763**	**4,415**

Total energy available from all sources

4.28 Based on the above considerations the energy available from all sources as per the submissions of TANGEDCO and as approved in this Order is tabulated below:

Table 131: Summary of energy available from all sources in FY 2014-15 (in MUs)

Source	Last Tariff Order	TANGEDCO's submission	Commission
Own Generating Stations			
Coal Based Power Plants			
Ennore TPS	652	1,060	801
Tuticorin TPS	7,154	7,183	7,183
Mettur TPS	5,992	6,002	6,005
North Chennai TPS	4,494	4,170	4,502
NCTPS Stage-II (Unit 1)	8,176	2,993	4,059
NCTPS Stage-II (Unit 2)		2,993	3,725
MTPS Stage-III	4,088	3,336	4,059
Sub Total	**30,556**	**27,735**	**30,333**
Gas Based Power Plants			
Tirumakottai GTPS	711	616	706
Kuttalam GTPS	665	604	651
Basin Bridge GTPS	59	24	59
Valuthur GTPS	1,232	1,209	1,243
Sub Total	**2,667**	**2,453**	**2,658**
Hydro Generation Circles*			
Erode HEP	4,386	4,586	1,365
Kundah HEP			2,257
Tirunelveli HEP			964
Sub Total	**4,386**	**4,586**	**4,586**
Wind Mills	12	12	12
Total - Own Generation	**37,621**	**34,786**	**37,589**
Central Generation Stations			

NTPC SR (I&II)	3,952	4,075	3,983
NTPC SR III	988	1,110	996
NLC TS - I	3,469	3,105	3,469
NLC TS - II	3,188	3,435	3,235
NLC TS Expansion I	1,470	1,575	1,469
NTPC Talcher	3,361	3,550	3,323
NTPC Simhadri	1,556	1,650	1,532
MAPS	1,568	1,925	1,573
KAIGA	1,176	1,650	1,211
NTPC Vallur - Unit 1 & Unit 2	7,092	6,264	4,882
Kudankulum - Unit 1`	4,376	3,229	2,188
New Plants	4,889	3,176	4,988
NTPC ER	-	365	363
Sub Total	**37,085**	**35,109**	**33,212**
IPPs			
GMR Vasavi	-	212	-
Samalpatti	472	116	434
Madurai Power Corpn	455	114	424
Pillaiperumalnallur	2,103	356	2,036
STCMS - Neyveli	1,665	1,750	1,660
LANCO Power (Aban co)	783	725	783
PIONEER Power co. (Penna)	353	390	356
Sub Total	**5,830**	**3,663**	**5,693**
CPP and Renewable Energy Sources			
Wind	7,145	6,575	5,228
Biomass	11	45	6
Cogeneration	2,230	1393	817
Captive	595	210	427
Solar	16	162	97
Sub Total	**9,997**	**8,385**	**6,575**
Other Sources			
Unscheduled Interchange	-	50	-
Power Traders	-	11,938	-
Local CPPs	-	1,080	-
Power Exchanges	-	100	-
KSEB Power	-	595	-
Case 1 - Bidding (MTOA)	-	-	-
Jindal Power	1,752	-	1,752
Adani Power	1,752	-	1,752
Lanco Power (NETS)	876	-	876
NTPC NVVN	35	-	35
Sub Total	**4,415**	**13,763**	**4,415**

Total - Other Power Purchase	**57,329**	**60,920**	**49,895**
Grand Total	**94,950**	**95,706**	**87,484**

**Net Hydro generation is shown without considering power generated from Kadamparai PSHES*

Renewable Purchase Obligation

4.29 The Commission in the first Amendment to Renewable Energy Purchase Obligation Regulations, 2010 has fixed the RPO of 9% for all sources of Renewable Energy put together and 0.05% for Solar separately.

4.30 As regards target for RPO in future years, Tamil Nadu Electricity Regulatory Commission (Renewable Energy Purchase Obligation) Regulations, 2010 states as under:

"2.If the RPO for any of the year is not specified by the Commission, the RPO specified for the previous year shall be continued beyond the period till any revision is effected by the Commission in this regard."

4.31 The Commission has applied the above mentioned percentages of RPO for FY 2014-15 in this Order.

Table 132: Renewable energy purchase requirement for FY 2014-15 - in MUs

Particulars	FY 2014-15
Energy consumption	64,876
RPO% from all sources	9.00%
RPO% from solar	0.05%
Required purchase from renewable energy sources (MU)	5,839
Required purchase from solar energy sources (MU)	32

Table 133: RPO quantum met for FY 2014-15 - in MUs

Particulars	FY 2014-15
Wind	5228
Small Hydro	157
Cogeneration	817
Biomass	6
Own wind generation	12
Total except solar	6220
Solar	97.00
NTPC - NVVN	35
Total including solar	6352
RPO % actually achieved for all sources except solar	**9.59%**
Solar – RPO	**0.20%**
RPO% actually achieved for all sources	**9.79%**

Energy Balance and Distribution Loss

4.32 Commission in its first order on Multi Year Tariff determination dated 31st July 2010 has approved transmission and distribution losses together and has set a loss reduction strategy for reduction of T&D losses.

4.33 Also, Commission had initiated the suo-motu proceedings against TANGEDCO for non compliance in the matter of T&D loss determination as directed by it and the Hon'ble APTEL. The Commission had in the absence of scientific data for loss determination, fixed the T&D loss level at 16.4% for FY 2013-14, 16% for FY 2014-15 and 15.6% for FY 2015-16 respectively, if the necessary data is not furnished by TANGEDCO.

The relevant extracts of that order are given below:

"The Commission in its Order No.1 of 2012 dated 30-3-2012, had adopted the T&D loss of 17.6% for 2010-11 and 17.2% for 2011-12. Commission adopted T&D loss of 16.80% for 2012-13. By the same analogy, T&D loss of 16.40% is approved for 2013-14. As and when the TANGEDCO comes out with the scientific study on T&D loss as specified in the Regulations, the Commission may review and refix the T&D loss norms subject to prudent check. If no study report is submitted for consideration of the Commission, ***T&D loss for FY 2014-15 shall be reckoned as 16% and for FY 2015-16 shall be reckoned as 15.6%.*** *Out of the above T&D loss limit, the distribution loss shall be arrived at after deducting the transmission loss as approved by the Commission in the respective tariff order.*

4.34 Considering the Commission's order on T&D losses, the Commission approves the T&D loss trajectory as tabulated below for FY 2014-15.

Table 134: T&D Loss trajectory set by the Commission for FY 2014-15

Particulars	2014-15
T&D Loss %	16%

4.35 Hence Commission has arrived at the energy requirement for TANGEDCO considering the approved sales and losses as per Suo-Motu order on distribution losses dated 4th June 2013. In addition, the Commission has adopted an approach which is different than that followed in its last order. Commission is not treating the distribution loss and transmission loss separately, and is estimating the total energy loss at the prescribed percentage to arrive at the total energy requirement. This departure from the approach followed in the last order has been adopted because, the segregation of losses at various voltage levels does not allow for the recovery of the total stipulated loss percentage for that year. The energy balance and energy required by TANGEDCO for FY 15 is tabulated below. The energy requirement has been arrived considering approved sales and losses.

Table 135: Energy required by TANGEDCO at TN Periphery for FY 2014-15

Parameter	FY 2014-15
Total Sale (MU)	64,844
Additional Power to Kadamparai (MU)	32
Total Energy required (MU)	**64,876**
Total Losses (%)	16.00%
Total Losses (MU)	12,357
Energy input at TN Periphery (MU)	**77,234**

Fixed Expenses

4.36 In this section, expenses related to fixed cost for FY 2014-15 has been analysed and approved by the Commission.

Operation and Maintenance Expenses

4.37 In the process of the approval of O&M expenses the Commission is guided by following regulations.

Regulation-25 of Amended TNERC Tariff Regulations as per Notification No.TNERC / TR /5/2-11 dated 09th April 2014:

"25. Operation and Maintenance Expenses

1. *The operation and maintenance expenses shall be derived on the basis of actual operation and maintenance expenses for the past five years previous to current year based on the audited Annual Accounts excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission. The Commission may, if considered necessary engage Consultant / Auditors in the process of prudence check for correctness.*
2. ***The average of such normative operation and maintenance expenses after prudence check shall be escalated at the rate of 5.72% per annum to arrive at operation and maintenance expenses for current year** i.e. base year and ensuing year.*
3. *The base operation and maintenance expenses so determined shall be escalated further at the rate of 5.72% per annum to arrive at permissible operation and maintenance expenses for the relevant years of tariff period.*

…"

4.38 As per the Regulation the actual expenses incurred in the past five years shall be considered for projecting the O&M expenses. However considering the fact that power utilities have been unbundled from Nov 1st, 2010 and that TANGEDCO is currently maintaining separate accounts, Commission is of the view that it is not appropriate to project the expenses for FY 2014-15 based on the actual expenses incurred prior to unbundling of power utilities. Hence in this order Commission projects the O&M expenses based on audited accounts of FY 2010-11 and FY 2011-12 and applying appropriate escalation rates to the base year figures.

4.39 In following sections each component of O&M expenses will be discussed in detail and Commission's approval for the same will be accorded.

Employee Expenses

4.40 Commission has arrived at the employee expenses for FY 2013-14 during the performance review exercise considering the expenses approved in last Tariff Order for FY 2012-13 as base. For projecting the employee expenses for FY 2014-15 Commission has considered the employee expenses approved for FY 2013-14 as base.

4.41 Commission in accordance with its amended tariff regulation has escalated the approved employee expenses for FY 2013-14 at 5.72% on all components except for DA for arriving at the employee expenses for FY 2014-15.

4.42 DA has been compiled based on the pay revisions duly declared by the Government of Tamil Nadu during the respective years. For FY 2014-15, DA rates have been escalated at 22.8% which is the CAGR of actual DA rates for the period FY 2010-11 to FY 2013-14.

4.43 The employee expense capitalization for generating stations has been arrived by taking the same percentage as considered in the last tariff order. However, for distribution business the Commission has relied on average employee capitalization of 9% based on historical data.

4.44 Based on the above approach and methodology, the employee costs approved by the Commission are tabulated below:

Table 136: Employee expenses approved by the Commission for FY 2014-15 (Rs. Cr.)

Particulars	Last TO	Commission
Ennore TPS	78.78	84.95
Tuticorin TPS	110.06	119.15
Mettur TPS	98.16	106.31
North Chennai TPS	71.06	76.68
Total Coal	**358.06**	**387.09**
Tirumakottai GTPS	5.22	5.67
Kuttalam GTPS	2.79	3.02
Basin Bridge GTPS	4.67	5.04

Valuthur GTPS	7.83	8.44
Total Gas	**20.51**	**22.16**
Erode HEP	34.90	37.90
Kadamparai HEP	20.02	21.56
Kundah HEP	32.04	34.54
Tirunelveli HEP	25.98	27.98
Total Hydro	**112.94**	**121.97**
Total Generation	**491.51**	**531.23**
Distribution	**3,892.30**	**4,125.12**
TANGEDCO	**4,383.81**	**4,656.34**

Repair and Maintenance Expenses

4.45 In last year tariff order for generating stations the five months R&M expenses as per audited accounts were increased pro-rata basis to arrive at annual expenses which were later escalated at 4% based on TNERC regulation to arrive at expenses equivalent to FY 2011-12. The average of this escalated R&M expense and actual R&M expense for FY 2011-12 was used as base and again escalated at 4% year on year to arrive at R&M expenses for FY 2013-14.

4.46 However for few generating stations where the R&M expenses were observed to be significantly higher or lower than the historical R&M expenses the base year above which escalation was to be applied was taken appropriately.

4.47 For generating stations R&M expenses for FY 2014-15 have been arrived at by escalating the approved R&M expenses for FY 2013-14 at 5.72% in accordance with the amended tariff regulation.

4.48 The R&M expenses for FY 2014-15 of distribution business are also arrived by considering similar methodology adopted for most of the generating stations. The expense of FY 2013-14 is escalated by 5.72% for arriving at the R&M expenses for FY 2014-15.

4.49 R&M expenses approved by the Commission have been tabulated below:

Table 137: R&M expenses approved by the Commission for FY 2014-15 (Rs. Cr.)

Particulars	Last TO	Commission
Ennore TPS	43.10	43.81
Tuticorin TPS	41.88	42.56
Mettur TPS	30.38	30.88
North Chennai TPS	63.35	64.39
Total Coal	**178.71**	**181.65**
Tirumakottai GTPS	4.68	4.76
Kuttalam GTPS	4.01	4.08
Basin Bridge GTPS	1.96	2.00
Valuthur GTPS	1.49	1.52
Total Gas	**12.15**	**12.36**

Erode HEP	1.12	1.14
Kadamparai HEP	1.81	1.84
Kundah HEP	1.83	1.86
Tirunelveli HEP	1.46	1.48
Total Hydro	**6.22**	**6.32**
Total Generation	**197.07**	**200.33**
Distribution	**70.54**	**71.70**
TANGEDCO	**267.51**	**272.03**

Administrative and General Expenses

4.50 Similar to projection of R&M, the A&G expenses for generating stations and distribution business have been arrived at by escalating the approved expenses for FY 2013-14 at 5.72% in accordance with amended tariff regulations. The A&G expenses approved by the Commission are tabulated below:

Table 138: A&G expenses approved by the Commission for FY 2014-15 (Rs. Cr.)

Particulars	Last TO	Commission
Ennore TPS	9.52	9.67
Tuticorin TPS	16.56	16.84
Mettur TPS	13.42	13.65
North Chennai TPS	10.82	11.01
Total Coal	**50.33**	**51.17**
Tirumakottai GTPS	2.60	2.64
Kuttalam GTPS	1.79	1.82
Basin Bridge GTPS	1.88	1.91
Valuthur GTPS	4.17	4.24
Total Gas	**10.45**	**10.61**
Erode HEP	5.74	5.83
Kadamparai HEP	8.33	8.47
Kundah HEP	16.47	16.75
Tirunelveli HEP	5.35	5.43
Total Hydro	**35.89**	**36.47**
Total Generation	**96.67**	**98.26**
Distribution	**105.08**	**106.81**
TANGEDCO	**201.75**	**205.07**

Operation and Maintenance expenses for new generating stations

4.51 The TNERC tariff regulations sets the following guidelines for determination of O&M expenses of the new generating stations:

"25. Operation and Maintenance Expenses

In case of the thermal power generating stations declared under commercial operation on or after the notification of these Regulations, the base operation and maintenance expenses shall be fixed at 1.0% of the actual capital cost (as admitted by the Commission), in the year of commissioning and shall be subject to an annual escalation of 5.72% per annum for the subsequent years."

4.52 The Commission in last tariff order had provisionally approved capital costs submitted by TANGEDCO of the new power plants. Based on the submissions made and the revised actual CoD of the new plants, Commission has computed the following O&M expenses for the new generating stations.

Table 139: O&M expenses for new thermal stations approved by the Commission (Rs. Cr)

Name of the power plant	Capital cost as filed in the Petition (including IDC) – Rs. Crore	O&M expenses at 1% of capital cost – Rs. Crore	Date of Commissioning	O&M expenses approved for the financial year of commissioning – Rs. Crore
MTPS Stage – III	3550	35.50	October 2013	17.75
NCTPS Stage II – Unit 1	5814	58.14	March 2014	2.24
NCTPS Stage III – Unit 2			May 2014	26.65
Ennore Expansion	4012	40.12	January 2016	10.03

4.53 Based on the actual CoD of the new generating stations, O&M expenses approved for FY 2014-15 are tabulated below:

Table 140: O&M expenses for new thermal stations approved by the Commission for FY 2014-15 (Rs. Cr)

Name of the power plant	Last TO	Commission
MTPS Stage – III	36.92	37.53
NCTPS Stage II – Unit 1	60.47	30.73
NCTPS Stage III – Unit 2		26.65
Ennore Expansion	-	-

4.54 Based on the above approved employee expenses, A&G expenses, R&M expenses for existing generating stations and the O&M expenses for new generating stations, the total O&M expenses approved by the Commission for FY 2014-15 is given below.

Table 141: O&M expenses approved by Commission for FY 2014-15 (Rs. Cr.)

Particulars	Last TO	Commission
Ennore TPS	131.40	138.44
Tuticorin TPS	168.50	178.55
Mettur TPS	141.96	150.84
North Chennai TPS	145.23	152.08
NCTPS Stage-II (Unit 1)	60.47	30.73
NCTPS Stage-II (Unit 2)		26.65
MTPS Stage-III	36.92	37.53

Total Coal	**684.48**	**714.82**
Tirumakottai GTPS	12.50	13.07
Kuttalam GTPS	8.59	8.92
Basin Bridge GTPS	8.51	8.95
Valuthur GTPS	13.49	14.20
Total Gas	**43.09**	**45.14**
Erode HEP	41.76	44.87
Kadamparai HEP	30.16	31.86
Kundah HEP	50.34	53.14
Tirunelveli HEP	32.79	34.90
Total Hydro	**155.05**	**164.77**
Total Generation	**882.62**	**924.72**
Distribution	4,067.92	4,303.62
TANGEDCO	**4,950.54**	**5,228.35**

Capital Expenditure and capitalization

4.55 Regulation 17 (5) of the Tariff Regulations, 2005 and Regulation 3 (v)of the Tariff Regulation under MYT framework specifies that the licensee shall get the capital investment plan approved by the Commission before filing ARR and Application for determination of Tariff.

4.56 As per the APTEL's judgement on Appeal No 196 of 2013 dated 18th October 2014 reproduced in Chapter A3 the Commission has relooked at the approach for considering capex and capitalization and would require the capital investment plan to be submitted by TANGEDCO pending which it has provisionally considered the capex and capitalization for all generation plants and distribution business same as last tariff order.

4.57 However the capitalization of Rs. 2907.02 crores for NCTPS Stage-II unit-II which was accounted in FY 2013-14 as per last tariff order has been taken to FY 2014-15 since the plant got commissioned in May 2014. Also as indicated in last tariff order the capital expenditure for Ennore expansion has been revised based on budgeted estimates.

4.58 Commission reiterates the following directions and observations made in Chapter - A3

a) Reconcile its accounts with respect to capital expenditure and prepare the scheme wise data as per the formats specified by the Commission.

b) File the progress of the capital expenditure and capitalization on quarterly basis.

c) Finalize its transfer scheme through GoTN at the earliest and reconcile the GFA, CWIP and capitalization schedules.

4.59 The actual capital expenditure for FY 2014-15 will be reviewed based on audited accounts and the impact of final transfer scheme. Prudence verification based on scheme wise data to be submitted by TANGEDCO will be done during the truing-up process.

4.60 The capital expenditure and capitalization provisionally approved in this order is tabulated below.

Table 142: Capital expenditure and capitalization approved by Commission for generating stations and distribution businesses for FY 2014-15 (Rs. Cr)

Plant	Capital Expenditure	Capitalization
Ennore TPS	9.90	9.54
Tuticorin TPS	109.39	105.41
Mettur TPS	104.57	100.77
North Chennai TPS	59.73	57.56
NCTPS Stage-II (Unit 1)	12.75	6.13
NCTPS Stage-II (Unit 2)	12.75	2,913.15
MTPS Stage-III	12.50	6.25
Ennore Expansion	650.00	-
Total Thermal	**971.59**	**3,198.80**
Tirumakottai GTPS	6.40	6.17
Kuttalam GTPS	4.22	4.07
Basin Bridge GTPS	0.99	0.95
Valuthur Unit-I	5.97	5.75
Valuthur Unit-II		
Total Gas	**17.58**	**16.94**
Erode HEP	1.65	80.22
Kadamparai HEP	1.12	1.08
Kundah HEP	175.90	0.86
Tirunelveli HEP	1.78	44.78
Total Hydro	**180.45**	**126.94**
Tirunelveli	-	-
Udumalpet	-	-
Total Wind	**-**	**-**
Cogen Sugar Mills Under Modernisation	-	385.73
Total Generation	**1,169.62**	**3,728.41**
Total Distribution	**2,512.30**	**2,502.88**
TANGEDCO	**3,681.92**	**6,231.29**

Depreciation

4.61 TNERC Tariff Regulations 2005 specifies following guidelines for calculation of depreciation:

24. Depreciation

For the purpose of tariff, depreciation shall be computed in the following manners:

i. *The value base for the purpose of depreciation shall be historical cost of the asset.*
ii. *The depreciation shall be calculated at the rates as per the Annexure to these Regulations.*
iii. *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.*
iv. *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.*
v. *The historical cost of the asset shall include additional capitalisation.*
vi. *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.*
vii. *After the assets are fully depreciated the benefit of reduced tariff shall be made available to the consumer.*

4.62 The Commission has found merit in the stakeholder comments raised on calculation of depreciation. The stakeholder comments highlight that the Hon'ble CERC regulations on depreciation includes the condition that asset values have to be provided according to vintage and higher depreciation rates are allowable only on assets less than 12 years old. Hence Commission has considered this point just and has reverted back to the depreciation rates as was applicable prior to the amendment for all old generating stations and distribution business.

4.63 However the Commission has considered the new depreciation rates as per the amended tariff regulation dated 09th April 2014 for the new plants of NCTPS Stage II (Unit 1 & 2) and Mettur Stage III since these assets are less than 12 years old.

4.64 The Commission, for the existing plants has considered opening GFA, additions and deductions to GFA that were approved in last tariff order. In case of hydro generating circles, Bhavani Barrage and Bhavani Kattlai considered under new hydro addition in last year order has been added back to Erode HEP circle in this order. Similarly, Periyar has been added back to Tirunelveli HEP circle.

4.65 For new plants, revised GFA has been considered for the calculation of depreciation. For new generating stations, Commission has allowed depreciation on pro-rata basis based on CoD during the first year of operation. The GFA considered and estimated depreciation is tabulated below:

Table 143: Opening GFA and depreciation approved by the Commission for FY 2014-15 (Rs. Crore)

Power Station	Opening GFA	Depreciation
Ennore TPS	1,116.51	39.56
Tuticorin TPS	2,021.67	69.69
Mettur TPS	1,245.59	40.57
North Chennai TPS	2,087.72	64.79
NCTPS Stage-II (Unit 1)	2,907.02	143.58
NCTPS Stage-II (Unit 2)	2,913.15	131.90
MTPS Stage-III	3,550.00	170.67
Total Coal	**15,841.66**	**660.76**
Tirumakottai GTPS	463.39	16.34
Kuttalam GTPS	505.56	17.71
Basin Bridge GTPS	553.05	19.81
Valuthur GTPS	631.53	22.30
Total Gas	**2,153.54**	**76.16**
Erode HEP - (incl. Bhavani Barrage and Bhavani Khattalai)	1,877.40	54.94
Kadamparai HEP	366.69	10.60
Kundah HEP	959.12	25.23
Tirunelveli HEP (incl - Periyar)	557.82	16.18
Total Hydro	**3,761.02**	**106.95**
Tirunelveli	206.45	0
Udumalpet	136.41	0
Total Wind	**342.86**	**0**
Total Generation	**22,099.08**	**843.87**
Total Distribution	**12,769.35**	**435.26**
TANGEDCO	**34,868.43**	**1279.13**

Interest on long term loans and other financing charges

4.66 As per norms specified in Tariff Regulations 2005, Commission has determined interest expenses corresponding to long term loans and interest on working capital separately.

4.67 In Chapter A3, Commission has detailed the procedure followed in determining interest on long term loans and other financing charges. Commission would like to reiterate that it has treated revenue account and capital account separately and has considered the following assumptions for the determination of interest expenses on long term loans:

i. Revised opening loans as on 1st November 2010 has been arrived considering the net addition during first seven months of FY 11 based on information provided by TANGEDCO.

ii. The repayment of existing loans as per audited accounts also includes the repayment of loans borrowed for revenue account. Commission is treating the revenue account separately and also allowing the interest expenses on account of regulatory asset approved in its last tariff order. Hence, allowing the borrowings and interest expenses corresponding to the repayment of loans borrowed for funding of revenue account will result in double accounting of the interest expenses allowed for funding the revenue gap. In view of this, Commission is accepting the opening loans as on 1st November 2010 and is assuming a repayment period of 10 years.

iii. The repayment period of new loans borrowed during FY 2014-15 is assumed to be 10 years

iv. The borrowings required for loan repayment will be estimated after taking into account the depreciation allowed during the year.

v. Loans required for the capital works will be arrived after considering the approved capital expenditure and available grants and consumer contribution during FY 2014-15. Equity required for funding the capital expenditure is assumed to be nil as Commission is not allowing any return on equity.

vi. The consumer contribution and grants for FY 12, FY 13 and FY 14 has been considered as per audited annual statement of accounts

vii. Interest expenses on account of capital works for wind assets has not been considered as borrowings on account of wind assets cannot be loaded on tariff for other generating stations and distribution business. Commission has already approved generation cost for wind assets based on transfer price mechanism.

viii. Interest on cogeneration sugar mills is also not considered as the tariff for these generating stations is taken as per Commission's tariff order for procurement of power from cogeneration.

ix. Average interest rate for FY 11 and FY 12 is estimated based on interest expenses as per audited accounts and revised loan profile considering the borrowings during the first seven months of FY 11. Interest rate for FY 13 is assumed as 11.98% i.e. the average interest rate of FY 11 and FY 12. For the years FY 14 and FY 15, Commission has considered the average interest rate of FY 11 to FY 13 of 12%.

x. Interest during construction (IDC) is approved based on capital works in progress.

4.68 Since any further information on the nature of existing and any new loans is unavailable, Commission is retaining the same loan structure as approved in last tariff order for FY 2014-15. However, for new plants, Commission has considered addition to loans based on their respective CoD and capital expenditure required for such new plants.

4.69 The details of loan profile and interest expenses approved by the Commission corresponding to capital expenditure and repayment of loans are given below.

Table 144: Borrowings considered for funding capital expenditure (Rs. Cr)

Particulars	2014-15
Capital Expenditure	3,681.92
Less: Consumer Contribution	412.32
Less: Grants	80.12
Loans required for funding capital expenditure	**3,189.48**

Table 145: Borrowings considered for repayment of loans (Rs. Cr)

Particulars	2014-15
Repayment of Existing loans (As on Nov 1, 2010)	1,874.72
Repayment of new loans	3,138.62
Less: Depreciation	1279.19
Loans required for repayment of loans	**3,734.15**

Table 146: Average interest rate estimated for FY 2014-15

Parameter	2010-11	2011-12	2012-13	Average
Opening Loans (Rs. Cr)*	18,747	20,726	26,046	
Closing Loans (Rs. Cr)*	20,726	26,046	28,294	
Average Loans (Rs. Cr)	19,737	23,386	27,170	
Interest Charged (Rs. Cr)	2,617	2,504	3,256	
Average interest rate	**13.26%**	**10.71%**	**11.98%**	**12%**

**Revised loan profile considering first seven months loan transactions in FY 11*

Table 147: Loan profile and Interest expenses approved by the Commission for FY 2014-15 (Rs. Cr)

Particulars	FY 2014-15
Loan Profile	
Op. Balance	**31,187**
Add: Addition for CAPEX	3,189
Add: Addition for Loan Repayment	3,734
Less: Loan Repayment	5,013
Closing Balance	**33,097**
Gross Interest Expenses	3,857
IDC	555
Net Interest Expenses	**3,302**

4.70 The Commission has retained project wise long term loan allocation as approved in last tariff order, except for new plants where allocation has been made based on their CoD and revised capex numbers. . The interest expenses approved by the Commission based on loan allocation among generating stations and distribution is tabulated below:

Table 148: Interest expenses on long term loans for TANGEDCO approved by Commission for FY 2014-15 (Rs. Cr)

Power Station	Last TO	Commission
Ennore TPS	104.47	104.62
Tuticorin TPS	136.21	136.41
Mettur TPS	82.23	82.35
North Chennai TPS	108.82	108.97
NCTPS Stage-II (Unit 1)	671.27	339.66
NCTPS Stage-II (Unit 2)	-	166.88
MTPS Stage-III	373.76	375.56
Total Coal	**1,476.76**	**1,314.44**
Tirumakottai GTPS	44.36	44.43
Kuttalam GTPS	53.99	54.07
Basin Bridge GTPS	14.05	14.07
Valuthur GTPS	107.98	108.14
Total Gas	**220.38**	**220.70**
Erode HEP - (incl. Bhavani Barrage and Bhavani Khattalai)	220.59	221.14
Kadamparai HEP	33.43	33.48
Kundah HEP	121.01	121.19
Tirunelveli HEP (incl - Periyar)	68.86	68.74
Total Hydro	**443.89**	**444.55**
Cogen Sugar Mills Under Modernisation	**-**	**-**
Total Generation	**2,141.03**	**1,979.71**
Distribution	**1,147.27**	**1,213.55**
TANGEDCO	**3,288.30**	**3,193.26**

4.71 Commission has approved the interest expenses incurred on consumer security deposits to the extent of working capital requirement determined by the Commission based on the norms specified in the TNERC Tariff Regulation, 2005 for distribution business. The interest rate has been considered at 9% in accordance to its order on interest on consumer security deposit dated 5th February 2013.

4.72 As per last tariff order Commission has not allowed the interest expenses on GPF as it has not considered GPF reserve for funding of capital expenditure. The interest expenses on consumer security deposits and other finance charges approved by the Commission are tabulated below.

Table 149: Interest on consumer deposits and other finance charges approved by the Commission for FY 2014-15 (Rs. Cr)

Parameter	Last TO	Commission
Interest on consumer security deposits	505.23	592.46
Guarantee charges	39.04	62.11
Other charges	48.1	33.83
Total	**592.37**	**688.40**

4.73 The overall interest and other finance charges approved by the Commission for the distribution business for FY 2014-15 is given below.

Table 150: Interest and other finance charges approved for distribution business for FY 2014-15 (Rs. Cr)

Parameter	Last TO	Commission
Interest on long term loans	1,147.27	1,213.55
Interest on consumer security Deposits	505.23	592.46
Other finance charges	87.14	95.94
Total interest and finance charges	**1,739.64**	**1,901.95**

Return on Equity

4.74 Commission in Chapter A3 has discussed in detail its stand on not allowing return on equity. In accordance to the stand taken, Commission is not allowing return on equity for TANGEDCO during FY 2014-15 due to following reasons:

i. Commission has approved interest on total outstanding loans as on November 2010
ii. Based on available sources of funding, equity has been diverted towards revenue account from FY 2003 and hence the addition in equity base as per audited accounts is on account of funding the revenue expenditure and not for creation of capital assets.
iii. Loans approved for funding the capital expenditure for generating stations and distribution business during the control period are without considering the equity

Interest on Working Capital

4.75 Commission in its last tariff order had approved interest on working capital for all the generating stations based on its Tariff Regulations and relevant guidelines. The same are reproduced below:

"26. Working Capital

(2) Till such a formula is evolved, the norms for Working Capital shall be as below:
(a) For Coal based / Lignite fired Generating Stations

(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; and
(v) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on .target availability.

(b) For Gas Turbine / combined cycle Generating Stations
(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) For Hydro Power Generating Stations
The working Capital shall cover:
(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.

(e) For Distribution System
(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 day consumption charges.

27. Interest on Working Capital
The short term rate of interest on working capital shall be on normative basis and shall be equivalent to the primary lending rate of State Bank of India as on 1st April of the relevant year."

4.76 Commission has estimated the interest on working capital for generating stations considering the variable costs and fixed costs approved in this Order and interest rates as considered in last year tariff order.

Table 151: Interest on working capital approved by the Commission for FY 2014-15 (Rs. Cr)

Power Station	Last TO	Commission
Ennore TPS	21.79	22.80

Power Station	Last TO	Commission
Tuticorin TPS	121.39	128.27
Mettur TPS	100.45	101.67
North Chennai TPS	71.01	71.90
NCTPS Stage-II (Unit 1)	112.82	72.00
NCTPS Stage-II (Unit 2)	58.62	53.52
MTPS Stage-III		87.65
Tirumakottai GTPS	7.51	10.16
Kuttalam GTPS	7.43	10.06
Basin Bridge GTPS	4.72	7.94
Valuthur GTPS	12.52	17.85
Erode HEP - (incl. Bhavani Barrage and Bhavani Khattalai)	11.40	11.25
Kadamparai HEP	2.74	2.80
Kundah HEP	6.87	6.99
Tirunelveli HEP (incl - Periyar)	3.76	4.12
Total Generation	**543.03**	**608.99**

4.77 For Distribution business, Commission has approved interest on security deposits to the extent of working capital requirement under interest on loans and hence Commission is of the view that interest on working capital for distribution business can only be allowed on working capital requirement above the consumer security deposits.

4.78 Consumer security deposit is estimated based on historical trend of increase in consumers and average security deposit per consumer. Net working capital requirement is estimated considering the norms. The working capital requirement and available consumer security deposit for the control period is tabulated below.

Table 152: Approved working capital requirement and available consumer security deposits for FY 2014-15 (Rs. Cr)

Particulars	Last TO	Commission
O & M expenses	338.99	358.64
Maintenance Spares	21.20	21.28
Receivables	5,253.44	6,202.96
Total Working Capital	5,613.71	6,582.88
Available Consumer Security Deposits	6,625.57	6,947.81
Net Requirement	**(1,011.86)**	**(364.92)**

4.79 From the above table it can be observed that available consumer security deposits are more than the working capital requirement. In view of this Commission is not approving any interest on working capital as it has already approved interest on consumer security deposits in interest and finance charges.

Other Debits

4.80 In last tariff order Commission had not allowed the other debits claimed by TANGEDCO as part of O&M expenses of power plants. The rationale being that these expenses cannot be allowed as Commission had already approved the O&M expenses in this order and all the operating expenses must be met through approved O&M expenses

4.81 Commission retains its stand for the current tariff order by considering the same expenses that were allowed in last tariff order and is not allowing any escalation for such expenses. The approved other debits in this order by the Commission is tabulated below.

Table 153: Other debits approved by the Commission for generating stations for FY 2014-15 (Rs. Cr)

Power Station	Last TO	Commission
Ennore TPS	0.20	0.20
Tuticorin TPS	0.30	0.30
Mettur TPS	0.20	0.20
North Chennai TPS	0.40	0.40
Tirumakottai GTPS	0.10	0.10
Kuttalam GTPS	0.06	0.06
Basin Bridge GTPS	0.10	0.10
Valuthur GTPS	0.20	0.20
Erode HEP - (incl. Bhavani Barrage and Bhavani Khattalai)	0.12	0.12
Kadamparai HEP	0.10	0.10
Kundah HEP	0.20	0.20
Tirunelveli HEP (incl - Periyar)	0.10	0.10
Total Generation	**2.08**	**2.08**

4.82 For Distribution business, as information on other debit expenses is not available, Commission is considering expenses that were approved in last tariff order.

4.83 As per the "*Amendments to the Terms and Conditions for determination of Tariff Regulations*" dated 09th April 2014 provision of 0.25% of the receivables for writing off bad and doubtful debts has been omitted. Therefore, in the current order Commission has excluded such provision in its calculation of other debit expenses.

Table 154: Other Debits for Distribution business approved by the Commission for FY 2014-15 (Rs. Cr)

Parameter	Last Order	Commission
Research & Development expenses	0.08	0.08
Bad & Doubtful debts written off (0.25% of receivables)	19.37	0.00
Miscellaneous losses and written off/provided for	6.23	6.23
Demand Side Management	-	0.00
Total	**25.68**	**6.31**
Less: Capitalization	0.01	0.01
Net expenses	**25.67**	**6.30**

Contribution for Contingency reserves

4.84 It is pertinent to mention that provision for contingency reserve is appropriate when utility is in revenue surplus and some portion of this surplus revenue can be contributed for contingency reserve. However, TANGEDCO until now has not been able to realize profits and has a revenue gap for FY 2014-15 and in this situation it is inapt to allow the expenses on account of contingency reserve. Hence, Commission has not allowed any contingency reserve.

Summary of fixed Cost approved for Distribution function

4.85 Based on above submissions, the summary of fixed cost approved for distribution function is tabulated below:

Table 155: Summary of fixed costs for Distribution business approved by the Commission for FY 2014-15 (Rs. Cr)

Particulars	Last TO	Commission
Operation and Maintenance Expenses	4,068.00	4,303.63
Depreciation	435.00	435.26
Interest and other finance charges	1,740.00	1,901.95
Other Debits	26.00	6.31
Prior Period Debit/(Credit) Charges	-	-
Reasonable Return / Return on Equity	-	-
Interest on Working Capital	-	-
Demand side management	-	-
Contribution for contingency reserve	-	-
Total	**6,269.00**	**6,647.15**

Expenses on account of Generation

4.86 In this Section, the Commission in accordance with TNERC (Terms and Conditions for determination of Tariff) Regulations, 2005 has analysed the expenses on account of Generation business of TANGEDCO for FY 2014-15.

4.87 In respect of components of Tariff for Generating Stations, Regulation-36 of TNERC Tariff Regulations, 2005 states as under:

"36. Components of Tariff

1. *The tariff for sale of power by the Generating Companies shall be of two part namely the Fixed Charges (recovery of annual capacity charges) and variable (energy) charges.*
2. *The Fixed (annual capacity) charges shall consist of the following elements:*
    a) *Interest on Loan Capital;*

b) Depreciation
c) Return on Equity;
d) Operation and Maintenance expenses; and
e) Interest on Working Capital:

3. The energy (variable) charges shall cover fuel cost."

4.88 Commission in accordance with its regulations is approving the capacity charges and variable cost on account of own generating stations and approach for the same is detailed below.

Capacity charges for own generating stations

4.89 In above sections, Commission has approved the fixed expenses with respect to generating stations for the first control period.

a) O&M expenses – Refer to Table 136, Table 137 and Table 138

b) Depreciation – Refer to Table 143

c) Interest on long term loans – Refer to Table 148

d) Return on Equity – Refer to Point 222

e) Interest on Working Capital – Refer to Table 151

f) Other Debits – Refer to Table 153

4.90 With respect to other income and plant wise proportions Commission is relying on last year tariff order for approving the same for generation stations.

4.91 Based on above submissions, the summary of fixed expenses for own generating stations as approved by the Commission in this order for FY 2014-15 are tabulated below.

Coal based thermal plants

Table 156: Fixed charges approved for existing coal based thermal plants for FY 2014-15 (Rs. Cr)

Parameter	Last TO				Commission			
	ETPS	TTPS	MTPS	NCTPS	ETPS	TTPS	MTPS	NCTPS
Depreciation	39.56	69.69	40.57	64.79	39.56	69.69	40.57	64.79
Interest on Loan Capital	104.47	136.21	82.23	108.82	104.62	136.41	82.35	108.97
Return on Equity	-	-	-	-	-	-	-	-
Operation and maintenance exp	131.40	168.50	141.97	145.23	138.44	178.55	150.84	152.08
Interest on Working Capital	21.79	121.39	100.45	71.01	22.80	128.27	101.67	71.90
Other Debit	0.20	0.30	0.20	0.40	0.20	0.30	0.20	0.40

Net Prior Period Expenses	-	-	-	-	-	-	-	-
Less: other income	29.66	46.83	45.06	22.07	29.66	45.06	46.83	22.07
Total	**267.76**	**449.26**	**320.36**	**368.19**	**275.96**	**468.16**	**328.80**	**376.07**

New coal based thermal plants

Table 157: Fixed charges approved for new coal based thermal plants for FY 2014-15 (Rs. Cr)

Parameter	Last TO			Commission		
	NCTPS Stage II (Unit 1)	NCTPS Stage II (Unit 2)	MTPS Stage III	NCTPS Stage II (Unit 1)	NCTPS Stage II (Unit 2)	MTPS Stage III
Depreciation	186.92		127.04	143.58	131.90	170.67
Interest on Loan Capital	671.27		373.76	339.66	166.88	375.56
Return on Equity	-		-	-	-	-
Operation and maintenance exp	60.47		36.92	30.73	26.65	37.53
Interest on Working Capital	112.82		58.62	72.00	53.52	87.65
Other Debit	-		-	-	-	-
Net Prior Period Expenses	-		-	-	-	-
Less: other income	-		-	-	-	-
Total	**1,031.47**		**596.34**	**585.97**	**378.95**	**671.40**

Gas based thermal plants

Table 158: Fixed charges approved for existing gas based thermal plants for FY 2014-15 (Rs. Cr)

Parameter	Last TO				Commission			
	TKGTPS	KGTPS	BBGTPS	VGTPS	TKGTPS	KGTPS	BBGTPS	VGTPS
Depreciation	16.34	17.71	19.87	22.30	16.34	17.71	19.87	22.30
Interest on Loan Capital	44.36	53.99	14.05	107.98	44.43	54.07	14.07	108.14
Return on Equity	-	-	-	-	-	-	-	-
Operation and maintenance exp	12.51	8.59	8.51	13.50	13.07	8.92	8.95	14.20
Interest on Working Capital	7.51	7.43	4.72	12.52	10.16	10.06	7.94	17.85
Other Debit	0.10	0.06	0.10	0.20	0.10	0.06	0.10	0.20
Net Prior Period Expenses	-	-	-	-	-	-	-	-
Less: other income	1.74	0.01	0.22	0.05	1.74	0.01	0.22	0.05
Total	**79.08**	**87.77**	**47.03**	**156.45**	**82.36**	**90.81**	**50.71**	**162.64**

Hydro generation circles

Table 159: Fixed charges approved for hydro generation circles for FY 2014-15 (Rs. Cr)

Parameter	Last TO				Commission			
	Erode	Kadamparai	Kundah	Tirunelveli	Erode	Kadamparai	Kundah	Tirunelveli
Depreciation	58.62	10.60	25.23	12.53	54.94	10.60	25.23	16.18

Interest on Loan Capital	220.59	33.43	121.01	68.86	221.14	33.48	121.19	68.74
Return on Equity	-	-	-	-	-	-	-	-
Operation and maintenance exp	41.76	30.16	50.35	32.78	44.87	31.86	53.14	34.90
Interest on Working Capital	11.40	2.74	6.87	3.76	11.25	2.80	6.99	4.12
Other Debit	0.12	0.10	0.20	0.10	0.12	0.10	0.20	0.10
Net Prior Period Expenses	-	-	-	-	-	-	-	-
Less: other income	0.29	0.34	1.22	4.27	0.29	0.34	1.22	4.27
Total	**332.20**	**76.68**	**202.44**	**113.76**	**332.0**	**78.5**	**205.5**	**119.8**

4.92 The recovery of capacity charges are governed by Regulation-42 of TNERC Tariff Regulations, 2005 which states as under:

"42. Recovery of Capacity Charges

1. *Full capacity charges (Fixed Charges) shall be recoverable at target availability specified in clause (1) of Regulation 37.*
2. *Recovery of capacity charges below the level of target availability will be on pro rata basis. At zero availability, no capacity charges shall be payable.…"*

4.93 The above capacity charges as determined by the Commission are to be recovered when TANGEDCO is able to meet the target in terms of norms set by the Commission. The norms specified for recovery of fixed charges as per TNERC regulation are stipulated below:

"37. Norms of Operation

The norms of operation for the Thermal Generating Stations shall be as under:

(i) Target availability for recovery of full capacity (fixed) charges

(a) All Thermal Generating stations in Tamil Nadu except Ennore Thermal Power Generating Station - 80%

(b) Ennore Thermal Power Generating Station - 50% (Till Renovation and Modernization works in all units are completed)

………"

4.94 In this order Commission has approved higher PLFs based on historical performance and stipulated regulation for own generating stations for estimating energy availability. However, in line with Commission's regulations the recovery of capacity charges will be guided by the norms mentioned above.

Variable cost for own generating stations

4.95 The Commission has worked out the variable cost for generating stations on the basis of approved fuel parameters for FY 2013-14 and considering the norms specified in the regulation.

4.96 The variable cost as determined by the Commission in respect of own generating stations of TANGEDCO is detailed as under:

Coal based generating stations

4.97 As per Regulation 43 (ii) of the Tarff Regulation, the Energy (Variable) charges shall be computed based on the ex-bus energy delivered / sent out from the generating station. Rate of energy charges is based on the following elements:

a) Price of primary fuel
b) Quantum of primary fuel (coal) in kg required for generation of one kWh of electricity at generator terminals, which shall be computed on the basis of Gross Station Heat Rate (less heat contributed by secondary fuel oil) and gross calorific value of coal.
c) Price of secondary fuel oil
d) Normative quantity of secondary fuel
e) Normative auxiliary consumption

The above elements have been discussed in detail as under:

Price of primary fuel

4.98 Commission in its last tariff order has approved the fuel costs for FY 2014-15 equal to the approved costs of FY 2013-14. This stance was adopted, as the Commission had directed TANGEDCO to recover its actual fuel cost for the year through filing the quarterly FPCA petitions for approval.

4.99 The Commission has taken cognisance of the comments received from various stakeholders and has thus adopted the same approach as it did in its last tariff order for approving fuel cost. Hence the Commission has considered the actual fuel cost data approved for FY 2013-14 as the fuel cost for FY 2014-15 as well, to arrive at the fuel cost this year.

Table 160: Price of primary fuel approved by the Commission for FY 2014-15

Name of the Power Station	Unit	TANGEDCO	Commission
Ennore TPS	Rs./ MT	2,538	2,434
Tuticorin TPS	Rs./ MT	4,413	4,013
Mettur TPS	Rs./ MT	4,205	3,998
North Chennai TPS	Rs./ MT	3,576	3,623
NCTPS – Stage II (Unit 1)	Rs./ MT	3,871	3,606

Name of the Power Station	Unit	TANGEDCO	Commission
NCTPS – Stage II (Unit 2)	Rs./ MT	3,871	3,606
MTPS – Stage III	Rs./ MT	4,448	4,400
Tirumakottai GTPS	Rs./SCM	16.9	10.8
Kuttalum GTPS	Rs./SCM	18.3	11.3
Basin Bridge GTPS	Rs./MT	55,109	67,063
Valathur - Unit 1	Rs./SCM	18.3	10.6
Valathur - Unit 2	Rs./SCM	18.3	10.6

Gross calorific value

4.100 For FY 2014-15, in the absence of any information being submitted by TANGEDO, the Commission is considering GCV of primary fuel as was approved for FY 2014-15, in its last tariff order.

Table 161: Gross calorific value of primary fuel approved by the Commission – kCal/kg

Name of the Power Station	Unit	Last TO	TANGEDCO's submission	Commission
Ennore TPS	kCal/Kg	3,235	-	3,235
Tuticorin TPS	kCal/Kg	3,405	-	3,405
Mettur TPS	kCal/Kg	3,551	-	3,551
North Chennai TPS	kCal/Kg	3,615	-	3,615
NCTPS – Stage II (Unit 1)	kCal/Kg	3,615	-	3,615
NCTPS – Stage II (Unit 2)	kCal/Kg	3,615	-	3,615
MTPS – Stage III	kCal/Kg	3,551	-	3,551
Tirumakottai GTPS	kCal/SCM	10,000	-	10,000
Kuttalum GTPS	kCal/SCM	10,000	-	10,000
Basin Bridge GTPS	kCal/Kg	10,572	-	10,572
Valathur - Unit 1	kCal/SCM	10,000	-	10,000
Valathur - Unit 2	kCal/SCM	10,000	-	10,000

Station heat rate

4.101 Norms specified by Commission in its Regulation for "Terms and Conditions for Determination of Tariff Regulations – 2005" states:

"(iii) Gross Station Heat Rate

(a) Norms for the existing Coal-based Thermal Power Generating Stations

Station	*Heat Rate*
1. ETPS	*3200 kcal/kwh*
2. TTPS	*2453 kcal/kwh*

3. MTPS *2500 kcal/kwh*

4. NCTPS *2393 kcal/kw*

….."

4.102 The Commission, for FY 2014-15, has considered station heat rate as approved in its last tariff order in the absence of any information/projections from TANGEDCO.

Table 162: Station heat rate approved by the Commission (kCal/kWh)

Name of the Power Station	Last TO	TANGEDCO's submission	Commission
Ennore TPS	3,200	-	3,200
Tuticorin TPS	2,453	-	2,453
Mettur TPS	2,500	-	2,500
North Chennai TPS	2,393	-	2,393
NCTPS - Stage II (Unit 1)	2,450	-	2,450
NCTPS - Stage II (Unit 2)	2,450	-	2,450
Mettur Stage III	2,450	-	2,450
Tirumakottai GTPS	1,850	-	1,850
Kuttalum GTPS	1,850	-	1,850
Basin Bridge GTPS	3,219	-	3,219
Valathur - Unit 1	1,850	-	1,850
Valathur - Unit 2	1,850	-	1,850

Auxiliary consumption and Secondary fuel oil consumption

4.103 Commission has approved auxiliary consumption as projected by TANGEDCO for arriving at the estimated energy availability. It can be seen that apart from ETPS all plants are performing at or below the levels stipulated in the last order. However, for the purpose of estimation of variable cost per unit, Commission has used the normative auxiliary consumption as approved in the last tariff order. Auxiliary consumption approved by the Commission is tabulated below.

Table 163: Auxiliary consumption considered by the Commission for the purpose of variable cost calculations

Name of the Power Station	Last TO	TANGEDCO	Commission
Ennore TPS	15.00%	13.50%	15.00%
Tuticorin TPS	8.50%	8.50%	8.50%
Mettur TPS	8.50%	8.30%	8.50%
North Chennai TPS	8.50%	8.35%	8.50%
NCTPS - Stage II (Unit 1)	8.50%	9.15%	8.50%

NCTPS - Stage II (Unit 2)	8.50%	9.15%	8.50%
Mettur Stage III	8.83%	9.15%	8.83%
Tirumakottai GTPS	6.00%	6.65%	6.00%
Kuttalum GTPS	6.00%	7.15%	6.00%
Basin Bridge GTPS	0.99%	2.50%	0.99%
Valathur - Unit 1	6.00%	6.65%	6.00%
Valathur - Unit 2	6.00%	6.70%	6.00%

4.104 The norms for secondary fuel oil consumption for thermal stations as per TNERC tariff regulations, 2005 is given below:

"37. Norms of operation

(iv) Secondary fuel oil consumption

(a) Coal-based Generating Stations:

During stabilization period : 4.5 ml/kWh
Subsequent period (except ETPS) : 2.0 ml/kWh
ETPS : 12.ml/kWh

(b) Lignite fired Generating Stations:
During stabilization period : 5.0 ml/kWh
Subsequent period (except ETPS) : 3.0 ml/kWh"

4.105 TANGEDCO has submitted lower SFO consumption levels compared to the norms set by the tariff regulation. Commission has accepted the projection submitted by TANGEDCO. The SFO consumption for coal based stations approved by the Commission is tabulated below.

Table 164: Secondary fuel oil consumption approved by the Commission (ml/kWh)

Name of the Power Station	Last TO	TANGEDCO's submission	Commission
Ennore TPS	12.00	10.10	10.10
Tuticorin TPS	2.00	2.39	2.39
Mettur TPS	2.00	1.40	1.40
North Chennai TPS	2.00	1.76	1.76
NCTPS - Stage II (Unit 1)	2.00	1.84	1.84
NCTPS - Stage II (Unit 2)	2.00	1.84	1.84
Mettur Stage III	2.00	1.47	1.47

Price of secondary fuel

4.106 Commission in its last tariff order has approved the fuel costs for FY 2014-15 equal to the approved costs of FY 2013-14, as it allowed for TANGEDCO to recover the actual cost through the quarterly FPCA petitions. The Commission has taken cognisance of the comments received from various stakeholders and has thus adopted the same approach as it did in its last tariff order for approving fuel cost. Hence the Commission has considered the actual fuel cost data approved for FY 2013-14 as the fuel cost for FY 2014-15 as well, to arrive at the fuel cost this year. The cost of secondary fuel approved by the Commission is tabulated below:

Table 165: Cost of secondary fuel approved by the Commission (Rs./kL)

Name of the Power Station	Last TO	TANGEDCO's submission	Commission
Ennore TPS	49,112	53,055	50,528
Tuticorin TPS	47,916	43,420	41,352
Mettur TPS	47,417	40,030	38,124
North Chennai TPS	47,346	40,070	38,162
NCTPS – Stage II (Unit 1)	47,346	40,070	38,124
NCTPS – Stage II (Unit 2)	47,346	40,070	38,162
MTPS – Stage III	47,417	40,030	38,162

GCV of the secondary fuel

4.107 For FY 2014-15, in the absence of any information from TANGEDCO, the Commission is considering GCV of secondary fuel as was approved for FY 2014-15 in its last tariff order.

Table 166: GCV of secondary fuel approved by the Commission (kCal/lt)

Name of the Power Station	Last TO	TANGEDCO's submission	Commission
Ennore TPS	10,502	-	10,502
Tuticorin TPS	10,639	-	10,639
Mettur TPS	10,466	-	10,466
North Chennai TPS	10,343	-	10,343
NCTPS – Stage II (Unit 1)	10,343	-	10,343
NCTPS – Stage II (Unit 2)	10,343	-	10,343
MTPS – Stage III	10,466	-	10,466

Variable Cost for Thermal generating stations

4.108 On the basis of above considerations, Commission has calculated the variable cost for all the coal based power stations of TANGEDCO which is tabulated as under. Commission has estimated the variable cost – ex bus considering the entire fuel cost including oil.

Table 167: Variable Cost approved by the Commission for ETPS, TTPS, MTPS and NCTPS for FY 2014-15

Description	Unit	ETPS	TTPS	MTPS	NCTPS
Capacity	MW	340	1050	840	630
Gross Station Heat Rate	Kcal/kWh	3200	2453	2500	2393
Secondary fuel oil consumption	ml/kWh	10.10	2.39	1.40	1.76
Average calorific value of oil	Kcal/l	10502	10639	10466	10343
Average calorific value of Coal	Kcal/Kg	3235	3405	3551	3615
Weighted average price of oil	Rs./Kl	50528	41352	38124	38162
Average landed cost of coal	Rs./MT	2434	4013	3998	3623
Rate energy charges from Oil	Paisa/kWh	51.01	9.88	5.34	6.70
Heat contributed from Oil	Kcal/kWh	106.02	25.43	14.66	18.16
Heat contributed from Coal	Kcal/kWh	3093.98	2427.57	2485.34	2374.84
Specific consumption of coal	Kg/kWh	0.96	0.71	0.70	0.66
Rate of energy from Coal	Paisa/kWh	232.76	286.14	279.79	238.04
Variable Cost – Gross	Paisa/kWh	283.77	296.02	285.13	244.74
Auxiliary Consumption	%	0.15	0.09	0.09	0.09
Variable Cost - Ex bus	**Paisa/kWh**	**333.84**	**323.52**	**311.62**	**267.48**
Previous Tariff Order	Paisa/kWh	386.93	296.06	309.15	254.70

** Capacity of 110 MW is to be decommissioned in FY 2014-15. Hence the reduced capacity*

Table 168: Variable Cost approved by the Commission for NCTPS Stage II (Unit 1 & Unit 2) and MTPS Stage III for FY 2014-15

Description	Unit	NCTPS Stage II (Unit 1)	NCTPS Stage II (Unit 2)	MTPS Stage III
Capacity	MW	600	600	600
Gross Station Heat Rate	Kcal/kWh	2450	2450	2450
Secondary fuel oil consumption	ml/kWh	1.84	1.84	1.47
Average calorific value of oil	Kcal/l	10343	10343	10466
Average calorific value of Coal	Kcal/Kg	3615	3615	3551
Weighted average price of oil	Rs./Kl	38162	38162	38124
Average landed cost of coal	Rs./MT	3606	3606	4400
Rate energy charges from Oil	Paisa/kWh	7.04	7.04	5.61
Heat contributed from Oil	Kcal/kWh	19.07	19.07	15.39
Heat contributed from Coal	Kcal/kWh	2430.93	2430.93	2434.61
Specific consumption of coal	Kg/kWh	0.67	0.67	0.69
Rate of energy from Coal	Paisa/kWh	242.50	242.50	301.70

Description	Unit	NCTPS Stage II (Unit 1)	NCTPS Stage II (Unit 2)	MTPS Stage III
Variable Cost – Gross	Paisa/kWh	249.54	249.54	307.31
Auxiliary Consumption	%	0.09	0.09	0.09
Variable Cost - Ex bus	**Paisa/kWh**	**272.72**	**272.72**	**337.08**
Previous Tariff Order	Paisa/kWh	260.57	260.57	303.12

Table 169: Variable Cost approved by the Commission for all Gas based thermal generating stations

Description	Unit	TGPS	KGTPS	BBGTPS	VGTPS-Unit 1	VGTPS-Unit 2
Capacity	MW	108	100	120	95	95
Gross Station Heat Rate	Kcal/kWh	1850	1850	3219	1850	1850
Average calorific value of gas	Kcal/SCM	10000	10000	10572	10000	10000
Average Cost of Gas	Rs./ SCM	10.84	11.26	67063	10.60	10.60
Rate of energy from Gas	Ps/ kWh	200.54	208.22	2041.96	196.01	196.01
Auxiliary Consumption	%	0.06	0.06	0.01	0.06	0.06
Rate of energy - Net Ex bus	Ps/ kWh	2.13	2.22	20.62	2.09	2.09
Net Generation	MU	711.45	665.34	59.43	625.81	606.05
Total Cost excluding Transportation	Rs. Crore	151.78	147.38	122.57	130.49	126.37
Transportation Cost	Rs. Crore	2.06	2.06	0.00	3.83	3.83
Total Cost	Rs. Crore	153.84	149.44	122.57	134.32	130.20
Variable Cost	**Ps/ kWh**	**216.24**	**224.60**	**2062.38**	**214.64**	**214.84**
Previous Tariff Order	Ps/ kWh	186.32	186.52	1249.33	178.52	179.12

Hydro Generation Circles

4.109 Clause 53 of TNERC Tariff Regulations, 2005 stipulates guidelines for recovery of primary energy charges.

"53. Computation of Annual Energy Charges

(1) The two part tariff for sale of electricity from a hydro power generating station shall comprise a recovery of annual capacity (fixed) charges and primary energy charges.

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(3) Primary Energy Charges shall be the operating expenses like cost of water, lubricants, consumables and station supplies."

4.110 In the absence of any projections regarding the energy charges being paid by TANGEDCO, Commission has considered the primary energy charges as approved in its last tariff order for FY 2014-15.

Table 170: Primary energy charges approved for Hydro Generation Circles (Rs. Cr)

Name of the Power Station	Last TO	Commission
Erode	0.04	0.04
Kundah	0.23	0.23
Kadamparai	0.00	0.00
Tirunelveli	0.26	0.26

Wind Generating Stations

4.111 The Commission as per Tariff Order dated 31st July 2010 ruled that in the order No.3 dated 15-05-2006, the Commission has determined a tariff of Rs.2.75 / unit for the wind power projects commissioned, and to be commissioned based on agreements executed prior to May 15, 2006. Accordingly the Commission allowed the rate of Rs. 2.75/ Unit in 30th June 2013 order. Similarly, Commission is approving the cost of wind generation from its own wind mills at Rs.2.75 per unit.

Power Purchase from other sources

4.112 Commission has computed the total power to be procured from other sources on the basis of the projections provided by TANGEDCO. TANGEDCO has excluded wheeling units in accordance to the approach adopted by the Commission in its last tariff order.

4.113 This section details out the approach adopted by the Commission for the purpose of determining cost of power procurement from other sources.

Central generating stations

4.114 The following table summarizes the charges approved in last tariff order.

Table 171: Power purchase cost from CGS approved in last tariff order for FY 2014-15

Source	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
NTPC SR (I&II)	3,952	227	1.68	664	891
NTPC SR III	988	92	2.00	198	290
NLC TS - I	3,469	292	2.24	777	1,069
NLC TS - II	3,188	177	1.98	631	808
NLC TS Expansion I	1,470	194	1.80	265	459
NTPC Talcher	3,361	278	1.41	474	752
NTPC Simhadri	1,556	271	1.99	310	581
MAPS	1,568	-	2.04	320	320
KAIGA	1,176	-	3.02	355	355
NTPC Vallur	7,092	1,064	2.00	1,418	2,482
Kudankulum	4,376	-	3.02	1,321	1,321

PFBR Kalpakkam	494	-	3.02	149	149
NLC TS - II Expansion	1,752	263	2.00	350	613
NLC - Tuticorin	2,643	397	2.00	529	925
Total	**37,086**	**3,255**	**2.09**	**7,761**	**11,016**

4.115 Commission has computed the capacity charges for each of the CGS as per the recent tariff orders issued by CERC and has apportioned them in the proportion of TN's share.

4.116 With regarding to the variable cost, the Commission has considered per unit variable charges as provided by TANGEDCO in its revised estimates of power purchase for CGS stations. The projections so made in almost all cases in lower than a 4% escalation over FY2013-14 costs except for NLCTS Expansion-I, NTPC Vallur (Units 1&2) and Kudankulam-Unit 1.

4.117 For new CGS, TANGEDCO has considered a bundled tariff of Rs. 4.25 per unit. Commission has provisionally considered a fixed cost of Rs. 1.75 per unit and variable cost of Rs. 2.50 per unit for all new CGS which includes coal based as well as nuclear stations. This number has been derived from the fact that new nuclear power costs approximately Rs 3.55 kWh, while coal based energy costs upto Rs. 4.35/ kWh. The power purchase expenses approved by the Commission in its order with respect to CGS have been tabulated below.

Table 172: Cost of energy available from CGS approved by the Commission for FY 2014-15

Source	TANGEDCO's submission					Commission				
	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
NTPC SR (I&II)	4,075	230	2.10	856	1,086	3,983	225	2.10	837	1,062
NTPC SR III	1,110	109	2.65	294	403	996	94	2.65	264	357
NLC TS - I	3,105	285	2.62	812	1,097	3,469	274	2.06	715	988
NLC TS - II	3,435	247	4.19	721	969	3,235	185	2.13	690	875
NLC TS Expansion I	1,575	190	2.14	337	527	1,469	194	3.03	445	639
NLC TS Expansion II	2,236	-	3.03	678	678	-	-	-	-	-
NTPC Talcher	3,550	268	1.58	559	828	3,323	284	1.58	524	808
NTPC Simhadri	1,650	252	2.37	391	643	1,532	269	2.37	363	632
MAPS	1,925	-	2.11	406	406	1,573	-	2.11	332	332
KAIGA	1,650	-	3.10	512	512	1,211	-	3.10	375	375
NTPC Vallur - Unit 1 & Unit 2	-	-	-	-	-	4,882	745	2.57	1,257	2,002
Kudankulam - Unit 1`	3,229	-	3.55	1,147	1,147	2,188	-	3.55	777	777

New Plants	7,204	1,181	5.32	1,871	3,052	4,988	873	2.50	1,247	2,120
NTPC ER	365	27	2.61	95	122	363	34	2.61	95	129
Total CGS	**35,109**	**2,789**	**2.47**	**8,681**	**11,470**	**33,212**	**3,176**	**2.38**	**7,920**	**11,097**

Independent Power Producers

4.118 Commission in its last order has approved power purchase cost equivalent to that of FY 2012-13, with no escalation for the projected years. The power purchase expenses allowed by the Commission in its last tariff order have been tabulated below.

Table 173: Cost of energy available from IPPs approved in the last tariff order

Source	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
GMR Vasavi	-	-	-	-	-
Samalpatti	472	109	10.18	480	589
Madurai Power	455	110	10.96	499	609
PPN	2,103	292	8.55	1,798	2,090
ST-CMS	1,665	364	2.32	385	749
ABAN	783	117	2.00	157	274
Penna	353	58	2.04	72	130
Total	**5,830**	**1,051**	**5.82**	**3,391**	**4,442**

4.119 TANGEDCO, in its estimates for FY 2014-15, has projected variable cost at an escalation ranging from 2% - 5% and provided for variable and capacity charges for GMR. Commission has not allowed any such capacity and variable charges after the expiry of PPA with GMR. Commission has not provided for any escalation of capacity and variable charges for FY 2014-15 and has considered the costs that were approved for FY 2013-14.

4.120 The power purchase expenses approved by the Commission for FY 2014-15 are tabulated below.

Table 174: Cost of energy available from IPPs approved by the Commission in FY 2014-15

Source	TANGEDCO's submission					Commission				
	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)	Units (MU)	Capacity Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Energy Charges (Rs. Crore)	Total Cost (Rs. Crore)
GMR Vasavi	212	77	10.60	225	302	-	-	-	-	-
Samalpatti	116	93	10.55	122	215	434	135	10.18	442	577
Madurai Power	114	111	10.46	119	230	424	136	10.96	465	601
PPN	356	85	10.56	376	461	2,036	122	8.55	1,741	1,862

ST-CMS	1,750	360	2.65	463	823	1,660	347	2.32	384	731
ABAN	725	107	4.36	316	423	783	120	2.00	156	277
Penna	390	56	4.38	171	227	356	55	2.04	73	128
Total	**3,663**	**890**	**4.89**	**1,792**	**2,682**	**5,693**	**915**	**5.73**	**3,261**	**4,176**

Non-conventional energy sources and Captive power plants

4.121 For existing purchase from renewable energy sources and captive power plants, Commission has considered the per unit energy charges equal to that approved for FY 2012-13.

4.122 The power purchase expenses from renewable energy sources and captive power plants filed by TANGEDCO and approved by the Commission are tabulated below.

Table 175: Power purchase expenses from renewable energy sources and CPP approved by the Commission for FY 2014-15

Particulars	Last TO			TANGEDCO's submission			Commission		
	Quantum (in MUs)	Variable Cost (Rs./Unit)	Total Cost (Rs. Crores)	Quantum (in MUs)	Variable Cost (Rs./Unit)	Total Cost (Rs. Crores)	Quantum (in MUs)	Variable Cost (Rs./Unit)	Total Cost (Rs. Crores)
Wind	7,145	3.12	2,229	6,575	3.25	2,137	5,228	3.41	1,783
Biomass	11	4.45	5	45	4.29	19	6	4.25	3
Cogeneration	2,230	3.67	819	800	4.54	363	817	3.59	293
Captive	595	3.94	234	210	4.44	93	427	3.75	160
Solar	16	4.62	7	162	6.48	105	97	5.37	52
NTPC NVVN	35	4.38	15	-	-	-	35	4.43	16
Co-Gen under Co-op Sugar Mills	-	-	-	593	3.45	205	-	-	-
Total	**10,032**	**3.30**	**3,309**	**7,792**	**3.49**	**2,717**	**6,610**	**3.49**	**2,306**

Power purchase from traders and other sources

4.123 In last tariff order Commission has approved quantity of power purchases only to the extent procured through Case 1 bidding procedure. The Commission has considered tariff for FY 2014-15 as equal to that approved in its last tariff order.

4.124 Commission has approved the levelized tariff for procurement of power from these sources through orders on P.P.A.P. No. 7 of 2012 and P.P.A.P No. 1 of 2012 dated 17th April 2013 and 21st June 2012 respectively. Commission has considered the approved levelised tariffs in these orders for the purpose of estimation of power purchase expenses.

Table 176: Levelized tariff approved by the Commission for case-1 bidding

Source	Capacity (MW)	Duration	Levelized Tariff (in Rs./Unit)
M/s Jindal Power	200	June 16, 2013 to Nov 30, 2015	4.92
M/s Adani Power	200	June 16, 2013 to Dec 31, 2015	4.99
M/s Lanco Power	100	June 16, 2013 to May, 2016	4.88

4.125 Power from case-1 bidding is procured under two-part tariff. Commission has considered the capacity charges in Rs./Unit as per the quotation of the bidders and then arrived at the variable cost per unit by reducing the per unit capacity charges from the approved levelized tariff. The per unit capacity charges considered by the Commission is tabulated below.

Table 177: Capacity charges considered by the Commission for procurement of power under case-1 bidding (Rs./Unit)

Source	FY 2014-15
Jindal Power	2.20
Adani Power	1.69
Lanco Power	2.45

4.126 The following table details the capacity and levelized tariff that was approved by the Commission for FY 2014-15.

Table 178: Power purchases expenses from other sources approved for FY 2014-15

Particulars	Last TO			TANGEDCO's submission			Commission		
	Quantum (MUs)	Total Cost (Rs./Unit)	Total Cost (Rs. Crore)	Quantum (MUs)	Total Cost (Rs./Unit)	Total Cost (Rs. Crore)	Quantum (MUs)	Total Cost (Rs./Unit)	Total Cost (Rs. Crore)
Trading - Bilateral & Exchange				12,088	4.31	5,204			
UI				50	4.25	21			
CPP Traders				1,080	5.50	594			
KSEB Power				595	12.67	754			
Case 1 - Bidding (MTOA)									
Jindal Power	1,752	4.92	861				1,752	4.92	861
Adani Power	1,752	4.99	874				1,752	4.99	874
Lanco Power (NETS)	876	4.88	428				876	4.88	428
Total	**4,380**	**4.94**	**2,163**	**13,813**	**4.76**	**6,573**	**4,380**	**4.94**	**2,163**

Power Grid Corporation of India Limited (PGCIL) Charges

4.127 TANGEDCO has projected PGCIL charges considering an escalation of 10%. However, the Commission is not considering projections provided by TANGEDCO as the basis for such estimation has not been justified.

4.128 Commission has considered total units being wheeled from CGS stations along with any newly commissioned CGS for the purpose of calculating PGCIL charges. Per unit rate has been calculated as an average of the rate for the last three years. PGCIL charges approved by the Commission for FY 2014-15 have been tabulated below.

Table 179: PGCIL charges approved by the Commission for FY 2014-15 (Rs. Cr.)

Parameter	Last Order	TANGEDCO's submission	Commission
PGCIL - SR and ER wheeling	607	766	855
PGCIL - Reactive energy	0	0	27
Total	607	766	880

Intrastate Transmission Charges

4.129 Commission has determined the transmission charges applicable to TANGEDCO considering approved ARR adjusted for the cumulative revenue gap/ surplus of previous years as determined in **Order on SM.T.O. No. 2 of 2014** and the allotted transmission capacity of TANGEDCO. The intrastate transmission charges approved by the Commission for FY 2014-15 is given below.

Table 180: Transmission Charges payable to TANTRANSCO for FY 2014-15 (Rs. Cr.)

Parameter	Last TO	TANGEDCO's submission	Commission
Transmission charges payable to TANTRANSCO	2,850	2,317	1,692

Merit order Dispatch

4.130 The Commission 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 in FY 2014-15. Regulation 75(1) of the TNERC (Terms and Condition for Determination of Tariff) Regulation, 2005 states as under:

"75. Cost of Power Purchase

1. *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".*

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

i. Energy available from Must-Run Power plants will be dispatched first

ii. Energy availability from Hydro generating plants will not be subjected to MoD

4.132 The Tamil Nadu Electricity Grid Code stipulates following guidelines for scheduling and despatch of power.

"8. Scheduling and Despatch

2. (b) SLDC shall regulate the overall State generation in such a manner that generation from following types of power stations where energy potential, if unutilized, goes, as a waste shall not be curtailed

- *Run of river or canal based hydro stations.*
- *Hydro-station where water level is at peak reservoir level or expected to touch peak reservoir level (as per inflows).*
- *Wind Power Stations and Renewable Energy Sources*
- *Nuclear Power Station"*

4.133 The total energy availability from must run power plants estimated by the Commission for the second control period is given below:

Table 181: Energy available from must run plants – MUs

Source	Power Procurement	Energy Available at TN Periphery
CGS		
MAPS	1,573	1,505
KAIGA	1,211	1,158
Kudankulum-Unit 1	2,188	2,093
Kudankulum-Unit 2	295	282
PFBR Kalpakkam	162	155
Sub Total	**5,429**	**5,193**
Wind (Private)	5,228	5,228
Wind Mills - TANGEDCO	12	12
Cogeneration	817	817
Solar	97	97
NTPC NVVN	35	35
Biomass	6	6
Total	**11,624**	**11,388**

4.134 For hydro-energy generation, TANGEDCO will majorly incur only fixed expenses. Also, Commission is of the view that TANGEDCO can plan its energy despatch from hydro generation suitably meeting its load requirements. Hence, Commission has not subjected the energy available from hydro generating stations under MoD. The energy available from hydro generating stations is tabulated below.

Table 182: Energy available from Hydro Generation FY 2014-15 - in MUs

Source	FY 2015
Hydro Stations	4,586

4.135 After factoring in the energy available from all the above listed sources, the Commission has allowed the remaining energy to be purchased as per the energy requirement at Tamil Nadu periphery calculated by the Commission on Merit Order Ranking basis. For arriving at the energy available from CGS must run plants, Commission has considered an inter-state transmission loss of 4.34%. The energy required to be purchased on Merit Order Despatch basis is given below:

Table 183: Energy required to be purchased under MoD (Tamil Nadu periphery) for FY 2014-15

Parameter	MUs
Energy Requirement (TN Periphery)	77,234
Less: Must run plants (CGS)	5,193
Less: other Must run plants	6,195
Less: Hydro	4,586
Energy required to be purchased under MoD	**61,259**

4.136 The Commission has prepared the Merit Order Despatch on the basis of variable cost of various power plants. The Commission has considered Merit Order Despatch upto the energy requirement at TN periphery on the basis of calculation shown above. For the CGS plants Commission has assumed an inter-state loss of 4.34%. The power plants will be scheduled in accordance with the increasing trend of variable cost. On the basis of variable cost, following power plants will get despatched in accordance with Merit Order Ranking:

Table 184: Merit order ranking of available energy sources for FY 2014-15

Source	Variable Cost (Rs./ Unit)	Energy available at TN Periphery (MUs)	Cumulative available energy (MUs) - TN Periphery	Energy to be purchased (TN Periphery)	Total Energy to be purchased (MUs)
NTPC Talcher	1.58	3,179	3,179	3,179	3,323
LANCO Power (Aban co)	2.00	783	3,962	783	783
PIONEER Power co. (Penna)	2.04	356	4,318	356	356
NLC TS – I	2.06	3,318	7,637	3,318	3,469
NTPC SR (I&II)	2.10	3,810	11,447	3,810	3,983
NLC TS – II	2.13	3,094	14,541	3,094	3,235
Valuthur GTPS	2.15	1,243	15,784	1,243	1,243
Tirumakottai GTPS	2.16	706	16,490	706	706
Kuttalam GTPS	2.25	651	17,140	651	651
STCMS - Neyveli	2.32	1,660	18,800	1,660	1,660
NTPC Simhadri	2.37	1,465	20,265	1,465	1,532
Lanco Power (NETS)	2.43	876	21,141	876	876
New Plants	2.50	4,334	25,475	4,334	4,531
NTPC Vallur - Unit 1 & Unit 2	2.57	4,670	30,146	4,670	4,882
NTPC ER	2.61	348	30,493	348	363
NTPC SR III	2.65	953	31,446	953	996

Source	Variable Cost (Rs./ Unit)	Energy available at TN Periphery (MUs)	Cumulative available energy (MUs) - TN Periphery	Energy to be purchased (TN Periphery)	Total Energy to be purchased (MUs)
North Chennai TPS	2.67	4,502	35,948	4,502	4,502
Jindal Power	2.72	1,752	37,700	1,752	1,752
NCTPS Stage-II (Unit 1)	2.73	4,059	41,758	4,059	4,059
NCTPS Stage-II (Unit 2)	2.73	3,725	45,484	3,725	3,725
NLC TS Expansion I	3.03	1,406	46,889	1,406	1,469
Mettur TPS	3.12	6,005	52,895	6,005	6,005
Tuticorin TPS	3.24	7,183	60,078	7,183	7,183
Adani Power	3.30	1,752	61,830	1,182	1,182
Total				**61,259**	

4.137 The fixed cost as per Regulations or PPA has been allowed for the Power Plants which are not scheduled as per Merit Order Despatch shown above.

4.138 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 following reasons, TANGEDCO may require to draw power from other available sources based on MOD principle.

a) Availability of energy is considered on annual basis and there could be differences on monthly/daily basis.
b) Restriction of power flow from other regions due to corridor constraints.
c) Delay in commissioning of new CGS and own generating stations
d) With reduced load shedding, the demand may increase and exceed the consumption estimates
e) During non wind seasons, the availability from WEGs might decrease resulting in demand-supply mismatch.

4.139 Hence, Commission allows TANGEDCO to draw power from the other available regulated sources during these circumstances. However, TANGEDCO shall follow the MOD and optimize the power purchase cost on the basis of Merit Order Ranking. Commission directs TANGEDCO to use the energy availability from its hydro power plants judiciously in order to address the short fall of energy availability during non wind seasons.

4.140 Commission is of the view that TANGEDCO should project power availability for shorter time intervals such as monthly to arrive at short term power management leading to overall optimization of power purchase cost.

In this context, **Commission directs TANGEDCO to provide the monthly energy demand and availability and its plan of scheduling power in accordance to MoD on quarterly basis.** For power procurement from unapproved sources, TANGEDCO is directed to take prior approval of the Commission before purchasing energy.

Summary of power purchase costs

4.141 The summary of power purchase costs approved by the Commission for FY 2014-15 from own generation and other sources after considering MoD is tabulated below:

Table 185: Summary of power purchase cost approved by the Commission for FY 2014-15

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
Own Generation Stations					
Ennore TPS	-	276	-	3.34	276
Tuticorin TPS	7,183	468	2,324	3.24	2,792
Mettur TPS	6,005	329	1,871	3.12	2,200
North Chennai TPS	4,502	376	1,204	2.67	1,580
NCTPS Stage-II** (Unit 1)	4,059	586	1,107	2.73	1,693
NCTPS Stage-II** (Unit 2)	3,725	379	1,016	2.73	1,395
MTPS Stage-III**	-	671	-	3.37	671
Total Thermal	**25,474**	**3,085**	**7,522**	**2.95**	**10,607**
Tirumakottai GTPS	706	82	153	2.16	235
Kuttalam GTPS	651	91	146	2.25	237
Basin Bridge GTPS	-	51	-	20.62	51
Valuthur GTPS	1,243	163	267	2.15	429
Total Gas	**2,599**	**387**	**565**	**2.18**	**952**
Erode HEP	1,365	332	0.0	0.00	332
Kadamparai HEP	-	79	-	-	79
Kundah HEP	2,257	206	0.2	0.00	206
Tirunelveli HEP	964	120	0.3	0.00	120
Total Hydro	**4,586**	**736**	**0.53**	**0.00**	**736**
Wind mills	12	3	-	-	3
Total Own Generation	**32,671**	**4,211**	**8,088**	**2.48**	**12,299**
Central Generation Stations					
NTPC SR (I&II)	3,983	225	837	2.10	1,062
NTPC SR III	996	94	264	2.65	357
NLC TS - I	3,469	274	715	2.06	988
NLC TS - II	3,235	185	690	2.13	875
NLC TS Expansion I	1,469	194	445	3.03	639
NTPC Talcher	3,323	284	524	1.58	808
NTPC Simhadri	1,532	269	363	2.37	632

Source	Units (MU)	Capacity Charges(Rs. Crore)	Energy Charges (Rs. Crore)	Energy Charges (Rs./ Unit)	Total Cost (Rs. Crore)
MAPS	1,573	-	332	2.11	332
KAIGA	1,211	-	375	3.10	375
NTPC Vallur - Unit 1 & Unit 2	4,882	745	1,257	2.57	2,002
Kudankulum - Unit 1`	2,188	-	777	3.55	777
New Plants	4,988	873	1,247	2.50	2,120
NTPC ER	363	34	95	2.61	129
Total CGS	**33,212**	**3,176**	**7,920**	**2.38**	**11,097**
Renewables					
Wind	5,228	-	1,783	3.41	1,783
Biomass	6	-	3	4.25	3
Cogeneration	817	-	293	3.59	293
Captive	-	-	-	3.75	-
Solar	97	-	52	5.37	52
Total Renewable	**6,148**	**-**	**2,131**	**3.47**	**2,131**
IPPs					
Samalpatti	-	135	-	-	135
Madurai Power Corpn	-	136	-	-	136
Pillaiperumalnallur	-	122	-	-	122
STCMS - Neyveli	1,660	347	384	2.32	731
LANCO Power (Aban co)	783	120	156	2.00	277
PIONEER Power co. (Penna)	356	55	73	2.04	128
Total IPPs	**2,799**	**915**	**614**	**2.19**	**1,528**
Case 1 - Bidding (MTOA)					
Jindal Power	1,752	385	476	2.72	861
Adani Power	1,182	296	390	3.30	686
Lanco Power (NETS)	876	215	213	2.43	428
NTPC NVVN	35	-	16	4.43	16
Total Other sources	**3,845**	**896**	**1,095**	**2.85**	**1,991**
PGCIL charges					
PGCIL - ER & SR					855
PGCIL - Reactive Energy Charges					25
Total transmission charges					880
Total Power Purchases	**46,004**	**4,987**	**11,760**	**2.56**	**17,627**
Total Own generation & Power Purchase	**78,675**	**9,198**	**19,848**	**2.52**	**29,926**

Aggregate Revenue Requirement and Revenue Gap for FY 2014-15

4.142 Regulation 70 of the Tariff Regulations 2005 specifies the following:

"70. The Aggregate Revenue Requirement of Distribution licensee
The Aggregate Revenue Requirement of Distribution licensee consists of the following:-
(i) Cost of Power Purchase
(ii) Operation and Maintenance expenses
(iii) Depreciation
(iv) Interest and cost of finance
(v) Income Tax
(vi) Provision for Bad and Doubtful Debts
(vii) Provision for Insurance
(viii) Provision for contingency reserve
(ix) other expenses
(x) Return on equity / Reasonable rate of return"

4.143 Based on the approved expenses in the above sections of this Chapter, the Aggregate Revenue Requirement approved by the Commission for FY 2014-15 is tabulated below:

Table 186: ARR approved by the Commission for FY 2014-15 (Rs. Cr.)

Parameter	Last year order	Commission
Expenses in respect of own Generation	8,851	12,299
Power Purchase Cost	17,949	17,627
Annual Transmission Charges payable to TANTRANSCO	2,850	1,692
Operation and Maintenance Expenses	4,068	4,304
Depreciation	435	435
Interest on Long term loan	1,740	1,902
Other Debits & extra ordinary items	26	6
Prior Period Debit/(Credit) Charges	-	-
Reasonable Return / Return on Equity	-	-
Interest on Working Capital	-	-
Contribution to Contingency Reserves	-	-
ARR	**35,919**	**38,265**

Non-Tariff and Other Income

4.144 Commission has considered non-tariff and other income as approved in its previous tariff order. It is to be noted that Commission has completely disallowed "Rebate on power purchase bills", considering that TANGEDCO is not receiving any rebate on timely payment of power purchase bills.

4.145 The following table summarizes the approved Non Tariff Income and Other Income.

Table 187: Non Tariff and Other Income approved by the Commission for FY 2014-15 (Rs. Cr)

Particulars	Last TO	Commission
Non-Tariff Income	680	680
Other Income	341	146
Total	**1,021**	**826**

4.146 The net ARR approved for FY 2015 is tabulated below:

Table 188: Net Revenue Requirement approved by the Commission for FY 2015 (Rs. Cr.)

Parameter	
Aggregate Revenue requirement	**38,265**
Less: Other income and NTI	826
Net Revenue Requirement	**37,440**

A5: ESTIMATION OF REVENUE GAP AND TARIFF DETERMINATION FOR FY 2014-15

Revenue gap determination

Revenue Gap for FY 2014-15 at existing tariff

5.1 Commission has arrived at the revised revenue gap of Rs. 5,447 crores considering the approved net revenue requirement and revenue at existing tariffs.

Table 189: Revenue gap at existing tariff as determined by the Commission for FY 2014-15 (Rs. Cr.)

Parameter	
Net Revenue Requirement	37,440
Less: Revenue from existing Tariffs (including subsidy)	31,993
Revenue Gap	**5,447**

5.2 Commission proposes to recover a major portion of the approved gap through a tariff hike across all consumer categories. The Retail Tariff so proposed by the Commission is as follows.

Table 190: Existing and Approved retail tariff schedule for FY 2014-15

Category	Slabs (Per Month)	Sub Category	Existing Tariff		Approved Tariff	
			Energy Charges Rs./kWh	Demand Charges/ Fixed Charge	Energy Charges Rs./kWh	Demand Charges/ Fixed Charge
Tariff for Low Tension Consumers						
LT – IA	**Domestic**					
	1-50 kWh		2.60	10 Rs per month	3.00	15 Rs per month
	1-100 kWh		2.80	10 Rs per month	3.25	15 Rs per month
	Above 100 kWh - Upto 250 kWh	0-100 kWh	3.00	15 Rs per month	3.50	20 Rs per month
		101-250 kWh	4.00	15 Rs per month	4.60	20 Rs per month
	Above 250 kWh	0-100 kWh	3.00	20 Rs per month	3.50	25 Rs per month
		101-250 kWh	4.00	20 Rs per month	4.60	25 Rs per month
		Above 250 kWh	5.75	20 Rs per month	6.60	25 Rs per month
LT – IB	**Huts**					
	Single Slab		4.30 (On Installation of Energy Meter)	125 Rs per month (Until Installation of Energy Meter)	4.95 (On Installation of Energy Meter)	145 Rs per month (Until Installation of Energy Meter)

LT – IC	**LT bulk supply**					
	Single Slab		4.00	50 Rs per month	4.60	60 Rs per month
LT - IIA	**Public Lighting and Water Supply**					
	Single Slab		5.50	0 Rs per month	6.35	60 Rs per month
LT - IIB (1)	**Govt. Educational Inst. etc.**					
	Single Slab		5.00	50 Rs/kW per month	5.75	60 Rs/kW per month
LT - IIB (2)	**Pvt. Educational Inst. etc.**					
	Single Slab		6.50	50 Rs/kW per month	7.50	60 Rs/kW per month
LT - IIC	**Places of Public Worship**					
	0-60 kWh		5.00	50 Rs/kW per month	5.75	60 Rs/kW per month
	Above 60 kWh		5.00	50 Rs/kW per month	5.75	60 Rs/kW per month
LT - IIIA (1)	**Cottage and Tiny Industries**					
	0-250 kWh		3.50	15 Rs/kW per month	4.00	20 Rs/kW per month
	Above 250 kWh		4.00	15 Rs/kW per month	4.60	20 Rs/kW per month
LT - IIIA (2)	**Power Looms**					
	0-250 kWh		4.50	50 Rs/kW per month	5.20	60 Rs/kW per month
	Above 250 kWh		5.00	50 Rs/kW per month	5.75	60 Rs/kW per month
LT - IIIB	**L.T. Industries**					
	Single Slab		5.50	30 Rs/kW per month	6.35	35 Rs/kW per month
LT - IV	**L.T.**					

	Agriculture					
	Single Slab		2.8 (On Installation of Energy Meter)	2500 Rs/HP/Annum	3.22 (On Installation of Energy Meter)	2875 Rs/HP/Annum
LT - V	**L.T. Commercial**					
	0-50 kWh		4.30	60 Rs/kW per month	5.00	70 Rs/kW per month
	Above 51 kWh (For all units)		7.00	60 Rs/kW per month	8.05	70 Rs/kW per month
LT - VI	**Temporary supply**					
	Single Slab		10.50	300 Rs/kW per month	12.00	345 Rs/kW per month
Tariff for High Tension Consumers						
HT - IA	**HT Industries**					
	Single Slab		5.50	300 Rs/kVA per month	6.35	350 Rs/kVA per month
HT - IB	**Railway Traction**					
	Single Slab		5.50	250 Rs/kVA per month	6.35	300 Rs/kVA per month
HT - IIA	**Govt. Educational Inst. etc.**					
	Single Slab		4.50	300 Rs/kVA per month	6.35	350 Rs/kVA per month
HT - IIB	**Pvt. Educational Inst. etc.**					
	Single Slab		5.50	300 Rs/kVA per month	6.35	350 Rs/kVA per month
HT - III	**HT Commercial**					
	Single Slab		7.00	300 Rs/kVA per month	8.00	350 Rs/kVA per month
HT - IV	**Lift Irrigation Societies**					

	Single Slab		3.50	0 Rs/kVA per month	6.35	0 Rs/kVA per month
HT - V	**Temporary supply**					
	Single Slab		9.50	300 Rs/kVA per month	11.00	350 Rs/kVA per month

Revenue from Sale of Power –FY 2014-15

5.3 The Commission has determined the Aggregate Revenue Requirement for FY 2014-15 and the corresponding revenue gap of 5,447 Crores. In order to bridge this gap, Commission has proposed tariff hike across all consumer categories. It is pertinent to mention that the cost of entire consumption on account of huts as well as on account of agricultural consumption is being borne by the Government of Tamil Nadu by way of subsidy under Section 65 of the Electricity Act 2003. GoTN has committed to bear the burden of tariff hike by way of subsidy for the relevant consumer categories.

5.4 The Commission based on its revised estimation of sales, consumer load and number of connections has calculated the revenue from sale of power based on the existing and revised tariff for FY 2014-15. The following table captures the category-wise revenue including subsidy approved by the Commission for FY 2014-15.

Table 191: Revenue from sales as approved by the Commission at existing and proposed tariff for FY 2014-15

Particulars		Existing Tariff	Proposed Tariff
		Rs. Crores	Rs. Crores
HT Consumer Category			
I-A	HT Industries	7,512	8,689
I-B	Railway Traction	538	626
II-A	Govt. Educational Inst. etc.	650	892
II-B	Pvt. Educational Inst. etc.	206	238
III	HT Commercial	1,513	1,737
IV	Lift Irrigation	3	5
V	Temporary supply	320	371
	Total HT	**10,741**	**12,556**
LT Consumer Category			
I-A	Domestic	7,843	9,133
I-B	Huts	225	261
I-C	LT bulk supply	5	6
II-A	Public Lighting and Water Supply	1,157	1,385
II-B-1	Govt. Educational Inst. etc.	79	91
II-B-2	Pvt. Educational Inst. etc.	182	211
IIC	Places of Public Worship	69	80
IIIA 1	Cottage and Tiny Industries	67	78

IIIA 2	Power Looms	472	545
IIIB	L.T. Industries	3,391	3,919
IV	L.T. Agriculture	2,835	3,260
V	L.T. Commercial	4,842	5,585
VI	Temporary supply	94	107
	Total LT	**21,251**	**24,662**
	Total HT + LT	**31,993**	**37,218**

5.5 Therefore the Revenue from sale of power for FY 2014-15 approved by the Commission is Rs. 37,218 Crores at the new approved tariff. This revenue is inclusive of the Government subsidy component.

Revenue gap and determination of Regulatory asset

Revenue Gap for FY 2014-15 at proposed tariff

5.6 Commission has arrived at the revenue gap of Rs. 5,447 crores considering the approved net revenue requirement and revenue at existing tariffs. Taking into the effect of the revised tariff, the impact on revenue gap is as shown below. The net revenue gap through the proposed tariff hike is Rs. 222 Crores.

Table 192: Revenue gap at existing tariff as determined by the Commission (Rs. Cr.)

Parameter	
Revenue Gap at existing tariff	5,447
Less: Incremental Revenue from proposed tariffs (including subsidy)	5,225
Revenue Gap/ (Surplus)	**222**

5.7 Commission in this order has determined the revised accumulated revenue gap based on the following.

a) Final approved gap based on final true-up for FY 2010-11 as per last tariff order.

b) Provisional true-up for FY 2011-12 and FY 2012-13 undertaken in this order.

c) APR for FY 2013-14 undertaken in this order and

d) Provisional gap determination for FY 2014-15 undertaken in this order.

Table 193: Revenue Gap re-estimated by the Commission for the period FY 2010-11 to FY 2014-15 (Rs. Cr)

Particulars	2010-11	2011-12	2012-13	2013-14	2014-15	Total
Net Revenue Requirement	**11898**	**27,873**	**29,850**	**33,682**	**37,440**	**140,743**
Less: Revenue from Sale of Power at Existing Tariff including Tariff	7848	19,475	24,952	29,971	31,993	114,239

Particulars	2010-11	2011-12	2012-13	2013-14	2014-15	Total
Subsidy						
Revenue Gap at existing tariff	**4050**	**8,398**	**4,898**	**3,711**	**5,447**	**26,504**
Less: Additional revenue through tariff increase					5,225	5,225
Revenue Gap at revised tariff					**222**	**21,279**

Revenue Account and Amortization of Regulatory Asset

5.8 In the last order Commission has directed TANGEDCO not to mix up the capital accounts and revenue accounts. Hence, Commission in line with its direction is treating the revenue account separately. Commission has arrived at the consolidated revenue gap of Rs. 25,464 Cr as on March 2014 by considering the approved revenue gap for each year and allowing interest expenses at 11% and also taking into account the amortised regulatory asset of Rs. 1,033 Cr as determined in the last tariff order for FY 2013-14. The consolidated revenue gap arrived at closing of FY 2014 is given below.

Table 194: Revenue account for the period FY 2010-11 to FY 2013-14 (Rs. Cr)

Parameter	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Opening	0	4,145	13,514	20,270
Additions (Revenue gap approved by the Commission)	4,050	8,398	4,898	3,711
Add: Interest Expenses	95	971	1,858	2,515
Less: Amortized regulatory asset				1,033
Closing	**4,145**	**13,514**	**20,270**	**25,464**

5.9 Considering the approved revenue gap of Rs. 222 Crs for FY 2014-15, Commission has arrived at the net regulatory asset of Rs. 25,686 Crs at the end of FY 2014-15.

Table 195: Regulatory Asset arrived by the Commission (Rs. Cr)

Parameter	Amount (Rs. Cr.)
Revenue Gap - Ending March 2014	25,464
Revenue Gap - FY 2014-15	222
Regulatory Asset	**25,686**

5.10 In the Tariff Order No. 1 dated 30th March 2012, the proposed methodology for Amortization of the Regulatory Asset had been laid down as follows.

"Para 9.8.2: The Regulatory Asset is proposed to be amortized over a period of 5 years commencing from the year 2013-14 onwards. Once the Regulatory Asset is arrived at, 1/5th of the Regulatory Asset would be amortized along with the carrying cost. When the tariff order for 2014 – 15 is done, the Regulatory Asset would be re-worked out and 1/4th of such Regulatory Asset would be amortized in that tariff order along with that cost 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. The amortization is in-principle approved to be met by Government of Tamil Nadu as per their letter (Ms.) No. 32 dated 25-03-2012 as enclosed in Annexure IX. The Commission is of the view that creation of Regulatory Asset could not be avoided in view of the accumulation of Regulatory Asset over a period due to phenomenal load growth, less addition to the generating capacity, high power purchase costs, increase in costs and non filing of tariff petition."

5.11 In response to TANGEDCO's letter on amortization of regulatory asset, GoTN has agreed for amortization of regulatory asset through Letter (Ms.) No. 59/C2/2012 dated 7th June 2013. The relevant extracts of the letter received from GoTN are reproduced below:

a) GoTN has agreed to the financial restructuring of the state Discoms announced by GoI on 5th October 2012. Accordingly, GoTN will take over 50% of TANGEDCOs short term liabilities to the tune of Rs. 6,382.68 Crs in a phased manner.

b) In GoTN annual budget for FY 2013-14, Rs. 3,000 Cr has been provided for the takeover during the current financial year. The remaining liabilities would continue to be in books of TANGEDCO till the time of eventual takeover. However, the interest on these liabilities will be paid by the GoTN.

c) Keeping in view, the financial restructuring plan and available audited accounts GoTN has proposed following approach for amortization of Regulatory Asset.

    i. As the audited accounts are available only for the year FY 2010-11, the amortization may be carried out for the regulatory assets of the year for which audited accounts are available. For subsequent years, the regulatory assets would be reassessed for amortization as soon as audited accounts are available.

    ii. The carrying cost of the Regulatory Assets can be linked to the actual cost of cash loss financing after the financial restructuring. At present it is 11%. Hence, the same interest rate may be taken as carrying cost.

    iii. Since the GoTN is already taking over Rs. 6,382.68 Cr of short term liabilities of TANGEDCO, part of this amount may be accounted for amortization to the extent of 1/4th of the remaining regulatory assets as per the audited accounts of FY 2010-11.

iv. The balance amount can be adjusted towards amortization of the regulatory assets in subsequent years.

v. Since the GoTN is also paying interest on the balance amount, the carrying cost of such amount can be discounted in arriving at the regulatory assets in subsequent years.

vi. The GoTN has in-principle agreed to amortisation of Regulatory Assets. The details are to be worked out in conjunction with tariff revision.

5.12 Commission considering the letter received from GoTN has estimated the Regulatory Asset pertaining to FY 2010-11 at a carrying cost of 11%. Commission has then amortized 1/4th of the estimated Regulatory Asset pertaining to FY 2010-11 in this year.

5.13 Though the audited and annual statement of accounts of FY 2011-12, FY 2012-13 and FY 2013-14 are available, the final true up for these years is pending and hence the regulatory assets would be re-assessed for amortization in the subsequent years as soon as the final true-up is done.

Table 196: Regulatory Asset amortized during FY 2014-15 (Rs. Cr)

Parameter	FY 2011	FY 2012	FY 2013	FY 2014
Opening	0	4,145	4,627	5,166
Additions	4,050	0	0	0
Add: Interest Expenses	95	482	539	0
Less: Regulatory asset amortized	-	-	-	1,033
Closing	4,145	4,627	5,166	4,133
Regulatory Asset to be Amortized (1/4 of the RA as on March 2014)				**1,033**

5.14 Commission approves Regulatory Asset of Rs. 24,652 Crs after the considering the amortized regulatory asset.

Table 197: Regulatory Asset approved by the Commission (Rs. Cr)

Parameter	Amount (Rs. Cr.)
Regulatory Asset (Initial Estimate)	25,686
Amortized Regulatory Asset	1,033
Revised Regulatory Asset	**24,652**

5.15 It is pertinent to mention that Commission still has an approval of GoTN for amortization of Rs. 4,316 Crs, which will be adjusted towards amortization in the subsequent years. In addition, Commission will not consider interest expenses on this amount while calculating the regulatory asset for subsequent years.

5.16 Also, GoTN has in principle agreed for amortisation of Regulatory Asset in conjunction with tariff revision.

"Point 4(f) of Letter (Ms) No. 59/C2/2012 dated 7th June 2013

The Government in its letter cited first above has agreed in-principle with a request of amortisation of regulatory assets. The details are to be worked out in conjuction with tariff revision."

5.17 TANGEDCO is in the process of finalization of its Financial Restructuring Plan (FRP) scheme and once the scheme is finalized, the amortization of balance regulatory asset can be worked out considering GoTN support, FRP scheme etc.

5.18 Commission wants to reiterate its view regarding opening loans allocated to TANGEDCO through provisional transfer scheme. TANGEDCO is borrowing new loans for repayment the loans allocated and these borrowings can only be reduced by:

a) Additional cash infusion into the business

b) Revision of transfer scheme through which the opening loans allocated to TANGEDCO gets reduced.

5.19 These issued need to be kept in view by TANGEDCO and GoTN while finalizing the Transfer Scheme and the opening balance sheet as on 1st November 2010.

Voltage wise Cost to Serve, Average Cost of Supply and Cross subsidy reduction

Voltage wise cost to serve for FY 2014-15

5.20 Pursuant to the directives of the Hon'ble Appellate Tribunal in its judgement dated 28.7.2011 in Appeal no. 192 & 206 of 2010 in which the Tariff Order dated 31.7.2010 was challenged, the Commission had estimated the voltage wise cost to serve in its tariff order dated 30.3.2012, but had not determined the cross subsidy based on it.

5.21 Further the Commission in line with the directives of the Hon'ble Appellate Tribunal had also directed TANGEDCO to undertake data collection for computing accurate cost of supply and submit a study report computing the consumer category wise and voltage wise cost to serve. TANGEDCO in partial compliance to the above directive had undertaken a technical study and computed the category wise cost of service but had stated its inability to compute voltage wise cost to serve as its accounting system are not robust enough to capture cost details voltage wise.

5.22 Subsequently in the Tariff Order dated 20.06.2013 the Commission had noted that the data provided was not sufficient enough for segregation of network costs for different voltage classes and also directed TANGEDCO to arrive at voltage wise category wise cost of supply by undertaking accurate and logical studies. The relevant extract is given below:

5.23 *"5.26 The Commission has noted that sufficient data is not available for metering and segregation of the network costs for determination of cost of supply for different categories of consumers. To undertake an accurate and logically sound voltage wise cost of supply study, TANGEDCO should select sample feeders/ consumers for load research study. The selected sample should be statistically verified to be representative of the population. Hourly load data and energy consumption should be collected from selected feeders/ consumers for each voltage category of consumers. From the data so collected TANGEDCO should undertake a load research study to determine the contribution to Coincident Factor and Class Load Factor for each voltage category. Further TANGEDCO should have accurately classified voltage wise losses, voltage wise number of consumers and their load. Based on such a study a representative cost to serve various voltage classes can be arrived at. TANGEDCO has so far not conducted such a study and gathered the required information."*

5.24 Since TANGEDCO had not submitted the complete information required and had not undertaken the requisite studies, the Commission had resorted to estimate the voltage wise cost to serve based on the data made available using the Embedded Cost Approach for allocating the costs. The results showed clearly that the cost to serve lower voltage classes is higher than the cost to serve higher voltage classes primarily due to higher losses, both technical and commercial, larger consumer base and consumer load.

5.25 The Commission recognizes that this method is a high level representation of cost to serve and may not accurately reflect the actual costs of supply, in absence of requisite data for each category of consumer. However, the Commission recognises the importance of carrying out such an exercise in detail and intended to enable itself with a tool to test the retail tariff.

5.26 Commission observed that the cost to serve study undertaken by TANGEDCO is based on historical data with a number of assumptions with regard to contribution of various consumer categories to the peak and off-peak. Commission had directed TANGEDCO to update the study based on the data for the year FY 13-14 and suitably amend to compute voltage wise category wise cost of supply for all consumer categories and re-submit the findings along with the basis of allocation of different costs and losses to various voltage levels and consumer categories. In compliance with the above direction from the Commission, TANGEDCO has submitted the revised voltage wise cost to serve report in the month November, 2014.

5.27 This study report shall be closely examined by the Commission and approved with such modifications as it may deem fit or consider a better alternate computation. The Commission in line with the direction of the Hon'ble Appellate Tribunal in its judgment on Appeal No. 196 & 199 of 2013 dated 27-10-2014, intends to use this study report to determine cross subsidy for 2012-13, 2013-14 and 2014-15 for all consumer categories in its next tariff order. The relevant extract of the judgment is produced below.

"65. …. However, the State Commission is directed to determine the voltage wise cost of supply as directed and determine the cross subsidy transparently for FY 2012-13 and 2013-14 and 2014-15 in the tariff order for 2015-16."

5.28 As the relevant study report on category wise voltage wise cost to serve from TANGEDCO has only now been submitted and is being scrutinised by the Commission, for the purpose of this Order will base its calculation of cross subsidy on average cost of supply and calculate the cross subsidy as directed by the Hon'ble Appellate Tribunal in its next tariff order.

The Commission would like to highlight here that, it has even in its past Tariff orders endeavoured to ensure that there is minimal additional burden of cross subsidy on the subsidising consumers. This is evident from the tariffs set in the order dated 30.03.2012 and 20.06.2013. The same has been acknowledged of the order dated 30.03.2012 by the Hon'ble Appellate Tribunal in its judgement on Appeal of 257 of 2012.

5.29 Therefore the Commission intends to use the study report submitted by TANGEDCO to determine cross subsidy for 2012-13, 2013-14 and 2014-15 for all consumer categories in its next tariff order.

Average Cost of Supply and Cross subsidy reduction

5.30 The prevailing cross-subsidies and the cross-subsidy contributions for the individual consumer categories were computed based on the Average cost of supply.

5.31 At the outset the Commission brings out the fact that the average cost of supply for FY 2014-15 is at Rs. 5.77/unit when compared to Rs. 5.24/unit last year for FY 2013-14, is a ~10% increase. And to address this increase, the Commission has proposed a tariff increase for all consumer categories.

5.32 In the Order of Hon'ble Appellate Tribunal of Electricity dated 9th April 2013 in Appeal Nos. 257 of 2012 in which the Commissions tariff order dated 30.3.2012 was challenged, the Appellate Tribunal's opinion on the issue of cross subsidy reduction is extracted below:

13.10 In the circumstances of the case, we feel that the State commission has tried to increase the tariff of the subsidized categories substantially so as to reduce the component of cross subsidy. The comparison of charge in cross subsidy with the previous tariff order for FY 2010-11 may not give correct picture as *in the previous tariff order the tariffs were not increased adequately to meet the revenue gap and a huge revenue gap was left uncovered. The State Commission has already increased the tariff of subsidized categories substantially and further increase would have caused greater tariff shock to them which may not be desirable."*

5.33 From the above, it can be seen that the Commission has kept the best interest of all consumer categories in mind while determining tariffs for various consumer categories, based on the average cost of supply.

5.34 Retail Tariff in State of Tamil Nadu was not revised for a period from FY 04 to FY 10, on account of non filing of the tariff petition by erstwhile TNEB. Cross-subsidy has been in existence historically even in the period where there was no tariff revision. The Commission in the Tariff Order dated 30.3.2012 also observes that tariff that was charged to most of the categories of consumers was below average cost of supply. Hence, in that specific year when TANGEDCO had sought for pass through of revenue gap in the form of tariff increase, the impact on each category of consumers was significant. In the light of significant hike in tariff to all categories for FY 2012-13 and keeping in mind the revenue gap for the year, the Commission has approved the proposition of tariff hike only for two categories in its tariff Order dated 20.06.2013, so as to avoid tariff shock to the consumers of the State. The tariffs have been increased only for two LT categories namely Huts and Agriculture & Government seed farm which in-turn increases the realisation from the subsidised consumers. For these two categories the recovery from tariff has increased from 50% to 84% and 37% to 50% respectively.

5.35 It is pertinent to note that this year the revenue gap estimated is significant and Commission decided to address the revenue gap during the current year and not create any further regulatory asset. Given the peculiar situation where the utility has not filed the Tariff Petition and since this is being addressed Suo-motu, the Commission has attempted to address the significant revenue gap by increasing tariffs at a uniform rate across all subsidised consumer categories so as to bring them towards the range of ± *20% of the average cost of supply* as envisaged in the Policy at the same time making sure there is no significant tariff shock to the consumers. However, since the average cost of supply has to be addressed, the Commission had to increase tariffs for the subsidising consumers as well. Hence there has not been a reduction in cross subsidy contributions as compared to last order.

5.36 The Commission has adopted a fair approach in tariff determination, where it has increased the tariffs for all consumer categories uniformly. This has been done to ensure that the overall cross subsidy levels do not increase as compared to its last tariff order.

Table 198: Cross subsidy trajectory estimated by the Commission

Categories	Average cost of supply (ACoS) FY15	ABR as per Existing tariff	ABR as per Proposed tariff	Cross subsidy comparison	
				As per Last TO	ABR(PT)/ ACoS
HT Category					

HT Industries	5.77	7.09	8.20	141%	142%
Railway Traction	5.77	6.73	7.82	124%	135%
Government Educational Institution Etc. (HT)	5.77	5.33	7.32	104%	127%
Pvt. Educational Institutions etc.	5.77	6.69	7.74	131%	134%
Commercial and Other HT	5.77	8.65	9.93	164%	172%
Lift Irrigation and co-ops (HT)	5.77	3.50	6.35	67%	110%
Temporary	5.77	10.14	11.74	204%	203%
Total HT	**5.77**	**7.18**	**8.39**	**141%**	**145%**
LT Category					
Domestic	5.77	3.43	4.00	66%	69%
Huts	5.77	4.16	4.83	85%	84%
Bulk supply	5.77	4.05	4.66	77%	81%
Public Lighting & Water Works	5.77	5.50	6.58	105%	114%
Government Educational Institution	5.77	6.05	7.01	115%	121%
Pvt. Educational Institutions	5.77	7.26	8.41	141%	146%
Places of Public Worship (LT)	5.77	6.03	6.99	113%	121%
Cottage and Tiny Industries	5.77	3.99	4.64	77%	80%
Power Loom	5.77	5.36	6.19	102%	107%
Industries	5.77	6.15	7.11	118%	123%
Agriculture & Government seed farm	5.77	2.57	2.95	50%	51%
Commercial and Other	5.77	7.79	8.99	144%	156%
Temporary Supply	5.77	12.59	14.40	222%	249%
Total LT	**5.77**	**4.26**	**4.94**	**80%**	**86%**
Total LT+HT	**5.77**	**4.93**	**5.74**	**93%**	**99%**

5.37 From the above table it can be seen that recovery from LT Category as a percentage of the average cost has increased at the same rate as that of HT consumers. The tariff hike has been so designed, so as to not unduly burden the subsidising categories, while also trying to bring the category wise billing rate as close as possible to the ± 20% average cost of supply target. Since any further increase to the subsidised categories would have caused them a tariff shock, the Commission to meet the gap approved for the year, has resorted to increasing tariffs for the subsidising categories as well. The Commission has tried to limit this increase for the subsidising categories to a maximum of that allowed for the subsidised categories even though there exists a further gap of Rs. 222 Crs to be met.

5.38 The Commission takes cognisance of the direction of the Hon'ble Appellate Tribunal with respect to notifying a roadmap for reduction of cross subsidy with a view to move towards tariffs reflective of $\pm$ average cost of supply. The Commission as stated above is underway in reviewing the study report submitted by TANGEDCO for voltage wise cost to serve. It intends to use the findings of this study as the basis for chalking out the said roadmap which will have intermediate milestones with an intention of gradual reduction in cross subsidy levels. Hence the Commission shall along with the determination of cross subsidy for 2012-13 to 2014-15 for all consumer categories also design a forward looking road map along with its next tariff order.

5.39 The Order is effective from the date of notification and does not have retrospective effect. While the revenue gap for the current year is addressed to a large extent, to address the shortfall for the past years, the Financial Restructuring Plan (FRP) which was rolled out from the last financial year along with amortisation of Regulatory Asset will continue.

Open Access Charges

Wheeling Charges

5.40 The Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulation – 2005 clearly stipulated the method for computing the wheeling charges. The relevant portion has been extracted below:

86. Wheeling Charges for Open Access Customers

(1) The Distribution licensee shall provide open access to any consumer within the area of his supply on payment of wheeling charges.

(2) The wheeling charges for a consumer category shall be based on costs of Distribution licensee for its pure wire business. Thus all items of revenue requirement of the Distribution licensee excluding cost of power purchase and interest on Security Deposit from consumers shall be the cost of Distribution licensee for his wire business.

5.41 The Electricity Act 2003 (the Act) allows non-discriminatory Open Access to the network of a Licensee on payment of applicable charges. To arrive at the wheeling charge, the Commission has estimated the Annual Distribution charge for FY 2014-15 as shown in the table below.

Table 199: Annual Distribution Charges for FY 2014-15

S. No.	Particular	Approved Rs. Crores
1	Net O&M Expenses	4304

2	Interest on Loan	1902
3	Interest on Working Capital	0
4	Depreciation	435
4	Return on equity	0
5	Other debits	6
6	Provision for Bad Debts	0
7	**Annual Wheeling Charges**	**6647**
8	Less: Interest on Security Deposit	625
9	**Net Annual Distribution Charges**	**6022**

5.42 As HT consumers are eligible for Open Access, the above Annual Distribution charges have been allocated to them, in the ratio of the HT distribution network to the total of HT and LT distribution network. The allocation has been done in the same ratio as estimated by the Commission in last year tariff order.

Table 200: Allocation of Wheeling Charges into LT & HT Category

Sl. No.	Particulars	Approved	
		No.s	Ratio
1	HT Lines (lakh ckt. km.)	1.84	24.11%
2	LT Lines (lakh ckt. km.)	5.78	75.89%
	Total	**7.62**	

5.43 Based on the above ratio and the Annual Distribution charges as approved, the wheeling charges per unit for the year FY 2014-15 estimated by the Commission are as follows.

Table 201: Wheeling Charges per unit for FY 2014-15

Particulars	FY 15
Energy fed into Grid (in MU)	83127
230 kV Losses approved by the Commission	0.80%
230 kV Losses (MU)	185
Wheeling units - 230 kV (MU)	152
TANGEDCO - 230 kV Sales (MU)	817
Energy input at 110 kV (MU)	81972
110 kV Losses approved by the Commission	1.90%
110 kV Losses (MU)	808
Wheeling units - 110 kV (MU)	762
TANGEDCO - 110 kV Sales (MU)	3477
Energy Input at Distribution Periphery (MU)	**76,926**
Total Annual Wheeling Charges (Rs. Crs)	**1,452**
Wheeling charges for Open Access Customer (Ps/ unit)	**0.1887**

5.44 Based on the estimated sales and voltage wise losses the Commission has determined the wheeling charge per unit as 18.87 paise/ kWh for FY 2014-15.

Cross Subsidy Surcharge

5.45 The Electricity Act 2003 clearly lays down the charges recoverable by the distribution licensee for allowing open access. Extract of the same has been produced below.

Provisions to Section 42 (2) of Electricity Act 2003 stipulates as under:

"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"

5.46 **The Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulation – 2005**, **under Section (3) Power to determine tariff** lays down the following:

3. Power to determine Tariff
(1) Under Section 62 of the Act, the Commission shall determine tariff and terms and conditions therefor in the following cases:
………….
....
(vi) ***Surcharge payable by the consumer who is allowed open access*** *in addition to the charges for wheeling under the first proviso to sub-section (2) of section 42 of the Act and in accordance with the TNERC Open Access Regulations.*

5.47 Further the **National Tariff Policy 2006, in Para 8.5** lays down the formula for calculating the cross subsidy surcharge payable by open access consumers as follows:

Surcharge formula:

$$S = T - [C (1+L/100) + D]$$

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% at the margin excluded liquid fuel based generation and renewable power
D is the Wheeling charge

L is the system Losses for the applicable voltage level, expressed as a Percentage

5.48 As per National Tariff Policy, the Cross Subsidy Surcharge has been determined by the Commission based on avoided cost methodology. In line with the judgment of the APTEL in Appeal No. 196 & 199 of 2013 dated 27.10.2014, the Commission has estimated the weighted average cost of power purchase for the top 5% marginal stations on the basis of merit order for FY 2014-15 as 4.46 Rs./ kWh. The tables below capture the same.

Table 202: Weighted average cost of power purchase of top 5% at the margin as approved by the Commission

Station	Units purchased MUs	Total purchase cost Rs. Crores	Cost per unit Rs./unit
Adani Power	1182	686	5.81
Tuticorin TPS	2752	1070	3.89
Total	**3934**	**1756**	**4.46**

5.49 Based on the above weighted average cost of marginal power stations, the Commission has calculated the cross subsidy surcharge payable by HT consumers for availing open access.

Table 203: Weighted average power purchase cost approved by the Commission (in Paise kWh)

Sl. No	Injection Voltage	Drawal Voltage	Total Loss (%)	Marginal Cost of Power Purchase	Wheeling Charges	Weighted Average Power Purchase Cost
1	230 kV	230 kV	0.80%	446	19.39	469
2	230 kV	110 kV	1.75%	446	19.39	474
3	230 kV	33 kV	2.07%	446	19.39	475
4	230 kV	22 kV	3.42%	446	19.39	482
5	230 kV	11 kV	3.47%	446	19.39	482
6	110 kV	230 kV	1.75%	446	19.39	474
7	110 kV	110 kV	2.70%	446	19.39	478
8	110 kV	33 kV	3.02%	446	19.39	480
9	110 kV	22 kV	4.37%	446	19.39	486
10	110 kV	11 kV	4.42%	446	19.39	486
11	33 kV	230 kV	2.07%	446	19.39	475
12	33 kV	110 kV	3.02%	446	19.39	480
13	33 kV	33 kV	3.35%	446	19.39	481
14	33 kV	22 kV	4.69%	446	19.39	488
15	33 kV	11 kV	4.74%	446	19.39	488
16	22 kV	230 kV	3.42%	446	19.39	482
17	22 kV	110 kV	4.37%	446	19.39	486
18	22 kV	33 kV	4.69%	446	19.39	488

19	22 kV	22 kV	6.03%	446	19.39	494
20	22 kV	11 kV	6.09%	446	19.39	495
21	11 kV	230 kV	3.47%	446	19.39	482
22	11 kV	110 kV	4.42%	446	19.39	486
23	11 kV	33 kV	4.74%	446	19.39	488
24	11 kV	22 kV	6.09%	446	19.39	495
25	11 kV	11 kV	6.14%	446	19.39	495

Table 204: Cross Subsidy Surcharge for HT consumers

Sl. No	Injection Voltage	Drawal Voltage	Industry	Railway traction	Government Educational Institution Etc.	Pvt. Educational Institutions etc.	Commercial and Other
			Cross Subsidy Surcharge (Paise/kWh)				
1	230 kV	230 kV	350.69	312.99	262.61	304.29	523.28
2	230 kV	110 kV	346.34	308.64	258.26	299.94	518.93
3	230 kV	33 kV	344.85	307.15	256.76	298.45	517.43
4	230 kV	22 kV	338.50	300.80	250.41	292.10	511.09
5	230 kV	11 kV	338.24	300.54	250.15	291.84	510.83
6	110 kV	230 kV	346.34	308.64	258.26	299.94	518.93
7	110 kV	110 kV	341.91	304.21	253.82	295.51	514.50
8	110 kV	33 kV	340.38	302.68	252.29	293.98	512.97
9	110 kV	22 kV	333.91	296.21	245.82	287.51	506.50
10	110 kV	11 kV	333.64	295.94	245.56	287.24	506.23
11	33 kV	230 kV	344.85	307.15	256.76	298.45	517.43
12	33 kV	110 kV	340.38	302.68	252.29	293.98	512.97
13	33 kV	33 kV	338.84	301.15	250.76	292.45	511.43
14	33 kV	22 kV	332.33	294.63	244.24	285.93	504.92
15	33 kV	11 kV	332.06	294.36	243.97	285.66	504.65
16	22 kV	230 kV	338.50	300.80	250.41	292.10	511.09
17	22 kV	110 kV	333.91	296.21	245.82	287.51	506.50
18	22 kV	33 kV	332.33	294.63	244.24	285.93	504.92
19	22 kV	22 kV	325.63	287.93	237.54	279.23	498.21
20	22 kV	11 kV	325.35	287.65	237.26	278.95	497.94
21	11 kV	230 kV	338.24	300.54	250.15	291.84	510.83
22	11 kV	110 kV	333.64	295.94	245.56	287.24	506.23
23	11 kV	33 kV	332.06	294.36	243.97	285.66	504.65
24	11 kV	22 kV	325.35	287.65	237.26	278.95	497.94
25	11 kV	11 kV	325.08	287.38	236.99	278.68	497.66

5.50 The higher ABR can be attributed to hike in retail supply tariff for FY 2014-15. The cost of the marginal 5% power procured apart from the must run stations have been considered in line with the Appellate Tribunal's direction on the same in its judgment on Appeal No. 196 & 199 of 2013 dated 27th Oct, 2014.

Re-determination of Cross Subsidy Surcharge for FY 2013-14

5.51 Adhering to the judgment of the APTEL in Appeal No. 196 & 199 of 2013 dated 27.10.2014, for correction of the weighted average cost of power purchase per unit for top 5% marginal stations and consequently the cross subsidy surcharge applicable for FY 2013-14, the same has been corrected and will be effected separately through a subsequent order passed by the Commission.

Grid Availability Charges

5.52 The Grid Availability Charges considered by the Commission are 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.

5.53 The tariff applicable to start-up power has been dealt in Tariff schedule of this Order.

5.54 With regards grid availability charges for open access consumers, Commission approves following norms

1) Scheduling of all transactions pursuant to grant of long-term open access or medium-term open access or short-term open access shall be carried out on day-ahead basis in accordance with the relevant provisions of IEGC/CERC Open Access Regulations for inter-State transactions and in accordance with State Grid Code/Commission's Regulations / orders for intra-State transactions.

2) Deviations between the schedule and the actual injection/drawal in respect of a open access customer who is not a consumer of the distribution licensee and the Generating Stations, shall come under the purview of the intra-state ABT, as notified by the Commission and shall be settled based on the composite accounts for imbalance transactions issued by SLDC on a weekly cycle in accordance with the UI charges specified by the Commission. Billing, collection and disbursement of any amounts under the above transactions shall be in accordance with the Commission's orders on Intra-state ABT, as may be applicable from time to time. Till the implementation of Intra-State ABT, the imbalance charge shall be at the rate of applicable temporary supply tariff.

3) In case of deviation by Open Access Customer who is also a consumer of distribution licensee, the difference between the applicable scheduled open access load and actual drawl shall be accounted Block wise and shall be settled in accordance with the following:

   a) The energy consumption of such customer shall be recorded in 15 minutes time block.

   b) Deviations between the schedule and the actual injection/drawal shall come under the purview of the intra-state ABT, as notified by the Commission and shall be settled based on the composite accounts for imbalance transactions issued by SLDC on a weekly cycle in accordance with the UI charges specified by the Commission. Billing, collection and disbursement of any amounts under the above transactions shall be in accordance with the Commission's orders on Intra-state ABT, as may be applicable from time to time. Till the implementation of Intra-State ABT, the imbalance charge shall be regulated as below:

      i. In case of actual energy/demand drawl is more than the scheduled energy/demand but within the permitted energy/demand (based on contracted load and energy or quota demand and energy as applicable), customer shall be liable to pay for such over drawl at the applicable tariff rates of that category of consumer as determined by the Commission from time to time.

      ii. In case of actual energy/demand drawl is more than the scheduled energy/demand drawl and also more than the permitted energy/demand (based on contracted load and energy or quota demand and energy as applicable), payment for the capacity above the contract demand shall have to be made at the excess demand/energy charges as specified by the Commission for such categories of customers in the regulation/order.

Additional Surcharge

5.55 The Commission directs TANGEDCO to levy the Additional Surcharge on the Open access consumers if and only if TANGEDCO can conclusively demonstrate that its obligation as a licensee in terms of existing power purchase commitments, has been and will continue to be stranded, or there is an unavoidable obligation and incidence to bear fixed costs consequent to such a contract.

Restoration Charges

5.56 Any default in payment of the various OA charges specified in the regulations, within the time stipulated by the Commission will result in the discontinuance of the open access to the consumer. Restoration of such discontinued open access shall be subject to the payment of reconnection charges applicable to that voltage level of the customer as approved by the Commission in the Order on "Non-tariff related miscellaneous charges" issued from time to time.

Fuel and power purchase cost adjustment mechanism (FPCA)

5.57 Electricity Act 2003 under section 62 sub section 4, states

"No tariff or part of any tariff may ordinarily be amended more frequently, than once in a financial year, except in respect of any changes expressly permitted under the terms of any ***fuel surcharge formula as may be specified****."*

The National Tariff Policy under provision 5.3(h) (4)

"Uncontrollable costs ***should be recovered speedily*** *to ensure that future consumers are not burdened with past costs. Uncontrollable costs would include (but not limited to)* ***fuel costs****, costs on account of inflation, taxes and cess, variations in power purchase unit costs including on account of hydro thermal mix in case of adverse natural events,"*

The APTEL in its Order O.P. 1 of 2011 dated 11-11-2011 under para 65 (vi) has stated that:

"*(vi) Fuel and Power Purchase cost is a major expense of the distribution Company which is uncontrollable. Every State Commission must have in place a mechanism for Fuel and Power Purchase cost in terms of Section 62 (4) of the Act. The Fuel and Power Purchase cost adjustment should preferably be on monthly basis on the lines of the Central Commission's Regulations for the generating companies but in no case exceeding a quarter. Any State Commission which does not already have such formula/mechanism in place must within 6 months of the date of this order must put in place such formula/ mechanism."*

5.58 In line with the above regulations and under directive of the APTEL, the Commission in its last Tariff Order had made available the provision of FPCA to TANGEDCO and also directed TANGEDCO to submit its petition starting October 2013.

5.59 The APTEL in its Order O.P. 1 of 2011 dated 03-11-2014 under para (x) has recorded the absence of the use of the FPCA mechanism in the state of Tamil Nadu as non compliance by the Commission. The relevant extract is as below.

"(x) Regarding putting in place an FPPCA mechanism, we find that most of the State Commissions have put in place a Fuel Adjustment mechanism. The Commissions which have not done so far are: Sikkim, Arunachal Pradesh, Nagaland and Tamil Nadu. The said Commissions are directed to comply with the main order dated 11.11.2011 in respect of putting in place a Fuel Surcharge Mechanism, as applicable to them."

5.60 The Commission would like to reiterate that it has made available in its last tariff order, the necessary mechanism and stipulated the formula to be used by the utility to calculate the FPCA to recover quarterly variation in fuel price. TANGEDCO has not filed the FPCA petitions to recover its actual fuel cost variations.

5.61 In light of the existing situation, as already elaborated in the section dealing with Variable cost of own generation, the Commission in line with the approach followed by it in its last tariff order, has not allowed any increase in the variable cost of FY 2013-14 to arrive at the variable cost for FY 2014-15.

5.62 The Commission opines that this mechanism has been designed to benefit TANGEDCO by allowing it to recover its actual fuel cost, subject to prudence check in a speedy manner. The Commission in this order has not allowed for escalation in fuel cost for the year FY 2014-15.

5.63 The formula so adopted shall be the same as elaborate in its tariff order dated 30th March 2012 and also quoted in its last tariff order dated 20th June 2013. The Commission would like to re-iterate that this being a special case of suo-motu tariff determination; the Commission has taken a reasonable and just stance with regard to disallowing fuel cost escalation.

5.64 **TANGEDCO is directed to file its FPCA petitions to the Commission as outlined in the formula and filing mechanism, to recover the actual variations in the fuel cost.**

Tariff rationalization and revision of retail supply tariffs

PF Incentive

5.65 Regulation 12 of Amended TNERC Tariff Regulations, 09th April 2014 states as under:

"12. Power Factor

The Commission may direct certain categories of consumers to maintain power factor at a prescribed level and levy disincentive for maintaining below the prescribed level"

5.66 The amendment to the Supply Code Regulation introduced in Nov 2010 clearly brings out the reasons for removing the power factor incentive. The Commission is following the same regulation for disincentive in PF below the prescribed level. Hence all the consumers are required to maintain the PF at the minimum prescribed levels in the regulation.

TOD Tariff

5.67 The Appellate Tribunal's directive on peak hour charges in the Appeal No. 257 of 2012 dated 9th April, 2013, has been extracted below.

"14.4 We notice that the State Commission has provided for 20% extra charge on energy charges for the energy consumed during peak hours i.e. 6:00 AM to 9:00 AM and 6:00 PM to 9:00 PM for the HT industrial consumers. On the other hand the HT industrial consumers are allowed a reduction of 5% in the energy charges for the consumption during off-peak hours i.e. from 10:00 PM to 5:00 AM, as an incentive for night hours consumption. These charges/incentive have been continuing from the past. However, the State Commission has decided to maintain the rates which were prevailing earlier and has not decided the rates based on some study. We find that the State Commission has provided disincentive for peak hours drawal in view of high cost of procurement of expensive power during peak hours and balance demand. However, incentive for off-peak hours has been continued despite shortage during the off-peak hours.

14.5 The aim of providing differential tariff for peak and off-peak hours is to shift load from peak to off-peak hours with a view to optimize the generation capacity and minimize the cost of power procurement for the distribution licensee. However, in the absence of a specific study for pricing of electricity at off-peak and peak hours, the weighted average of energy rates for the peak,off-peak and normal hours (other than peak and off-peaks) should be equal to the average energy rate decided for a particular category of consumer. In the present case when no specific study for peak/off-peak pricing has been carried out, the energy rate of the tariff decided by the Commission for the Appellant's category is lower than the weighted average rate of energy for peak, off-peak and the normal hours.

14.6 We also notice that the Restriction and Control Measures are also in vogue in the State and the HT industrial consumers are allowed a small quota of demand and energy during the peak hours. The drawal in excess of the specified quota results in imposition of penal rates at substantially higher rate than the normal rates. The State Commission may also consider whether in view of the Restriction and Control Measures and penal rates of excess drawal over the peak hours demand and energy quota whether there is any purpose of having a differential energy tariff off-peak hours.

14.7 We, therefore, direct the State Commission to reconsider and re-determine the differential pricing of energy during peak and off-peak hours. Accordingly, the matter is remanded back to the State Commission."

5.68 As stated in its last Tariff order, the Commission feels that a detailed study pertaining to load pattern needs to be done by TANGEDCO to be correctly able to assess the differential cost of power purchase during peak and off-peak hours. TANGEDCO in line with the direction given by the Commission has submitted a preliminary study report in the month November assessing the cost of power purchase during various time slabs during the day, for the year 2013-14 with the aim of determining any variations in power purchase cost during such time intervals and with the imposition of R&C on consumers.

The Appellate Tribunal in its directive on peak hour charges in the Appeal No. 196 & 199 of 2013 dated 27th Oct, 2014 has directed as below.

“56. The National Electricity Policy and Tariff Policy provide for time of the day tariff and imposition of ToD tariff is in order, in principle. However, there is a clear finding of the Tribunal in Appeal No.257 of 2012 that in the absence of a specific study on pricing of electricity the weighted average energy rate for peak, off peak and normal hours (other than peak and off- peak) should be equal to the average energy rate decided for a particular category of consumer. This means that the differential energy rates for peak and off-peak hours should be designed in such a way that the weighted average energy rate for peak, off-peak and the normal hours should be equal to the energy rate decided in the tariff schedule of the category of consumers. Even though there was no study regarding purchase price of peak power was furnished by TANGEDCO, the State Commission has maintained the status quo.

57. Therefore, we set aside the findings of the State Commission regarding rates for peak and off peak hours and direct the State Commission to re- determine the same as per the findings of the judgment in Appeal No.257 of 2012. Accordingly, decided.”

5.69 Commission is in the process of assessing in detail the said report and will publish shortly its findings and impact of changes if any, in the peak and off-peak charges based on this study. Hence pending the review, it proposes to retain the peak hour charges and off peak rebate at the exiting levels. The Commission humbly opines that any interim change will only lead to more complexities, and that final change in the determination of peak and off-peak charges will be taken up shortly. Accordingly after reviewing the report furnished by TANGEDCO, Commission will address this issue through a separate order.

Applicability of Revised Tariffs

5.70 The revised tariffs will be applicable from 12.12.2014. For cases where there is a billing cycle difference for a consumer with respect to the date of applicability of the revised tariff, the revised tariff should be made applicable on a pro-rata basis for the consumption. The bills for the respective periods as per existing tariff and revised tariffs shall be calculated based on the pro-rata consumption during each of these periods (units consumed during respective period arrived at on the basis of average unit consumption per day multiplied by number of days in the respective period falling under the billing cycle).

A6: TARIFF SCHEDULE

TARIFF FOR HIGH TENSION SUPPLY CONSUMERS

6.1 General Provisions applicable for High Tension Supply

i. **Categories of supply:** The categories of supply are as specified in the Tamil Nadu Electricity Distribution Code and Tamil Nadu Electricity Supply Code. The HT tariff specified for different categories of HT consumers are also applicable to the consumers who are supplied at EHT level in accordance with above said Codes.

ii. **Harmonics:** As specified in the Supply Code, when the consumer fails to provide adequate harmonic filtering equipment to avoid dumping of harmonics into Licensee's network beyond the permissible limits as specified by CEA regulations, the consumer 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. The measurement of harmonics shall be done by the Distribution Licensee using standard meters/equipment in the presence of consumers or their representatives. This compensation charges is applicable to HT-I & HT-III category of consumers. TANGEDCO shall give three months clear notice to all consumers under these categories stating that they shall pay 15% compensation charges if the harmonics introduced by their load is not within the limits set by CEA. The TANGEDCO shall implement the compensation provision after three months period from the date of measurement if the harmonics measured is more than the permissible limits.

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

iv. In case of supply under HT Tariff IA, IIA, II B and III, the use of electricity for residential quarters, within the premises, shall be metered separately by the licensee if opted by the consumer and only the energy shall be 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.

v. In case of HT supply under IA, IIA, IIB, III, the supply used for any additional construction of building within the consumer's premises not exceeding 2000 square feet may be allowed from the existing service and charged under the existing tariff. The use of electricity for the additional construction beyond 2000 square feet and lavish illumination (as defined under LT tariff VI) shall be metered separately by the licensee and only the energy shall be charged under LT Tariff VI. Such metered energy consumption shall be deducted from the total consumption registered in the main meter of the HT/EHT supply for billing.

vi. **Low Power Factor Compensation:** 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 of Power Factor compensation
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

vii. **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 contracted demand whichever is higher.

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.

6.2 **High Tension Tariff I A:**

Tariff category	Commission Determined Tariff	
	Demand Charge in Rs/kVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff I A	350	635

i. This Tariff is applicable to:

a) All manufacturing and industrial establishments and registered factories including Tea Estates, Textiles, Fertilizer Plants, Steel Plants, Heavy Water Plants, Chemical plants,

b) Common effluent treatment plants, Industrial estate's water treatment/supply works,

c) Cold storage units

ii. This tariff is also applicable to Information Technology services as defined in the ICT Policy 2008 of Government of Tamil Nadu. 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."

Information Technology Services includes:

a) **Systems integration includes**:

1) Network Management Services
2) Applications Integration

b) Processing services includes:

1) Outsourced Services in Banking, HR, finance, Technology and other areas
2) Outsourced Bank office support or Business transformation and Process Consulting Services.

c) Information Services Outsourcing includes:

1) Outsourced Global Information Support Services
2) Knowledge Process Outsourcing
3) Outsourced Global Contact Centre Operations
4) Outsourced Process Consulting Services.

d) **Packaged Software Support and Installation includes:**

1) Software Design and Development, Support and Maintenance
2) Application installation, support and maintenance
3) Application testing.

e) Hardware Support and Installation includes:

1) Technical and network operations support
2) Hardware installation, administration and management
3) Hardware infrastructure maintenance and support

iii. 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.

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

v. 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.

6.3 High Tension Tariff I B:

Tariff category	Commission Determined Tariff	
	Demand Charge in Rs/kVA/ month	**Energy charge in Paise per kWh (Unit)**
High Tension Tariff I B	300	635

i. This tariff is applicable to Railway traction.

6.4 High Tension Tariff II-A

Tariff category	Commission Determined Tariff	
	Demand Charge in Rs/kVA/ month	**Energy charge in Paise per kWh (Unit)**
High Tension Tariff II A	350	635

i. This tariff is applicable for the following services under the control of Central/State Governments /Local Bodies/TWAD Board/CMWSSB:

a) Educational institutions including government aided educational institutions and Hostels.

b) Teaching and Training institutions of Ministry of Defence and CRPF establishments,

c) Hospitals, Primary Health Centres and Health Sub-Centres, Veterinary Hospitals, Leprosy Centres and Sub-Centres.

d) Public Water works and sewerage works and Desalination plants,

e) Residential colonies and Housing complexes, Senior citizen communities, Old age Homes and Orphanages,

f) Public Lighting and Electric crematorium.

g) Public Libraries and Art Galleries,

h) Research Laboratories and institutions

i) Dairy units

ii. This tariff is also applicable to the following

a) Hospitals and Rehabilitation centres, Training & Rehabilitation centres, Old Age Homes and Orphanages run by charitable trusts which offer totally free treatment/services for all categories of patients/inmates on par with government hospitals and institutions.

b) Desalination plant at Kudankulam Nuclear Power Plant and Minjur Desalination plant of Chennai Water Desalination Ltd. Water Supply Works by new Tirupur Area Development Corporation as long as they supply drinking water predominantly to local bodies/public.

c) Single point supply to Cooperative group housing society and for the residential purpose of the employees as specified in "The Electricity (Removal of difficulties) Eighth Order 2005".

d) Actual places of public worship.

6.5 High Tension Tariff II – B :

Tariff category	Commission Determined Tariff	
	Demand Charge in Rs/kVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff II B	350	635

i. The tariff is applicable to all Private educational institutions and hostels run by them.

6.6 High Tension Tariff III :

Tariff category	Commission Determined Tariff	
	Demand Charge in Rs/kVA/ month	Energy charge in Paise per kWh (Unit)

High Tension Tariff III	350	800

i. This tariff is applicable to all other categories of consumers not covered under High Tension Tariff IA, IB, IIA, IIB, IV and V.

6.7 High Tension Tariff IV :

Tariff category	Commission Determined Tariff*	
	Demand Charge in Rs/kVA/ month	Energy charge in Paise per kWh
High Tension Tariff IV	Nil	635

*Category to be fully subsidised by the Government

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

6.8 High Tension Tariff V

Tariff category	Commission Determined Tariff	
	Demand Charge in Rs/kVA/ month	Energy charge in Paise per kWh (Unit)
High Tension Tariff V	350	1100

i. This tariff is applicable to Temporary supply for construction and for other temporary purposes.

a) For this category of supply, the initial/in-principle approval for such construction or to conduct such temporary activity obtained by the applicant from the appropriate authority, wherever necessary, is adequate to effect the supply.

b) In case of conversion of temporary supply into applicable permanent supply, the same shall be done subject to compliance of codes/regulations/orders.

c) This tariff is also applicable to start-up power provided to generators. The generators are eligible to get start-up power under this tariff after declaration of CoD. The demand shall be limited to 10% of the highest capacity of the generating unit of the generating station or the percentage auxiliary consumption as specified in the regulation, whichever is less. The supply shall be restricted to 42 days in a year. Drawal of power for a day or part thereof shall be accounted as a day for this purpose. Power factor compensation charges are not applicable for start-up power.

TARIFF FOR LOW TENSION SUPPLY CONSUMERS

6.9 General Provisions applicable for Low Tension Supply

i. All motors/pump sets connected in this category of supply shall be certified / approved by BIS/BEE and motors/pump sets of 3 HP and above shall be provided with adequate BIS certified capacitors. Non compliance shall invite compensation charges as specified in the Codes/regulations.

ii. 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 of Power Factor compensation
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

iii. 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.

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

v. Supply used for any additional construction of building not exceeding 2000 square feet within the consumer's premises shall be charged under the respective existing tariff except in case of LT tariff I-B and IV. The use of electricity for the additional construction purposes beyond 2000 square feet shall be provided with a separate service connection by the licensee and charged under LT Tariff VI.

6.10 Low Tension Tariff 1-A :

Tariff	Consumption slabs – Range in kWh(units) and billing period (one or two months)	Commission Determined Tariff *	
		Fixed charges (Rupees per month)	Energy charges in paise / kWh
	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	15	300
	For consumers who consume from 51 units to 100 units per month (or) 101		

<table>
<tr><th rowspan="2">Tariff</th><th rowspan="2">Consumption slabs – Range in kWh(units) and billing period (one or two months)</th><th colspan="2">Commission Determined Tariff *</th></tr>
<tr><th>Fixed charges (Rupees per month)</th><th>Energy charges in paise / kWh</th></tr>
<tr><td rowspan="9">Low Tension Tariff I-A</td><td colspan="3">to 200 units for two months</td></tr>
<tr><td>From 0 to 100 units per month (or) 0 to 200 units for two months</td><td>15</td><td>325</td></tr>
<tr><td colspan="3">For consumers who consume from 101 units to 250 units per month (or) 201 units to 500 units for two months</td></tr>
<tr><td>From 0 to 100 units per month (or) 0 to 200 units for two months</td><td rowspan="2">20</td><td>350</td></tr>
<tr><td>From 101 to 250 units per month (or) 201 to 500 units for two months</td><td>460</td></tr>
<tr><td colspan="3">For consumers who consume 251 units and above per month (or) 501 units and above for two months</td></tr>
<tr><td>From 0 to 100 units per month (or) 0 to 200 units for two months</td><td rowspan="3">25</td><td>350</td></tr>
<tr><td>From 101 to 250 units per month (or) 201 to 500 units for two months</td><td>460</td></tr>
<tr><td>From 251units and above per month (or) 501 units and above for two months</td><td>660</td></tr>
</table>

*Category to be subsidised by the Government

i. This tariff is applicable to the following:

a) Domestic/Residential purposes of lights, fans, Air conditioners, radio/TV and all other home appliances.

b) Supply used in the house/residence/premises for the following purpose with a total connected load not exceeding 2 kW.

1. To provide lighting, water and other facilities to domestic animals/pets including chaff cutting, milking etc.

2. Watering for gardening including growing of trees in and around residential houses/buildings.

c) Handlooms in residences of handloom weavers and handlooms in sheds regardless of use of outside labour and where energy is availed of only for lighting, fans and all other residential uses.

d) Public conveniences and Integrated woman sanitary Complexes.

e) Community Nutrition Centres, Anganwadi Centres and Nutritious Meal Centers.

f) Old Age Homes, Leprosy Centers and sub centres. Orphanages, Homes for destitute run by Government/Local bodies/Charitable Institutions rendering totally free services.

g) Consulting rooms of size limited to 200 square feet of any professionals attached to the residence of such professionals. This facility is extended exclusively to take advantage of using the residence by the professionals.

h) In respect of multi tenements/residential complexes supply used for common lighting, water supply, lift and such other facilities provided only to the residents alone may be given a separate connection and charged under this tariff. Only one service connection shall be given for the premises for all common facilities.

i) In respect of multi tenements/multi-story flats/residential complexes having both domestic and non-domestic utilities, common facilities such as common lighting, common water supply, lift and such other facilities will be charged under this tariff only if the non-residential built up area does not exceed 25% of the total built up area.

j) In multi tenements residential buildings/Group Houses the additional service connections requested by the owners/tenants shall be given. If only a meter is required to effect the additional service connection, service line charges shall not be collected.

k) Electric crematorium of local bodies.

l) Handicraft/Artisan works carried out by Potters, Goldsmiths etc. attached to the residence, done predominantly by self or family members using a connected load not exceeding 1 kW. This facility is extended exclusively to take advantage of utilizing the space in and around the residence and participation of family members in the small scale production.

m) Any additional lights, serial lights etc. used in the pandals/shamiana and in the premises of the existing domestic/residential service connection of the consumer for a period not exceeding one week at a time, with a connected load not exceeding 3 kW for the family functions/occasions.

6.11 Low Tension Tariff I-B:

Tariff	Description	Commission Determined Tariff *	
		Energy charges in Paise / kWh	Fixed charges (Rupees / Month)
Low Tension Tariff I-B	Till installation of Energy Meter	Nil	145
	On Installation of Energy Meter	495	Nil

*Category to be fully subsidised by the Government

i. This tariff is applicable to huts in Village Panchayats and special grade panchayats, houses constructed under Jawahar Velai Vaiippu 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:

a) 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.

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

c) 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.

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

6.12 Low Tension Tariff I-C:

Tariff	Commission Determined Tariff	
	Energy charges in paise / kWh	Fixed charges (Rupees / Month)
Low Tension Tariff I-C	460	60

i. This tariff is applicable to LT bulk supply for residential colonies of employees such as railway colonies, plantation worker colonies, defence colonies, Police Quarters, Residential quarters of Koodankulum Nuclear power project etc.

ii. The energy charge of this tariff is also applicable for the HT/EHT consumers who opt for extending supply under this category for their residential colonies / quarters.

iii. Single point supply to Cooperative group housing society and for the residential purpose of the employees as specified in "The Electricity (Removal of difficulties) Eighth Order 2005".

6.13 **Low Tension Tariff II-A:**

Tariff	Commission Determined Tariff	
	Energy Charges in paise/KWh	Fixed charges (Rupees /kW/ Month)
Low Tension Tariff II-A	635	60

i. This tariff is applicable to Public Lighting by Government/Local Bodies and Public Water Supply & Public Sewerage System by Government/Local Bodies /TWAD Board/CMWSSB.

ii. Private agriculture wells/private wells hired by Government/Local bodies/CMWSSB/TWAD Board/ to draw water for public distribution.

iii. Public Water Supply by New Tirupur Area Development Corporation as long as they supply drinking water predominantly to local bodies/public and Public Water Supply in plantation colonies.

iv. Separate service connections for street lights for SIDCO and other industrial estates.

v. Supply to Railway level crossings.

6.14 **Low Tension Tariff II-B (1)**

Tariff	Commission Determined Tariff	
	Energy charges in paise / kWh	Fixed charges (in Rupees per kW per month)
Low Tension Tariff II-B (1)	575	60

i. This tariff is applicable to the following entities owned or aided by the Government/Government Agencies/Local Bodies:

a) Educational/Welfare Institutions and Hostels run by such institutions, Other Hostels, Youth/Student Hostels and Scouts camps.

b) Hospitals, Dispensaries, Primary Health Centers & sub-centers and Veterinary Hospitals.

c) Research Laboratories/Institutes,

d) Elephant Health camp

e) State Legal Udhavi Maiyam.

f) Art Galleries and Museums

g) Public libraries

ii. This tariff is applicable to the following entities which offer totally free services.

a) Dispensaries, Creches and Recreation centers.

b) Libraries.

c) Emergency accident relief centers on highways, Hospitals and Rehabilitation Centres for mentally ill & blind and others, Terminal cancer care centre and Hospital in Tribal areas.

d) Institutes run for /by the physically challenged.

e) Training & Rehabilitation centres.

f) Student Hostel.

iii. This tariff is also applicable to Private Art Galleries and Museums run with service motive.

6.15 Low Tension Tariff II-B (2)

Tariff	Commission Determined Tariff	
	Energy charges in paise / kWh	Fixed charges (in Rupees per kW per month)
Low Tension Tariff II-B (2)	750	60

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

6.16 Low Tension Tariff II-C:

Tariff	Consumption slabs – Range in kWh and billing period	Commission Determined Tariff*	
		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	60	575
	Above 60 units per month or above 120 units bimonthly		575

*Category to be subsidised by the Government

i. This tariff is applicable to actual places of public worship including Trichy Rockfort temple, its environs and for the road and path ways leading to the temple.

ii. 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.

6.17 Low Tension Tariff III-A (1):

Tariff	Consumption slabs – Range in kWh and billing period	Commission Determined 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	20	400
	From 251 units and above units per month or 501 units and above bimonthly		460

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

ii. 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).

iii. 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.

iv. 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

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

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

vii. This tariff is also applicable for sericulture, floriculture, horticulture, mushroom cultivation, cattle farming, poultry & bird farming and fish/prawn culture.

viii. This tariff is also applicable for pumping of water/supply of water for the purpose of "agriculture and allied activities" as specified in LT Tariff IV provided that the applicant is unable to get supply under LT tariff IV as per the seniority maintained specifically for the purpose of providing supply to Agriculture under LT tariff IV. Such LT Tariff III-A(1) consumer is eligible to apply for LT Tariff IV. As and when such applicant becomes eligible to get regular supply under LT Tariff IV as per the specific seniority maintained for that purpose by the licensee, the supply obtained under LT Tariff III-A(1) for the specific purpose mentioned in this sub clause shall be converted into LT tariff IV. Thereafter, the terms and conditions of LT Tariff IV only will apply.

6.18 Low Tension Tariff III-A (2):

Tariff	Consumption slabs – Range in kWh and billing period	Commission Determined Tariff	
		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	60	520
	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	60	520

	251 to 500 units per month or 501 to 1000 units bimonthly		575
	501 to 750 units per month or 1001 to 1500 units bimonthly		575
	From 751 units and above per month or 1501 units and above bimonthly		575

*Category to be subsidised by the Government

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

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

6.19 **Low Tension Tariff III-B:**

Tariff	Commission Determined Tariff	
	Fixed Charges (Rupees per kW per month)	Energy Charges in Paise per kWh
Low Tension Tariff III-B	35	635

i. 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.

ii. This tariff is also applicable to Welding sets irrespective of its capacity. Supply to welding sets shall be charged 15% extra.

iii. This tariff is applicable to 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."

Information Technology Services includes:

a) **Systems integration includes** :

1) Network Management Services

2) Applications Integration

b) Processing services includes:

1) Outsourced Services in Banking, HR, finance, Technology and other areas
2) Outsourced Bank office support or Business transformation and Process Consulting Services.

c) Information Services Outsourcing includes:

1) Outsourced Global Information Support Services
2) Knowledge Process Outsourcing
3) Outsourced Global Contact Centre Operations
4) Outsourced Process Consulting Services.

d) Packaged Software Support and Installation includes:

1) Software Design and Development, Support and Maintenance
2) Application installation, support and maintenance
3) Application testing.

e) Hardware Support and Installation includes:

1) Technical and network operations support
2) Hardware installation, administration and management
3) Hardware infrastructure maintenance and support.

iv. 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.

6.20 **Low Tension Tariff IV:**

Tariff	Description	Commission Determined Tariff *	
		Energy charges in Paise / kWh	Fixed charges (Rupees per HP per annum)
Low Tension Tariff IV	Till installation of Energy Meter	Nil	2875
	On Installation of Energy Meter	322	Nil

*Category to be fully subsidised by the Government

i. This tariff is applicable for pumping of water/supply of water 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.

ii. The services under this tariff shall be permitted to have lighting loads up to 50 watts per 1000 watts of contracted load subject to a maximum of 150 watts inclusive of wattage of pilot lamps for bonafide use.

iii. Subject to the limit of contracted load, the supply under this category can be utilised for milking, sugar cane crushing, harvesting, stalk/chaff cutting, thrashing and cleaning of agricultural produces, crane used for lifting mud/silt from well by having a change over switch as approved and sealed by the licensee. The change over switch is meant for using the supply either to the pump set or to any one or more of the purposes mentioned in this clause. Using supply both to the pump sets and to the other purpose(s) at the same time is strictly prohibited. The consumer shall abide by the safety norms for any additional wiring for this purpose.

iv. This tariff is applicable irrespective of owner ship of land if the usage of electricity is for agriculture and its allied activities.

v. Agricultural consumers shall be permitted to use the water pumped from the well for bonafide domestic purposes in the farmhouse including for construction of farm house and sheds for allied works.

vi. Supply for other purpose exceeding the limit permitted for lighting purpose shall be provided only by separate service connections under appropriate LT Tariff. Service connections for water pumping for non-agricultural purpose under appropriate tariff is permitted in the same well.

vii. 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.

viii. Pumping and purifying of drainage water for the purpose of agriculture use.

6.21 Low Tension Tariff V:

Tariff	Commission Determined Tariff		
	Consumption slabs – Range in kWh and billing period	Fixed Charges (Rupees per kW per month)	Energy Charges in Paise per kWh
Low Tension Tariff V	For consumer with consumption 50 units per month or 100 units bimonthly	70	500
	For consumer with consumption above 50 units per month or above 100 units bimonthly (For all units)		805

i. This tariff is applicable to consumers not categorized under LT IA, IB, IC, IIA, IIB (1), II B (2), IIC, IIIA (I), III A (2), IIIB, IV and VI

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

6.22 Low Tension Tariff VI:

Tariff	Commission Determined Tariff	
	Fixed Charges (Rupees per kW per month)	Energy charges in paise/kWh
Low Tension Tariff VI	345	1200

i. This tariff is applicable for supply of power for temporary activities, construction of buildings and lavish illumination.

ii. The electricity supply for the additional construction beyond 2000 square feet in the premises of an existing consumer shall be provided only through a separate service connection and charged under this tariff.

iii. For temporary supply, the initial/in-principle approval for such construction or to conduct such temporary activity obtained by the applicant from the appropriate authority, wherever necessary, is adequate to effect the supply.

iv. In case of conversion of temporary supply into applicable permanent supply, the same shall be done subject to compliance of codes/regulations/orders.

v. In case of lavish illumination, if the illumination is done frequently or permanently, separate regular service connection shall be provided for lavish illumination and charged under this tariff.

vi. If the supply is availed for short duration for the temporary activity/illumination from an existing metered service connection, the computation of energy/fixed charges for temporary illumination/activity shall be done based on the connected load and duration of temporary supply. Connected load shall be accounted in kW or part thereof. Fixed charges shall be for a month or part thereof. Due credit for such computed energy, limited to the meter consumption of the respective billing period, shall be given in the energy recorded by the meter during the respective billing period for the purpose of regular billing of the existing service connection. The consumer shall abide by the safety norms for wiring.

vii. The following are considered as Lavish Illumination.

a) Illumination done for hoardings & advertisement boards.

b) Extra/additional illumination done outside the building and in the open areas for parties/functions/occasions.

c) Illumination done in the outer surface/outside the buildings/shops by display lights, serial lamps, decorative lights, special effect lamps, neon lamps, ornamental lamps, flood lights etc.

d) Temporary Illumination done for public meetings in pandals/shamianas, path ways, streets and roads.

Explanation: The supply used for the purpose of indicating/displaying the name and other details of the shop/buildings shall not be considered as lavish illumination.

6.23 **Applicability of the Tariff Schedule**

i. The above tariff schedule shall be read with the General Terms and Conditions of Supply Code and Distribution code specified by the Commission.

ii. Effecting change in tariff category for a consumer in accordance with this order shall be the responsibility of TANGEDCO.

iii. The tariff schedule of this order shall be displayed prominently by the licensee in all section and other offices of TANGEDCO.

A7: SUMMARY OF DIRECTIVES

7.1 The Commission directs TANGEDCO

a) To file their Tariff Petition on a timely basis every year, as per the TNERC Tariff Regulations.

b) To maintain quality of supply as specified in Tamil Nadu Electricity Distribution Standards of Performance Regulations dated 21-07-2004.

c) The Commission likes to reiterate that TANGEDCO shall submit a well-structured cohesive business plan and detailed individual schemes for the planned capacity additions as well as system strengthening plans. All such plans and schemes shall be submitted to the Commission in accordance with the Terms and Conditions of Tariff Regulations 2005 and its Amendments dated 09-04-2014, MYT Tariff Regulations 2009, as well as Licensing Regulations 2005. The submission for approval in this regard so far has been highly unsatisfactory. The Commission has been addressing the utilities by way of letters as well as by way of directions. The compliance to such letters and directions will have to be serious and without fail.

d) To file the progress of the capital expenditure and capitalization on a quarterly basis. Commission likes to emphasize that TANGEDCO submit their capital expenditure and capitalization plans as per the formats communicated by the Commission on a timely basis.

e) The amount approved for R&M expenses should not be diverted for any other purposes.

f) To submit a time bound program for 100% metering at feeder level and at distribution transformer level.

g) To provide the monthly energy demand and availability and its plan of scheduling power in accordance to MoD on quarterly basis. TANGEDCO is also directed to submit such information in revised formats as provided by the Commission.

h) To take prior approval from the Commission for purchasing energy from unapproved sources.

i) To pay transmission charges determined by the Commission to TANTRANSCO based on the allotted transmission capacity for FY 2014-15.

j) To file to the Commission its quarterly FPCA petitions to recover the actual cost of fuel incurred and the actual cost of power purchase.

k) To conduct a scientific study for accurate measurement of T&D Loss and unmetered consumption.

l) To start maintaining regulatory accounts for the purpose of ARR.

Sd/-	Sd/-
(G. Rajagopal)	(S. Akshayakumar)
Member	Chairman

(By Order of the Commission)

Sd/-
(S. GUNASEKARAN)
SECRETARY
Tamil Nadu Electricity
Regulatory Commission

A8:

TAMIL NADU ELECTRICITY REGULATORY COMMISSION CHENNAI - 600 008.

DISSENTING ORDER OF THIRU. S.NAGALSAMY, MEMBER

Date of Order : 11.12.2014

1. At the outset, it is my duty to make it known to all the stakeholders, the criteria that I have applied to analyse this tariff order to concur or not with my respectful colleagues. I respect and uphold the law most, especially the section 61(d) of Electricity Act 2003 which says *"safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner".* At the same time I also value equally the merits of issues. My decision on this order is purely based on whether this order is consistent with the Electricity Act 2003, National Electricity Policy, Tariff Policy. Regulations made thereon and orders or directions issued by this Commission and Hon'ble Appellate Tribunal for Electricity (APTEL) and there is merit in final conclusion. Applying this criteria, I, as a Member of the Commission, have already approved two retail tariff orders of the Commission issued during the years 2012 and 2013 and hence I have enough experience and expertise to take an unbiased decision on this order. I have also reviewed the functioning of electricity sector in Tamil Nadu, Kerala and Karnataka as Principal Accountant General / Accountant General under the control of the Comptroller and Auditor General of India.
2. There are three important issues to be considered in approving this tariff order. They are (i) legal validity (ii) procedural conformity and (iii) the merit on each issues of the tariff order.
3. Firstly let me consider the legal validity of the order.

(A) **Legal Validity:**

(a) In this connection, the related provisions of the Electricity Act 2003 are reproduced below.

> ***Section 64. (Procedure for tariff order): ---*** *(1) An application for determination of tariff under section 62 shall be made by a generating*

company or licensee in such manner and accompanied by such fee, as may be determined by regulations.

(2) Every applicant shall publish the application, in such abridged form and manner, as may be specified by the Appropriate Commission.

(3) The Appropriate Commission shall, within one hundred and twenty days from receipt of an application under sub-section (1) and after considering all suggestions and objections received from the public,-

(a) issue a tariff order accepting the application with such modifications or such conditions as may be specified in that order;

(b) reject the application for reasons to be recorded in writing if such application is not in accordance with the provisions of this Act and the rules and regulations made thereunder or the provisions of any other law for the time being in force:

Provided that an applicant shall be given a reasonable opportunity of being heard before rejecting his application.

The words ***"An application for determination of tariff under section 62 shall be made by a generating company or licensee in such manner and accompanied by such fee, as may be determined by regulations"*** appearing in section 64(1) of the Act is very significant. As mandated by the Act, the distribution licensee **should have filed a petition for determination of tariff for the financial year 2014-15.** The licensee failed to file an application for determination of Tariff and there by the statutory requirement of the Act has been violated by the TANGEDCO. Therefore this order suffers from the basic and statutory requirement of tariff application to be filed by the distribution licensee.

Para 5 (ii) of TNERC's (Terms and Conditions for determination of tariff) Regulations 2005 says

"ARR shall be filed every year even when no application for determination of tariff is made"

Shall be filed every year is very important here. It is mandatory on the part of the TANGEDCO to file the ARR, even if it fails to fill the tariff petition. Hereagain, TANGEDCO failed to file the ARR for the year 2014-15 and thereby committed a serious violation of regulatory requirement under para 5(ii) of TNERC (Terms and Conditions of determination of tariff) Regulations 2005. Thus, this order suffers from the non-fulfillment of basic regulatory requirement of filing ARR for the year 2014-15.

(b) Secondly, the Commission published the following provisions of the APTEL order and Commission's regulation in the newspapers for the information of stakeholders as the reasons for this suo-motu tariff order.

"Hon'ble APTEL vide its judgment dated 11th November, 2011 in the matter OP No. 1 of 2011, has directed the State Commissions that

> *"In the event of delay in filing of the ARR, truing-up and Annual Performance Review, one month beyond the scheduled date of submission of the petition, the State Commission must initiate suo-motu proceedings for tariff determination in accordance with Section 64 of the Act read with clause 8.1 (7) of the Tariff Policy."*

TNERC Tariff Regulations 2005 under Regulation 6 stipulates that

"(8) In case the licensee does not initiate tariff filings in time, the Commission shall initiate tariff determination and regulatory scrutiny on suo motu basis."

The APTEL order as well as the Commission's regulation specify that the Commission shall "initiate suo-motu proceedings" in case the licensee does not file tariff application in time. But the APTEL order clearly directs that the suo-motu proceedings **shall be initiated in accordance with Section 64 of the Act read with clause 8.1 (7) of the Tariff Policy.** Section 64 of the Act as stated in the beginning of this heading legal validity mandates filing of tariff application by the distribution licensee. It is crystal clear that when the distribution licensee fails to file the tariff petition and the Commission initiates the suo mout proceedings, then licensee cannot escape from filing the tariff petition. Commission has to ensure the filing of the tariff petition before proceeding with tariff determination. Therefore this order suffers not only from the statutory requirement of filing of tariff petition by the licensee but also violative of APTEL's order. In result, the Commission has not followed its own legal procedure published for the information of stakeholders. Let me discuss the provision of tariff policy tagged in the said APTEL order during my discussion on merit of the order.

(c) Now let me discuss the third important lapse of the Commission. The said APTEL order further clarifies that appropriate action should be taken by the Commission in case the licensee has not filed the petition in time. The relevant portion of the Para 44 of the order is reproduced below.

*"Therefore, we are to conclude that the State Commissions can **initiate suo-moto proceedings and collect the data and information and give suitable directions and then to determine the tariff** even in the absence of the application filed by the utilities by exercising the powers under the provisions of the Act as well as the tariff regulations. Thus, the 1st question is answered accordingly."*

The words " ***initiate suo-moto proceedings and collect the data and information and give suitable directions and then to determine the tariff***" of the said APTEL order is very important. The APTEL did not just say determine the tariff suo-motu. It directed the Commission to initiate proceedings to collect the data and information and then determine the tariff. The APTEL's order has a great meaning and purpose. As for as retail tariff is concerned, it requires thousands of discrete data/parameters to be furnished by the licensee without which retail tariff cannot be decided. Only on that context, the APTEL has directed the Commission "to collect the data and information and then determine the tariff". Commission should have taken suo-motu action under section 142 on TANGEDCO so as to make them to file ARR under para 5(ii) of Tariff Regulations and then proceeded with the suo-motu tariff order. Interestingly, the

Commission's data provided in the newspapers for the information of stakeholders carried the title **"Determined by the Commission".** There are atleast 102 formats to be furnished by the licensee as per the Tariff Regulations 2005 of the Commission to arrive at the abstract figures of ARR. Without such data it is not known how the Commission arrived at such abstract values. I have already expressed my dissatisfaction in hosting the arbitrary and abstract information/data. A copy of my file noting is enclosed as Annexure I. In fact all those formats should have been obtained from the TANGEDCO and published by the Commission as requested by some of the stakeholders. Without providing the data to the stakeholders, the Commission failed to conduct the tariff determination process in a transparent manner as required by section 86(3) of the Act which is reproduced below.

(3) The State Commission shall ensure transparency while exercising its powers and discharging its functions.

For all the 9 letters of Commission written from 12.12.2013 to 4.6.2014, silence was the only reply from TANGEDCO. These letters directed the licensee to file the ARR, tariff petition and also called for information / data to proceed with the suo-motu proceedings. But there was no response.

Since this order suffers from the prerequisites of transparency as required by the Act and collection of data from the licensee as directed by the APTEL, the draft order with the assumed data/ determinanants is purely arbitrary and it is not legally valid.

(d) Another direction given by the APTEL is about the powers of the Commission to collect such data from the Commission. Para 56 of the said order of the APTEL is reproduced below.

> *56. It is to be pointed out in this context, that the legislative intent in enacting the Act, 2003 is to secure effective Regulations characterised by tariff rationalisation with timely cost reflective tariff determination based on the principles set out in Section 61 read with the National Tariff Policy. The*

various provisions such as Section 94, 128, 129, 130, 142 and 146 empower the State Commissions to secure discovery of all relevant materials and enforce directions. Similarly, the respective tariff regulations and conduct of business Regulations notified by the State Commissions have enough provisions to call for and collect information and to enforce directions. Therefore, the hands of the State Commission cannot assumed to be tied-up to prevent them from enforcing the statutory mechanism. There are decided cases by the Hon'ble Supreme Court as well as by this Tribunal in which it is held that the State Commissions have complete powers to impose conditions, to frame regulations and to issue directions as also to enforce them. The relevant decisions are as under:

The Commission miserably failed or refused to take action on the licensee. Though the undersigned specifically recommended to take action on the licensee under section 142 of the Electricity Act, 2003, my respectful colleagues in the Commission disagreed to take action on the licensee. Interestingly my respectful colleagues in the Commission were responsible for not filing the ARR before 30th November 2013 for TANGEDCO and TANTRANSCO. It might be the reason for not taking action under section 142 of Electricity Act 2003. Inspite of specific direction by the APTEL to take action to get the data, the tariff order prepared by my respectful colleagues in the Commission on assumed data is arbitrary and has no legal sanctity. A copy of my file noting where it was not agreed to take action on the TANGEDCO under Section 142 of Electricity Act, 2003 is enclosed as Annexure I.

B**. Procedural Lapses**

Now let me present the procedural lapses as below. Section 64 of the Act specifies the procedure for determination of tariff. The procedural lapses as per the Act 2003 are:

(a) Non filing of tariff application by the TANGEDCO as per section 64 (1) of the Act.

(b) As mandated by the section 64(2), the data (application) should have been published by the applicant. Since it is a suo-motu order, the Commission should have published the data after obtaining from the licensee. There are atleast 102 discrete formats which provide data for retail tariff determination. But the Commission has not got all the details but only monthly / quarterly returns such as some generation returns, power purchase statements, sales returns, etc. These are all abstract statements inadequate for prudent check and determination of tariff. TANGEDCO has not sent any information from November 2013 to September 2014 in respect of tariff determination. The Annual Reports for 2011-12, 2012-13 and Annual Financial Statement for 2014-15 were informally obtained by the Commission. Even the scanty information were not hosted in the website along with the public notice and the summary of the tariff proposal on 23.9.2014. But, they were hosted in the website only on 24.10.2014 after a month when there was hardly a week to respond. Public hearing at Chennai was already over on 24.10.2014. Public did not get even the insufficient information well in time and thereby lost the opportunity to respond to the tariff proposal. The public hearings and the public response in the form of written submissions were incomplete to that extent.

As requested by many stakeholders including M/s Prayas/Pune, atleast the following details should have been provided to the stakeholders.

(1) Detail break-up of sales and revenue:

(a) category wise break up of metered and unmetered sales.

(b) Category wise assumptions for sales growth rate for the year 2014-15.

(2) Detail break-up of power purchase costs:

(a) Station wise capacity in the pipeline, delays in commissioning and IDC accruing to capacity commissioned by TANGEDCO.

(b) Station wise contracted capacity in the pipeline, delays in commissioning for sources other than State Generation.

(c) Projections of open access sales and wind banking and estimation of impact on TANGEDCO's sales and expenditure.

(3) Scheme/DPR wise information of capital expenditure and capitalization at the distribution level.

(4) Information of short term liabilities, rate of interest, lender and term of loans incurred by the generation and distribution business.

(c) In the original tariff proposal as hosted in the website, it was reported a revenue gap of Rs. 6,854 Crores. But in the final draft, the gap has been revised and reduced as Rs.5,447 Crores. It is not known what changes in the data or assumptions have reduced the revenue gap. The APTEL in its order dated 09-04-2013 on appeal number 257 of 2012 has observed as below.

…………………………………

However, in order to avoid any controversy in future in maintaining complete transparency and tariff determination process, the State Commission may consider to review and amend its Regulations so as to put any information furnished by the licensee or generating company to the State Commission subsequent to filing tariff petition on its website.

As directed by the APTEL, Commission should have published the supporting data for the changed revenue gap for the information of the stakeholders and for maintaining the complete transparency. Since adequate data has not been published by the Commission for the information of the stakeholders, the function of the Commission has not been conducted on transparent manner as required by section 86(3) of the Act.

(d) Another important procedural flaw is the refusal in the Commission to take action under section 142 on TANGEDCO to get the data and information as discussed supra.

Therefore the tariff determined on assumed data without following the procedure specified by the Act and directions issued by the APTEL is purely arbitrary and has no legal or procedural validity.

(e) This tariff schedule proposed originally and presently approved were never discussed in the Commission. Commission never met during these three months except once. The same question about the tariff schedule was raised by few members in the SAC meeting, but no reply was given by the Commission. On my insistence, my respectful colleagues mentioned that the tariff schedule was prepared by the consultants. When I encountered the consultant with the same question, they disowned the ownership of the tariff schedule. Thus, the tariff schedule was neither prepared and discussed by the Commission nor by the consultant.

Summary of the tariff proposal hosted in the website and public notice advertised in the newspapers were also not discussed in the Commission. In the file circulated among the Commission members to get the approval of the Commission to publish the above subject, I raised my doubts about the rational of the estimates and projections made in the summary.vide-Annexure II

Right from 2003 onwards as a convention, public hearings were held in Chennai, Coimbatore and Madurai; Trichy was added in 2010 onwards with a view to give opportunities to larger public to participate in the public hearings and express their views. But, unfortunately, this time it was changed to smaller towns like, Erode and Tirunelveli retaining the capital city Chennai and leaving major cities like Madurai, Coimbatore and Trichy. When the Commission met only once during this period of three months, to approve the public hearing schedule, I raised this question of change of places of public hearings, but there was no proper answer. I have recorded my views in the file.

3. (a) (i) To consider the order on its merits, let me first consider the important provision of tariff policy which the APTEL has quoted in its order. The relevant clause 8.1(7) of tariff Policy is reproduced below.

7) Appropriate Commissions should initiate tariff determination and regulatory scrutiny on a suo moto basis in case the licensee does not initiate filings in time. It is desirable that requisite tariff changes come into effect from the date of *commencement of each financial year and any gap on account of delay in filing should be on account of licensee.*

The words *"**any gap on account of delay in filing should be on account of licensee**"* are very significant. The licensee has neither filed the Tariff Application nor provided the data. Even if the data is available, the Commission has to do prudence check and it has to be validated. Without the data, the determination of the tariff can only be arbitrary. For the failure of the licensee, we cannot punish the consumers by raising the tariff arbitrarily. Raising the tariff assuming some parameter like inflation etc. for atleast one year will not serve its purpose. Arbitrary assumption should not adversely affect the consumers. Because there is no guarantee that the TANGEDCO will file the Tariff Petition next year for prudence check and true up. For the year 2015-16, the TANGEDCO should have filed the tariff petition before 30-11-2014 but they have failed to file the petition within the stipulated time. Commission has not yet called for the ARR and Tariff Petition. Let us assume a situation where the licensee is not filing the tariff application or providing the data every year and the Commission is issuing suo-motu tariff order every year to comply with the APTEL's direction. There are atleast 100 formats and parameters essentially required to determine the retail tariff. Without such data retail tariff cannot be determined by the Commission. Therefore the first and the foremost duty of the Commission is to make the licensee to file tariff application so as to fulfill his statuary provisions as per section 64 of the Act.

(ii) Now the issues in front of the Commission is that the Licensee has refused to file data but suo-motu order has to be issued to comply with the APTEL's order. In this circumstances, the only option for the Commission is to issue a tariff order by reducing the tariff or at the best not increasing the tariff to the Consumers in accordance with clause 8.1.7 of the Tariff policy and as directed by the APTEL. The words "*and any gap on account of delay in filing should be on account of licensee"* appearing in clause 8.1.7 is important. Only such order will ultimately make the licensee to file ARR or tariff petition atleast next year. I cannot make the consumer to suffer for the statutory violation of the Licensee. There is a wrong interpretation of the words "*and any gap on account of delay in filing should be on account of licensee"* in some circles that it refers to the prospective effect of the Tariff order. It is an agreed fact that any order which will have financial impact will take only prospective effect until otherwise there is a specific agreement between the parties to apply it retrospectively. Therefore till such time an order is approved by the Commission, based on the tariff application filed by the licensee, the gap is on the account of licensee. I believe this is the intention of the clause 8.1.7 of the tariff policy and as such the tariff cannot be increased in this order. Hence there is no merit to increase the tariff for the consumers. But this order specifies a tariff raise of around 15% for all categories. During the publication of the draft schedule for public hearing, I clearly remarked that there is no basis for such increase and it is arbitrary. Alternatively, when the licensee is not co-operating with the Commission, the proper way will be to apply the lowest stringent parameters in estimating the revenue and expenditure to arrive at the ARR and the revenue gap.

Public hearings

Many question were asked in the public hearings. Important are;

TANGEDCO, not only failed to submit the ARR and Tariff Petition, but also not replied to the Commission. It has also not replied to many inconvenient questions raised in the public hearings and written submissions. Following are some of the pertinent questions.

1. There is a tariff shock after 37% (Rs.7800 crores) increase in 2012 Rs.1000 crores in 2013 and raising the tariff again at 15 % (Rs.5225 crores) is really a shock to all consumers and especially to the handloom consumers whose tariff was less than Rs.2.40 per unit before 2012 and it was raised to Rs.4.50 raise in 2012 and now it is proposed for Rs.5.75 per unit.
2. Reasons for non-submission of ARR and tariff petition by TANGEDCO. Why no action has been taken against TANGEDCO under Section 142 of the Electricity Act 2003 so far by the Commission.
3. What are the steps taken by TANGEDCO to reduce the expenditure?

4. Commission failed to ensure the un-interrupted power supply and regulate other activities of TANGEDCO but only eager to increase the tariff rates even without the tariff petition.
5. What are the reasons for avoiding the major metro cities of Coimbatore, Madurai and Trichy for public hearings as done in earlier years.
6. Wrong policy of load shedding by TANGEDCO led to loss. The restriction of power supply to the subsidising consumers like HT / LT industries and commercial consumers resulted in reduction in revenue. The consumption pattern was totally disturbed due to load shedding without following the principles of equitable distribution. How the Commission tolerated this unequitable distribution of power?
7. R&C were maintained even when the total daily demand was as low as 207 Mus by reducing generation of low cost power thereby making loss to the utility and inconvenience to the consumers. This load shedding and R&C measures adversely affected the finances of the utility.
8. The Officers who were responsible for submitting ARR and Tariff petition to the Commission are now in the Commission and become responsible for the tariff fixation. How can the public expect the fair deal from them.
9. Regulation 38 of TNERC Distribution Code is in contravention of Section 23 of Electricity Act as it permits licensees on the instructions of Government or Commission to specify in any order to restrict the usage of electricity supply. State Government is not authorised to issue such order as per Electricity Act, but Regulation has empowered to do so. This is legally incorrect. The equitable distribution of electricity was not ensured during the last few years.
10. For all the above questions, there were no reasonable answers / replies. I agree with many of these issues as they are relevant and valid. The Commission should restrain from giving tariff shock to the consumers and it should raise the tariff rates in a phased manner. Utility has not shown any tangible measures to reduce the expenditure in any of the activities.

    The Load Shedding and R&C measures have been continued for the last six years and the utility failed in its basic responsibility of ensuring supply of un-interrupted power supply to the consumers at a reasonable rate. The question of load shedding

& R & C measures have resulted in the loss of revenue to TANGEDCO. To prove this point one can look at the revenue pattern of TANGEDCO for the month of July 2014 where it could show a small profit of Rs.200 crores ignoring the payment of interest.(copy enclosed-Annexure III)

C. **<u>Merit on each issue</u>**

Now let me consider the tariff order on merit in respect of the following other relevant provisions/directions.

"Section 61(g) of the Act

that the tariff progressively reflects the cost of supply of electricity and also, reduces the cross-subsidy in the manner to be specified by the Commission;]

Tariff Regulations

4(iii) Avoidance of tariff shock to any category while setting the tariff to progressively reflect the cost.

Directions issued by the APTEL in appeal Nos 196 & 199 of 2013.

(i) The State Commission shall approve the Capital Investment Plan of TANGEDCO for the FY 2014-15 and 2015-16 after following due process of law, if not already done, and consider the same while approving the tariff for the FY 2015-16.

(ii) We direct the State Commission to determine Weighted Average Cost of power for top 5% excluding liquidity fuel and renewable average generation and Cross Subsidy Surcharge as per the directions given under paragraph 41 of the judgement.

(iii) We also feel that in the interest of financial viability and sustainability of the Respondent 1, the issue of accumulated losses as on 30.10.2010 has to be decided by the State Government at the earliest. The State Commission may also reiterate its advice to the State Government and request for an early action in the matter. With these observations, this issue is disposed of.

(iv) The State Commission is directed to determine the voltage wise cost of supply as per our directions in this Judgment and determine the cross subsidy transparently for FY 2012-13 and 2013-14 and 2014-15 in the tariff order for 2015-16. TANGEDCO is directed to provide the necessary data as required by the State Commission.

(v) The National Electricity Policy and Tariff Policy provide for time of the day tariff and imposition of ToD tariff is in order, in principle. However, there is a clear finding of the Tribunal in Appeal No.257 of 2012 that in the absence of a specific study on pricing of electricity the weighted average energy rate for peak, off peak and normal hours (other than peak and off-peak) should be equal to the average energy rate decided for a particular category of consumer. This means that the differential energy rates for peak and off-peak hours should be designed in such a way that the weighted average energy rate for peak, off-peak and the normal hours should be equal to the energy rate decided in the tariff schedule of the category of consumers. Even though there was no study regarding purchase price of peak power was furnished by TANGEDCO, the State Commission has maintained the status quo. 57. Therefore, we set aside the findings of the State Commission regarding rates for peak and off peak hours and direct the State Commission to re-determine the same as per the findings of the judgment in Appeal No.257 of 2012. Accordingly, decided."

(i) The Act mandates reduction of cross subsidy surcharge in the manner as specified by the Commission. But in the tariff order cross subsidy surcharges are increasing both for the HT and LT categories. Hence it is not consistent with the Act provisions and the directions issued by the APTEL.

(ii) The tariff regulation says that tariff shock shall be avoided. In the absence of definition for tariff shock let me consider on the basis of Escalation Rates notified by the CERC. CERC notified escalation rates of 1.60% for capacity charge and 4.31% for energy charge for the period from 01-10-2014 to 31-03-2015. Taking into account the escalation on other constituents of retail tariff, at the worst we may assume an escalation of 10%. Hence the tariff raise of

15% has no merit and it is construed as a tariff shock. Besides this increase in the current order, the tariff was increased by 37% i.e about Rs.7800 crores in 2012 and about Rs.1000 crores in 2013 and now raising 15% is a continuous tariff shock to the consumers. One of the speakers in the public hearing at Tirunelveli remarked this as economic violence. In the current tariff order, the for HT IV – Lift Irrigation is increased from Rs.3.50 to Rs.6.35 per unit which is 80% increase, this is a real tariff shock to them. In this ground also, this tariff order violates the tariff regulation and does not survive.

(iii) The Capital Investment Plan has not yet been approved for the year 2014-15. Issuing tariff order without approved Capital Investment Plan is against the APTEL's direction.

(iv) The APTEL has directed the Commission to determine the voltage wise cost of supply. The licensee has not submitted voltage wise cost of supply report but submitted some report on 19-11-2014. This issue has already been raised by the Railways and other consumers during public hearings. Commission has not considered the report submitted by the TANGEDCO but again arrived at the average cost of supply on assumed data. This is clearly arbitrary and issuing tariff order with an assumed average cost of supply is against the directions of the APTEL.

(v) The APTEL has directed to specifically study the report to be submitted by the TANGEDCO and to fix ToD tariff. The Commission has not taken any view on the reported submission of report by the TANGEDCO. Fixing of ToD tariff in this order without such study or approval of the Commission is purely arbitrary and against the direction of the APTEL.

(vi) In the last tariff order issued by the Commission on 20-06-2013, the Commission approved a wind energy purchase of 7145 MUs at the rate of Rs.3.12 per unit after prudent check. There is an addition of 107 MW of wind energy in the year 2013-14 and 10MW up to May 2015. Out of this 117 MW, only 50% is expected to be sold to TANGEDCO. Even assuming that the entire 117 MW is sold to TANGEDCO, the total additional energy sold to the TANGEDCO would be only around 278 MUs. Assuming the highest tariff rate of Rs.3.51 per unit for the addition of 278 MUs, the average rate of wind energy purchase may only go up by one paisa. Therefore the rate of purchase cannot be more than Rs.3.13 per unit. Further in the data provided by the Commission in the website, the monthly wind energy purchase rates vary only from 297 paise to 308 paise per unit. But the rate approved in this tariff order is Rs.3.41 which is abnormally high. This will boost up the revenue gap by Rs.150 crores and to this extend the order is arbitrary. This assumption of Rs.3.41 per unit is the classic example of arbitrary inflated assumption to increase the revenue gap and the tariff.

(vii) In table 121, there is no reason for approving higher Auxiliary consumptions (AUX) for TANGEDCO's new thermal and existing gas stations. Interestingly the Commission approved less AUX for comparable new stations of CGS as per norms. Higher permitted AUX will increase the revenue gap of TANGEDCO. This is against the acceptable norms and against the interest of the consumers.

(viii) In table 129, the Commission approved only 5228 MUs as purchase from Wind energy generators for the year 2014-15. This is against the Commission's approved quantum of 7145 units in the last tariff order for the year 2014-15. In fact it is less than the TANGEDCO's own submission of 6575 units. There is no valid reason for such reduced approvals. Wind power is one of the low cost powers purchased by TANGEDCO at the rate of around Rs. 3.12 per unit. Therefore approving only 5228 MUs without valid reason will increase the revenue gap and against the interest of the Consumers. This wrong assumption also reduces the revenue gap by Rs.400 crores.

(ix) Finally I have not been provided with the data, reason and proof both for the originally proposed revenue gap of Rs. 6,854 Crores and the revised revenue gap of Rs.5,447 Crores. In my view both are arbitrary. Similar is the case with the tariff schedule and tariff rate. In fact there is no reply from the staff of the Commission and from the other Members of the Commission for my question of who prepared the Tariff Schedule.

(x) Thermal Power Plants:

There were inordinate delays in commissioning of new Thermal Plants of TANGEDCO,. CAG in its Audit Report No.1 of 2014 for the year 2013, has categorically commented about delay of 24 to 31 months. Due to this delay, State was deprived of TANGEDCO's own generation to the extent of 22557 MUs. This resulted in purchase of power from other costlier sources. The EPC contract has clauses to levy LD and compensation and TANGEDCO has not yet levied and collected.

This issue was raised by public in their written petitions to which TANGEDCO replied that the delay was beyond its control and will recover LD from EPC contractors. They also have confirmed that they have retention amount to recover the LD.

My respectful colleagues in the Commission also contended that this issue was outside the purview of the tariff order. But the fact remains that if this LD and compensation is recovered, this will either reduce the capital cost of the projects, or as per Accounting Standard of ICAI this amount has to be treated as miscellaneous revenue and to that extent it reduces the revenue gap in the tariff order. With this huge revenue, the increase in tariff is not required.

Otherwise also, if TANGEDCO has substantial retention amount it has to be deducted from the outstanding loan amount resulting in reduction in interest liability. This will reduce the revenue gap in the tariff order.

(xi) Central Generating Stations:

Tariff Order has assumed the cost of thermal power from the new CGS Stations at Rs,4.25 per unit. This is very high compared to the existing rates of power from CGS at Rs.3.34 per unit. Availability of CGS power is also assumed for the year 2014-15 as 33,212 MUs, whereas the Commission in its last tariff order considered it at 37085 MUs and TANGEDCO, itself has committed 35109 MUs. By reducing the quantum of cheaper power from the CGS, the revenue gap has gone up by Rs.800

crores as the cost of CGS power is only Rs.3.34 per unit whereas the private power purchase is at Rs.5.50 per unit.

(xii) <u>Hydel</u>

As per the data in the SLDC website it is noticed that the hydel power for the year 2014 (upto August) is Rs.1.07 per unit, whereas in the proposed tariff order, it is taken as Rs.1.60 per unit. This difference of about Rs.0,53 per unit will increase the revenue gap by Rs.242 crores.

In the last tariff order of the Commission, it projected the total estimated expenditure for own generation at Rs.8851 crores whereas in the public notice for the year 2014-15 it was indicated at Rs.12,687 crores i.e. 56% increase and in the final report it is brought down to Rs.12299 crores. Though it is a fact that quantum energy is increased but the expenditure projected is too high, that too when there is no reduction in power purchase cost. The total revenue was projected in the last tariff order at Rs.35919 crores whereas in the public notice it was mentioned as Rs.39819 crores and in the final tariff order it is brought down to Rs.38265 crores. The estimate made in the multi-year tariff order issued in 2013 has projected the revenue based on the information provided by TANGEDCO. In the absence of ARR and tariff petition, my colleagues in the Commission should have retained the same projection made by the Commission last year but with meager information available with the Commission at present they have estimated at Rs.39819 crores and now brought down to Rs.38265 crores without any basis. The reason for reduction of about Rs.1600 crores has not been explained

(xiii) <u>Energy balance</u>

In the public notice and the summary hosted in the website, power generation from TTPs was disallowed except 292 MUs. But now it is reversed and MTPS power is disallowed. The reason is not explained.

(xiv) <u>Increased Expenditure in *our* Generating Stations</u>

The estimates made in respect of components of Operation and Maintenance Expenses of, thermal power plants of TANGEDCO are too high. The employee expenses for 340 MW capacity of Ennore Power Plant is shown as Rs.84.95 crores whereas for 630 MW NCTPS it is only Rs.66.77 crores.

Interest expenses on ETPS which has decommissioned its 110 MW 5th unit and in the process of decommissioning in a phased way is Rs.108 crores whereas Mettur TPS with 630 MW is only Rs.85 crores. It is very difficult to appreciate these data.

Fixed expenses of Rs.300 crores for 340 MW capacity ETPS is too high, likewise NCTPS Stage II, Unit-I's is total fixed expenses are Rs.614 crores for 600 MW. It amounts to more than Rs.1.00 crore per 1 MW. These inflated expenses have widened the revenue gap. Based on this data tariff increase is not warranted

The receipts and payments report for July 2014(Annexure III) prepared by TANGEDCO proves that but for load shedding and R & C measures the licensee can manage the power distribution with a considerable profit. During July 2014 there was no load shedding and power cuts. The subsidizing consumers were given unrestricted power supply and the revenue was also commensurate with the power supply. In July, the total revenue was Rs.3,827/- crores against the total expenditure of Rs.3,594/- crores leaving a profit margin of about Rs.200/- crores without considering the interest payment.

The receipts and payments report for the month of March 2014 (Annexure V) gives totally a different picture contrary to the Tariff Order. This revenue report of TANGEDCO shows revenue receipt of Rs.37,144 crores for 2013–14. Even in the Annual Finance Statement for the year 2014–15 the same amount has been shown. The aggregate revenue requirement for 2014-15 as per the current Tariff Order is only Rs.37,440 crores. It gives a satisfactory impression that the TANGEDCO can manage its finance without any increase in the tariff.

In the receipts and payments report of September 2014,(Annexure IV) TANGEDCO indicated the revenue from sale of power as Rs.17,459 crores for the first six months of 2014 -15. Total subsidy received so far is Rs.4,288 crores and even if restricting this to 50% of the total subsidy payable of Rs.2,705 crores and miscellaneous revenue of Rs.172 crores total comes to Rs.20,536 crores for the first six months of the financial year. It indicates revenue of Rs.41,000 crores for 2014-15 which is much more than the revenue requirement estimated in the Tariff Order at Rs.37,440/- crores. Hence, no tariff increase is necessary.

In the energy balance, the subsidizing consumers like all HT consumers are allotted lower quantity of power whereas the subsidized categories like domestic are allotted more quantity. In the year 2013–14 the HT industrial consumption increased by 25% over previous year when the R & C measures and load shedding were prevalent . Whereas for 2014–15, the growth rate is assumed at 10% when the R & C measures were totally lifted for 3 months from June 2014 to September 2014. The growth rate should be more than 30%. This change alone will reduce the revenue gap by Rs.800 crores. The growth of energy consumption of all HT consumers comes to 24% in 2013–14 but it is assumed a growth rate of 6% in the Tariff Order which is highly arbitrary. If we consider this same growth rate, the revenue gap will come down by Rs.1,200 crores. This arbitrary assumption has distorted the revenue gap.

In light of the above, since the draft tariff order suffers from legal validity, procedure conformity and issue based merits, I am not approving the tariff order in its present form.

Taking into account to the above, analysis and argument I respectfully disagree with the tariff order of my respectful colleagues and I issue my separate order.

I understand that there is a court order restraining the TNERC from issuing any order but my colleagues assure me that there is no bar to issue the tariff order based on this assurance I am issuing this separate order.

Sd/-
(S. Nagalsamy)
Member
TNERC

(By Order of the Commission)

Sd/-
(S. GUNASEKARAN)
SECRETARY
Tamil Nadu Electricity
Regulatory Commission