



# TAMIL NADU ELECTRICITY REGULATORY COMMISSION

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## Determination of Tariff for Generation and Distribution

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Order in T.P. No.1 of 2017 dated 11-08-2017

(Effective from 11-08-2017)



**TAMIL NADU ELECTRICITY REGULATORY COMMISSION**

(Constituted under Section 82 (1) of Electricity Act, 2003)

(Central Act 36 of 2003)

PRESENT:

Thiru. S. Akshayakumar – Chairman

Thiru. G. Rajagopal – Member

Dr. T. Prabhakara Rao - Member

**Order in T.P. No. 1 of 2017**

**Date of Order: 11-08-2017**

**In the matter of: Determination of Tariff for Generation and Distribution**

In exercise of the powers conferred by clauses (a), (c),(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) and all other powers hereunto enabling in that behalf and after considering the views of the State Advisory Committee meeting held on July 20, 2017 and after considering suggestions and objections received from the public in writing and during the Public Hearings held on July 25, 2017, July 28, 2017 and August 2, 2017, as per sub-section (3) of Section 64 of the said Act, the Tamil Nadu Electricity Regulatory Commission hereby passes this order for Generation and Distribution Tariff.

This Order shall take effect on and from the August 11, 2017.

Sd/-  
(Dr. T. Prabhakara Rao)  
Member

Sd/-  
(G. Rajagopal)  
Member

Sd/-  
(S. Akshayakumar)  
Chairman

(By Order of the Commission)

Sd/-  
(S. Chinnarajalu)  
Secretary, TNERC

### **LIST OF ABBREVIATIONS**

A&G	Administration and General
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
MTOA	Medium 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
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

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# 1 INTRODUCTION

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## 1.1 Preamble

- 1.1.1 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 or the Commission) vide G.O.Ms.No.58, Energy (A1) Department, dated March 17, 1999.
- 1.1.2 The Commission issued its **first** Tariff Order (Order No. 1 of 2002) under Section 29 of the Electricity Regulatory Commissions Act, 1998, on March 15, 2003 based on the Petition filed by the erstwhile Tamil Nadu Electricity Board (TNEB) on September 25, 2002.
- 1.1.3 The Electricity Regulatory Commissions Act, 1998 was repealed and the Electricity Act, 2003 (Central Act 36 of 2003) was enacted with effect from June 10, 2003.
- 1.1.4 The Commission notified the Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations 2005 (herein after called Tariff Regulations) on August 3, 2005 under Section 61 read with Section 181 of the Act.
- 1.1.5 The Commission issued separate order (Order No. 2 of 2006) on Transmission Charges, Wheeling Charges, Cross Subsidy Surcharge (CSS) and Additional Surcharge on May 15, 2006, based on the Petition filed by the erstwhile TNEB on September 26, 2005 under Section 42 of the Act.
- 1.1.6 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 February 11, 2009.
- 1.1.7 Subsequently, TNEB filed an Application for determination of Aggregate Revenue Requirement (ARR) with Tariff for all functions on January 18, 2010, which was admitted by the Commission after initial scrutiny on February 9, 2010. The Commission issued its **second** Retail Tariff Order on July 31, 2010 (Order No. 3 of 2010).

- 1.1.8 The erstwhile TNEB was formed as a statutory body by GoTN on July 1, 1957 under the Electricity (Supply) Act, 1948. TNEB was primarily responsible for generation, transmission, distribution and supply of electricity in the State of Tamil Nadu.
- 1.1.9 GoTN, vide G.O (Ms) No 114 Energy Dept., dated October 8, 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.

## **1.2 The Electricity Act, 2003, Tariff Policy and Regulations**

- 1.2.1 Section 61 of the Electricity Act, 2003 (herein after referred as the EA, 2003 or 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):***

*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: ...;*

*b. transmission of electricity;*

*c. wheeling of electricity;*

*d. retail sale of electricity.*

*...”*

- 1.2.2 TNERC notified its Tariff Regulations, which specifies the factors that will guide the Commission in determination of Tariff, the relevant extract of which is reproduced below:

### ***“4. Tariff setting principles***

*The Commission, while determining the tariff, shall be guided by the following factors:-*

(i) *The guidelines outlined in Section 61 of the Act ...*

*“The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-*

*(a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;*

*(b) the generation, transmission, distribution and supply of electricity are conducted on commercial principles;*

*(c) the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;*

*(d) safeguarding of consumers’ interest and at the same time, recovery of the cost of electricity in a reasonable manner;*

*...*

*(ii) Rationalisation of tariff*

*... ..”*

1.2.3 The Tariff Policy notified by Govt. of India on January 28, 2016, specifies the following objectives:

*“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;*

*(e) Promote generation of electricity from Renewable sources;*

*(f) Promote Hydroelectric Power generation including Pumped Storage Projects (PSP) to provide adequate peaking reserves, reliable grid operation and integration of variable renewable*

*energy sources;*

*(g) Evolve a dynamic and robust electricity infrastructure for better consumer services;*

*(h) Facilitate supply of adequate and uninterrupted power to all categories of consumers;*

*(i) Ensure creation of adequate capacity including reserves in generation, transmission and distribution in advance, for reliability of supply of electricity to consumers.”*

### **1.3 Tariff Filing**

- 1.3.1 TANGEDCO was incorporated on December 1, 2009 and started functioning as such with effect from November 1, 2010.
- 1.3.2 Subsequent to the filing of Tariff Petitions by TANGEDCO for determination of retail supply tariff for 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 March 30, 2012.
- 1.3.3 TANGEDCO filed the Tariff Petition for determination of tariff for Generation and Distribution for FY 2013-14, which was scrutinised and reviewed by the Commission. Based on this Petition and after considering views of the State Advisory Committee and the public, the Commission passed the **fourth** Order on June 20, 2013.
- 1.3.4 TANGEDCO did not file the ARR and Tariff Petition for FY 2014-15 before the Commission. In the absence of Tariff Petition, the Commission initiated a suo-motu proceeding for determination of tariff in accordance with Section 64 of EA 2003. After thorough review of the available information, the Commission passed the **fifth** Order on December 11, 2014.
- 1.3.5 TANGEDCO has now filed the Petition for final truing up of FY 2011-12 to FY 2015-16, determination of Multi Year ARR for FY 2016-17 to FY 2018-19 and determination of Retail Tariff for FY 2017-18.
- 1.3.6 TANGEDCO submitted that ARR for FY 2017-18 should have been filed before November 30, 2016. Since the Government of Tamil Nadu (GoTN) decided to join

the UDAY scheme, TANGEDCO filed a Petition before the Commission in M.P No. 31 of 2016 seeking time extension upto January 31, 2017, as the participation in UDAY will have direct impact on the profitability of TANGEDCO. The Commission granted the request of TANGEDCO. The MoU under UDAY scheme was entered into between the GoI, GoTN and TANGEDCO on January 9, 2017. Taking into account the consequent financial impact, the Petition was filed before the Commission on January 27, 2017 and admitted on January 31, 2017 vide T.P. No.1 of 2017.

#### **1.4 Procedure Adopted**

##### **1.4.1 Regulation 7 (2) of the Tariff Regulations specifies as under:**

*“The applicant shall publish, for the information of public, the contents of the application in an abridged form in English and Tamil newspapers having wide circulation and as per the direction of the Commission in this regard. The copies of Petition and documents filed with the Commission shall also be made available at a nominal price, besides hosting them in the website.”*

##### **1.4.2 The Public Notice containing the salient details with regard to the Petition was approved and communicated to TANGEDCO on February 8, 2017 with a direction to arrange publication of the notice in newspapers. The written objections/suggestions/views from stakeholders were invited by March 13, 2017 and the time limit was extended till March 31, 2017.**

##### **1.4.3 TANGEDCO has published the Public Notice in the following newspapers on February 10, 2017 (Friday).**

a) Business Standard (English Morning Newspaper)

b) Dina Boomi (Tamil Morning Newspaper)

c) Trinity Mirror (English Evening Newspaper)

d) Makkal Kural (Tamil Evening Newspaper)

##### **1.4.4 The Petition was placed before the State Advisory Committee on July 20, 2017. The list of Members who attended the State Advisory Committee meeting is placed as Annexure I to this Order.**

- 1.4.5 The list of stakeholders who have submitted written objections/suggestions/views on the Petition in response to the Public Notice is placed as Annexure II and the issue-wise summary of objections/suggestions/views along with TANGEDCO's replies and the Commission's ruling on each issue, are included in Chapter 2 of this Order.
- 1.4.6 The Commission conducted Public Hearing at the following places on the dates noted against each:

Date	Day	Place	Venue
July 25, 2017	Tuesday	Chennai	Vani Mahal, 103, G.N. Chetty Street, T.Nagar, Chennai 600 017.
July 28, 2017	Friday	Madurai	Tamil Nadu Chamber of Commerce and Industry, 178- B Kamarajar Salai, Madurai 625 009.
August 2, 2017	Wednesday	Coimbatore	S.N.R. College Auditorium, Nava India Bus Stop, Avinashi Road, Coimbatore 641006.

- 1.4.7 The lists of participants in each Public Hearing, is placed as Annexure III to this Order. The objections/suggestions/views raised by the participants are discussed in Chapter 2.

## 1.5 Transfer Scheme

- 1.5.1 The proposal for Assets Transfer and Employee transfer called as Tamil Nadu Electricity Board (Reorganization and Reforms) Transfer Scheme, 2010 was notified by GoTN vide G.O. (Ms). No.100 Energy (B2) Department dated October 19, 2010 with the effective date of implementation as November 1, 2010. Based on the above notification, TNEB was re-organized with effect from November 1, 2010.
- 1.5.2 At the time of issue of Suo-Motu Tariff Order dated December 11, 2014, the Transfer Scheme was not finalised. Therefore, the Commission had stated the following regarding the provisional Transfer Scheme:

*“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.*

*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.*

*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.”*

- 1.5.3 GoTN vide the gazette notification G.O. (Ms) No. 49 dated August 13, 2015, issued the final Transfer Scheme.

*“In the Government order first read above, Government have notified the Tamil Nadu Electricity (Re-organisation and Reforms) Transfer Scheme, 2010. The erstwhile Tamil Nadu Electricity Board has been reorganized with effect from 01.11.2010, as per the provisions of the Electricity Act, 2003. In the above transfer scheme, the assets and liabilities were segregated based on the available unaudited balance sheet of erstwhile Tamil Nadu Electricity Board as on 31.03.2009 instead of balance sheet as on 31.10.2010 which was not ready at that time and stated that this shall be provisional for a period of one year from the respective date of transfer as per the clause 9(1) of the said scheme (i.e., upto 31.10.2011).*

*(2) Now, the Chairman and Managing Director, Tamil Nadu Generation and Distribution Corporation Limited has stated that as the audited balance sheet as on 31.10.2010 is ready, it is essential to issue notification for the final amendment to the earlier transfer*

*scheme notified in Government Order 2nd read above for giving effect to the transfer of assets and liabilities to successor entities of erstwhile Tamil Nadu Electricity Board as on 01.11.2010.*

*(3) Amendment to the existing Tamil Nadu Electricity (Reorganisation and Reforms) Transfer Scheme, 2010 notified in G.O.Ms.No.100, dated 19.10.2010, subsequently amended in G.O.(Ms.) No.2, Energy (B2) Department, dated 02.01.2012 by issuing Notification for giving effect to transfer of assets and liabilities to successor entities of erstwhile Tamil Nadu Electricity Board Limited as on 01.11.2010 be issued.*

*(4) The Notification appended to this order will be published in the Tamil Nadu Government Gazette, Extraordinary, dated 13.08.2015.”*

- 1.5.4 The final Transfer Scheme notified by GoTN came into effect from November 1, 2010. TANGEDCO's Balance Sheets from FY 2011-12 to FY 2014-15 were prepared on the basis of the provisional Transfer Scheme, whereas the Balance Sheet of FY 2015-16 has been prepared on the basis of final Transfer Scheme, i.e., impact of overall adjustment from November 1, 2010 to March 31, 2015 has been considered in the Balance Sheet of FY 2015-16.
- 1.5.5 As the process of revaluation pertains only to book entry and has no material significance in regulatory process, the Commission has considered only book values, after removing the impact of revaluation, while undertaking true up for FY 2011-12 to FY 2015-16.

## **1.6 Unbundling of TNEB**

- 1.6.1 TNEB was unbundled on November 1, 2010. Consequently, it started functioning as two separate entities namely, TANGEDCO and TANTRANSCO. While TANGEDCO was made responsible for Generation and Distribution functions, TANTRANSCO was made responsible for transmission activities within the State.
- 1.6.2 The Commission in its Tariff Orders dated July 31, 2010, March 30, 2012, June 20, 2013 and December 11, 2014 had indicated that the accumulated losses up to 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 November 1, 2010 only are being dealt with in various Tariff Orders subsequent to Unbundling.
- 1.6.3 The Revenue Gaps arising subsequent to unbundling were dealt with primarily as



Regulatory Asset in the Order of the Commission dated December 11, 2014. For FY 2014-15, the Commission had increased the tariff uniformly for all categories of consumers. This had led to a reduction in revenue gap.

- 1.6.4 The approach followed by the Commission to treat the Revenue Gap has again been discussed in Chapter 5 of this Order.

## **1.7 Brief Note on Public Hearing**

- 1.7.1 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, Madurai and Coimbatore on July 25, 2017, July 28, 2017 and August 2, 2017, respectively.
- 1.7.2 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 2 of this Order.

## **1.8 Applicability of Order**

- 1.8.1 This Order will come into effect from August 11, 2017. The Generation and Retail Tariff contained in this Order will be valid until issue of the next Order.

## **1.9 Layout of the Order**

- 1.9.1 This Order is organised in the following seven Chapters:
- a) **Chapter 1** provides details of the Tariff setting process and the approach of the Order;
  - b) **Chapter 2** 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 3** provides details/analysis of the final true up for FY 2011-12 to FY 2015-16;
  - d) **Chapter 4** provides analysis of the Petition for determination of ARR for the Control Period from FY 2016-17 to FY 2018-19;

- e) **Chapter 5** provides details of the cumulative Revenue Gap/(Surplus), Regulatory Assets, and 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 6** gives the Tariff Schedule applicable for the consumers for FY 2017-18; and
  - g) **Chapter 7** provides details of the Directives of the Commission for compliance by TANGEDCO.
- 1.9.2 The Order contains the following Annexures, which are an integral part of the Tariff Order.
- a) **Annexure I-** The list of participants at the State Advisory Committee
  - b) **Annexure II-** The list of stakeholders who have submitted written objections/ suggestions/ views in response to the Public Notice.
  - c) **Annexure III-** The list of participants at each Public Hearing.
  - d) **Annexure IV-** Copy of the Final Transfer Scheme as notified by the State Government vide G.O. (Ms.) No.49, Energy (B1) Department, dated August 13, 2015.

## **1.10 Approach of the order**

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

- a) The Commission has taken note of the final Transfer Scheme notified by GoTN vide G.O. (Ms.) No.49, Energy (B1) department, dated August 13, 2015 with amendment in the restructuring of Balance Sheet of TNEB for TANGEDCO and TANTRANSCO.
- b) The Commission has referred to the Audited Accounts of TANGEDCO for FY 2011-12 to FY 2015-16 for truing up the expenses in accordance with the Tariff Regulations and MYT Regulations. Based on the prudence check of the expenses and revenue reported in the Audited Accounts of TANGEDCO, the Commission has arrived at the allowable ARR and revenue recovered by the utility.
- c) The Commission had undertaken provisional true up of FY 2011-12 to FY 2012-

13 and Annual Performance Review of FY 2013-14 in the Suo-Motu Order dated December 11, 2014. Therefore, while undertaking final true up, the Commission has also referred to the approach adopted in the Suo-Motu Order.

- d) For FY 2016-17, the Commission had sought actual figures up to January 2017. The Commission has determined the ARR for FY 2016-17 to FY 2018-19 in accordance with the Tariff Regulations and MYT Regulations, past trends observed after final true up of FY 2011-12 to FY 2015-16 and actual figures for FY 2016-17 provided by TANGEDCO.
- e) For the Control Period from FY 2016-17 to FY 2018-19, the Commission has extended the rationale adopted for allowing/disallowing various controllable components of the ARR while truing up for FY 2011-12 to FY 2015-16, to project the ARR for the Control Period and determine tariff for FY 2017-18.
- f) The Commission does not consider the loan basket of TANGEDCO while approving the Interest and Finance charges. Therefore, while approving Interest and Finance charges for FY 2016-17 to FY 2018-19, it has not considered the impact of UDAY, as it is against the actual basket of loans. However, the Commission has considered the impact of UDAY while approving the overall Regulatory Asset of TANGEDCO.

## **2 STAKEHOLDERS' COMMENTS, TANGEDCO'S REPLY AND COMMISSION'S VIEW**

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### **2.1 Background**

- 2.1.1 The following Section summarizes the key views/objections/suggestions and requests made by stakeholders on the basis of the Public Notice issued by TANGEDCO on February 10, 2017. 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, in order to accommodate maximum responses to the Public Notice, extended the timeline for submission of written comments from March 13, 2017 to March 31, 2017 based on stakeholders' requests to extend the date of submission of comments.
- 2.1.2 In this Section, the Commission has appropriately addressed the specific views/objections/ suggestions made by stakeholder groups on each issue. The general comments also list specific requests made by stakeholders like Consumer Federation Tamilnadu (CONFET), Indian Wind Power Association (IWPA), Tamilnadu Spinning Mills Association (TASMA), Power Engineers' Society of Tamilnadu (PESOT), Indian Energy Exchange (IEX), the Southern India Mills' Association (SIMA), etc., to which the Commission has responded. All comments received by the Commission from the stakeholders have been provided to TANGEDCO for responding. The responses so received have been included under the relevant heads. Therefore, each view has been considered by the Commission and appropriately addressed in this Order.

### **2.2 General and Procedural Issues**

#### **Stakeholder Comments**

- 2.2.1 TANGEDCO has violated the provisions of Regulation 5 of the TNERC Tariff Regulations, 2005 by delaying the submission of ARR and Truing-Up Petitions. Action has to be taken by the Commission for the violation and lapses in submission of ARR Petition by TANGEDCO. Condonation Petition has to be filed by TANGEDCO for the delays in filing ARR and Truing-up Petitions.
- 2.2.2 The Commission has itself violated the Hon'ble APTEL's directions and provisions

under Clause 8.1 (7) of the Tariff Policy, 2006 by not publishing suo-motu Tariff Order for FY 2015-16 and FY 2016-17.

- 2.2.3 Public Hearings should be held as per the Conduct of Business Regulations and the Electricity Act, 2003. TANGEDCO has proposed to revise the Tariff Schedule for many consumer categories, resulting in indirect increase in tariff that affects the consumers, hence, Public Hearing has to be held. Consumers who are unable to submit written comments may express their concerns verbally.
- 2.2.4 The Commission should ensure that all relevant details relevant for quantum of expenditure, source of revenue and optimization of expenditure are provided in full to the public before calling for stakeholder comments on the Tariff Petition.
- 2.2.5 The date for submission of comments should be extended until the formal process of Public Hearings is completed or till April 13, 2017.
- 2.2.6 The final Order should be issued only after the Public Hearing. Meanwhile, a draft Order may be published.
- 2.2.7 The accounts of TANGEDCO should be audited by third party auditors and the regulatory compliance including the compliance of directives should be audited and scrutinized by the Commission before taking up tariff revision. The true-up should be based on audited figures rather than provisional values submitted by the Utilities. The Commission should issue suitable Regulations and Guidelines, which mandate the statutory independent auditor to comment on the compliances applicable to Companies licensed by it.
- 2.2.8 The Commission should request the Comptroller & Auditor General of India (CAG) to annually audit the operations of TANGEDCO and make it available before the tariff exercise. The Commission should also direct TANGEDCO to maintain separate Regulatory Accounts independent of the Accounts maintained by it for compliance with the Companies Act, 2003, Income Tax Act, 1961 and other Regulations. These Regulatory Accounts should be in compliance with the Electricity Act, 2003 and the various directions given under the Act and the subordinate legislations. These should be audited by a Chartered Accountant appointed by the Commission and the Annual Reports should be posted on the websites of the Commission and TANGEDCO. The Commission may also mandate a reconciliation of the Regulatory Accounts and the other Statutory Accounts.

- 2.2.9 The following directives of the Commission in the Tariff Order for FY 2012-13 are yet to be complied with:
- Complete exercise for accurate measurement of T&D loss and unmetered agricultural consumption.
  - Submission of data on ToD consumption along with the subsequent Tariff Application for all consumers where ToD meters have been installed.
  - Provision of meters for all new hut connections and phase-wise plan for conversion of unmetered hut connections.
- 2.2.10 TANGEDCO should incorporate statistics pertaining to Distribution Standards of Performance (DSOP) in the Tariff Petition submitted to the Commission. This will highlight the level of efficiency of the Utility in responding to consumer complaints and redressal.
- 2.2.11 TANGEDCO should incorporate statistics pertaining to Consumer Grievance Redressal Forum (CGRF) in the Tariff Petition submitted to the Commission. This will help understand the grievances of consumers and the kind of action that has been taken to alleviate the pain and suffering of consumers. Further, Court Judgments should be tabulated and classified to understand how TANGEDCO is protecting consumer interest, by listing the number of decisions and type of cases decided in favour of the consumer and the Utility separately for each distribution circle.
- 2.2.12 Information on steps taken by TANGEDCO to prevent damages and maintain machineries of Generating Stations should be provided in the Tariff Petition.
- 2.2.13 A Status Paper should be published by the Commission on the ARR Petition filed by TANGEDCO.
- 2.2.14 The Transmission Charges considered in the ARR Petition for FY 2016-17 to 2018-19 by considering escalation of 5% on the Transmission Charges levied for FY 2015-16 should not be accepted by the Commission, as the Transmission Charges levied and collected by TANGEDCO are on the higher side when compared to Transmission Charges levied by other Distribution Licensees in the country.

### **TANGEDCO's Reply**

- 2.2.15 TANGEDCO submitted that the Commission issued Suo-Motu Tariff Order on December 11, 2014, and stipulated as under regarding the applicability of the Tariff 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 next order”.*

- 2.2.16 TANGEDCO further submitted that ARR for FY 2017-18 should have been filed before November 30, 2016. Since the Government of Tamilnadu (GoTN) decided to join the UDAY scheme, TANGEDCO filed a Petition before the Commission in M.P No. 31 of 2016 seeking time extension upto January 31, 2017, as the participation in UDAY will have direct impact on the profitability of TANGEDCO. The Commission granted the request of TANGEDCO. The MoU under UDAY scheme was entered into between the GoI, GoTN and TANGEDCO on January 9, 2017. Taking into account the consequent financial impact, the Petition was filed before the Commission on January 27, 2017 and admitted on January 31, 2017.
- 2.2.17 As regards the query on mismatch of accounts and the Petition data, TANGEDCO submitted that the True-up Petition is a reconciliation of accounts in line with the provisions contained in the TNERC Tariff Regulations, 2005. RoE and Interest on Working Capital are claimed in the Petition on normative basis and hence, difference arises between the Accounts and Petition.
- 2.2.18 TANGEDCO submitted that it has furnished actual accounts data for true-up from FY 2011-12 to FY 2015-16 from the Annual Audited Accounts. After true-up of Accounts, surplus available if any, will be adjusted against ARR after recovering the Regulatory Assets.
- 2.2.19 The Petitioner also submitted that the details required for prudence check have been furnished before the Commission. Further in para 9.1.10 of the Petition, TANGEDCO prayed before the Commission for addition and alteration to this Petition as may be necessary from time to time. Accordingly, TANGEDCO is ready to furnish necessary details to issue Order on this Petition.
- 2.2.20 As regards the Commission's directive in its Tariff Order dated June 20, 2013 to maintain Regulatory Accounts, TANGEDCO submitted that the directive was issued

by the Commission in light of the development at Forum of Regulators (FoR) on Standardization of Regulatory Accounts. FoR had issued the Final Report on the same in October 2012. The intent of having standardization of accounts was to take care of regulatory provisions specified by State Electricity Regulatory Commissions (SERCs). The Report envisaged preparation of Balance Sheet and Profit & Loss Account considering norms specified by SERC in Tariff Regulations and approvals as per Tariff Order. For e.g., in normal accounting practice, the audited accounts would not have Normative Loan balance appearing on Liability side or Interest on Normative Working Capital appearing in P&L side. The intent was to have separate set of accounts for Regulatory purposes so that stakeholders have better clarity on regulatory approvals.

- 2.2.21 Clause 5.1 – Reporting System of the Report stipulates that this Reporting System shall come into force from the date of publication in Official Gazette, which is pending till date. TANGEDCO submitted that none of the Utilities have so far implemented this new Reporting System of Regulatory Accounts and believes that the present Accounting System (under Indian Companies Act, 1956 and Income Tax Act, 1961) for the purpose of Truing-up is adequate to take care of necessary compliances as per applicable provisions of TNERC Tariff Regulations, 2005. The Commission approves expenses under Truing-up process considering regulatory norms and approvals in Annual Performance Review based on the Audited Accounts. TANGEDCO further submitted that as and when such Reporting System is notified, it would comply with the same in the true spirit.
- 2.2.22 The Petitioner also submitted that the Audited Accounts are available in website of TANGEDCO.
- 2.2.23 TANGEDCO submitted that it has filed the Petition before the Commission in accordance with the provisions contained in TNERC Tariff Regulations, 2005 and submitted relevant details for adjustment of subsidy. It has also submitted in the Petition that further information required will be submitted to the Commission to dispose of the Petition and pass Orders and that the Commission will pass relevant Orders after prudence check of information furnished by TANGEDCO.



### **Commission's View**

- 2.2.24 As regards the delay in filing the Petition, TANGEDCO had filed a Petition before the Commission in M.P. 31 of 2016, seeking time extension for Tariff Petition filing upto January 31, 2017, which was granted by the Commission.
- 2.2.25 Sufficient time has been provided, as the last date for submission of written comments and suggestions was extended to March 31, 2017. The Commission has held the Public Hearing at three locations in the State, as per regular practice, and has considered all the comments and suggestions received in writing as well as orally during the Public Hearing, while analysing TANGEDCO's Petition and issuing this Tariff Order.
- 2.2.26 The true-up for the period from FY 2011-12 to FY 2015-16 has been done based on the duly Audited Accounts submitted by TANGEDCO. For true-up, the Commission has considered the applicability of the TNERC Tariff Regulations, 2005 and done prudence check on the expenses and revenue available from the Audited Accounts of TANGEDCO.
- 2.2.27 The fresh directives deemed necessary by the Commission for improving the operational efficiency of TANGEDCO are given in Chapter 7 of this Order.
- 2.2.28 It is clarified that the Transmission Charges are based on the approved ARR of TANTRANSCO, and TANGEDCO's share of TANTRANSCO's ARR is based on its allocated Transmission Capacity, and has been considered accordingly in the approved ARR of TANGEDCO.

## **2.3 Tariff Determination and Truing Up**

### **Stakeholder Comments**

- 2.3.1 Though TANGEDCO has not proposed any tariff hike for FY 2017-18, it should have proposed tariff reduction as it has saved a lot of expenses over the previous few years. The cost of imported coal and oil has fallen by around 40% and 50%, respectively, since 2012. In addition, the commissioning of new plants in the State has led to purchase of cheaper power from own generation rather than power purchase from costly Independent Power Producers (IPP's). TANGEDCO has shown reduction in expenditure of Rs. 7000 Crore for FY 2015-16 alone in the Petition. Under this situation, there should be a tariff reduction by 19% rather than

zero tariff hike.

- 2.3.2 The scrutiny of the ARR Petition shows that the recent fall in prices of coal, oil and power purchase have led to a gain of around Rs. 5000 Crore. The consumers' tariffs should be reduced to this extent.
- 2.3.3 The increase in input costs leads to increase in power prices. However, the reduction in input costs in the past few years are not reflected in the consumers' tariffs. The Commission should do a prudence check of input costs and other parameters to reduce the present tariff to reflect the reduction in input costs.
- 2.3.4 During the Public Hearing, it was submitted that the tariffs should be reduced, as the input costs related to price of coal, oil, and power purchase are expected to reduce over the Control Period.
- 2.3.5 TANGEDCO has decided to forgo about Rs. 2500 Crore subsidy from the Government of Tamil Nadu (GoTN). This has increased the burden on the consumers as TANGEDCO is already reeling under a cumulative loss of Rs. 1,02,400 Crore as on March 31, 2016. Hence, the proposal of TANGEDCO to forego the subsidy should be justified by TANGEDCO as it violates Section 65 of the Electricity Act, 2003 and should be dismissed by the Commission.
- 2.3.6 The effect of Financial Restructuring Plan (FRP) where economical loans are available to TANGEDCO has to be taken into consideration while fixing the ARR of TANGEDCO, as the interest charges reduce with increased cash flow from the State Government. The effect of both FRP and UDAY (recently signed by the State Government) should be monitored while fixing the current year's ARR.
- 2.3.7 In page 72 of the Petition, it is stated that the outstanding loan is estimated to be Rs. 81,782 Crore, of which Rs. 30,420 Crore is the loan for Distribution function. This infers that the difference amount of Rs. 51,362 Crore might have been assigned for Generation function, which could have led to more than 8000 MW of capacity addition during the relevant period.
- 2.3.8 TANGEDCO has requested for an opportunity to rectify any error/omission in the Petition, which shows that TANGEDCO admits the presence of known error/omission with deliberate intention.

- 2.3.9 The Petition envisages abnormal capital expenditure amounting to Rs. 1,34,883.40 Crore, which is not commensurate with the year-wise investment from FY 2016-17 to FY 2017-18. For this huge investment, there is no mention about the source of funding in the Petition.
- 2.3.10 TANGEDCO should clarify the variation in Revenue Gap for FY 2016-17, FY 2017-18 and FY 2018-19. The values fluctuate from Rs. 4772.01 Crore in FY 2016-17 to Rs. 107.12 Crore in FY 2017-18 and again to Rs. 4120.43 Crore in FY 2018-19. The Revenue Gap has been understated to avoid increase of Tariff for FY 2017-18.
- 2.3.11 On page 52 of the Petition, revenue from sale of power is reflected wrongly because the consumption of Agricultural and Hut services is much higher than the assumption. The average load of agricultural service is more than 10 HP, whereas TANGEDCO is considering the same as 5 HP.
- 2.3.12 The cumulative Revenue Gap is stated to be Rs. 70,993.10 Crore in Table 68 of TANGEDCO's Petition. There is no mention of the effect of UDAY scheme on the loan amount. From the above submission, it may be inferred that TANGEDCO is not in a sound financial position. The Commission should take steps to regulate and strengthen the financial situation of TANGEDCO to help render better customer service.
- 2.3.13 It was informed in the election campaigns that TANGEDCO shall not join the UDAY scheme, while presently, TANGEDCO has joined UDAY scheme without informing the circumstances. Of the overall Rs. 81,312 Crore loan, only Rs. 30,420 Crore has been taken up by UDAY. The status of the remaining Rs. 50,892 Crore is unknown.
- 2.3.14 The financial losses submitted in the ARR Petition and that considered under UDAY are not matching, as shown in the Table below:

<b>Year</b>	<b>ARR Petition (Rs. Crore)</b>	<b>UDAY (Rs. Crore)</b>
2013-14	13,809	13,985
2014-15	14,313	12,757
2015-16	7,490	5,787

- 2.3.15 The subject of FRP was raised during 2012 Public Hearing and TANGEDCO has kept silent till the present ARR Petition.

### **TANGEDCO's Reply**

- 2.3.16 Under the UDAY scheme, GoTN took over TANGEDCO's loan of Rs. 22,815 Crore, which will be transferred to TANGEDCO in the form of grant of Rs.4563 Crore each for five years. The conversion of this loan to grant will help TANGEDCO to save annual interest upto Rs. 2882 Crore and annual loan repayment of Rs. 2282 Crore. The total annual cash flow savings will be Rs. 5164 Crore. On take-over of loan, GoTN will have to bear additional interest burden of Rs. 1825 Crore per year.
- 2.3.17 GoTN is paying a subsidy of Rs. 8500 Crore per year. On participation in UDAY, TANGEDCO has proposed to give up a portion of its savings to reduce the burden on the State Government. After giving up this portion of benefit, TANGEDCO is likely to save Rs. 3082 Crore per annum in cash flow. TANGEDCO also submitted that on account of the savings from UDAY, it has proposed to retain the same tariff for consumers without any additional burden.
- 2.3.18 TANGEDCO submitted that the impact of FRP 2012 is included in the Petition.
- 2.3.19 As regards the comment on joining UDAY without any justification, TANGEDCO submitted that before joining UDAY, GoTN wanted to make certain modifications in the UDAY scheme proposed by GoI. After acceptance of certain modifications proposed, GoTN accepted to participate in UDAY and entered into an MoU between GoI, GoTN and TANGEDCO on January 9, 2017. The details and impact of UDAY scheme have been submitted in the Petition.
- 2.3.20 TANGEDCO submitted that it has an accumulated loss of Rs. 61,993.54 Crore upto FY 2015-16. The benefit accrued on account of reduction in cost and surplus earned in any year will be adjusted against the accumulated loss, and the balance amount will be passed on to the consumers with approval of the Commission.
- 2.3.21 TANGEDCO further submitted that Section 62(6) of the Electricity Act, 2003 provides that if any Licensee recovers a price or charge exceeding the tariff determined under this section, the excess amount shall be recoverable by the person who has paid such price or charge along with interest equivalent to the Bank Rate without prejudice to any other liability incurred by the Licensee.

### **Commission's Views**

- 2.3.22 The true-up for the period from FY 2011-12 to FY 2015-16 has been done based on the duly Audited Accounts submitted by TANGEDCO, as elaborated in Chapter 3 of this Order. A Regulatory Asset has been created against the approved cumulative Revenue Gap at the end of FY 2015-16. The treatment of the cumulative Revenue Gap determined by the Commission has also been elaborated in Chapter 5 of this Order.
- 2.3.23 The Commission has approved the CIP of TANGEDCO for FY 2016-17 to FY 2018-19 through a separate Order in Case No. M.P. No. 28 of 2016, duly considering the need for such investment, present status of the investment, and the feasibility of completion of the project within the stipulated time period.
- 2.3.24 The category-wise tariff for FY 2017-18 is based on the approved ARR and the projected Revenue Gap/(Surplus) approved for FY 2017-18 in this Order, based on the detailed analysis of own generation and power purchase expenses, and other revenue expenditure components, as elaborated in Chapter 4 of this Order.
- 2.3.25 While the GoI has proposed the UDAY Scheme to address the financial burden and associated sickness of DISCOMs, it is open to GoTN and TANGEDCO to join the Scheme to avail the financial and other benefits accruing out of it, subject to the conditions stipulated therein. The decision to join the UDAY scheme and the merits/demerits of the covenants of the UDAY MoU are thus, beyond the Commission's jurisdiction, and it is for the GoTN and TANGEDCO to agree on the most optimum measures to improve the operational and financial viability of TANGEDCO.
- 2.3.26 As regards TANGEDCO's proposal to reduce the tariff for domestic category, TANGEDCO has clarified that it has proposed to give up a portion of its savings under UDAY to reduce the burden on the State Government, and after giving up this portion of benefit, TANGEDCO is likely to save Rs. 3082 Crore per annum in cash flow. Thus, the UDAY MoU shall translate to significant recurring benefits for TANGEDCO.
- 2.3.27 It is clarified that in line with the approach adopted in previous Tariff Orders, which has been upheld by the Hon'ble APTEL, the Commission has not considered the impact of the FRP on the ARR of TANGEDCO, in terms of depreciation, interest on

loan, and Return on Equity. The detailed treatment of depreciation, interest on loan, and Return on Equity for the true-up period is elaborated in Chapter 3 of this Order, while the treatment for the MYT Control Period is elaborated in Chapter 4 of this Order.

## **2.4 O&M Expenses**

### **Stakeholder Comments**

- 2.4.1 O&M Expenses incurred by TANGEDCO for FY 2011-12 to FY 2015-16 are very high. The O&M expenses of all TANGEDCO's thermal stations other than Ennore Thermal Power Station is estimated to be Rs. 30.36 Lakh per MW as opposed to the CERC norms of Rs. 25.4 Lakh per MW for FY 2015-16.
- 2.4.2 TANGEDCO has projected increase of 10.18%, 3.76% and 7.45% in the O&M Expenses for FY 2016-17, FY 2017-18, and FY 2018-19, respectively. The increase in Dearness Allowance (DA) has been projected as 15%. This variation in O&M Expenses needs to be clarified. The Commission should not allow increase higher than the norm of 5.72%.
- 2.4.3 The Basic Pay of TANGEDCO employees has been increased by 7% with an additional 3% for employees who have completed 10 years of service, effective from December 1, 2011 based on TANGEDCO's Order B.P (Per) F.B. Proceedings on January 11, 2014. In addition, DA was also increased by GoTN for present employees and pensioners in 2016 (G.O. No 130 dated May 2, 2016) and 2015 (G.O. No. 264 dated October 16, 2015) with reference to the pay as on January 1, 2006. On the other hand, TANGEDCO has paid DA to working staff at the revised pay-scale as on December 1, 2012 and the payment of the same DA to the pensioners based on pay revised on January 1, 2006, which is discrimination in favour of the working staff. This hike in DA should not be eligible for the increment effective from December 1, 2011. The Commission should not allow this additional DA claimed over the 7-10% hike in Basic Pay to the TANGEDCO employees as this increases the consumer tariffs.

- 2.4.4 TANGEDCO has to provide details of the efforts made to reduce overhead expenses.

### **TANGEDCO's Reply**

- 2.4.5 TANGEDCO submitted that the O&M Expenses are being claimed in accordance

with the Tariff Regulations. The average DA increase for the year is in the range of 15% and Basic Pay increase is about 5% (3% annual increase and annual leave encashment). The employment expenses are estimated as above and pension expenses have been estimated with annual DA increase only. TANGEDCO further submitted that other than Employee Expenses, annual escalation of 5.72% as per the Tariff Regulations, has been considered.

### **Commission's Views**

- 2.4.6 In line with the approach adopted in earlier Tariff Orders, the Commission has approved the O&M expenses for each Year of the MYT Control Period in accordance with the TNERC Tariff Regulations, 2005, by considering an annual escalation of 5.72% over the trued-up O&M expenses for FY 2015-16, and providing additional DA allowance based on the prevailing GoTN notification for DA.

## **2.5 Capital Expenditure**

### **Stakeholder Comments**

- 2.5.1 TANGEDCO has not submitted detailed break-up of Rs. 2907.85 Crore capitalization against Ennore Thermal Power Plant for FY 2015-16. There are no generation figures after FY 2018-19. If the plant is being shut down, note on decommissioning should be incorporated in the Tariff Petition and the note on Ennore Expansion II should be incorporated.
- 2.5.2 TANGEDCO has to follow the Hon'ble APTEL's direction in Appeal No. 196 of 2013 that the Commission should approve the Capital Investment Plan (CIP) before it can be included in the ARR Petition. Thus, the Commission may approve TANGEDCO's ARR only after approving its CIP.
- 2.5.3 The reason for increase in Capitalization from Rs. 8,343 Crore in FY 2014-15 to Rs. 26,394 Crore in FY 2015-16 should be provided.

### **TANGEDCO's Reply**

- 2.5.4 TANGEDCO submitted that it has filed the CIP for FY 2014-15 and FY 2015-16 in M.P. No. 39 of 2012 as directed by the Hon'ble APTEL. The Commission approved the same vide its Order dated January 31, 2017 after disallowance of certain amount.

- 2.5.5 TANGEDCO further submitted that in line with the TNERC Tariff Regulations, 2005, it filed its CIP for the Control Period from FY 2016-17 to FY 2018-19 in M.P. No. 28 of 2016 which is pending before the Commission.

#### **Commission's Views**

- 2.5.6 TANGEDCO has clarified that the remaining Units (I to IV) of Ennore Thermal Power Plant have been decommissioned with effect from March 31, 2017. The impact of the decommissioning on the fixed cost approved for Ennore Thermal Power Plant has been elaborated in Chapter 4 of this Order.
- 2.5.7 The Commission has approved the CIP for FY 2014-15 and FY 2015-16 vide its Order dated January 31, 2017 in M.P. No. 39 of 2012.
- 2.5.8 The Commission has approved the CIP of TANGEDCO for FY 2016-17 to FY 2018-19 through a separate Order in M.P. No. 28 of 2016, duly considering the need for such investment, present status of the investment, and the feasibility of completion of the project within the stipulated time period.

## **2.6 Interest on Loan and Other Finance Charges**

#### **Stakeholder Comments**

- 2.6.1 There is a huge difference between the approved and the actual interest and finance charges for FY 2011-12 to FY 2015-16. TANGEDCO should submit explanation on the above and the Commission should conduct a separate investigation and report on performance of generating stations.
- 2.6.2 In page 35 of the Petition, there is no mention of the quantum of loan on which the interest on loan and other financing charges are calculated.

#### **TANGEDCO's Reply**

- 2.6.3 TANGEDCO submitted that it has filed a Petition before the Commission for True up of ARR from FY 2011-12 to FY 2015-16. In the True-up Petition, reconciliation with the ARR approved by the Commission and actual expenses incurred by TANGEDCO has been submitted.
- 2.6.4 As regards the huge difference between the interest expenses approved by the Commission and the actual interest, TANGEDCO submitted that in the earlier Tariff



Orders, the Commission had disallowed the actual interest commitment of TANGEDCO with the observation that interest expenses are higher than the interest on loan required for actual capital expenditure. The disallowed portion of interest expenses on loan borrowed for revenue expenditure could not be recovered through tariff revision. Hence, the actual interest expenses incurred by TANGEDCO are higher than the expenses approved by the Commission. However, the actual interest expenses are submitted to the Commission for True up based on prudence check of the Audited Accounts.

### **Commission's Views**

- 2.6.5 The true-up for the period from FY 2011-12 to FY 2015-16 has been done based on the duly Audited Accounts submitted by TANGEDCO, as elaborated in Chapter 3 of this Order. However, on account of the difficulty in reconciling the loans with the capital expenditure, the Commission has continued with its approach of allowing interest expenses on the normative loan requirement considering the approved capital expenditure, as well as the loan requirement for repayment of loans, in line with the approach adopted in earlier Tariff Orders, which has been upheld by the Hon'ble APTEL.

## **2.7 Non-Tariff Income**

### **Stakeholder Comments**

- 2.7.1 The various heads of income under Non- Tariff Income should be properly defined in order to provide greater clarity.

### **TANGEDCO's Reply**

- 2.7.2 TANGEDCO submitted that it has filed the Petition before the Commission in accordance with the provisions contained in TNERC Tariff Regulations, 2005. It has also submitted that further information required will be submitted to the Commission to dispose of the Petition and pass Orders and that the Commission will pass relevant Orders after prudence check of information furnished by TANGEDCO.

### **Commission's Views**

- 2.7.3 The true-up for the period from FY 2011-12 to FY 2015-16, including Non-Tariff Income, has been done based on the duly Audited Accounts submitted by TANGEDCO, as elaborated in Chapter 3 of this Order.

## **2.8 Own Generation**

### **Stakeholder Comments**

- 2.8.1 The proposed values of Specific Oil Consumption of thermal power stations for FY 2016-17, FY 2017-18, and FY 2018-19 are higher than the existing values and very high compared to the norms of 0.5 ml/kWh specified in CERC (Terms and Conditions) Regulations, 2014. Clarification needs to be provided for the very high specific oil consumption proposed for generation plants of TANGEDCO for FY 2017-18 and FY 2018-19. The CERC norms should be implemented.
- 2.8.2 The Directorate of Revenue Intelligence (DRI) reported that TANGEDCO has imported coal at \$ 82/tonne against the actual average import prices of \$ 40 - \$ 50/tonne during 2015, which would have resulted in a loss of Rs. 1400 Crore per annum. The coal import details should be furnished by TANGEDCO for the entire period of true-up and prudence check should be done by the Commission before approving the ARR.
- 2.8.3 An investigation on over-invoicing of imported coal, which is not suitable for TANGEDCO's thermal power plants, should be conducted.
- 2.8.4 TANGEDCO has to provide details of the cost of coal purchased in the last year, and the variation of the same in future. The following data has to be furnished by TANGEDCO:
- Station-wise cost of coal (separately for indigenous and imported) with transport cost break-up for True-up and Tariff Period.
  - Specific Tariff approved for TANGEDCO's Mini/ Micro Hydel and other power plants by the Commission.
- 2.8.5 The deficiencies highlighted in CAG Report regarding operation of thermal power stations of TANGEDCO have to be addressed by TANGEDCO and the steps taken to promote operational efficiency of generating stations have to be spelt out. TANGEDCO has to also justify burdening the consumer with the cost of such financial mismanagement. The reduction in major expenses by TANGEDCO has to be discussed in detail.
- 2.8.6 On page 29 of the Petition, computation of fuel expense varies widely because of large-scale corruption in purchase of coal. The quantum of imported high quality

coal used is not reflected in the Petition.

- 2.8.7 At present, TANGEDCO has the capability to generate thermal energy at the rate of approximately Rs. 3 per unit. At the same time, the private generators are not capable enough and experienced to generate thermal energy at less than Rs. 5.50 per unit. Because of this incapability, huge quantity of coal is being wasted leading to loss of national wealth.
- 2.8.8 TANGEDCO has concealed the details of power generated by Valuthur II of 92 MW unit. This plant was regularly shut down in order to facilitate the allotment of natural gas to nearby private plants from whom TANGEDCO purchases power at high cost.
- 2.8.9 The variable cost of NCTPS I and II varies sharply to an extent of 50% in the same year, which needs to be examined.

#### **TANGEDCO's Reply**

- 2.8.10 TANGEDCO submitted that it has filed the Petition before the Commission in accordance with the provisions contained in TNERC Tariff Regulations, 2005. It has also submitted that further information required will be submitted to the Commission to dispose of the Petition and pass Orders and that the Commission will pass relevant Orders after prudence check of information furnished by TANGEDCO.
- 2.8.11 TANGEDCO submitted that the projections of Specific Fuel Consumption for FY 2016-17 were made based on the actual values upto September 2016 and the Commission has been requested to relax the norms of Specific Fuel Consumption.
- 2.8.12 The variable cost is calculated on actual fuel cost basis for which necessary computations and proof has been submitted to the Commission.
- 2.8.13 The Petitioner submitted that it is procuring imported coal based on the provisions of The Tamil Nadu Transparency in Tenders Act, 1998. The station-wise details of both domestic and imported coal cost has been furnished to the Commission for prudence check.

#### **Commission's Views**

- 2.8.14 The Commission has approved the station-wise cost of generation by considering the norms of operation specified in the TNERC Tariff Regulations, 2005, as elaborated in Chapter 4 of this Order. The latest available cost of fuel and Calorific Value of

fuel have been considered to compute the approved cost of generation.

## **2.9 Power Purchase**

### **Stakeholder Comments**

- 2.9.1 TANGEDCO should provide details of the rates at which wind/solar power were purchased in the last year and the variation of the same in future.
- 2.9.2 The Commission approved procurement of 3330 MW thermal power from private generators for 15 years at Rs. 4.91/kWh (with escalation conditions), which is in violation of Case-I bidding Guidelines 4.11(ii) and 5.15 issued by GoI, while other States have signed Power Purchase Agreements (PPAs) at rates ranging from Rs. 2.88- 3.77 /kWh. The Commission approved the high tariff rates even when some of the generators offered reduction in the tariff rates discovered. This loss of approximately Rs. 3000 Crore per annum for the next 15 years should not be allowed to be passed on to the consumers in the ARR. The case of high power purchase prices is apparent from the subsequent voluntary reduction in power prices by M/s. Coastal Energen, M/s IL&FS and M/s. OPG Power Gen. In this regard, TANGEDCO should furnish the following data:
- Name of generator, quantum of power, fixed and variable cost of power purchase by TANGEDCO under the above PPA for true-up.
  - Per unit reduction in price offered by the generator.
- 2.9.3 The Petition did not say anything about the LTOA purchase of power from 11 generators, which shall lead to an expenditure of approximately Rs. 7000 Crore every year as Fixed Charges. The Commission has approved the power purchase overlooking these expenses.
- 2.9.4 The Commission violated its own Order by extending the effectiveness of its Order No. 7 of 2014 by 7 months, facilitating TANGEDCO's purchase of solar power at Rs. 7.01/ kWh, while other States signed PPA's for solar power purchased at around Rs. 5.40/ kWh. This extension has led to a loss of about Rs. 324 Crore per annum for the next 25 years. This amount should not be passed on to the consumers in the ARR. The Hon'ble APTEL has also observed that this has caused a legal injury to the consumers of the State in its Order dated September 9, 2016. In this regard, TANGEDCO should furnish the following data:

- Details of Solar PPA's signed by TANGEDCO at Rs. 7.01/ kWh during the extended period.
- Details of such power plant capacities, units generated during the True-up/ Tariff Period.

2.9.5 TANGEDCO purchased around 5000 MU from wind power in FY 2015-16 of the overall evacuated 12000 MU, at around Rs. 3.20 /kWh. Such wind power purchased would have saved around Rs. 900 Crore per annum against power purchase costs. However, in the last few years, TANGEDCO has been rejecting/backing down wind power and purchasing costly thermal power from IPPs at Rs. 14.00/kWh and through long/medium and short-term power purchase at Rs. 6.00/kWh. This is an abuse of power by officials of TANGEDCO and the excess expenditure should not be recovered from the consumers. The following data should be furnished in this regard:

- The quantum and percentage of backing down of wind power done by TANGEDCO since 2012.
- Average purchase price of wind power.
- Average price of thermal power purchased under long/medium/short-term power purchase.

2.9.6 The Commission has approved rates for power purchase by TANGEDCO from IPPs in violation of Merit Order Despatch. In the last 5 years, IPP power has been purchased at Rs. 10.85-22.85/kWh, while the average power purchase from other sources has been around Rs. 3.79- 4.40/kWh. The Commission should not fix tariffs based on the power purchased illegally from costly IPPs. The consumers of the State should not be punished for the mistakes of TANGEDCO.

2.9.7 TANGEDCO has been consistently delaying the payments to wind energy generators (WEG's) for the past 10 years by 15-20 months. TANGEDCO should pay its creditors in time and enhance its reputation before claiming subsidies from the Government.

2.9.8 TANGEDCO should be directed by the Commission to purchase 10% of its requirement from Power Exchanges to reduce the power purchase cost, by purchasing short-term power at around Rs. 2.50/kWh and passing on the benefits of economic power purchase to the consumers.

- 2.9.9 Details of Energy procured from Solar Power generators should be furnished. A comparative analysis of purchase of power from different sources/generators should be submitted. The purchase price of Wind Power should be discussed in detail.
- 2.9.10 The expense incurred on account of having bought high cost power by neglecting any low-cost power should not be a part of ARR or Regulatory Asset. It should be disallowed to benefit the consumers based on the ruling of the Commission in MP No. 9, 10, 13, 14, 16, 28, 53, 72 and 81 of 2013 and MP No. 9 and 18 dated September 15, 2014.
- 2.9.11 The power purchase expenses should be properly maintained by TANGEDCO. TANGEDCO should honour the Orders and Directions given by the Commission regarding the total cost of power purchase. For e.g., TANGEDCO has claimed Rs. 25,000 Crore against the annual power purchase expense of Rs. 14,000 crore approved by the Commission. TANGEDCO was bold enough to commit such violation because of the inertness on the part of the Commission in non-initiation of penal action for many such violations.
- 2.9.12 TANGEDCO's statement that there was no short-term power purchase during FY 2012-13 should be clarified. TANGEDCO's statement that there was no medium-term power purchase in FY 2015-16 and no cost was allocated should be clarified as TANGEDCO should pay the fixed charges.
- 2.9.13 There is no reason to continue the PPA with PPN Power till 2031 as it is classified as high cost power and forbidden for power purchase by the Commission.

#### **TANGEDCO's Reply**

- 2.9.14 TANGEDCO submitted that the short-term power purchased in FY 2012-13 and medium-term power purchased in FY 2015-16 are included under the head 'trading bilateral' for the respective years. The actual financial commitment for long-term purchase has been considered in the Petition.
- 2.9.15 TANGEDCO submitted that it is not true that it has purchased high cost power after rejecting low cost wind power available at Rs.3.20/- per unit. Wind generation is highly infirm in nature and integrating high volume of wind generation of around 7000 MW, which constitutes 50% of the grid capacity, is difficult. Internationally also, the penetration of 50% of highly infirm wind capacity is considered impossible

to integrate without scheduling and forecasting and an adequate spinning reserve. In Western Countries also, it is the responsibility of the generator to create Spinning Reserve, while integration of Renewable Energy (RE) is only by the flexible market-driven Tariff.

- 2.9.16 Given the technical and grid constraints, integration of wind has been meticulously done without adequate spinning reserve during FY 2013-14, FY 2014-15 and FY 2015-16. Hence, TANGEDCO rejected low cost wind power during the above years and purchased high cost IPP. The allegation that TANGEDCO intentionally backed down the RE generation is incorrect. The evacuation of maximum wind generation during FY 2016-17 by TANGEDCO has been made possible only because of the forecasting facility made available during FY 2016-17 by IWPA and National Institute of Wind Energy (NIWE), which helps predict the infirm nature of the wind and plan accordingly.
- 2.9.17 TANGEDCO submitted that during the extended validity period of 7 months of Solar Tariff Order No. 7 of 2014, PPAs were entered for 119 MW and total units generated before March 31, 2016 from these power plants was 168.14 MU.
- 2.9.18 TANGEDCO submitted that it has not violated the GoI Guidelines on Case 1 Bidding. TANGEDCO submitted that the Ministry of Power, GoI had issued Guidelines for procurement of power through competitive bidding process and the Standard Bidding Documents were published on January 19, 2005 and modified on July 21, 2010. Prior to floating tender for procurement of power under Case 1 bidding, TANGEDCO obtained the Commission's approval for procurement of power and the bidding documents. The outcome of the tender process was filed before the Commission in MP No. 27 of 2013 and PPAP No. 3 of 2014 for adoption of tariff.
- 2.9.19 TANGEDCO submitted that the averment regarding violation by TANGEDCO of Clauses 4.11 (ii) and 5.15 of the Competitive Bidding Guidelines issued by GoI, while evaluating the bids received under Case 1 bidding, is incorrect. Clause 4.11 (ii) is applicable to Case 2 bidding with captive mines as source of fuel and is not applicable to Case 1 bidding. Therefore, there is no violation of Clause 4.11 (ii) of Competitive Bidding Guidelines by TANGEDCO.
- 2.9.20 During the period of processing/finalizing of tenders by TANGEDCO, UP Discom

and Rajasthan Discom had finalized the long-term tender for supply period of 25 years. The levelised tariff discovered in the tender of UP Discom was in the range of Rs. 4.486 per kWh to Rs. 5.730 per kWh and the levelised tariff discovered in the tender of Rajasthan Discom was in the range of Rs. 4.892 per kWh to Rs.5.517 per kWh. Hence, the levelised tariff of Rs. 4.91 per kWh discovered in the tender of TANGEDCO is reasonable and comparable to the rate prevalent at that time. As per Clause 5.15 of Competitive Bidding Guidelines, the bidder who has quoted lowest levelised tariff as per evaluation procedure, shall be considered for the award and the Evaluation Committee shall have the right to reject all price bids if the rates quoted are not aligned to the prevailing market prices. TANGEDCO has awarded to the bidder who has quoted lowest levelised tariff, and the discovered levelised tariff of Rs. 4.91 is reasonable and comparable to the rate prevalent at that time. Hence, there is no violation of Clause 5.15 of Competitive Bidding Guidelines by TANGEDCO.

2.9.21 TANGEDCO submitted that the contention that other States have signed PPAs under Case 1 bidding at rates ranging from Rs.2.88 to Rs. 3.77 per unit, could be because that levelised tariff might have been discovered much earlier. Comparison should be with the prevalent price trend.

2.9.22 The actual weighted average tariff of power supplied under TANGEDCO's long term tender (Case 1) is as follows

Year	Weighted Average Tariff in Rs per kWh
2014 – 15	4.918
2015 – 16	4.539
2016 – 17	4.206

2.9.23 TANGEDCO submitted that escalation indices are given separately for evaluation purposes and for payment purposes. It will not be therefore prudent to compare the actual tariff with levelised tariff used for the purpose of evaluation.

2.9.24 Voluntary discounts offered by three generators are to qualify under merit order dispatch. All the PPAs and voluntary discounts offered by the three generators are available on TANGEDCO's website.

2.9.25 As per the Competitive Bidding Guidelines, the signed PPA shall be forwarded to the Appropriate Commission for adoption of tariff in terms of Section 63 of the Act, which states:



*“Notwithstanding anything contained in section 62, the Appropriate Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government.”*

- 2.9.26 TANGEDCO has strictly followed the Competitive Bidding Guidelines and there is no violation anywhere, in any form. Therefore, the adoption of Tariff by the Commission for Case 1 bidding satisfied the requirements under Section 63 of Electricity Act, 2003 and there is no necessity to revisit the orders already issued.
- 2.9.27 As regards disallowance of costly power purchased, the audited accounts with necessary data required for true up from FY 2011-12 to FY 2015-16 have been submitted to the Commission. Further, the Petition does not propose any additional tariff burden for the consumers.
- 2.9.28 TANGEDCO also submitted that it purchases power from the sources approved by the Commission. TANGEDCO is giving top priority for purchase of required power from the low cost IPPs in the first instance and then power from high cost IPPs is purchased through step by step upward increase in the price, till TANGEDCO's demand is met. Such Merit Order Dispatch has been stipulated by the Commission and is strictly followed by TANGEDCO. Whenever necessary, in order to meet the demand after exhausting all sources approved by the Commission, TANGEDCO purchases power from the sources other than that approved by the Commission. For this power purchase also, TANGEDCO files Petitions before the Commission periodically and obtains the Commission's approval.
- 2.9.29 TANGEDCO further submitted that though RE power is low cost power, the contribution from RE sources is less than 6% of the total estimated demand. In particular, though power is available from Wind sources at Rs.3.30 per unit, wind energy generators are capable of producing maximum power only for about 4 months' period, from June to September. Such power is purchased at the rate determined by the Commission, towards compliance with the Renewable Purchase Obligations (RPO) Regulations.

#### **Commission's Views**

- 2.9.30 For true-up for the period from FY 2011-12 to FY 2015-16, the Commission has approved the source-wise power purchase cost by considering the actual quantum of

power purchase (subject to the overall limit of quantum required as per the approved T&D losses) and the approved tariff for different RE sources, actual rates for purchase from Central Generating Stations, normative variable cost of generation, and actual rate of purchase from Power Exchanges, IPPs, bilateral sources, and LTOA sources. The Commission has ensured that the power purchase is allowed strictly as per Merit Order Despatch principles, which have been applied to own generation sources as well as power purchase from other sources. The excess power purchase by TANGEDCO, on account of higher than approved T&D losses, has been disallowed at the marginal rate of power purchase, in accordance with the approach adopted in earlier True-up Orders. The details of source-wise quantum and cost of power purchase and the overall quantum and cost of power purchase approved after true-up for the period from FY 2011-12 to FY 2015-16 are elaborated in Chapter 3 of this Order.

- 2.9.31 The Commission has approved the power purchase cost for the MYT Control Period from FY 2016-17 to FY 2018-19, based on the approved power purchase quantum considering the projected sales, the inter-State losses applicable for the Southern Region, approved TANTRANSCO Transmission Losses, and approved TANGEDCO Distribution Losses. The source-wise power purchase quantum has been considered based on allocated capacity and projected availability. The RE purchase has been considered based on the specified RPO levels for the respective years. The approved tariff for different RE sources, actual rates for purchase from Central Generating Stations in FY 2016-17, approved normative variable cost of generation, and actual rate of purchase from Power Exchanges, IPPs, bilateral sources, and LTOA sources in FY 2016-17 have been considered. The Commission has considered the power purchase strictly as per Merit Order Despatch principles, which have been applied to own generation sources as well as power purchase from other sources. The details of source-wise quantum and cost of power purchase and the overall quantum and cost of power purchase approved for the MYT Control Period from FY 2016-17 to FY 2018-19 are elaborated in Chapter 4 of this Order.
- 2.9.32 The Commission has approved the LTOA procurement of 3330 MW thermal power from private generators for 15 years, at the levelised tariff of Rs. 4.91/kWh discovered through competitive bidding, through a separate Order in P.P.A.P. No. 3 of 2014 dated July 29, 2016, and the power purchase expenses have accordingly been considered in the Order on true-up and MYT Petition filed by TANGEDCO.

- 2.9.33 The Commission has extended the effectiveness of Order No. 7 of 2014 by around 6 months, vide its Order No. 4 of 2015 dated April 1, 2015 and the tariff for energy purchased under PPAs entered into and commissioned during this extended period has been considered accordingly, while approving the power purchase cost.

## **2.10 Transmission & Distribution (T&D)/Aggregate Technical & Commercial (AT&C) Losses**

### **Stakeholder Comments**

- 2.10.1 The T&D losses of 20.44%, 19.00% and 18.7% proposed for FY 2016-17 to FY 2018-19 seems too high considering the prevalent T&D losses of about 21% (average over the past four years) and the expenses of Rs. 3440.38 Crore under R-APDRP, Rs. 1561.31 Crore under IPDS and Rs. 924.12 under DDUGJY (Aggregating Rs. 5925.81 Crore) of which 80% works have already been completed. The loss is expected to be lower at 15% after such a quantum of expenditure.
- 2.10.2 TANGEDCO has been maintaining the constant T&D loss of around 21% over the past few years, which shows its inefficiency. Actual line losses should be measured by meters or other scientific methods. Under R-APDRP, T&D losses have to be reduced by 1.5% per annum. The loss reduction strategy of the Commission has to be adopted to transfer the benefits to the consumers.
- 2.10.3 Proper metering has to be done and all the defective meters have to be replaced to reduce the AT&C losses. A White Paper should be published by TANGEDCO in this regard. A White Paper should be published on violation of tariff classification (termed as theft) in the State. The T&D losses should not be passed on to the consumers.
- 2.10.4 It is hard to understand how TANGEDCO can reduce its T&D losses from 20.13% approved for FY 2015-16 to 13.50% (AT&C Losses) for FY 2018-19 as per UDAY. TANGEDCO has to provide details of the efforts taken in the year to reduce T&D losses so as to bring such losses on par with the international standards.
- 2.10.5 Data uniformity should be established on the projected figure of T&D losses for FY 2017-18 and FY 2018-19, as TANGEDCO has projected T&D losses of 19% and 18.70% in the Tariff Petition, and 17.49% and 17.20% under UDAY scheme for FY 2017-18 and FY 2018-19, respectively.

- 2.10.6 The line losses should be maintained as per the Commission's mandate, to reduce the Wheeling Charges from Rs. 0.23/ kWh (22.64 paise/kWh).
- 2.10.7 The Commission should direct TANGEDCO to estimate the quantum of power supplied to subsidized consumers to be reflected in the energy balance of the utility as this is generally considered as AT&C losses or as power supplied to unmetered consumers. Any excess AT&C losses over and above norms should be borne by TANGEDCO as it has not submitted information in this regard as directed by the Commission earlier. The estimated data on sales to subsidized consumers should also be compared with other States' data to get a clear picture about the quantum of subsidized power sold.
- 2.10.8 Projected reduction of AT&C losses is totally imaginary without any reliance to the ground realities.
- 2.10.9 In page 53 of the Petition, TANGEDCO has accepted that the T&D loss is a computer(d) figure only without any relevance to the actual loss. TANGEDCO has also admitted that wheeling units are not taken into account even for arriving at this computer(d) figure. The T&D losses cannot be correct considering the high agricultural and hut loads.
- 2.10.10 There are contradictions in the statements given by TANGEDCO about the inclusion of transmission losses in AT&C losses. On page 54 of the Petition, TANGEDCO has submitted that the T&D losses are arrived at without any supporting data. The Commission should not accept this submission as this is an insult to the Electricity Act, 2003 and the general public.
- 2.10.11 The line loss as reported by the Ministry of Power based on the State Distribution Utilities annual integrated rating during FY 2013-14 was 21.7 % and in FY 2014-15 was 24.4% whereas, the present application states AT&C loss during FY 2012-13 as 18.4 % and same is proposed to be brought down to 17.96 % during FY 2015-16. Hence, the loss indicated is totally untrue and false.

#### **TANGEDCO's Reply**

- 2.10.12 TANGEDCO submitted that the T&D losses are inherent in the system and can be reduced to an optimum level but cannot be nullified altogether. The T&D loss of TANTRANSCO/TANGEDCO, which was 21.62% during FY 2011-12 has been

brought down to 20.13% during FY 2015-16 by taking strenuous efforts and by implementing effective technological solutions.

2.10.13 TANGEDCO submitted that the T&D loss is calculated as the difference between the energy input and energy sold to both metered and unmetered consumers. The unmetered consumption of agriculture in TANGEDCO is calculated based on sample meter readings, which is considered to be a scientific method of calculation. Sample meter readings take care of variation in agriculture consumption arising due to crop pattern, water table, soil conditions, and irrigation methods used specific to each area. The Hut consumption is computed based on the load details and duration of the running hours per day for light, fan, mixer, grinder and TV.

2.10.14 TANGEDCO submitted the various steps taken to reduce the AT&C losses to 13.5% in FY 2018-19 as under:

- Restructured Accelerated Power Development and Reform Programme (RAPDRP)
- Integrated Power Development Scheme (IPDS)
- Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)
- National Electricity Fund Scheme (NEFS)
- Works such as erection of capacitor banks, feeder improvements, improving HT: LT ratio, etc.

2.10.15 Further, 100% feeder metering, DT metering and smart metering arrangements to the consumers who are consuming above 200 units per month will be carried out in a phased manner by TANGEDCO.

2.10.16 TANGEDCO submitted that in UDAY scheme, the target fixed for distribution AT&C loss is 13.5% in FY 2018-19 excluding Transmission Loss of 4.50%. TANGEDCO has designed and implemented various schemes such as RAPDRP, IPDS, DDUGJY, etc., to reduce the distribution loss and bring it to the target level of 13.50% in FY 2018-19.

2.10.17 TANGEDCO submitted that the proposed Wheeling Charges have been calculated by taking into account the cost incurred to develop high tension network and recovery to be made from Open Access consumers to compensate such cost. The Commission shall determine the Wheeling Charges after prudence check of the

claim made by TANGEDCO.

- 2.10.18 TANGEDCO submitted that the tariff to the unmetered consumer category has been fixed based on the contracted load and per service connection basis. The State Government is also giving subsidy to extend free supply of electricity to the above unmetered consumers.

### **Commission's Views**

- 2.10.19 The Commission had directed TANGEDCO in earlier Orders to conduct a scientific study for accurate measurement of T&D loss and unmetered consumption. After unbundling of TNEB into TANTRANSCO and TANGEDCO, TANTRANSCO is responsible for Transmission Losses, while TANGEDCO is responsible for Distribution Losses. In the absence of any scientific study of the losses and break-up between Transmission Losses and Distribution Losses, the Commission had been stipulating the T&D loss trajectory for previous years, till FY 2015-16. Hence, the true-up for the period from FY 2011-12 to FY 2015-16 has been done with respect to the approved T&D loss trajectory, and the Commission has not accepted the higher levels of T&D loss considered by TANGEDCO in its True-up Petition. The excess power purchase by TANGEDCO, on account of higher than approved T&D losses, has been disallowed at the marginal rate of power purchase, in accordance with the approach adopted in earlier True-up Orders.
- 2.10.20 For the MYT Control Period from FY 2016-17 to FY 2018-19, the Commission has approved the Transmission Losses by considering an annual reduction of 0.1% for each Year of the Control Period, over the actual Transmission Loss of 4.1% for FY 2015-16, as elaborated in the Order in T.P. No. 2 of 2017 dated August 11, 2017 for for TANTRANSCO.
- 2.10.21 In accordance with the Commission's directions, TANGEDCO has recently submitted the "Assessment of Distribution Loss by REC Methodology" based on scientific study, as elaborated in Chapter 4 of this Order. In this Report, TANGEDCO has submitted that

*"It is stated that the distribution losses of TANGEDCO during the period Apr'15 to Mar'16 is 12.91%. The sub transmission loss of TANGEDCO as per energy balance studies is 1.52% for 2015-16. When this sub transmission loss is summed up with distribution loss using REC methodology, it comes around*

*14.43% which is T&D loss of TANGEDCO. This T&D loss of 14.43% of TANGEDCO arrived using REC methodology is found comparable with the AT&C loss of 14.58% of TANGEDCO for the year 2015-16 committed in UDAY scheme.”*

2.10.22 As elaborated in Chapter 4 of this Order, the Commission has accepted this Study Report submitted by TANGEDCO, and has accordingly approved the revised Distribution Loss trajectory as 14.13%, 13.83%, and 13.53% for FY 2016-17, FY 2017-18, and FY 2018-19, respectively, by considering a 0.3% annual reduction in view of the huge capital investments planned by TANGEDCO and the various steps taken by TANGEDCO to reduce the distribution losses.

## **2.11 Average Cost of Supply, Cost to Serve, Cross-subsidy, and Cross Subsidy Surcharge**

### **Stakeholder Comments**

- 2.11.1 The double levy of Maximum Demand (MD) charges for Open Access consumers availing supply from TANGEDCO has to be rectified by taking out the Demand Charge paid by the third-party consumer from the Rate of Realization, while computing the Cross-Subsidy Surcharge (CSS). This should be given effect reasonably from the previous periods to set right the wrong from the date when the injustice had been meted out.
- 2.11.2 The Tariff Policy suggests that all cross subsidies should be limited to 20% of the respective tariff as a guideline. This should not be violated by the Commission at least in this Tariff Order and the tariff should be designed in such a way that it supports the development of industries in the State.
- 2.11.3 The Open Access consumers should not be deprived of the Deemed Demand benefit previously allowed till September 2013. The Deemed Demand benefit was withdrawn without any clear instructions from the Commission. According to the Deemed Demand concept, the Commission considers 60% weightage for power injected by CPP generators and allowed TANGEDCO to collect balance 40% demand charges from the CPP consumers. The Deemed Demand concept should be re-introduced.
- 2.11.4 The CSS has to be reduced for the Open Access consumers to make the power

market in the State more competitive as power in the State is 50% costlier than that available in other States. The present rate of CSS is very high, and should not exceed 20% of the relevant tariff, as prescribed in the Tariff Policy.

- 2.11.5 CSS has to be calculated by the Commission as directed by the Hon'ble APTEL in Order dated October 27, 2014 in Appeal 196 of 2013, as reproduced below:

*“We direct the State Commission to determine cost per unit in respect of all the generating sources and correctly draw up the merit order before determining the weighted average cost of power purchase for top 5% excluding liquid fuel and renewable energy generation and Cross Subsidy Surcharge...”*

- 2.11.6 Voltage-wise cost of supply has to be determined by the Commission as per Hon'ble APTEL's direction in Appeal No. 196 of 2013 and the cross-subsidy has to be determined based on data to be provided by TANGEDCO. This exercise has to be followed by the Commission at least in this Tariff Order and the tariff revised downwards.
- 2.11.7 The Commission should notify a road map for reduction of cross subsidy as per the Tariff Policy, 2005 and Hon'ble APTEL's directions in Appeal No. 196 and 199 of 2013.
- 2.11.8 The Commission should determine the CSS for FY 2017-18 using the formula stipulated in the Tariff Policy, 2016 notified on January 28, 2016, viz:

$$S = T - [C / (1 - L / 100) + D + R]$$

*Where,*

*S is the surcharge*

*T is the tariff payable by the relevant category of consumers, including reflecting the Renewable Purchase Obligation*

*C is the per unit weighted average cost of power purchase by the Licensee, including meeting the Renewable Purchase Obligation*

*D is the aggregate of transmission, distribution and wheeling charge applicable to the relevant voltage level*

*L is the aggregate of transmission, distribution and commercial losses, expressed as a percentage applicable to the relevant voltage level*



*R is the per unit cost of carrying regulatory asset*

...

*Provided that the surcharge shall not exceed 20% of the tariff applicable to the category of the consumers seeking open access”.*

### **TANGEDCO's Reply**

- 2.11.9 TANGEDCO submitted that the Commission shall determine the Tariff and CSS taking into account the Tariff Policy and cost structure of TANGEDCO. Such cross subsidy shall be progressively reduced in the manner as may be specified by the Commission. Further, while determining cross subsidy, the subsidised consumer should not be affected through sudden tariff increase. The method of determining CSS in accordance with the formula stipulated by the Ministry of Power in Tariff Policy, has been upheld by the Hon'ble APTEL in various Appeals including Appeal No.196 and 199 of 2013.
- 2.11.10 TANGEDCO submitted that the Commission has allowed recovery of minimum portion of fixed costs of TANGEDCO through Demand Charges. Section 45(3) of the Electricity Act, 2003 also provides for levy of Fixed Charges in addition to the charges for actual energy supplied. The Demand Charges allowed by the Commission is only 13% of the total cost allowed. The Demand Charges are meant to recover the fixed cost incurred by TANGEDCO and therefore, cannot be linked to consumption of electricity. If the demand charges are reduced, it will only get added to the energy charges, as ARR and tariff recovery has to be matched. The Supply Code also does not provide any rebate if power was not drawn from the grid. The above view was also upheld by the Hon'ble APTEL in Appeal No. 257 of 2012. Based on the above rationale, the Commission has withdrawn the Deemed Demand benefit.
- 2.11.11 As regards the roadmap for cross-subsidy reduction, the Petitioner submitted that the Commission shall issue the Order on the Petition taking into account of provisions contained in Electricity Act 2003, Rules / Regulations issued under Electricity Act 2003 and Directions issued by the Hon'ble APTEL in Orders for Road map on Cross Subsidy Reduction and Cost to Serve.

### **Commission's Views**

- 2.11.12 It is clarified that there is no double levy of Maximum Demand (MD) charges for Open Access consumers availing supply from TANGEDCO. The CSS has to be computed as the difference between the Tariff and the Cost, which reflects the cross-subsidy component. The cost includes the fixed costs as well as variable costs, and correspondingly, T has to also include the Fixed Charges and Energy Charges. Further, the Tariff Policy states that "*T is the tariff payable by the relevant category of consumers*". The Tariff payable by the consumers has two components, viz., Demand Charge and Energy Charge. Hence, the Commission considers the Tariff as Average Billing Rate/Average Realisation Rate, which comprises the Demand Charges as well as Energy Charges. If the Tariff Policy had intended that only the Energy Charges should be considered for the purpose of calculating the CSS, then the Tariff Policy would have stated accordingly, rather than stating "*T is the tariff payable by the relevant category of consumers*". Thus, the fact that the Open Access consumers are paying the Demand Charges to TANGEDCO, does not entitle them to any concession in the CSS. Further, the Open Access consumers may surrender their Contract Demand if they do not require the same.
- 2.11.13 The Commission has computed the voltage-wise cost of supply and notified the road map for reduction of cross subsidy as per the Tariff Policy and Hon'ble APTEL's directions in Appeal No. 196 and 199 of 2013, as elaborated in Chapter 5 of this Order.
- 2.11.14 It is clarified that the Commission took a conscious and reasoned decision to withdraw the Deemed Demand benefit, vide its Transmission Tariff Order No. 2 of 2012 dated March 30, 2012, as there are no Appeals on this Order on this issue. The consumers can always reduce their Contract Demand. The Commission does not find any justification for revisiting this issue.
- 2.11.15 The Commission has computed the category-wise CSS in accordance with the Formula prescribed under the Tariff Policy, as elaborated in Chapter 5 of this Order.

### **2.12 Incentives, Surcharges and Rebate**

#### **Stakeholder Comments**

- 2.12.1 The proposed enhancement in average minimum level of power factor from 0.90 to 0.95 for HT consumers will not improve the grid stability, hence, the previous

provision may be retained. The proposed enhancement in average minimum level of power factor from 0.85 to 0.90 for LT consumers whose connected load is greater than 25 HP is difficult to implement. Alternatively, the distribution system should be strengthened by improving distribution transformers and other distribution infrastructure to ensure the maintenance of desired frequency levels.

- 2.12.2 Instead of increasing the power factor level by 0.05 for 40% of the consumers who are charged based on their power factor, the balance 60% of the load at low power factors of about 0.65 can be improved by installing capacitors in Distribution Transformers of TANGEDCO. The Commission should direct TANGEDCO to maintain a power factor 0.85 in its distribution transformers supplying to the balance 60% load.
- 2.12.3 Power factor incentives should be introduced to motivate the consumers to maintain the power factor rather than only penalizing them for low power factors, in accordance with Hon'ble APTEL Judgments in Appeal Nos. 192 and 206 of 2010 dated July 28, 2011 and for rewarding efficiency as per the provisions of Section 61(e) of the Electricity Act, 2003. Thus, the Commission should revisit its decision to withdraw PF incentives.

#### **TANGEDCO's Reply**

- 2.12.4 TANGEDCO submitted that it is taking all steps to supply quality power with higher power factor by installing synchronising transformers in sub-stations and capacitors in distribution transformers. In line with the above, to maintain grid stability and to avoid system disturbances, TANGEDCO has submitted a proposal to enhance the power factor (lag).
- 2.12.5 TANGEDCO submitted that the Commission introduced the system of giving incentive in 2003 to the consumers who maintain higher power factor, in order to create awareness among the consumers. The consumer is benefited by improving the power factor above the benchmark as his Maximum Demand (MD) also reduces. Thus, additional incentive for improving power factor is not required. Considering the above facts, the Commission withdrew the power factor incentive from 2010 and also amended its Regulations accordingly. Hence, the power factor incentive could not be extended in the absence of necessary provisions in the Code / Regulations.

### **Commission's Views**

- 2.12.6 The Commission has taken a considered decision to withdraw the power factor incentive in its earlier Orders, and the Commission does not see any reason to review the same. The power factor compensation applicable for HT and LT categories has been elaborated in Chapter 5 of this Order.

### **2.13 Peak Hour Tariff**

#### **Stakeholder Comments**

- 2.13.1 Peak hour Tariff should be determined by the Commission as per the APTEL's directions, which have been accepted by the Commission in the SMT Order.
- 2.13.2 The levy of 20% surcharge during the peak load hours has to be reduced, as it is very high considering the surcharge levied in other States like Andhra Pradesh, Karnataka and Maharashtra, where the peak hour surcharge ranges from 13% to 17%. Conversely, a rebate of 20% should be provided for power consumption during off-peak hours to optimise utilization of thermal power plants since the State is now power surplus.
- 2.13.3 There should be **no peak hour surcharge levied in the morning**, as the morning peak hour concept does not exist in many major States, and no commercial or industrial consumption starts before 09:00 hrs in the morning.
- 2.13.4 The time slot of **21:00 hrs to 22:00 hrs should not be considered** as peak hours as the State is no longer power deficit. The proposal to increase the evening peak hours from 21:00 hrs to 22:00 hrs should be justified by TANGEDCO by conducting a load study during the above-mentioned time period to prove the necessity to levy such surcharge, which further burdens the industrial consumers. A study on the actual peak demand has to be done. It should be analysed if the peak hour surcharge has actually reduced the peak hour demand. Peak hour surcharge should not be used to raise revenue.
- 2.13.5 Surcharge for peak hour power utilization should be levied for all HT consumers under Tariff Schedules like HT IIA, HT IIB and HT III.
- 2.13.6 It is seen that the economic Wind Energy Generators (WEG's) are backed down during peak hours. This has to be justified in view of the peak hour surcharge levied

on the consumers. The economic power procured from wind energy and hydel energy during peak hours during the months of June- October should subsidise the peak tariff during this period.

- 2.13.7 The rebate given for consumers utilizing power during off-peak hours (22:00 hrs to 05:00 hrs) should be increased from 5% to Rs. 1.50 /kWh.
- 2.13.8 The Peak and Non-Peak hour tariffs have to be re-determined as per the Hon'ble APTEL's direction in Appeal No. 257 of 2012, as reproduced below:

*"The State Commission has decided the disincentive for consumption of electricity during the peak hours at 20% whereas for consumption during off -peak hours the incentive of only 5% has been provided. The incentive for drawal during off -peak hours and disincentive for drawal during peak hours should be of the same order."*

- 2.13.9 The night hour subsidy should be provided from 22:00 hrs to 06:00 hrs instead of 05:00 hrs.
- 2.13.10 The peak hour charges should not result in the effective tariff becoming more than 120% of the average cost of supply, as it would violate Clause 8.3(2) of the Tariff Policy, 2006.

#### **TANGEDCO's Reply**

- 2.13.11 TANGEDCO submitted that the Hon'ble APTEL in Appeal No.257 of 2012 and Appeal No. 196 and 199 of 2013 directed the Commission to reconsider and re-determine the differential pricing of energy during peak and off-peak hours. In compliance with the APTEL order, the Commission directed TANGEDCO to file Compliance Report in R.A No.1 and 4 of 2014. TANGEDCO submitted a Study Report on ToD consumption and the basis for levying peak hour charges, duly taking into account the load/demand curve, sourcing of power to meet load / demand and cost impact of this additional demand. Based on the Study Report, TANGEDCO has proposed to modify the duration of evening peak hours as 6.00 PM to 10.00 PM and also proposed to continue with the existing 20% additional tariff to meet the peak demand and cost incurred to meet such peak demand.

#### **Commission's Views**

- 2.13.12 It is clarified that the Hon'ble APTEL has not ruled that "...The incentive for drawal during off -peak hours and disincentive for drawal during peak hours should be of

*the same order*”, as contended by the Respondent. The quoted paragraph is from the Appellant’s submission in that Appeal.

- 2.13.13 The Commission’s detailed analysis of the issues related to ToD tariffs is elaborated in Chapter 5 of this Order.

## **2.14 Billing and Collection**

### **Stakeholder Comments**

- 2.14.1 As per Section 55 of the Electricity Act, 2003, no licensee shall supply power except through a meter. However, TANGEDCO is still supplying power to agricultural and hut consumers without meters. This has resulted in TANGEDCO not getting the full subsidy amount from the State Government for which it is eligible and is the major reason for its income deficit. The Commission should direct TANGEDCO to implement 100% metering by FY 2017-18.
- 2.14.2 On page 15 of the Petition, DT/Feeder meters are proposed while showing the existing meters as NIL, whereas there are many DTs and Feeders with meters installed.
- 2.14.3 TANGEDCO should use more IT enabled services for metering and billing. There is no indication of its implementation and the likely savings in this regard.

### **TANGEDCO’s Reply**

- 2.14.4 TANGEDCO submitted that the tariff to the unmetered consumer category has been fixed based on the contracted load and on per service connection basis. The State Government is also giving subsidy to extend free supply of electricity to the above unmetered consumers.

### **Commission’s Views**

- 2.14.5 The Commission has directed TANGEDCO in the past Orders to submit the roadmap for 100% Feeder metering and 100% Distribution Transformer (DT) metering. TANGEDCO has submitted that the Feeder metering is around 99.6% complete, while the DT metering is around 17%.
- 2.14.6 The suggestion regarding increased usage of IT enabled services for metering and billing is a good one, and TANGEDCO should actively consider the same, in order

to improve its metering, billing and collection efficiency. TANGEDCO should also consider implementation of Automated Meter Reading (AMR) technology for LT service connections located in a cluster also, based on appropriate technology. The Commission has given certain directions to TANGEDCO in this regard, as elaborated in Chapter 7 of this Order.

## **2.15 Harmonics Control**

### **Stakeholder Comments**

- 2.15.1 A study should be done on the harmonics generated by the generation end till the transformers, to analyse the quantum of harmonics injected by generating utilities into the grid. A mechanism for capturing of harmonics at the generation end should also be established.
- 2.15.2 TANGEDCO's proposal to extend the charges levied on harmonics to other HT consumers should be put on hold until the facility for monitoring and controlling harmonics from generating stations is established.
- 2.15.3 The CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 should be adhered to and the Tariff should be in line with these Regulations. Till such time CEA issues final Regulations on harmonics norms, the enforcement of harmonics norms may be postponed.
- 2.15.4 Harmonic penalty should be levied only on bulk consumers drawing load at 33 kV and above as provided in the CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 and CEA (Grid Standards) Regulations, 2010. The Commission should clarify that only bulk consumers connected at 33 kV or above are obligated to provide harmonic control systems as mandated by Regulation 3 of CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time to time according to the provisions of Sections 173 and 174 of the Electricity Act, 2003. 11/22 kV consumers are unnecessarily burdened with such charges due to ambiguity of Tariff Orders and the Tamil Nadu Electricity Supply Code, 2004.
- 2.15.5 The 3 months' notice period for installation of harmonic filters for the above-mentioned consumers should not be removed, as the procurement and installation of the harmonic filters happen only after the consumer becomes aware of the amount of

harmonics generated and the control techniques only after the measurement of harmonics.

#### **TANGEDCO's Reply**

- 2.15.6 TANGEDCO submitted that the specified harmonics level is to maintain grid stability and to extend quality of supply. Taking into consideration grid stability, the Commission issued the order stipulating that HT Industrial (I A) and HT Miscellaneous (III) consumers should control dumping of harmonics within the level specified by the CEA. The consumers of the above category who are dumping harmonics beyond the level specified by CEA have to pay 15% compensation.
- 2.15.7 TANGEDCO submitted that the Commission ordered implementation of the above provision to all HT consumers falling under HT IA and HT III irrespective of voltage. The Commission also submitted the above view before the High Court of Madras. Taking into consideration the above facts, TANGEDCO has proposed to extend the applicability of above harmonics provision to all HT consumers excluding lift irrigation (IV) irrespective of voltage.
- 2.15.8 TANGEDCO further submitted that it has proposed to levy such compensation on the consumers from the date of measurement, if the consumer fails to bring down harmonics dumping within the specified level, within a period of three months.

#### **Commission's Views**

- 2.15.9 The Commission has modified the dispensation of levying harmonics compensation, as elaborated in Chapter 5 of this Order.

### **2.16 Renewable Power**

#### **Stakeholder Comments**

- 2.16.1 TANGEDCO should provide solar panels at the consumer point, especially for independent residential consumers with a reasonable capacity of about 0.5 kVA. By this process, the low consuming services can store the electricity during day time in the battery of the inverter and the stored energy can be utilized by the consumer during evening peak hours to curtail the evening peak demand. This scheme may be implemented with a minimum of 20 lakh services at the rate of about Rs. 40,000 per service. The entire cost of erection should be borne by TANGEDCO.



### **Commission's Views**

- 2.16.2 If and when TANGEDCO submits any proposal for installation of solar panels at the consumer end, the Commission will take a holistic view on the same keeping in view the Cost-Benefit-Analysis based on the capital cost, reduction in peak demand, overall demand-supply situation, etc.

## **2.17 HT Industrial Tariff**

### **Stakeholder Comments**

- 2.17.1 The Commission should clarify the consumers to whom HT IA is applicable, to avoid any confusion after the removal of “Registered Factories” from HT IA, as proposed by TANGEDCO, in accordance with the Hon’ble APTEL’s order.
- 2.17.2 The proposed re-introduction of tariff change from HT IA to HT III if a factory does not utilize power for more than 30 days, shall harass the seasonal services like rice mills, sugar mills and even some ginning factories. This shall penalize the consumers by charging high tariff for these industries. The industrial consumers are already paying 90% of the Demand Charges without really availing any power from TANGEDCO. The Tariff should be so designed to encourage industries, for prosperity of the State. The Commission should reject this request of TANGEDCO.
- 2.17.3 HT IIA and HT IIB categories may be merged as it creates confusion and they also have the same tariff rates.
- 2.17.4 TANGEDCO’s proposal to have separate metering for facilities incidental to main activities but provided by private service providers, discourages the purpose of providing such services in a specific premise. Consumption of power for other than industrial purpose is incidental and cannot be called as a separate private entity. For e.g., running a canteen for doctors in a hospital has to be outsourced to an expert in such field. If TANGEDCO’s proposal is implemented, it may affect the welfare of the public utilising such services and violates the Preamble of the Electricity Act, 2003 on “Rationalization of Tariff”. This process is also cumbersome and tedious.
- 2.17.5 TANGEDCO’s proposal to levy LT VI tariff for any additional construction carried out in a HT consumer’s premises should not be accepted as it would create a lot of problems for both the HT consumer and TANGEDCO, as this would need more TANGEDCO professionals to inspect the site and also additional transaction costs

for new connection, installation of meters, etc., for a couple of months' work. The transaction costs far outweigh the benefit of the proposed changes.

- 2.17.6 The demand charge levied for HT IA consumers (Rs. 350/ kVA) in the State is the higher than that in other States like Delhi (Rs. 125/ kVA for TPDDL) and Karnataka (Rs. 180/ kVA for urban and Rs. 170/ kVA for rural areas of BESCOM). The rural consumers should be charged lesser than the urban consumers as the infrastructure costs are higher in the urban areas. The fixed charge component of the tariff should be reduced to provide more incentives to the consumers implementing energy saving and conservation.
- 2.17.7 The demand charges are very high in the State of Tamilnadu. Moreover, the same demand charges are collected from urban and rural consumers, though the cost of creating infrastructure is higher in urban areas. The demand charges should be discontinued and a single part tariff could be established to better reflect the cost of supply like Punjab which has continued the practice of single-part tariff even for industrial consumers. Alternatively, the demand charges should be reduced from Rs. 350/ kVA.
- 2.17.8 Demand charges penalize the consumers who are unable to draw power round the clock due to the nature of the industry. Demand charges should be reduced from 90% of the contracted demand to 80% of the contracted demand like in Andhra Pradesh.
- 2.17.9 Demand charges are paid for maintaining the supply infrastructure. The HT consumers are paying for the infrastructure charges as 'development charges' to TANGEDCO. Thus, no charge should be levied for such assets in the form of interest and depreciation on such asset.
- 2.17.10 During the Public Hearing, it was submitted that the Demand Charges for HT IA category are very high at Rs. 350 per kVA per month, and should be reduced.
- 2.17.11 In case of HT consumers developing dedicated feeders at their own expenses, the cost of infrastructure is disproportionately imposed, as the Demand Charges are the same for all HT consumers. They also pay the Transmission Charges and Wheeling Charges for utilization of the same infrastructure when they buy power under Open Access.

- 2.17.12 The ABT regime is not fully implemented. Hence, till the time ABT regime is fully operationalised, the existing practice of recording Maximum Demand (MD) for the interval of 30 minutes should be continued instead of reducing it to a 15-minute interval as proposed by TANGEDCO. Arc furnaces, induction furnaces, steel rolling process, etc., cause sudden, frequent and high variation in loading of the electrical networks, which in turn causes unnecessary stress and strain to the distribution network. Thus, to penalize such sudden stresses, the 15-minute integration for maximum demand calculation is used. Extending this process for other industries has no logic and is against the interest of consumers.
- 2.17.13 The Commission should notify the previously adopted single part levy of energy equated demand charges of Rs. 11.74/ kWh for start-up purposes.
- 2.17.14 TANGEDCO's proposal to delete the conditions of 10% capacity limit and 42- day period limit for start-up power should not be accepted, as it may lead to misuse of start-up power by diversion to consumer loads especially during Restriction & Control (R&C) period like in the Case of D.R.P. No. 11 of 2012, where the start-up power was misused. Hence, the conditions should stay unchanged or alternatively, the time duration may be increased to 60 days. Further, only the energy charges of this tariff should be made applicable for start-up power since the generator uses power for only 45-60 days per annum and there is no justification to collect MD charges for the start-up power.
- 2.17.15 The base Tariff of Rs. 6.35/ kWh for industrial consumers of the State is very high compared to Tariff for other consumers. The CSS is so high that it is not practical for the industrial consumers to buy from the Power Exchanges or the generation within the State through Group Captive scheme at Rs. 5.25/ kWh.
- 2.17.16 The per unit cost for Industrial consumers is around Rs. 7.48 per unit and the CSS is around Rs. 3.51 per unit, which is burdening the industries of the State. According to the Central LGBR report, the State has power surplus. Thus, the power cost has to be reduced instead of TANGEDCO's proposal for maintaining the tariffs at the existing level.

#### **TANGEDCO's Reply**

- 2.17.17 TANGEDCO submitted that in order to avoid implementation problems and for appropriate tariff application, it has proposed to remove the word "Registered

Factories” in tariff schedule of HT IA, in accordance with the Hon’ble APTEL’s Judgment. The applicability of HT I A tariff (Industrial Tariff) is submitted in para No.7.2 of Tariff Schedule of the Petition.

- 2.17.18 TANGEDCO submitted that in industrial establishments, the facilities incidental to main activities are provided by the employer and by private players. The facilities provided by the employer can be considered as bonafide purpose and the services provided by the private players on commercial basis may not be considered as bonafide, as the facilities provided by private players are availed by the employees on par with outsiders. Hence, TANGEDCO has proposed to segregate HT consumption based on purpose of energy utilization.
- 2.17.19 TANGEDCO submitted that it is experiencing difficulties in implementation of respective tariff to temporary supply for additional construction for area smaller than 2000 sq. feet. The consumer can build new construction with minimum square feet by getting temporary supply and extend further required construction in a phased manner to accommodate such construction within the limit of 2000 sq. feet, with the intention of classification under respective tariff. To avoid such revenue loss to TANGEDCO, it has proposed to bill all construction in HT (LT) Tariff VI (Temporary supply).
- 2.17.20 To avoid misuse of industrial tariff, TANGEDCO has proposed to re-introduce tariff change from HT I A to HT III if a factory does not utilize power for more than 30 days. Taking into consideration TANGEDCO’s submission and stakeholders views, the Commission will issue the Order.
- 2.17.21 TANGEDCO submitted that HT Tariff is a two-part tariff comprising Demand Charges and Energy Charges. The Demand Charges have to be levied on the kVA demand actually recorded in the month or 90% of the sanctioned demand, whichever is higher. However, whenever the R&C measures are in force, the billable demand in case of two-part tariff for any month will be actual recorded maximum demand or 90% of the demand quota, as fixed from time to time through R&C measures, whichever is higher. The Generators are considered as HT consumers and they have to follow the rules / regulations applicable to HT consumers. Accordingly, both Demand Charges and Energy Charges are being collected from the consumers who draw power from the grid for start-up purpose. The same view was upheld by the Hon’ble APTEL in Appeal No 71 of 2015.

- 2.17.22 As regards the comment on high HT Tariff, TANGEDCO submitted that it is having an accumulated loss of Rs. 61,993.54 Crore upto FY 2015-16. The benefit accrued on account of surplus cash flow shall be adjusted against accumulated losses and the balance accumulated gap will be passed on to the consumers with the approval of the Commission.
- 2.17.23 TANGEDCO submitted that the present Tariff Order specifies that only for HT I-A Industries having arc furnaces or induction furnaces or steel rolling process, the integration period for arriving at maximum demand in a month will be 15 minutes. In ABT regime, the frequency is being monitored at 15-minutes time block. Further all generators have installed ABT meters and are monitored in 15-minutes time block. It is too difficult to maintain two kinds of energy accounting system. Moreover, TANGEDCO is taking steps to implement ABT mechanism. Taking into account the above, TANGEDCO has proposed that the integration period of 15 minutes for arriving at Maximum Demand in a month may be extended to all HT consumers.

#### **Commission's Views**

- 2.17.24 The Commission's decisions on TANGEDCO's proposed tariff philosophy and comments submitted by stakeholders, including all proposed changes and modifications, have been elaborated in Chapter 5 of this Order.
- 2.17.25 It is clarified that the Demand Charges are levied to recover a part of the fixed costs of TANGEDCO. Only the variable cost of generation and power purchase is variable in nature, and the balance, which contributes around 50% of TANGEDCO's ARR is fixed in nature. Generally, the fixed costs comprise O&M expenses, Depreciation, Interest on Loans, Return on Equity, Interest on Working Capital, etc. Such fixed costs have to be incurred by TANGEDCO, irrespective of the units consumed by a particular consumer in any month. The revenue from the Fixed/Demand Charges levied on HT Industrial consumers as well as other LT and HT consumers, comprises only around 19% of the total revenue earned by TANGEDCO. Thus, only 19% of the ARR is recovered from the Fixed/Demand Charges, and the balance is recovered through the Energy/Variable Charges.

## **2.18 Domestic Tariff**

### **Stakeholder Comments**

- 2.18.1 TANGEDCO's proposal to limit the area for gardening for LT IA consumers is a retrograde step and is contrary to the encouragement being given by Government to grow trees. The proposal also violates the fundamental rights of citizens. TANGEDCO has not proposed any punishment or penalty for violation of the area limit for gardening and hence, the proposal is incomplete.
- 2.18.2 TANGEDCO's proposal to exclude the applicability of domestic tariff for common facilities should not be accepted, as long as they are operating on non-commercial basis. This will also increase the maintenance costs for these apartments.
- 2.18.3 The area of the garden to be maintained in any factory/industry is prescribed under the provisions of the Tamil Nadu Factories Rules, 1950 and should not be interfered with.
- 2.18.4 During the Public Hearing, it was submitted that the present dispensation of levying lower tariffs for the domestic category upto bi-monthly consumption level of 500 units, should be extended upto bi-monthly consumption level of 750 units.

### **TANGEDCO's Reply**

- 2.18.5 TANGEDCO submitted that it has proposed to limit the area for providing lighting, water supply and other facilities for domestic animals / pets including chaff cutting, milking, etc., with the intention that the domestic load should not be extended for commercial use.
- 2.18.6 TANGEDCO has proposed to continue with the existing limit of 2 kW for gardens around residential building.
- 2.18.7 TANGEDCO submitted that it has proposed to classify community hall, gymnasiums, swimming pool, amphitheatre, etc. in residential complexes under commercial category, considering that these are all not related to residential use. This clause was present in Tariff Order dated 30-03-2012 and removed in subsequent Tariff Order. Hence, TANGEDCO has proposed to re-introduce the same.

### **Commission's Views**

- 2.18.8 The Commission's decisions on TANGEDCO's proposed tariff philosophy and comments submitted by stakeholders, including all proposed changes and modifications, have been elaborated in Chapter 5 of this Order.

### **2.19 Other Tariff related comments**

#### **Stakeholder Comments**

- 2.19.1 Classification of use of power by consumers has led to a lot of litigations. In the present Order, there should be a reduction in the tariff classification.
- 2.19.2 TANGEDCO's proposal to apply the Tariff of Private Colleges to the Government/Government aided educational institutions who are running self-financed courses shall deter the better utilization of the educational facilities in the State, and should not be accepted. Both Private and Govt./ Govt. aided colleges (in HT and LT categories) should be brought under a separate category and charged as per the average tariff applicable, to remove the discrimination among same type of loads.
- 2.19.3 The proposed LT IIIA (1) for agricultural and allied activities for garden size more than 500 sq. ft. is cheaper than the tariff for LT IA. TANGEDCO's proposal for limiting garden area is ill-conceived and the Commission should not accept this proposal.
- 2.19.4 It is illegal to collect extension cost from farmers for agricultural services under Self Financing Scheme (SFS). No extension cost other than service line charges should be collected from the farmers, and the extension cost already collected from farmers should be reimbursed to the concerned farmers.
- 2.19.5 TANGEDCO's request for charging Fixed Charges for LT consumers based on kW or part thereof may be accepted by the Commission.
- 2.19.6 Any construction in LT premises may be levied as per LT VI Tariff Schedule and the construction area may be reduced to 500 sq. feet.
- 2.19.7 TANGEDCO's proposal to levy additional charges of 20% for consumers availing LT supply for load above 65 kVA should not be accepted. Most of the States still permit load of up to 112 kW under LT Tariff. The decision to migrate to HT should

depend on the consumer based on the economy, site conditions, feeder nature and load demand by it. Alternatively, the Commission may suggest the consumers to opt for HT supply wherever possible instead of penalising consumers with heavy tariff for LT loads. The practice in other States should be considered before deciding on this aspect.

- 2.19.8 During the Public Hearing, it was suggested that the load limit for availing LT supply should be increased from 112 kW to 150 kW, in view of the practical difficulties faced in availing HT supply.
- 2.19.9 During the Public Hearing, the Fisheries Department submitted that they should be classified under LT IV category.
- 2.19.10 Parallel operation charges and Open Access charges are separate, and the Commission should direct TANGEDCO not to levy and collect parallel operation charges from Open Access consumers.
- 2.19.11 The Grid Availability Charges should be calculated in accordance with Clause 8.5.6 of the Tariff Policy, which stipulates as under:

*“In case of Outages of generator supplying to a consumer on open access, standby arrangements should be provided by the licensee on the payment of the tariff for temporary connection to that consumer category as specified by the Appropriate Commission. Provided that such charges shall not be more than 125% of the normal tariff of that category”*

- 2.19.12 Hence, the Grid Availability Charges are subjected to a ceiling of 125%, and should not be equated to the temporary category tariff. As the present tariff of TANGEDCO is Rs. 6.35/ unit for HT I Industries, the maximum Grid Availability Charges should not exceed Rs. 7.97/ unit. The Commission should determine the Grid Availability Charges, which should be implemented prospectively and not retrospectively, as it may affect the entire HT industry in the State.
- 2.19.13 CSS is not applicable in case of Group Captive consumers, which is a provision for availing power from third parties without paying CSS even when not availing TANGEDCO power. There is no need for levying Grid Support Charges on Open Access consumers for backup power during the outage of generators. In the Order dated December 11, 2014 para 5.52, the Commission has clarified that Grid Support Charges shall be levied for the following conditions:



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

2.19.14 As per para 5.54 of the SMT Order dated December 11, 2014:

*“3.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 actual energy/demand drawal 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 drawal at the applicable tariff rates of that category of consumer as determined by the Commission from time to time.*

*ii. In case actual energy/demand drawal 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.”*

2.19.15 TANGEDCO is creating confusion by submitting that the Commission did not specifically say anything about Grid Charges for back-up power during outage of generators, when the Commission has clearly mentioned in the Comprehensive Tariff Order on Wind Energy, Order No. 6 of 2012, dated July 31, 2012, as under:

#### ***“8.7.2.1 Energy charges***

*As on date there is only one Distribution Licensee in this State. If the captive user or the third-party user is a consumer of the Distribution Licensee, the captive or third party consumer shall be liable to pay the Distribution Licensee the tariff applicable to that category of the consumer for the net energy consumption subject to the terms and*

*conditions of supply. If the captive user/third party user is not a consumer of the distribution licensee, the user shall pay the charges as applicable to the temporary supply of that voltage category.”*

- 2.19.16 The installation of ABT meter is in progress and all HT consumers have only five-slot meters, through which the consumption is recorded. Except Wind Mills, all other generators have installed ABT meters. In case of wind mills, energy generation is recorded under five time slots and further conversion to ABT metering is in progress. Under these circumstances, filing Petition M.P. No. 10 of 2015 by TANGEDCO on Tariff during outages will not have any relevance. As per the Order dated December 11, 2014 and intra-State Open Access Regulations, 2014, the power supplied during the outages would fall under the respective category tariff and cannot be claimed in a different manner.
- 2.19.17 Remedy to be claimed by way of Tariff Petition cannot be claimed by the way of a Clarification Petition and that too when the Commission is very clear in its Order dated December 11, 2014.
- 2.19.18 IT sector should be classified as commercial activity as it was in 2011 as it does not manufacture anything.
- 2.19.19 The power consumed for start-up purposes should not be charged as per Tariff HT V for temporary supply. In its Judgment in Appeal No. 71 of 2015 dated March 2, 2015, Hon’ble APTEL directed the Commission to frame relevant Regulations for creating a separate category for generators drawing start-up power for initiating generation, which shall cater to the need of power in the State. TANGEDCO also introduced two-part tariff for start-up power from September 2013, without any directions from the Commission. The Commission should notify the previously adopted single part Tariff of Rs. 11.74/ kWh for start-up purposes.
- 2.19.20 A separate category should be created for textile sector. The Commission in Order dated June 20, 2013 in TP No. 1 of 2013 in para 2.3.67 ruled that

*“In case of the distribution licensee or a consumer feels the justification and necessity for the creation of a new category, then it should submit the necessary data on consumer and consumption pattern for the category and also ensure that the categorization is in accordance with the criteria for differentiation provided under section 62(3) of the Electricity Act, 2003, for the Commission’s consideration”*

- 2.19.21 Hence, the Commission should direct TANGEDCO to collect necessary data on the

consumption pattern for the textile industry and submit the proposal to the Commission for creation of new category under Section 62(3) of the Electricity Act, 2003.

#### **TANGEDCO's Reply**

- 2.19.22 TANGEDCO submitted that necessary modifications have been proposed in the Petition for the Commission's approval, to ensure correct classification of consumer category to minimise the litigations in this regard.
- 2.19.23 TANGEDCO submitted that considering the fee structure and facilities extended by the Government and Private educational institutions, the Commission classified the applicability of educational institution tariff into Government, Government educational institution and Private educational institution, in the year 2010. Some of the institutions are having both aided college and private college administration in the same premises. In order to have clarity in tariff application and adoption of correct tariff to educational institutions, TANGEDCO has proposed to differentiate institutions having self-financed courses and only subsidised Govt colleges in the Tariff schedule.
- 2.19.24 As regards the extension cost for SFS category consumers, TANGEDCO submitted that the agricultural service connections are extended based on the seniority maintained for that category. Among agricultural applications, separate seniority is maintained for SFS category consumers. While providing service connections, priority is given to SFS category applicants as compared to other agriculture category applicants, and hence, the SFS applicants have to compensate line extension cost.
- 2.19.25 TANGEDCO submitted that it is bearing the line extension cost while providing service connection under LT Tariff III –A (1). In respect of agricultural service under SFS scheme, the necessary estimated cost for extension should be borne by the consumer. The consumer who have availed service connection under LT Tariff III – A (1) and reach the seniority in LT Tariff IV under SFS scheme will not bear the line extension cost, since cost is already incurred by the licensee whereas, the consumer directly availing service under LT Tariff IV for agriculture under SFS scheme has to incur such cost. Hence, TANGEDCO has sought permission to collect the estimated cost from the applicant under SFS category before providing supply under LT Tariff III A (1) category.

- 2.19.26 TANGEDCO submitted that in order to avoid misuse of Tariff category, it has proposed to levy 20% additional charges for consumers availing LT supply for load above 65 kVA. The 20% additional charges have been proposed taking into consideration the investment incurred by TANGEDCO for erection of transformers and associated equipment such as pillar boxes, cables/lines, etc., about 1.5% energy losses in distribution transformers, and loss on account of demand charges.
- 2.19.27 TANGEDCO submitted that pending the disposal of the Petition on Grid Availability Charges before the Commission, it has requested the Commission to determine Grid Availability Charges taking into account provisions of Tariff Policy and existing Tariff Order.
- 2.19.28 TANGEDCO submitted that the Parallel Operation Charges are being collected from the generator on the net capacity after deducting the Open Access quantum, for extending the facility of grid support. It is not correct to state that these charges are being collected from Open Access consumers.
- 2.19.29 TANGEDCO submitted that the Generators are considered as HT consumers and they have to follow the rules / regulations applicable to HT consumers. Accordingly, both Demand Charges and Energy Charges are being collected from the consumers who draw power from the grid for start-up purposes. The same view was upheld by the Hon'ble APTEL in Appeal No. 71 of 2015.
- 2.19.30 TANGEDCO submitted that at present, the textile industry has been classified under Industrial category. The nature of activity also falls under industrial category. The Electricity Act, 2003 and further Rules/Regulations issued thereon have focused on rationalization of tariff category. Hence, creation of a new category is not appropriate. Further, consideration of request of one group of consumers will lead to demands from other category of consumers such as Automobile, Information technology, Chemicals, etc., for separate categorisation. Hence, the request for creation of a new category should not be accepted.

### **Commission's Views**

- 2.19.31 The Commission's decisions on TANGEDCO's proposed tariff philosophy and comments submitted by stakeholders, including all proposed changes and modifications, have been elaborated in Chapter 5 of this Order.

2.19.32 It is clarified that the Parallel Operation Charges are being collected only from the captive generators on the net capacity, i.e., the capacity being utilised for self-consumption, for extending the facility of grid support.

2.19.33 As regards the suggestion regarding increasing the load limit for availing LT supply from 112 kW to 150 kW, the same is outside the scope of the present ARR and Tariff Petition, and is an issue to be addressed in the Supply Code.

## **2.20 Regulatory Asset**

### **Stakeholder Comments**

2.20.1 TANGEDCO should submit a clear-cut plan for recovery of the accumulated Regulatory Assets of Rs. 66,873 Crore. The accumulated Regulatory Asset has to be serviced by earning revenue higher than expenditure over a period of time. The recovery of the Regulatory Asset will not be possible by any reasonable tariff hike.

### **TANGEDCO's Reply**

2.20.2 TANGEDCO submitted that it expects to reach financial turnaround in FY 2018-19. Once it attains financial turnaround, necessary method will be designed in consultation with the State Government to recover/wipe out accumulated losses. Further, the benefit accrued on account of reduction in cost and surplus earned in any year will be adjusted against the accumulated loss, and the balance amount will be passed on to the consumers with approval of the Commission.

### **Commission's Views**

2.20.3 The cumulative Revenue Gap, Regulatory Asset and its treatment have been elaborated in Chapter 5 of this Order.

## **2.21 Transfer Scheme**

2.21.1 TANGEDCO has claimed that as per Section 131 (3) (b) of the Electricity Act, 2003, the Transfer Scheme is binding even on the Commission adjudicating on the Tariff for successor entities and that the Commission has accepted it. However, the above-mentioned clause gives precedence only to the said section, while, under Sections 61, 62 and 86, the Commission has the responsibility to safeguard the consumers interest and ensure that the Tariffs are reasonable.

- 2.21.2 The Hon'ble APTEL in its Order on Appeal Nos. 4, 13, 14, 23, 25, 26, 35, 54, 55 of 2005 dated May 26, 2006 has ruled that directions/orders of the Regulatory Commission made for the purpose of determination of Tariff will be binding on all concerned parties including the State and the Board as per provisions under Section 61 and 62 of the Electricity Act, 2003.
- 2.21.3 The Commission should disallow any costs as per the Balance Sheet from being passed on to the consumer as per the above-mentioned Hon'ble APTEL's direction. The Commission is bound to examine the accounts of the Utility even though they may be genuine and are not challenged.
- 2.21.4 The Commission is a quasi-judicial body as per the provisions under Sections 86 (1) (f), 94 and 95 of the Act and cannot be called as a 'third party'. Hence, the Commission should re-examine its stance and correct this mistake as cost of inefficiency of the Utilities is passed on to the consumers.
- 2.21.5 The Transfer Scheme has to be finalized. The failure to finalize the Transfer Scheme has led to financial repercussions on the entire Tariff exercise. The transfer of the Generation and the Distribution businesses are yet to be finalized. The Commission gave a directive to the Govt. of Tamil Nadu vide TNERC/1148/Tariff/2010/D.No.1205/2010 dated September 27, 2010, which recommended the separation of Generation and Distribution functions and to split the Distribution function. This would lead to improvement in the efficiency and transparency of operations and would have introduced a potential for competition. The Commission should direct the State for the same and to state the failure to comply with such direction shall be punishable under sections 142 and 146 of the Electricity Act, 2003.
- 2.21.6 The Final Transfer Scheme should be made known to the Public.

#### **TANGEDCO's Reply**

- 2.21.7 TANGEDCO submitted that the details and financial impact on the final Transfer Scheme is submitted in the Petition, and placed in the website of the Commission and TANGEDCO. TANGEDCO also submitted that the impact of final Transfer Scheme has been given in FY 2015-16. The revaluation value of Rs. 12,300 Crore is considered in the Accounts of FY 2015-16, however, depreciation and RoE have not been claimed in the ARR on the revaluation value.

- 2.21.8 TANGEDCO submitted that in exercise of power conferred by Sections 131 and 133 of Electricity Act, 2003, GoTN notified the provisional Transfer Scheme vide GO.Ms. No.100 dated October 19, 2010 and GO.Ms. No.02 dated January 2, 2012, and notified Final Transfer Scheme vide GO.Ms.No.49 dated August 13, 2015. Based on the Final Transfer Scheme, all the Assets and Liabilities were taken into account in the books of TANGEDCO and TANTRANSCO and as such there is no violation of the Electricity Act, 2003.
- 2.21.9 TANGEDCO submitted that as regards unbundling of Generation and Distribution functions, not all the States which have separate Generation entity and separate Distribution Companies have shown substantial improvement in terms of increase in book profit or reduction in book losses. Similarly, the accumulated losses/profit of all the States which already have a separate Generation entity and separate Distribution Companies has not shown substantial improvement. On the technical side, the AT&C losses of the States that have more than one Distribution Company has also not come down substantially even after having comparatively smaller consumer base and smaller geographical area to manage.
- 2.21.10 Thus, even after having a separate entity for Generation and having multiple Distribution Companies with smaller consumer base and smaller geographical area to manage, some States have shown increase in accumulated losses and increase in AT&C losses. The major reason for such a performance is due to the consumer mix in that particular entity and also due to the Tariff policy of the State.
- 2.21.11 Further, if the Distribution Company is split into more than one entity, the independent entities will face cash crunch during the transition period, and also there might be no takers for DISCOMs having a major rural base. Further, the administration and management of the single entity combining both the functions of generation and distribution will be easy and convenient for Generation planning and capacity addition by the way of new projects that are being executed considering the demand of the Distribution sector. The same management can concentrate and draw plans to meet the existing demand and growth in demand.
- 2.21.12 The losses of the Distribution Company will be very huge if Generation is hived off, since the selling price of the Generation Company will be cost plus profit margins, wherein the profit margin will be an additional burden on the Distribution Company. Economies of scale in O&M management will be available and lower administrative

costs will be incurred unlike multiple DISCOMs, where different additional infrastructure is required to be set up for each DISCOM. Further, scheduling and dispatch of power being handled by a single company will make the planning easier and appropriate, considering the consumer mix.

2.21.13 Unlike other States in India, rural electrification in the State of Tamil Nadu is 100% and the per capita consumption in the State of is 1280 Units (FY 2015-16) per annum as against average per capita consumption of 1075 Units (Provisional) (FY 2015-16) in India. Further, TANGEDCO has a very good record of billing and collection efficiency and low Transmission and Distribution losses. Hence, the performance of the DISCOM is satisfactory and the stress on the newly formed DISCOM to perform will be less as the activities of Generation and Distribution are being bundled together to be handled by a single entity.

2.21.14 Hence, TANGEDCO proposed to continue with a single entity for handling the functions of Generation and Distribution.

#### **Commission's Views**

2.21.15 While the Commission had accepted the provisional Transfer Schemes notified by the GoTN earlier, in 2015, the GoTN has notified the Final Transfer Scheme vide G.O Ms. No. 49 dated August 13, 2015, and the successor entities, viz. TANTRANSCO and TANGEDCO have incorporated the impact of the same in their Accounts of FY 2015-16. It is clarified that the Final Transfer Scheme considers revaluation of assets. However, the Commission has not allowed depreciation or Return on Equity on the revalued assets as per the Final Transfer Scheme. Also, the interest is being allowed by the Commission based on separate calculations as elaborated in earlier Tariff Orders, which have been upheld by the Hon'ble APTEL. Hence, no real financial impact of the Final Transfer Scheme is being passed on to the consumers.

## **2.22 Net-Metering for Rooftop Solar Installations**

2.22.1 During the Public Hearing, there were several objections on TANGEDCO's separate proposal to move to gross-metering rather than net-metering, with the injection of solar power into the grid by the consumers being compensated at lower rates.



### **Commission's Views**

- 2.22.2 This issue is outside the scope of the present ARR and Tariff Petition, and shall be addressed appropriately, while dealing with the separate Petition filed by TANGEDCO in this regard.

### 3 FINAL TRUE UP FOR FY 2011-12 TO FY 2015-16

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#### 3.1 Background

- 3.1.1 In the Suo-Motu Order dated December 11, 2014, the Commission had undertaken provisional true up of FY 2011-12 and FY 2012-13 and APR for FY 2013-14. As TANGEDCO had not submitted the Tariff Petition, the Commission had limited availability of information, and hence, had done the provisional true-up.
- 3.1.2 TANGEDCO, in its Petition, has sought final truing up of expenditure and revenue for FY 2011-12 to FY 2015-16 based on the actual expenditure and revenue as per the Audited Accounts. In this Section, the Commission has analysed all the elements of revenue and expenses for FY 2011-12 to FY 2015-16, and has undertaken the truing up of expenses and revenue after due prudence check.
- 3.1.3 A comparison of the figures approved by the Commission in Suo Motu Order dated December 11, 2014, as submitted by TANGEDCO in its instant Petition, and approved by the Commission in this Order are shown in the Tables under relevant sections discussed herein.

#### 3.2 Energy Sales

- 3.2.1 TANGEDCO submitted the category-wise sales for FY 2011-12 to FY 2015-16 as per Audited Accounts of the respective years. However, as category-wise sales shown in the Audited Accounts comprise wheeling units also, TANGEDCO has excluded the wheeling units while submitting the actual sales for each year.

##### **Commission's Views**

- 3.2.2 The Commission has approved the actual sales for FY 2011-12 to FY 2015-16 excluding wheeling units, for all categories except Huts, Agriculture, and Puducherry, as submitted by TANGEDCO.
- 3.2.3 For approving sales to Huts and Agriculture category, the Commission has followed the same approach as adopted in Tariff Order for FY 2013-14 and Suo-Motu Order for FY 2014-15.
- 3.2.4 **Hut Category (LT IB)-** In Suo-Motu Order dated December 11, 2014, the Commission had stated the following:

**“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.”

3.2.5 The Commission has retained the sales to Hut category for FY 2011-12 to FY 2013-14 as approved in the Suo-Motu dated December 11, 2014. In line with the above approach, sales to Huts category for FY 2014-15 and FY 2015-16 has been calculated and approved.

3.2.6 **Agriculture Category (LT IV)-** In Suo-Motu Order dated December 11, 2014, the Commission had stated the following:

**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.”*

- 3.2.7 The Commission has retained the sales to Agriculture category for FY 2011-12 to FY 2013-14 as approved in the Suo-Motu Order dated December 11, 2014. In line with the above approach, sales to Agriculture category for FY 2014-15 and FY 2015-16 has been calculated and approved.
- 3.2.8 **Sales to Puducherry** - In Suo-Motu Order dated December 11, 2014, the Commission had referred to Order No. 3 of 2010, dated July 31, 2010 and stated the following:

**“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.”*

- 3.2.9 Therefore, in line with the approach adopted in the earlier Orders and in view of the matter being sub-judice before the Hon’ble High Court of Madras, the Commission has disallowed sales to Puducherry while approving total sales for FY 2011-12 to FY 2015-16.
- 3.2.10 The total sales for FY 2011-12 to FY 2015-16 as submitted by TANGEDCO and as approved by the Commission is shown in the Table below:

**Table 3-1: Total Sales for FY 2011-12 to FY 2015-16 as approved by the Commission (MU)**

Category of Consumer	Tariff Category	FY 2011-12		FY 2012-13		FY 2013-14		FY 2014-15		FY 2015-16	
		TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
<b>HIGH TENSION</b>											
HT Industries	IA	9,581	9,581	7,542	7,542	9,674	9,674	11,299	11,299	11,572.67	11,572.67
Railway Traction	IB	708	708	711	711	766	766	824	824	834	834
Govt. Educational Institutions, Hospitals, Water supply etc.	IIA	1,251	1,251	973	973	1,111	1,111	1,268	1,268	1,351	1,351
Private Educational Institutions, Cinema Theatres & Studios	IIB	227	227	224	224	280	280	309	309	325	325
Actual places of public worship, Mutts and Religious Institutions.	IIC	28	28	-	-	-	-	-	-	-	-
HT Commercial and all Categories not covered in other HT categories	III	1,856	1,856	1,554	1,554	1,505	1,505	1,650	1,650	1,881	1,881
Lift Irrigation and Co-operative Societies	IV	6	6	5	5	6	6	7	7	6	6.44
Temporary Supply	V	-	-	165	165	294	294	71	71	170	170
Supply to Puducherry		400	-	381	-	237	-	356	-	188	-
Sales to Other States (SWAP)											
<b>Total HT</b>		<b>14,057</b>	<b>13,657</b>	<b>11,554</b>	<b>11,174</b>	<b>13,873</b>	<b>13,636</b>	<b>15,783</b>	<b>15,427</b>	<b>16,328</b>	<b>16,140</b>

Category of Consumer	Tariff Category	FY 2011-12		FY 2012-13		FY 2013-14		FY 2014-15		FY 2015-16	
		TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
<b>LOW TENSION</b>											
Domestic, Handloom, etc.	IA	17,507	17,507	17,834	17,834	20,201	20,201	21,990	21,990	23,489	23,489
Huts in Village panchayats, TAHDCO etc.	IB	395	395	425	462	460	501	428	540	440	580
Bulk Supply	IC	21	21	25	25	11	11	11	11	11	11
Public Lighting and Public Water Supply & Sewerage	IIA	1,700	1,700	1,468	1,468	1,917	1,917	2,110	2,110	2,232	2,232
Govt. Educational Institutions., Hospitals, Water supply etc.	IIB (1)	574	574	499	499	345	345	178	178	144	144
Private Educational Institutions, Cinema theatre & Studios	IIB (2)	247	247	192	192	229	229	247	247	252	252
Actual place of public worship, Mutts and Religious Institutions	IIC	101	101	95	95	105	105	116	116	123	123
Cottage and Tiny Industries	IIIA (1)	562	562	463	463	406	406	196	196	219	219
Power loom	IIIA (2)	782	782	719	719	801	801	926	926	968	968
Coffee grinding and Ice factories etc. and Industries not covered under LT Tariff IIIA	IIIB	3,953	3,953	3,880	3,880	4,761	4,761	5,872	5,872	6,256	6,256
Agriculture and Govt. seed farm etc.	IV	10,118	10,118	11,248	10,206	12,295	10,745	12,399	10,778	11,542	10,824
Commercial and all categories not covered under IA, IB, IC, IIA, II B1, II B2, II C IIIA 1, III A2, IIIB and IV	V	4,296	4,296	4,691	4,691	5,393	5,393	6,227	6,227	6,462	6,462



Category of Consumer	Tariff Category	FY 2011-12		FY 2012-13		FY 2013-14		FY 2014-15		FY 2015-16	
		TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
Temp. supply (a) Lighting and combined installations, (b) Lavish illuminations	VI	25	25	36	36	71	71	142	142	164	164
<b>Total LT</b>		<b>40,281</b>	<b>40,281</b>	<b>41,574</b>	<b>40,569</b>	<b>46,993</b>	<b>45,484</b>	<b>50,842</b>	<b>49,333</b>	<b>52,301</b>	<b>51,723</b>
<b>Grand Total</b>		<b>54,338</b>	<b>53,938</b>	<b>53,128</b>	<b>51,743</b>	<b>60,866</b>	<b>59,120</b>	<b>66,625</b>	<b>64,760</b>	<b>68,629</b>	<b>67,863</b>

### 3.3 Energy Availability

3.3.1 TANGEDCO meets its energy requirements from its own generating stations, purchases from central generating stations, IPPs and other sources.

3.3.2 TANGEDCO has submitted its audited accounts for FY 2011-12, FY 2012-13, FY 2013-14, FY 2014-15 and FY 2015-16. As part of the monthly MIS reporting, the licensee has also submitted actual energy available from various sources.

3.3.3 Based on the information available from the audited accounts and MIS reports, the Commission in this Section has analysed the performance of TANGEDCO's own generating stations. The source wise availability of energy has been discussed first for TANGEDCO's own generating stations and then for other sources which includes Central Generating Stations, IPPs, Renewable sources etc.

#### 3.3.4 Own Generation

3.3.4.1 Based on Plant Load Factor (PLF) and Auxiliary Consumption discussed subsequently in this Order, the net generation from own stations from FY 2011-12 to FY 2015-16 as submitted by TANGEDCO is shown in the Table below:

**Table 3-2: Energy availability from own stations as submitted by TANGEDCO (MU)**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	744	610	1,011	485	392
2	Tuticorin TPS	7,262	7,620	7,253	7,043	6,501
3	Mettur TPS	6,280	5,684	5,928	5,697	5,406
4	Mettur Stage III TPS	-	-	1,840	2,802	2,664
5	North Chennai TPS	4,301	4,634	3,720	3,865	4,071
6	North Chennai Stage II TPS	-	-	-	5,187	4,468
	<b>Total Thermal</b>	<b>18,587</b>	<b>18,549</b>	<b>19,752</b>	<b>25,079</b>	<b>23,502</b>
1	Tirumakottai GTPS	663	682	456	382	363
2	Kuttalam GTPS	385	51	594	459	552
3	Basin Bridge GTPS	29	0	1	3	11
4	Valathur GTPS Unit 1	619	424	687	996	680
5	Valathur GTPS Unit 2	426	461	494		
	<b>Total Gas</b>	<b>2,122</b>	<b>1,618</b>	<b>2,232</b>	<b>1,840</b>	<b>1,606</b>
	Hydro	4,788	2,717	4,612	5,165	4,438

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Wind	12	13	13	8	7
	<b>Total</b>	<b>25,509</b>	<b>22,897</b>	<b>26,609</b>	<b>32,091</b>	<b>29,553</b>

### Commission's Views

3.3.4.2 The total installed capacity of generating stations of TANGEDCO as on March 31<sup>st</sup> for each year under true up is shown below:

**Table 3-3: Total Installed Capacity of TANGEDCO (MW)**

Source	As on 31-03-2012	As on 31-03-2013	As on 31-03-2014	As on 31-03-2015	As on 31-03-2016
Thermal	2,970	2,970	4,060	4660	4660
Gas	516.08	515.88	516.08	516.08	516.08
Hydro	2229.75	2237.4	2284.4	2286.9	2307.9
Wind	17	17	17	17	17
<b>Total</b>	<b>5,732.83</b>	<b>5,740.28</b>	<b>6,877.48</b>	<b>7,479.98</b>	<b>7,500.98</b>

3.3.4.3 Energy availability from generating stations is dependent on operational parameters, viz., PLF and Auxiliary consumption. For the purpose of truing up, to estimate energy availability from own generating stations, the Commission has approved TANGEDCO's submission after verifying the same from the Audited Accounts, as shown in the Table below:

**Table 3-4: Energy Availability from own generating stations approved by the Commission after true-up (MU)**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	744	610	1,011	485	392
2	Tuticorin TPS	7,262	7,620	7,253	7,043	6,501
3	Mettur TPS	6,280	5,684	5,928	5,697	5,406
4	Mettur Stage III TPS	-	-	1,840	2,802	2,664
5	North Chennai TPS	4,301	4,634	3,720	3,865	4,071
6	North Chennai Stage II TPS	-	-	-	5,187	4,468
	<b>Total Thermal</b>	<b>18,587</b>	<b>18,549</b>	<b>19,752</b>	<b>25,079</b>	<b>23,502</b>
1	Tirumakottai GTPS	663	682	456	382	363
2	Kuttalam GTPS	385	51	594	459	552
3	Basin Bridge GTPS	29	0	1	3	11
4	Valathur GTPS Unit 1	619	424	687	996	680

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
5	Valathur GTPS Unit 2	426	461	494		
	<b>Total Gas</b>	<b>2,122</b>	<b>1,618</b>	<b>2,232</b>	<b>1,840</b>	<b>1,606</b>
	Hydro	4,277	2,415	4,108	4,663	4,025
	Wind	12	13	13	8	7
	<b>Total</b>	<b>24,996</b>	<b>22,595</b>	<b>26,104</b>	<b>31,589</b>	<b>29,140</b>

### 3.3.5 Power Purchase from Other Sources

3.3.5.1 TANGEDCO submitted the power purchase from outside/other sources for the period from FY 2011-12 to FY 2015-16 after excluding wheeling units, as shown in the following Table:

**Table 3-5: Energy availability from Other Sources as submitted by TANGEDCO (MU)**

Source	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
CGS	20,629.00	21,567.00	24,560.00	27,212.00	29,679.00
IPPs	5,731.00	5,972.00	5,658.00	4,802.00	2,418.00
Captive & Non-conventional sources	7,655.00	9,553.00	8336.00	8,486.00	3,495.00
Other sources (Trading/Bilateral etc.)	9,820.00	7,017.00	10,170.00	12,881.00	18,495.00
<b>Total</b>	<b>43,835.00</b>	<b>44,109.00</b>	<b>48,724.00</b>	<b>53,381.00</b>	<b>54,087.00</b>

### Commission's Views

3.3.5.2 The Commission has verified the details of power purchase from other sources from the audited accounts of respective years. For the purpose of truing up, the Commission has approved total energy availability from other sources as submitted by TANGEDCO, as shown in the Table below:

**Table 3-6: Energy availability from Other sources approved by the Commission after true-up (MU)**

Source	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
CGS	20,630.55	21,566.30	24,560.40	27,212.00	29,678.09
IPPs	5,730.44	5,972.00	5,658.84	4,802.00	2,418.76
Captive & Non-conventional sources	7,654.68	9,553.00	8336.00	8,486.00	3,495.62
Other sources (Trading/Bilateral etc.)	9,821.00	7,017.00	10,170.00	12,881.00	18,495.30

Source	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>Total</b>	<b>43,836.67</b>	<b>44,108.30</b>	<b>48,725.24</b>	<b>53,381.00</b>	<b>54,087.77</b>

### 3.3.6 Summary of total energy availability

3.3.6.1 Based on the approval given above, the summary of total energy available to TANGEDCO for each year during FY 2011-12 to FY 2015-16 is shown in the Table below:

**Table 3-7: Total Energy availability for TANGEDCO approved by the Commission after true-up (MU)**

Source	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Own Generation	24,996.26	22,595.08	26,103.52	31,590.05	29,139.79
CGS	20,630.55	21,566.30	24,560.40	27,212.00	29,678.09
IPPs	5,730.44	5,972.00	5,658.84	4,802.00	2,418.76
Captive & Non-conventional sources	7,654.68	9,553.00	8336.00	8,486.00	3,495.62
Other sources (Trading/Bilateral etc.)	9,821.00	7,017.00	10,170.00	12,881.00	18,495.30
<b>Total</b>	<b>68,832.93</b>	<b>66,703.63</b>	<b>74,828.76</b>	<b>84,970.16</b>	<b>83,227.56</b>

### 3.4 Energy Balance and Distribution Losses

3.4.1 TANGEDCO submitted that the T&D losses approved by the Commission in the Tariff Order dated July 31, 2010 was based on the trajectory fixed by the Commission starting with 18% for FY 2009-10 and annual reduction of 0.4% for the ensuing years. TANGEDCO submitted that the T&D loss of 18% is a computed figure without any study and includes wheeling units. TANGEDCO submitted that it would have been more relevant to fix T&D loss trajectory based on 5% agriculture sampling for the Control Period rather than considering the computed figure of 18 %.

3.4.2 TANGEDCO also submitted that in the Report “Loss Reduction Strategies Review of Provisions in Act and Policies” issued by Forum of Regulators (FOR) in September 2008, the FOR Group has stated in para 8.4.1 on Page 21 of the Report that

*“The group felt that the trajectory for loss reduction should be determined keeping in view the actual loss levels, the capital expenditure made in the past for improving the network infrastructure,*

*and the future capital expenditure plans for the purpose. This was important keeping in view the Orissa experience, where the loss level allowed in tariff at the beginning of the reforms process was much below the actual loss level and this completely distorted the revenue requirement and the utility went into a perennial loss”.*

- 3.4.3 TANGEDCO submitted that the Commission has maintained the T&D loss of 16.80% approved for FY 2012-13 in the previous Tariff Order. However, the Commission had grossed up the total sales approved for FY 2012-13 by the T&D loss approved for FY 2012-13 in order to arrive at energy requirement for FY 2012-13, which had resulted in lower energy requirement as compared to the ground reality.
- 3.4.4 The additional energy sales approved for FY 2012-13 was 4976 MU when compared to FY 2011-12, whereas the net energy requirement needs to be in line with the realistic T&D Loss. Therefore, T&D loss for FY 2012-13 should be based on the actual sales approved by the Commission.
- 3.4.5 Further, if the loss trajectory as per the Commission is considered at 22.13%, it shall result in a reduction of 5.33% loss (22.13% - 16.80%), which is an uphill task and the same needs to be brought down to a reasonable value. The measurement of the T&D losses and thereafter stipulating a reduction target is an important component of the whole exercise of revenue requirement. The T&D loss has been arrived at without any support data and hence, the Commission should approve a revised T&D loss for FY 2011-12 to FY 2015-16.
- 3.4.6 TANGEDCO further submitted that the computed consumption without sample study was higher than the computed consumption based on sample study. The reduced agriculture consumption is due to lesser hours of supply under Restriction & Control (R&C) measures and due to good monsoon. Thus, due to lower computed agriculture consumption for the Control Period from FY 2010-11 to FY 2011-13, the T&D loss has worked out to be higher than the trajectory fixed in the Tariff Order dated July 31, 2010, and hence, the revised T&D loss trajectory needs to be fixed for the Control Period from FY 2010-11 to FY 2012-13. TANGEDCO requested that it should not be penalised by disallowance of additional power purchase cost due to a higher than approved T&D loss.
- 3.4.7 TANGEDCO submitted the Energy Balance statement for FY 2011-12 to FY 2015-16 excluding wheeling units, as shown in the following Table:

**Table 3-8: Energy Balance as submitted by TANGEDCO (MU)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Power available from own generation (MU)	25,494	23,099	28,828	32,054	31,838
2	Power purchase from other sources (MU)	43,836	44,109	48,724	53,382	54,087
3	Total Energy available (MU)	69,330	67,208	77,552	85,437	85,926
4	T&D Loss (MU)	14,992	14,080	16,686	18,811	17,297
5	T&D Loss (%)	21.62%	20.95%	21.52%	22.02%	20.13%
6	Total Sales	54,338	53,128	60,866	66,626	68,629
7	Sales to consumer	54,338	53,128	60,866	66,626	68,629

### **Commission's Views**

3.4.8 The Commission, in its first MYT Order dated July 31, 2010, had approved the combined T&D losses and set a trajectory for reduction of T&D losses.

3.4.9 In the Tariff Order dated March 30, 2012, the Commission had recorded that TANGEDCO did not initially submit the T&D loss but later submitted it. The relevant paragraphs from the Order are reproduced below:

*“The Commission observed that TANGEDCO has not submitted T&D loss for FY 2011-12 and FY 2012-13 in its Petition but the same was submitted later. Since the actual energy available during FY 2010-11 and first ten months of FY 2011-12 has been submitted by TANGEDCO, the Commission has re-estimated the T&D loss on the basis of energy sales from FY 2010-11 to FY 2011-12 and the energy available during FY 2010-11 and FY 2011-12 approved by the Commission in this Order.”*

3.4.10 Further, in the same Order, the Commission had given the following direction to TANGEDCO:

*“3.1.42 As regards the pilot study being conducted by TANGEDCO, the Commission is of the view that based upon the success of the same, it may be extended to the remaining areas.*

*3.1.43 The Commission directs TANGEDCO to complete the exercise being done by TANGEDCO for accurate measurement of T&D Loss and unmetered agricultural consumption before October 31, 2012 and submit the findings before the Commission before December 1, 2012.”*

3.4.11 As TANGEDCO did not comply with the above directions, the Commission had initiated a Suo-Motu proceeding against TANGEDCO vide S.M.P. No. 3 of 2013. In its Order dated June 4, 2013, the Commission stated that:

*“12. TANGEDCO has not submitted the T&D loss details as specified in the Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for determination of Tariff) Regulations, 2005 in their Tariff Petition T.P 1 of 2013. However, as mandated by the Act, the Commission is bound to issue the tariff order subject to prudent check of the data furnished by TANGEDCO. Till 2010, the TANGEDCO (the erstwhile TNEB) was reporting only 18% as T&D loss. Only during the tariff filing in November 2011(for the FY 2012-13) the TANGEDCO claimed a T&D loss of 17.60%, 19.14% and 18.74% for the FY 2011, FY 2012, and FY 2013 respectively. Since the TANGEDCO has not conducted the T&D loss study as per the Regulations and the directions of the Hon’ble APTEL and this Commission, the Commission cannot accept the same. 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.”***

- 3.4.12 The study report has been submitted very recently, as elaborated in Chapter 4 of this Order. Hence, for the purpose of true-up, the T&D loss for the period from FY 2011-12, FY 2012-13, and FY 2012-13 has to be reckoned as 17.2%, 16.80%, and 16.40%, respectively, as approved in the earlier Orders. Similarly, the T&D loss for FY 2014-15 and FY 2015-16 has to be reckoned as 16% and 15.6%, respectively, as approved in the Suo-motu Tariff Order.
- 3.4.13 In view of the above, the Commission cannot accept TANGEDCO’s request that it should not be penalised by disallowance of additional power purchase cost due to a higher than approved actual T&D loss.
- 3.4.14 In this instant Petition filed for trueing up, TANGEDCO submitted the actual combined T&D loss for the period from FY 2011-12 to FY 2015-16. The Commission has arrived at the energy requirement for TANGEDCO for this period, considering the approved sales and approved T&D losses. The excess power purchase by TANGEDCO has been disallowed by the Commission as elaborated in the subsequent Section of this Order. Further, in accordance with the past approach, the Commission has also allowed the net additional energy required for pumping at



Kadamparai Pumped Storage Hydroelectric Station (PSHES), as the difference between the energy requirement for pumping and the generation at Kadamparai PSHES. In cases where the net additional energy required for pumping at Kadamparai PSHES works out to be negative, the same has been considered as zero, as it indicates that the total generation at Kadamparai PSHES including run-of-river generation is higher than the pumping requirement. Further, for proper accounting, the entire generation at Kadamparai PSHES has been excluded from the energy available. The Energy Balance approved by the Commission after true-up for the period from FY 2011-12 to FY 2015-16, is shown in the Table below:

**Table 3-9: Energy Balance approved by the Commission after true-up for FY 2011-12 to FY 2015-16**

Sl.	Particulars	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Total Sales	MU	53,937.87	51,742.99	59,119.91	64,760.14	67,863.00
2	Additional Power for Kadamparai	MU	21	33	0	9	1
3	Total Energy required	MU	53,958.87	51,775.99	59,119.91	64,769.14	67,864.00
4	T&D losses	%	17.20%	16.80%	16.40%	16.00%	15.60%
5	T&D Losses	MU	11,208.85	10,454.77	11,597.69	12,336.98	12,543.58
6	<b>Energy required at State boundary</b>	<b>MU</b>	<b>65,167.72</b>	<b>62,230.75</b>	<b>70,717.59</b>	<b>77,106.12</b>	<b>80,407.58</b>
7	PGCIL Losses [only on inter-State purchase quantum]	%	4.88%	4.35%	3.98%	3.57%	3.04%
8	PGCIL Losses [only on inter-State purchase quantum]	MU	1,440.99	1,239.81	1,399.02	1,453.67	1,471.49
9	<b>Power Purchase Requirement</b>	<b>MU</b>	<b>66,608.71</b>	<b>63,470.56</b>	<b>72,116.61</b>	<b>78,559.79</b>	<b>81,879.07</b>

3.4.15 The Power Purchase allowed by the Commission after true-up for the period from FY 2011-12 to FY 2015-16, is shown in the Table below:

**Table 3-10: Power Purchase Quantum allowed after true-up for FY 2011-12 to FY 2015-16  
(MU)**

Sl .	Particulars	Legend	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	<b>Total Power Purchase Requirement</b>	<b>A</b>	<b>66,608.71</b>	<b>63,470.56</b>	<b>72,116.61</b>	<b>78,559.79</b>	<b>81,879.07</b>
2	Energy Purchased from own sources	B.1	25,508.77	22,897.00	26,607.96	32,092.81	29,552.79
3	Energy Purchased from CGS	B.2	20630.55	21,566.30	24,560.40	27,212.00	29,678.09
4	Energy Purchase from renewable sources	B.3	7654.68	9,553.00	8,336.00	8,486.00	3,495.62
5	Energy purchase from IPP	B.4	5730.44	5,972.00	5,658.84	4,802.00	2,418.76
6	Energy purchase from Trader/Exchange	B.5	9821	7,017.00	10,170.00	12,881.00	18,495.30
7	<b>Total Power Purchase/availability as given by TANGEDCO</b>	<b>B*</b>	<b>69,345.44</b>	<b>67,005.30</b>	<b>75,333.19</b>	<b>85,473.81</b>	<b>83,640.56</b>
8	<b>Excess Purchase/availability</b>	<b>C = B-A</b>	<b>2,736.73</b>	<b>3,534.74</b>	<b>3,216.58</b>	<b>6,914.02</b>	<b>1,761.49</b>

\*B= B1+B2+B3+B4+B5

### 3.5 Fixed Expenses

3.5.1 TANGEDCO submitted that it has considered the Fixed Cost for its Generating Stations and Distribution function on the basis of the Tariff Regulations and Audited Accounts for FY 2011-12 to FY 2015-16.

3.5.2 The Fixed Costs are categorized under the following heads:

- i. Operation and Maintenance Expenses
- ii. Depreciation
- iii. Interest and Finance Charges
- iv. Return on Equity
- v. Interest on Working Capital
- vi. Other Debits
- vii. Operating Charges and Extra Ordinary Items
- viii. Prior Period Items
- ix. Non- Tariff Income and Other Income

### 3.6 Operation & Maintenance Expenses

3.6.1 TANGEDCO submitted that the O&M expenses claimed in true up for generation

and distribution function for FY 2011-12 to FY 2015-16 are based on Audited Accounts for the respective years. TANGEDCO submitted that it had to also independently undertake number of activities such as planning, safety, quality assurance, human resources, IT, corporate office, regulatory affairs, legal, accounts, finances, auditing, etc., and various miscellaneous activities.

- 3.6.2 TANGEDCO requested the Commission to allow the Audited O&M expenses incurred by the Generation and Distribution function for FY 2011-12 to FY 2015-16. The actual O&M expenses incurred by TANGEDCO during FY 2011-12, FY 2012-13, FY 2013-14, FY 2014-15, and FY 2015-16 are Rs. 4265.51 Crore, Rs. 4187.25 Crore, Rs. 4940.17 Crore, Rs. 5677.54 Crore, and Rs. 6122.00 Crore, respectively. The plant-wise actual O&M expenses as submitted by TANGEDCO are shown in the Table below:

**Table 3-11: O&M Expenses as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	103.78	88.71	106.25	109.07	135.55
2	Tuticorin TPS	191.36	244.51	262.42	261.42	316.49
3	Mettur TPS	104.74	115.03	170.50	234.14	241.95
4	North Chennai TPS	121.32	143.97	221.02	259.35	225.72
5	Mettur TPS Stage III	-	-	-	50.29	(26.93)
6	NCTPS Stage II				27.78	166.59
7	Tirumakottai GTPS	6.13	7.06	7.45	5.44	12.68
8	Kuttalam GTPS	5.79	(41.65)	64.11	18.08	9.58
9	Basin Bridge GTPS	5.04	5.90	7.61	9.52	8.12
10	Valuthur GTPS	5.89	14.42	8.15	6.35	12.03
11	Erode HEP	26.43	25.11	31.79	33.19	49.00
12	Kadamparai HEP	20.80	22.83	24.77	26.78	32.43
13	Kundah HEP	24.65	26.64	35.66	35.38	50.37
14	Tirunelveli HEP	23.25	10.93	29.52	35.68	43.61
<b>15</b>	<b>Total Generation</b>	<b>639.18</b>	<b>663.46</b>	<b>969.23</b>	<b>1,112</b>	<b>1277.17</b>
<b>16</b>	<b>Distribution</b>	<b>3,626.33</b>	<b>3,523.79</b>	<b>3,970.93</b>	<b>4565.07</b>	<b>4844.82</b>
<b>17</b>	<b>Total TANGEDCO</b>	<b>4,265.51</b>	<b>4,187.25</b>	<b>4,940.17</b>	<b>5677.54</b>	<b>6122.00</b>

## Commission's Views

### Employee Expenses

- 3.6.3 The Commission has approved the normative employee expenses for FY 2011-12 to FY 2013-14 same as approved in Suo-Motu Order dated December 11, 2014. For approving employee expenses for FY 2014-15 and FY 2015-16, the Commission has adopted the same approach as adopted in earlier Order.
- 3.6.4 In the Suo-Motu Order, the Commission had bifurcated the terminal benefits based on the employee ratio of 6:1 (TANGEDCO to TANTRANSCO) based on submissions made by TANGEDCO and TANTRANSCO. Since the Pensioner's liability has not been finalized in the final Transfer Scheme, the terminal benefits approved for FY 2013-14 has been escalated at 5.72% Y-o-Y to arrive at terminal benefits for FY 2014-15 and FY 2015-16. Further, in accordance with the Tariff Regulations, employee expenses except DA for FY 2013-14 has been escalated at 5.72% to arrive at employee expenses of FY 2014-15 and FY 2015-16.
- 3.6.5 As per the Tariff 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 has been allowed as a pass through in tariff. Therefore, the DA rates notified by GoTN have been used for estimating the DA instead of taking an escalation of 5.72% as per the Tariff Regulations. The DA rate applicable for FY 2014-15 and FY 2015-16 is given in the Table below:

**Table 3-12: Applicable DA rates considered by the Commission**

Year	Effective Date	Rate of DA	Months
FY 2014-15	Apr 1, 2014 to June 30, 2014	100%	3
	July 1, 2014 to Dec 31, 2014	107%	6
	Jan 1, 2015 to Mar 31, 2015	113%	3
FY 2015-16	Apr 1, 2015 to June 30, 2015	113%	3
	July 1, 2015 to Dec 31, 2015	119%	6
	Jan 1, 2016 to Mar 31, 2016	125%	3

### Repair and Maintenance (R&M) Expenses

- 3.6.6 The Commission has approved the R&M expenses for FY 2011-12 to FY 2013-14 same as approved in the Suo-Motu Order dated December 11, 2014. For approving

R&M expenses for FY 2014-15 and FY 2015-16, the Commission has adopted the same approach as specified in the Tariff Regulations. The R&M expenses approved for FY 2013-14 has been escalated by 5.72% Y-o-Y to arrive at R&M expenses for FY 2014-15 and FY 2015-16.

#### **Administrative and General (A&G) Expenses**

- 3.6.7 The Commission has approved A&G expenses for FY 2011-12 to FY 2013-14 same as approved in the Suo-Motu Order dated December 11, 2014. For approving A&G expenses for FY 2014-15 and FY 2015-16, the Commission has adopted the same approach as specified in the Tariff Regulations. The A&G expenses approved for FY 2013-14 has been escalated by 5.72% Y-o-Y to arrive at A&G expenses for FY 2014-15 and FY 2015-16.

#### **O&M Expenses for new generating stations**

- 3.6.8 The Commission has allowed O&M expenses for new generating stations of TANGEDCO, namely MTPS Stage III and NCTPS Stage II (Unit 1 and Unit 2) in accordance with Regulation 25.5 of the Tariff Regulations, reproduced below:

#### ***“25. Operation and Maintenance Expenses***

...

...

*5) 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.”*

- 3.6.9 Capital Cost and date of COD of MTPS Stage III and NCTPS Stage II (Unit 1 and Unit 2) have been considered as approved in M.A.P Order 1 of 2015 and M.A.P Order 2 of 2015 dated December 29, 2016 and M.A.P Order 3 of 2015 dated January 31, 2016, as shown in the Table below:

**Table 3-13: Capital Cost and COD of New Generating Stations**

Sl.	Power Station	COD	Capital Cost (Rs. Crore)
1	MTPS Stage III	October 12, 2013	3,816.45

Sl.	Power Station	COD	Capital Cost (Rs. Crore)
2	NCTPS Stage II – Unit 1	March 20, 2014	3,428.50
3	NCTPS Stage II – Unit 2	May 8, 2014	3,156.24

3.6.10 Further, O&M expenses have been allowed on proportionate basis, if COD was achieved during the year.

3.6.11 The O&M expenses approved by the Commission after true-up for FY 2011-12 to FY 2015-16 is shown in the Tables below:

**Table 3-14: O&M expenses approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Sl.	Particulars	FY 2011-12			FY 2012-13			FY 2013-14		
		SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
1	Ennore TPS	104.72	103.78	104.72	110.28	88.71	110.28	124.63	106.25	124.60
2	Tuticorin TPS	142.19	191.36	142.19	154.00	244.51	154.00	159.47	262.42	159.43
3	Mettur TPS	116.61	104.74	116.61	126.82	115.03	126.82	134.22	170.50	134.18
4	North Chennai TPS	117.64	121.32	117.64	129.26	143.97	129.26	138.09	221.02	138.05
5	Mettur TPS Stage III							17.75	-	
6	NCTPS Stage II							2.42		-
7	Tirumakottai GTPS	7.92	6.13	7.92	8.50	7.06	8.50	11.90	7.45	11.90
8	Kuttalam GTPS	9.82	5.79	9.82	9.30	(41.65)	9.30	8.19	64.11	8.19
9	Basin Bridge GTPS	5.93	5.04	5.93	6.39	5.90	6.39	8.08	7.61	8.08
10	Valuthur Unit-I	14.04	5.89	14.04	15.06	14.42	15.06	12.81	8.15	12.81
11	Erode HEP	28.88	26.43	28.88	35.07	25.11	35.07	39.30	31.79	39.29
12	Kadamparai HEP	19.82	20.80	19.82	21.72	22.83	21.72	28.57	24.77	28.56
13	Kundah HEP	41.88	24.65	41.88	44.93	26.64	44.93	47.72	35.66	47.71
14	Tirunelveli HEP	24.76	23.25	24.76	27.15	10.93	27.15	30.97	29.52	30.96
<b>15</b>	<b>Grand Total Generation</b>	<b>634.21</b>	<b>639.18</b>	<b>634.21</b>	<b>688.48</b>	<b>663.46</b>	<b>688.48</b>	<b>764.12</b>	<b>969.23</b>	<b>743.75</b>
<b>16</b>	<b>Distribution</b>	<b>3,327.36</b>	<b>3,626.33</b>	<b>3,327.36</b>	<b>3,477.42</b>	<b>3,523.79</b>	<b>3,477.42</b>	<b>3,852.37</b>	<b>3,970.93</b>	<b>3,851.31</b>
<b>17</b>	<b>Generation + Distribution</b>	<b>3,961.57</b>	<b>4,265.51</b>	<b>3,961.57</b>	<b>4,165.90</b>	<b>4,187.25</b>	<b>4,165.90</b>	<b>4,616.49</b>	<b>4,940.17</b>	<b>4,595.06</b>

**Table 3-15: O&M expenses for FY 2014-15 to FY 2015-16 as approved by the Commission (Rs. Crore)**

Sl.	Particulars	FY 2014-15			FY 2015-16		
		SMT Order	TANGEDCO	Approved after true up	TO 2013	TANGEDCO	Approved after true up
1	Ennore TPS	138.44	109.07	99.17	141.43	135.55	125.22
2	Tuticorin TPS	178.55	261.42	237.68	182.36	316.49	292.37
3	Mettur TPS	150.84	234.14	212.88	154.04	241.95	223.51
4	North Chennai TPS	152.08	259.35	235.79	155.40	225.72	208.52
5	Mettur TPS Stage III	37.53	50.29	40.35	38.40	(26.93)	42.66
6	NCTPS Stage II	57.38	27.78	64.52	62.88	166.59	71.69
7	Ennore Expansion	-	-		10.03	-	
8	Tirumakottai GTPS	13.07	5.44	4.95	13.36	12.68	11.72
9	Kuttalam GTPS	8.92	18.08	16.43	9.11	9.58	8.85
10	Basin Bridge GTPS	8.95	9.52	8.66	9.14	8.12	7.50
11	Valuthur Unit-I	14.20	6.35	5.77	14.51	12.03	11.11
12	Erode HEP	44.87	33.19	30.17	45.80	49.00	45.26
13	Kadamparai HEP	31.86	26.78	24.35	32.54	32.43	29.96
14	Kundah HEP	53.14	35.38	32.17	54.28	50.37	46.53
15	Tirunelveli HEP	34.90	35.68	32.44	35.64	43.61	40.28
16	<b>Grand Total Generation</b>	<b>924.73</b>	<b>1,112.47</b>	<b>1,045.33</b>	<b>958.92</b>	<b>1,277.17</b>	<b>1,165.17</b>
17	<b>Distribution</b>	<b>4,303.63</b>	<b>4,565.07</b>	<b>4,150.46</b>	<b>4,395.62</b>	<b>4,844.82</b>	<b>4,419.95</b>
18	<b>Generation + Distribution</b>	<b>5,228.36</b>	<b>5,677.54</b>	<b>5,195.79</b>	<b>5,354.54</b>	<b>6,122.00</b>	<b>5,585.12</b>



- 3.6.12 TANGEDCO has claimed expenses under the head of Operating Charges, the details of which have been shown subsequently. As Tariff Regulations do not allow any separate expenses over and above the specified expenses, the Commission has not allowed Operating Charges as sought by TANGEDCO.

### **3.7 Capital Expenditure and Capitalization**

- 3.7.1 TANGEDCO submitted that the expenditure incurred in each power station is on account of regular works like replacement of worn-out machinery, damaged equipment, transformers, boilers, generators, stators, auxiliary equipment, etc., which are necessary works to be carried out for effective and efficient working of the power station.
- 3.7.2 The expenditure incurred for the Distribution function during the respective years is on account of regular works carried out, which were necessary for efficient working of the distribution system. The works carried out for the distribution function are mainly on account of addition of LT and HT lines, distribution transformers, services rendered during the respective years, and works carried out under RGGVY scheme.
- 3.7.3 TANGEDCO further submitted that the additional capitalization during the respective years is in line with Regulation 19 of the Tariff Regulations, which have been incurred for efficient and successful operation of the Generating Stations and Distribution Network.

#### **Commission's Views**

- 3.7.4 Regulation 17 of the Tariff Regulations and Regulation 3(v) of the MYT Regulations specify that the Licensee shall file a detailed CIP, which shall be approved by the Commission before determining the ARR and Tariff for any year.
- 3.7.5 The Hon'ble APTEL in its Judgment in Appeal No. 196 of 2013 and Appeal No. 199 of 2013, dated October 27, 2014 had directed the Commission to approve the CIP after following due process of law. The relevant excerpts of the Judgment 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.*

...

*20. ... 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...** (emphasis added)*

3.7.6 In the Suo-Motu Order dated December 11, 2014, the Commission has stated that:

*“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.”*

- 3.7.7 As TANGEDCO has finalised its Transfer Scheme, capital expenditure and capitalisation as given in audited accounts for FY 2011-12 to FY 2015-16, excluding the impact of revaluation, have been considered while approving depreciation while truing up for the period FY 2011-12 to FY 2015-16. It is clarified that as the process of revaluation pertains only to book entry and has no material significance in regulatory process, the Commission has considered only book values, after removing the impact of revaluation, while undertaking true up for FY 2011-12 to FY 2015-16.
- 3.7.8 Further, in line with the provision of Tariff Regulations and directions of the Hon’ble APTEL, the Commission has approved the Capital Investment Plan for TANGEDCO for FY 2014-15 and FY 2015-16 vide M.P. No 39 of 2012 dated January 31, 2017. Capital expenditure as approved in the above stated Order have been considered while truing up the interest on loans and RoE, with reference to the capital expenditure and capitalisation considered in the Suo-Motu Order for FY 2014-15.

### **3.8 Depreciation**

- 3.8.1 TANGEDCO submitted that the opening gross block for each generating station and for distribution function for the period from FY 2011-12 to FY 2015-16 has been considered as available in the Audited Accounts of respective years without considering the effect of revaluation reserve. The actual asset additions during the year have been considered as per audited figures during the period from FY 2011-12 to FY 2015-16.
- 3.8.2 The depreciation claimed by TANGEDCO during the year is based on the actual depreciation reflecting in accounts for FY 2011-12 to FY 2015-16, which in turn is calculated on the basis of Commission approved depreciation rates for each asset class and computed on the opening GFA of that particular year.
- 3.8.3 TANGEDCO further submitted that it has used the weighted average depreciation rate for the particular group of assets based on depreciation rates specified in the Tariff Regulations. The depreciation calculated is in line with Regulation 24 of the Tariff Regulations.
- 3.8.4 The actual depreciation for Generation and Distribution function of TANGEDCO for FY 2011-12, FY 2012-13, FY 2013-14, FY 2014-15 and FY 2015-16 is Rs.

616.03 Crore, Rs. 647.07 Crore, Rs. 722.90 Crore, Rs. 1285.45 Crore, and Rs. 1608.10 Crore, respectively.

- 3.8.5 The actual generating station-wise depreciation for FY 2011-12 to FY 2015-16 as submitted by TANGEDCO is shown in the Table below:

**Table 3-16: Depreciation as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	36.05	36.32	40.26	57.56	37.33
2	Tuticorin TPS	63.45	63.96	71.20	103.82	54.22
3	Mettur TPS	37.65	37.92	42.49	208.11	25.28
4	North Chennai TPS	67.60	68.30	76.58	121.94	49.80
5	Mettur TPS Stage III	-	-	-	-	171.24
6	NCTPS Stage II	-	-	-	-	372.15
7	Tirumakottai GTPS	15.38	15.48	17.30	24.21	19.14
8	Kuttalam GTPS	11.98	11.13	13.87	25.08	24.38
9	Basin Bridge GTPS	18.81	18.96	21.00	29.37	2.20
10	Valuthur GTPS	18.25	18.54	20.97	30.95	49.49
11	Erode HEP	23.75	23.92	26.56	63.14	54.67
12	Kadamparai HEP	12.40	12.50	13.94	20.23	12.15
13	Kundah HEP	32.61	32.86	36.55	51.52	39.83
14	Tirunelveli HEP	13.01	12.79	15.04	24.21	25.71
15	<b>Total Generation</b>	<b>350.93</b>	<b>352.67</b>	<b>395.75</b>	<b>760.17</b>	<b>937.60</b>
16	<b>Distribution</b>	<b>265.10</b>	<b>294.39</b>	<b>327.15</b>	<b>525.28</b>	<b>670.46</b>
17	<b>Total TANGEDCO</b>	<b>616.03</b>	<b>647.07</b>	<b>722.90</b>	<b>1285.45</b>	<b>1608.10</b>

### Commission's Views

- 3.8.6 While approving the depreciation for FY 2011-12 to FY 2015-16 the opening GFA (excluding land) for each generating station for FY 2011-12 has been considered same as the closing GFA for FY 2010-11 as approved in the Tariff Order dated June 20, 2013. As details of assets added during the year given in the Audited Accounts included the impact of revaluation reserve, TANGEDCO was asked to submit such details excluding the impact of revaluation. TANGEDCO submitted the details of assets added during the year after excluding the impact of revaluation and the same has been considered by the Commission. The Commission has also not considered the asset addition against capitalisation that has been disallowed in the past through separate Orders. Further, depreciation has been computed on opening GFA for the year.

- 3.8.7 In order to determine depreciation, the Commission has used the weighted average

depreciation rate for any particular asset group arrived based on depreciation rates specified in the Tariff Regulations. Since, the depreciation rate for assets were changed after the amendment dated March 12, 2014 (w.e.f. from April 9, 2014), the depreciation rate prior to amendment has been used to compute depreciation for FY 2011-12 to FY 2013-14 and the depreciation rate post-amendment has been used to compute depreciation for FY 2014-15 and FY 2015-16.

**Table 3-17: Depreciation approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Sl.	Particulars	FY 2011-12			FY 2012-13			FY 2013-14		
		SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
1	Ennore TPS	37.45	36.05	37.03	37.46	36.32	37.04	37.54	40.26	42.11
2	Tuticorin TPS	64.21	63.45	42.67	64.45	63.96	42.91	66.36	71.20	48.76
3	Mettur TPS	36.04	37.65	29.37	35.35	37.92	29.78	37.37	42.49	33.93
4	North Chennai TPS	61.66	67.60	57.39	62.50	68.30	58.22	63.27	76.58	66.10
5	Mettur TPS Stage III		-			-		54.17	-	
6	NCTPS Stage II							7.79		
7	Tirumakottai GTPS	15.90	15.38	14.37	16.03	15.48	14.50	16.14	17.30	16.47
8	Kuttalam GTPS	12.32	11.98	10.33	12.82	11.13	10.83	17.63	13.87	12.25
9	Basin Bridge GTPS	19.81	18.81	17.91	19.81	18.96	17.91	19.81	21.00	20.37
10	Valuthur Unit-I	19.11	18.25	17.72	19.48	18.54	18.09	21.99	20.97	20.52
11	Erode HEP	20.36	23.75	19.73	20.41	23.92	19.78	21.45	26.56	19.60
12	Kadamparai HEP	10.52	12.40	9.84	10.58	12.50	9.89	10.58	13.94	11.24
13	Kundah HEP	25.16	32.61	24.49	25.16	32.86	24.58	25.19	36.55	27.95
14	Tirunelveli HEP	10.99	13.01	9.14	11.44	12.79	9.44	12.19	15.04	10.69
<b>15</b>	<b>Grand Total Generation</b>	<b>333.53</b>	<b>350.93</b>	<b>289.98</b>	<b>335.49</b>	<b>352.67</b>	<b>292.97</b>	<b>411.48</b>	<b>395.75</b>	<b>329.99</b>
<b>16</b>	<b>Distribution</b>	<b>272.78</b>	<b>265.10</b>	<b>271.51</b>	<b>302.13</b>	<b>294.39</b>	<b>297.87</b>	<b>362.39</b>	<b>327.15</b>	<b>327.43</b>
<b>17</b>	<b>Generation + Distribution</b>	<b>606.31</b>	<b>616.03</b>	<b>561.49</b>	<b>637.62</b>	<b>647.07</b>	<b>590.84</b>	<b>773.87</b>	<b>722.90</b>	<b>657.42</b>

**Table 3-18: Depreciation for FY 2014-15 and FY 2015-16 as approved by the Commission (Rs. Crore)**

Sl.	Particulars	FY 2014-15			FY 2015-16		
		SMT Order	TANGEDCO	Approved after true up	TO 2013	TANGEDCO	Approved after true up
1	Ennore TPS	39.56	57.56	63.18	39.90	37.33	63.31
2	Tuticorin TPS	69.69	103.82	75.75	73.33	54.22	78.65
3	Mettur TPS	40.57	208.11	50.41	43.85	25.28	53.81
4	North Chennai TPS	64.79	121.94	115.18	66.58	49.80	70.85
5	Mettur TPS Stage III	170.67	-	138.19	127.49	171.24	150.73
6	NCTPS Stage II	275.48	-		187.69	372.15	285.73
7	Tirumakottai GTPS	16.34	24.21	24.11	16.55	19.14	27.41
8	Kuttalam GTPS	17.71	25.08	23.12	17.86	24.38	26.62
9	Basin Bridge GTPS	19.81	29.37	29.59	19.91	2.20	29.55
10	Valuthur Unit-I	22.30	30.95	31.59	22.50	49.49	37.52
11	Erode HEP	54.94	63.14	52.16	61.73	54.67	52.87
12	Kadamparai HEP	10.60	20.23	19.99	10.63	12.15	20.37
13	Kundah HEP	25.23	51.52	53.71	25.25	39.83	54.56
14	Tirunelveli HEP	16.18	24.21	21.84	13.07	25.71	24.51
15	Ennore Expansion	-	-	-	36.58	-	-
<b>16</b>	<b>Grand Total Generation</b>	<b>843.87</b>	<b>760.17</b>	<b>698.82</b>	<b>762.92</b>	<b>937.60</b>	<b>976.47</b>
<b>17</b>	<b>Distribution</b>	<b>435.26</b>	<b>525.28</b>	<b>552.44</b>	<b>519.14</b>	<b>670.46</b>	<b>664.47</b>
<b>18</b>	<b>Generation + Distribution</b>	<b>1,279.13</b>	<b>1,285.45</b>	<b>1251.26</b>	<b>1,282.06</b>	<b>1,608.06</b>	<b>1640.94</b>

### 3.9 Interest on Loan and Other Financing Charges

- 3.9.1 TANGEDCO submitted that the opening balance of loans as on November 1, 2010 is based on the provisional Transfer Scheme notified as on January 2, 2012 after taking over of loans from the erstwhile TNEB. Therefore, there is an obligation to service the debt transferred to TANGEDCO as per GoTN Notification.
- 3.9.2 TANGEDCO submitted that the loan from Financial Institutions as shown in the books of accounts is not linked with any particular generating plant or the capex schemes, as the erstwhile TNEB used to have a basket of loans, which was used to meet the total capital expenditure of erstwhile TNEB. Hence, it is difficult to identify the debt / interest and equity of the generating plant or distribution function separately.
- 3.9.3 TANGEDCO further submitted that the interest and finance charges claimed are with respect to the interest and finance charges reflecting in the individual balance sheet of each station for generating function and consolidated interest and finance charges figure reflecting in balance sheet of each of the 39 distribution circles of TANGEDCO for distribution function.
- 3.9.4 The total interest and finance charges for FY 2011-12, FY 2012-13, FY 2013-14, FY 2014-15, and FY 2015-16 as submitted by TANGEDCO are Rs. 2353.75 Crore, Rs. 3340.82 Crore, Rs. 5423.82 Crore, Rs. 6702.03 Crore, and Rs. 7472.15 Crore, respectively, as shown in the Table below:

**Table 3-19: Interest and Finance charges as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	174.69	193.52	311.12	389.94	422.44
2	Tuticorin TPS	302.59	340.85	548.39	686.50	743.69
3	Mettur TPS	175.77	202.37	325.91	332.85	441.29
4	North Chennai TPS	314.40	364.21	586.69	729.51	824.36
5	Mettur TPS Stage III	-		-	-	29.90
6	NCTPS Stage II				-	(166.51)
7	Tirumakottai GTPS	72.33	82.55	132.90	166.92	178.90
8	Kuttalam GTPS	49.30	64.28	104.04	128.05	141.47
9	Basin Bridge GTPS	91.20	100.95	162.30	203.75	220.26
10	Valuthur GTPS	82.93	99.03	159.72	199.95	214.84
11	Erode HEP	114.20	127.46	204.98	243.99	305.90
12	Kadamparai HEP	58.45	66.56	107.14	134.20	130.19
13	Kundah HEP	155.49	175.03	281.60	353.43	395.99
14	Tirunelveli HEP	54.20	69.90	113.08	140.71	88.10



Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
15	Total Generation	1,645.54	1,886.73	3,037.88	3709.81	3970.82
16	Distribution	708.20	1,454.09	2,385.94	2992.22	3501.33
17	Total TANGEDCO	2,353.75	3,340.82	5,423.82	6702.03	7472.15

## Commission's Views

### Interest on Loan

- 3.9.5 In the Tariff Order dated June 20, 2013, the Commission had observed a discrepancy in TANGEDCO's submission of loan and its bifurcation based on Gross Fixed Assets (GFA). As TANGEDCO had not separated the capital and revenue account since the date of independent operations, the Commission approved interest on loans based on certain assumptions. This approach was continued by the Commission in the Suo-Motu Order dated December 11, 2014, the relevant excerpts of which are reproduced below:

*“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."*

- 3.9.6 The Suo-Motu Order of the Commission was challenged by the Tamil Nadu Electricity Consumers Association (TECA) before the Hon'ble APTEL in Appeal No. 62 and 63 of 2015. The Hon'ble APTEL in its Judgment dated March 2, 2016, upheld the Suo-Motu Order in its entirety, the relevant excerpts of which are reproduced below:

*"15. The present Appeals, being Appeal Nos. 62 of 2015 and 63 of 2015, are hereby dismissed and **the impugned suo-motu tariff orders, being SMT Order Nos. 8 of 2014 and 9 of 2014, each dated 11.12.2014, passed by the Tamil Nadu Electricity Regulatory Commission, are hereby upheld.** There shall be no order as to costs."*

- 3.9.7 As the Suo-Motu Order of the Commission has not been further appealed before any higher authority, it has attained finality. Hence, the Commission has adopted the same approach while approving the interest on loan as adopted in earlier orders. Further, as stated above, impact of approval for capital expenditure given vide M.P. No 39 of 2012, has been factored in while approving interest on loan for the period from FY 2011-12 to FY 2015-16.

**Table 3-20: Loan and Interest Expenses approved by the Commission after true-up for FY 2011-12 to FY 2015-16 (Rs. Crore)**

Particulars	2011-12		2012-13		2013-14		2014-15		2015-16	
Loan Profile	SMT Order	Approved after true up	SMT Order	Approved after true up	SMT Order	Approved after true up	SMT Order	Approved after true up	T.O 2013	Approved after true up
<b>Op. Balance</b>	<b>20,726</b>	<b>20,726.19</b>	<b>26,046</b>	<b>26,824.32</b>	<b>28,924</b>	<b>29,814.06</b>	<b>31,187</b>	<b>33,565.05</b>	<b>34,965</b>	<b>35,954.28</b>
Add: Addition for CAPEX	5,926	6,671.86	2,886	3,592.81	3,666	4,420.65	3,189	3,658.36	4,068	4,283.40
Add: Addition for Loan Repayment of Existing Loans	2,409	1,301.00	2,962	1,271.65	3,547	1,205.06	3,734	605.59	4,843	215.91
Add: For Repayment of new loans		1,226.63		1,903.41		2,739.98		3,517.83		4,406.87
Less: Loan Repayment	3,015	3,101.35	3,600	3,778.14	4,321	4,614.71	5,013	5,392.55	6,125	6,281.59
<b>Closing Balance</b>	<b>26,046</b>	<b>26,824.32</b>	<b>28,294</b>	<b>29,814.06</b>	<b>31,187</b>	<b>33,565.05</b>	<b>33,097</b>	<b>35,954.28</b>	<b>37,751</b>	<b>38,578.87</b>
Gross Interest Expenses	2,504	2,545.70	3,256	3,393.33	3,569	3,802.75	3,857	4,170.96	4,357	4,471.04
IDC	938	977.20	1,439	1,568.15	1,121	1,297.73	555	744.24	738	697.56
<b>Net Interest Expenses</b>	<b>1,566</b>	<b>1,568.49</b>	<b>1,817</b>	<b>1,825.18</b>	<b>2,448</b>	<b>2,505.01</b>	<b>3,302</b>	<b>3,426.72</b>	<b>3,487*</b>	<b>3,773.48</b>

\*Including reduction of Rs. 131 Crore on account of interest for cogeneration plants

**Table 3-21: Break up of Interest Expenses approved by the Commission after true-up  
for FY 2011-12 to FY 2015-16 (Rs. Crore)**

Sl.	Power Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	98.64	106.11	105.08	102.76	96.37
2	Tuticorin TPS	121.64	134.85	138.67	143.32	147.34
3	Mettur TPS	62.54	70.87	76.76	83.64	90.09
4	North Chennai TPS	105.37	113.96	111.11	106.64	102.73
5	NCTPS Stage-II (unit 1)	0.00	0.00	197.54	395.08	377.94
6	NCTPS Stage-II (unit 2)	0.00	0.00	0.00	197.54	395.08
7	MTPS Stage-III**	-	-	194.91	415.60	398.27
8	<b>Total Thermal</b>	<b>388.19</b>	<b>425.79</b>	<b>824.07</b>	<b>1,444.59</b>	<b>1,607.82</b>
9	Tirumakottai GTPS	43.42	47.28	46.02	44.29	41.97
10	Kuttalam GTPS	37.25	49.54	56.61	54.87	52.40
11	Basin Bridge GTPS	18.79	18.88	16.71	13.88	10.45
12	Valuthur Unit-I	93.79	107.72	110.35	108.09	104.67
13	<b>Total Gas</b>	<b>193.25</b>	<b>223.42</b>	<b>229.68</b>	<b>221.13</b>	<b>209.49</b>
14	Erode HEP - (incl. Bhavani Barrage and Bhavani Khattai)	75.17	84.98	152.52	221.68	220.30
15	Kadamparai HEP	33.02	35.94	34.77	33.00	30.71
16	Kundah HEP	115.69	126.87	124.07	119.30	112.91
17	Tirunelveli HEP (incl - Periyar)	44.72	51.39	60.06	69.04	69.06
18	<b>Total Hydro</b>	<b>268.58</b>	<b>298.17</b>	<b>371.41</b>	<b>443.02</b>	<b>432.98</b>
19	Cogen Sugar Mills Under Modernisation	-	-	42.69	108.52	131.66
20	<b>Total Generation</b>	<b>850.03</b>	<b>947.38</b>	<b>1,467.86</b>	<b>2,217.26</b>	<b>2,381.95</b>
21	<b>Total Distribution</b>	<b>718.47</b>	<b>877.80</b>	<b>1,037.16</b>	<b>1,209.47</b>	<b>1,391.53</b>
22	<b>Total TANGEDCO</b>	<b>1,568.49</b>	<b>1,825.18</b>	<b>2,505.01</b>	<b>3,426.72</b>	<b>3,773.48</b>

### **Other Finance Charges**

3.9.8 Other Finance Charges comprise interest on consumers' security deposit and other charges such as cost of raising finance, bank charges, etc., and the same have been approved based on the Audited Accounts for FY 2011-12 to FY 2015-16.

3.9.9 The interest on consumer security deposit approved by the Commission is shown in the Table below:

**Table 3-22: Interest on Consumer Security Deposit approved by the Commission after true-up for FY 2011-12 to FY 2015-16 (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Opening Security Deposit	4,893.81	5,443.84	5,906.77	6,651.71	7,815.39
2	Closing Security deposit	5,443.83	5,906.77	6,651.72	7,815.39	7,940.29
3	Average Deposit	5,168.82	5,675.30	6,279.24	7,233.55	7,877.84
4	<b>Interest on Security Deposit</b>	<b>310.13</b>	<b>493.12</b>	<b>565.13</b>	<b>625.59</b>	<b>491.94</b>

3.9.10 The Commission has approved Other Finance Charges such as cost of raising finance, bank charges, etc., as shown in the Audited Accounts for FY 2011-12 to FY 2015-16. In accordance with the approach adopted in the Suo-Motu Order dated December 11, 2014, other interest as shown in Schedule 12 of the Audited Accounts has not been allowed while approving the Other Finance Charges.

**Table 3-23: Other Finance Charges approved by the Commission after true-up for FY 2011-12 to FY 2015-16 (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	<b>Other Finance Charges</b>	<b>87.14</b>	<b>95.94</b>	<b>255.89</b>	<b>244.42</b>	<b>245.15</b>

### 3.10 Return on Equity

3.10.1 TANGEDCO submitted that the total equity balance as on March 31, 2011 has been bifurcated into generation and distribution function based on the opening balance of GFA allocated to generation and distribution function. TANGEDCO has further allocated equity for generation function into plant wise based on opening gross block for each of the plant. The additions and deductions during the year for FY 2011-12 to FY 2015-16 have been considered by TANGEDCO as per actuals.

3.10.2 TANGEDCO submitted that it has considered rate of return on equity at 14% based on the Tariff Regulations and RoE has been calculated on the average equity balance of each generating station and distribution function.

3.10.3 TANGEDCO further submitted that the Commission in its last Tariff Order disallowed RoE on the grounds that loan borrowing is more than the capital expenditure incurred. TANGEDCO submitted that the Utility is entitled for RoE on the amount invested every year to carry out future capacity additions, in accordance with Regulation 21 of the Tariff Regulations 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.”*

3.10.4 TANGEDCO also submitted that the cost of equity is always higher than the cost of finance and depriving TANGEDCO of RoE of 14% is resulting in additional cost burden on the cash starved Utility.

3.10.5 TANGEDCO submitted that it has claimed RoE based on the opening balance of actual equity reflected in the Audited Accounts of FY 2011-12 to FY 2015-16 and requested that RoE may be allowed on the grounds that actual equity is being infused in the TANGEDCO system during that respective year. RoE claimed by TANGEDCO in truing up for FY 2011-12 to FY 2015-16 has been shown in the Table below:

**Table 3-24: Return on Equity as claimed by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	34.69	62.69	77.23	63.82	63.82
2	Tuticorin TPS	61.09	110.41	136.93	115.10	115.10
3	Mettur TPS	36.27	65.56	80.58	66.89	66.89
4	North Chennai TPS	65.28	117.98	150.93	135.19	135.19
5	Mettur TPS Stage III	-	-	-	-	163.83
6	NCTPS Stage II				-	-
7	Tirumakottai GTPS	14.80	26.74	32.71	26.84	26.84
8	Kuttalam GTPS	11.52	20.82	28.01	27.80	27.80
9	Basin Bridge GTPS	18.09	32.70	39.99	32.56	32.56
10	Valuthur GTPS	17.75	32.08	39.96	34.31	34.31
11	Erode HEP	22.84	41.29	62.14	70.00	70.00
12	Kadamparai HEP	11.93	21.56	26.70	22.43	22.43
13	Kundah HEP	31.37	56.70	69.52	57.12	57.12
14	Tirunelveli HEP	12.53	22.64	29.11	26.84	26.84
15	<b>Total Generation</b>	<b>338.17</b>	<b>611.17</b>	<b>773.82</b>	<b>678.89</b>	<b>842.72</b>
16	<b>Distribution</b>	<b>260.62</b>	<b>471.02</b>	<b>600.44</b>	<b>582.32</b>	<b>582.32</b>
17	<b>Total TANGEDCO</b>	<b>598.79</b>	<b>1,082.19</b>	<b>1,374.26</b>	<b>1261.22</b>	<b>1425.04</b>

## Commission's Views

3.10.6 In the Suo-Motu Order dated December 11, 2014, the Commission has stated the following reason for disallowing RoE to TANGEDCO:

*“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.”*

3.10.7 The Suo-Motu Order of the Commission was challenged by Tamil Nadu Electricity Consumers Association (TECA) before the Hon’ble APTEL in Appeal No. 62 and 63 of 2015. The Hon’ble APTEL in its Judgment dated March 2, 2016, upheld the Suo-Motu Order in its entirety.

*“15. The present Appeals, being Appeal Nos. 62 of 2015 and 63 of 2015, are hereby dismissed and the impugned suo-motu tariff orders, being SMT Order Nos. 8 of 2014 and 9 of 2014, each dated 11.12.2014, passed by the Tamil Nadu Electricity Regulatory Commission, are hereby upheld. There shall be no order as to costs.”*

3.10.8 As the Suo-Motu Order of the Commission has not been further appealed before any higher authority, it has attained finality. Hence, the Commission has adopted the same approach while approving RoE as adopted in the earlier Orders. Funding of capital expenditure has been considered entirely through loans and hence, no RoE has been approved in the truing up for FY 2011-12 to FY 2015-16.

### 3.11 Interest on Working Capital (IoWC)

3.11.1 TANGEDCO has submitted that it has claimed normative IoWC as specified in the Tariff Regulations. However, in accordance with the past Tariff Order, the Security Deposit amount has been excluded from the working capital requirement of Distribution for computation of IoWC, though the same is not specified in the Tariff Regulations. This has resulted in zero IoWC for the Distribution function.

3.11.2 The IoWC claimed by TANGEDCO is shown in the Table below:

**Table 3-25: Interest on Working Capital as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	24.31	28.03	37.15	25.81	28.17
2	Tuticorin TPS	126.90	150.17	149.06	136.98	122.95
3	Mettur TPS	89.74	111.03	136.07	122.73	98.01
4	North Chennai TPS	61.91	87.25	90.20	82.88	75.18
5	Mettur TPS Stage III	-	-	-	45.04	61.69
6	NCTPS Stage II	-	-	-	77.87	90.79
7	Tirumakottai GTPS	8.17	10.83	11.07	10.16	11.26
8	Kuttalam GTPS	5.53	2.62	13.46	8.78	11.89
9	Basin Bridge GTPS	5.98	5.13	6.87	6.93	9.72
10	Valuthur GTPS	12.38	14.31	19.78	16.86	18.45
11	Erode HEP	5.44	7.09	10.61	4.86	5.64
12	Kadamparai HEP	3.13	4.08	6.91	5.15	5.38



Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
13	Kundah HEP	7.22	9.75	13.02	12.44	14.86
14	Tirunelveli HEP	3.13	3.85	5.67	5.91	5.63
15	<b>Total Generation</b>	<b>353.84</b>	<b>434.12</b>	<b>499.87</b>	<b>562.40</b>	<b>559.61</b>
16	<b>Distribution</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>189.53</b>	<b>178.74</b>
17	<b>Total TANGEDCO</b>	<b>353.84</b>	<b>434.12</b>	<b>499.87</b>	<b>751.94</b>	<b>738.35</b>

### Commission's Views

3.11.3 The Commission has approved the IoWC separately for generation and distribution function of TANGEDCO in accordance with Regulation 26 of the Tariff Regulations as reproduced below, and after deducting the amount of consumer security deposit from the working capital requirement, in line with the approach adopted in the suo-motu Order.

#### *“26. Working Capital*

*(1)...*

*(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.*

...

*(d) 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 days consumption charges."*

3.11.4 Further, as it is difficult to estimate the historical cost of assets for the generation function, the Commission has approved maintenance spares at 1% of opening GFA for respective years. The assets have been segregated between generation and distribution function based on the GFA details submitted by TANGEDCO. The interest rate for approving IoWC has been considered as specified in the Tariff Regulations, i.e., Prime Lending Rate of State Bank of India as on April 1<sup>st</sup> of the respective year.

3.11.5 The normative IoWC for Distribution function works out to be negative and has hence, been considered as zero.

3.11.6 IoWC approved by the Commission after true up from FY 2011-12 to FY 2015-16 has been shown in the Tables below:

**Table 3-26: Interest on Working Capital approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Particulars	FY 2011-12			FY 2012-13			FY 2013-14		
	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
Ennore TPS	18.94	24.31	22.24	21.90	28.03	27.17	25.33	37.15	36.64
Tuticorin TPS	112.27	126.90	131.84	123.07	150.17	152.71	130.77	149.06	189.18
Mettur TPS	108.01	89.74	126.83	113.24	111.03	140.52	114.72	136.07	165.96
North Chennai TPS	50.69	61.91	59.52	74.05	87.25	91.89	61.06	90.20	88.33
Mettur TPS Stage III							18.95	-	
North Chennai TPS II							1.37	-	
Tirumakottai GTPS	7.36	8.17	8.64	8.94	10.83	11.09	7.66	11.07	11.08
Kuttalam GTPS	4.97	5.53	5.84	3.43	2.62	4.26	9.98	13.46	14.44
Basin Bridge GTPS	3.93	5.98	4.61	2.08	5.13	2.58	2.09	6.87	3.02
Valuthur Unit-I	10.49	12.38	12.32	12.61	14.31	15.65	18.83	19.78	27.24
Erode HEP	4.00	5.44	4.70	5.01	7.09	6.22	6.83	10.61	9.88
Kadamparai HEP	2.10	3.13	2.47	2.54	4.08	3.15	2.71	6.91	3.92
Kundah HEP	5.77	7.22	6.78	6.96	9.75	8.64	6.86	13.02	9.92
Tirunelveli HEP	2.49	3.13	2.92	3.11	3.85	3.86	3.47	5.67	5.02
<b>Grand Total Generation</b>	<b>331.02</b>	<b>353.84</b>	<b>388.71</b>	<b>376.94</b>	<b>434.12</b>	<b>467.73</b>	<b>410.63</b>	<b>499.87</b>	<b>564.65</b>
<b>Distribution</b>	-	-	-	-	-	-	-	-	-
<b>Generation + Distribution</b>	<b>331.02</b>	<b>353.84</b>	<b>388.71</b>	<b>376.94</b>	<b>434.12</b>	<b>467.73</b>	<b>410.63</b>	<b>499.87</b>	<b>564.65</b>

**Table 3-27: Interest on Working Capital approved by the Commission after true-up for FY 2014-15 and FY 2015-16 (Rs. Crore)**

Particulars	FY 2014-15			FY 2015-16		
	SMT Order	TANGEDCO	Approved after true up	TO 2013	TANGEDCO	Approved after true up
Ennore TPS	22.80	25.81	32.95	22.10	28.17	39.42
Tuticorin TPS	128.27	136.98	174.86	122.52	122.95	172.07
Mettur TPS	101.67	122.73	156.67	101.53	98.01	137.16
North Chennai TPS	71.90	82.88	105.80	71.64	75.18	105.22
Mettur TPS Stage III	87.65	45.04	57.49	58.38	61.69	86.33
North Chennai TPS II	125.52	77.87	99.40	112.56	90.79	127.06
Ennore Expansion				10.53		
Tirumakottai GTPS	10.16	10.16	12.97	7.55	11.26	15.75
Kuttalam GTPS	10.06	8.78	11.20	7.44	11.89	16.64
Basin Bridge GTPS	7.94	6.93	8.85	4.69	9.72	13.60
Valuthur Unit-I	17.85	16.86	21.52	12.55	18.45	25.82
Erode HEP	11.25	4.86	6.20	11.72	5.64	7.89
Kadamparai HEP	2.80	5.15	6.58	2.80	5.38	7.53
Kundah HEP	6.99	12.44	15.89	6.94	14.86	20.80
Tirunelveli HEP	4.12	5.91	7.55	3.93	5.63	7.88
<b>Grand Total Generation</b>	<b>608.98</b>	<b>562.40</b>	<b>717.93</b>	<b>556.88</b>	<b>559.61</b>	<b>783.17</b>
<b>Distribution</b>	<b>-</b>	<b>189.53</b>	<b>-</b>	<b>-</b>	<b>178.74</b>	<b>-</b>
<b>Generation + Distribution</b>	<b>608.98</b>	<b>751.94</b>	<b>717.93</b>	<b>556.88</b>	<b>738.35</b>	<b>783.17</b>

### 3.12 Other Debits

- 3.12.1 TANGEDCO submitted that Other Debits incurred during FY 2011-12 to FY 2015-16 are related to the relevant revenue expenditure discussed in the above sections and hence may be allowed entirely.

**Table 3-28: Other Debits as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	-	-	-	-	-
2	Tuticorin TPS	0.79	0.47	0.03	0.64	0.86
3	Mettur TPS	0.06	0.14	0.06	0.09	1.13
4	North Chennai TPS	-	-	0.03	-	0.25
5	Mettur TPS Stage III	-	-	-	-	0.99
6	NCTPS stage II				-	-
7	Tirumakottai GTPS	-	-	-	-	-
8	Kuttalam GTPS	-	-	-	-	-
9	Basin Bridge GTPS	-	0.00	-	-	-
10	Valuthur GTPS	-	-	-	-	-
11	Erode HEP	0.00	-	-	-	-
12	Kadamparai HEP	0.00	0.00	0.00	0.02	0.00
13	Kundah HEP	0.15	0.03	0.10	0.16	0.09
14	Tirunelveli HEP	0.01	0.03	0.00	-	0.08
15	<b>Total Generation</b>	<b>1.00</b>	<b>0.67</b>	<b>0.22</b>	<b>0.91</b>	<b>3.41</b>
16	<b>Distribution</b>	<b>36.52</b>	<b>10.14</b>	<b>21.70</b>	<b>25.98</b>	<b>13.19</b>
17	<b>Total TANGEDCO</b>	<b>37.52</b>	<b>10.82</b>	<b>21.92</b>	<b>26.90</b>	<b>16.59</b>

#### Commission's Views

- 3.12.2 The Commission has approved Bad and Doubtful debts under Other Debits for FY 2011-12 to FY 2013-14 as per the Audited Accounts of the respective years, as the same are lower than the ceiling limit of provision for bad and doubtful debts allowed in the Tariff Regulations till FY 2013-14. The Commission has disallowed Bad and Doubtful debts under Other Debits for FY 2014-15 and FY 2015-16, as the provision pertaining to Bad and Doubtful debts was removed from the Tariff Regulations post amendment. The other expenses claimed under Other Debits have been disallowed, as they are required to be recovered under O&M expenses, which have been allowed on normative basis separately. The Other Debits approved by the Commission for FY 2011-12 to FY 2015-16 are shown in the Tables below:

**Table 3-29: Other Debits approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Particulars	FY 2011-12			FY 2012-13			FY 2013-14		
	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
Generation	2.08	1.00	2.17	2.08	0.67	0.35	2.08	0.22	1.47
Distribution	14.26	36.52	14.86	16.90	10.14	2.87	19.93	21.70	14.04
<b>Total</b>	<b>16.34</b>	<b>37.52</b>	<b>17.03</b>	<b>18.98</b>	<b>10.82</b>	<b>3.22</b>	<b>22.01</b>	<b>21.92</b>	<b>15.51</b>

**Table 3-30: Other Debits approved by the Commission after true-up for FY 2014-15 and FY 2015-16 (Rs. Crore)**

Particulars	FY 2014-15			FY 2015-16		
	SMT Order	TANGEDCO	Approved after true up	TO 2013	TANGEDCO	Approved after true up
Generation	2.08	0.91	-	2.08	3.41	-
Distribution	6.30	25.98	-	28.42	13.19	-
<b>Total</b>	<b>8.38</b>	<b>26.90</b>	<b>-</b>	<b>30.50</b>	<b>16.59</b>	<b>-</b>

### 3.13 Operating Charges and Extra-Ordinary Items

3.13.1 TANGEDCO submitted that in order to run a generating station effectively and efficiently, certain costs are incurred, which are not covered under any of the fixed cost components specified in the Tariff Regulations. These costs are minimal but necessary in order to run a plant at its optimum level and hence, TANGEDCO is entitled to recover such cost through its ARR. These costs include other fuel related costs, cost of water and lubricants and consumables for thermal and gas generating stations. For hydro generating stations, these costs are relating to station supplies and cost of water for hydel power.

3.13.2 TANGEDCO submitted that it has categorized such costs under the head Operating Charges. The Operating Charges and extra-ordinary items as submitted by TANGEDCO are shown in the Table below:

**Table 3-31: Operating Charges and Extra-ordinary Items as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	12.19	11.19	17.21	11.85	11.62
2	Tuticorin TPS	6.97	12.96	12.97	8.80	9.46

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
3	Mettur TPS	3.53	5.58	6.46	10.11	3.51
4	North Chennai TPS	24.91	29.20	42.51	46.49	50.03
5	Mettur TPS Stage III	-	-	-	1.70	1.40
6	NCTPS stage II				14.18	14.09
7	Tirumakottai GTPS	0.41	0.40	0.29	0.36	0.52
8	Kuttalam GTPS	0.13	0.18	0.12	0.16	0.15
9	Basin Bridge GTPS	(0.01)	-	-	-	-
10	Valuthur GTPS	0.00	-	-	-	-
11	Erode HEP	0.10	0.03	0.13	0.12	0.08
12	Kadamparai HEP	2.90	0.96	2.10	1.66	1.76
13	Kundah HEP	7.91	9.21	9.93	11.00	9.06
14	Tirunelveli HEP	2.87	1.98	3.11	2.75	2.69
<b>15</b>	<b>Total Generation</b>	<b>61.91</b>	<b>71.68</b>	<b>94.83</b>	<b>109.18</b>	<b>104.37</b>
<b>16</b>	<b>Distribution</b>	<b>2.22</b>	<b>0.13</b>	<b>0.08</b>	<b>-</b>	<b>-</b>
<b>17</b>	<b>Total TANGEDCO</b>	<b>64.13</b>	<b>71.82</b>	<b>94.91</b>	<b>109.18</b>	<b>104.37</b>

### Commission's Views

3.13.3 It is clarified that the Operating Charges and Extra-Ordinary Items claimed by TANGEDCO separately, are actually a part of the normative O&M expenses, and have been considered there, as discussed earlier in this Chapter. Hence, the Operating Charges and Extra-Ordinary Items have not been allowed separately.

### 3.14 Prior Period Items

3.14.1 TANGEDCO submitted that the prior period items are mainly on account of payments made relating to power purchase, revision in tariff payments and fuel price adjustment to Central Generating Stations. It also includes employee cost, interest and other administrative expenses relating to prior period. TANGEDCO has claimed Prior Period (Income)/Expense of Rs. 577.23 Crore, Rs. 1701.28 Crore, Rs. 36.31 Crore, Rs. (270.03) Crore and Rs. (1443.47) Crore for FY 2011-12, FY 2012-13, FY 2013-14, FY 2014-15, and FY 2015-16, respectively.

### Commission's Views

3.14.2 In the previous Tariff Orders, the Commission has not considered the Prior Period (Income)/Expenses. However, as the Prior Period (Income)/Expense claimed by TANGEDCO were very high, the Commission asked TANGEDCO to submit details of Prior Period (Income)/Expenses along with identification of the year to which these entries pertain. In reply, TANGEDCO submitted the complete details only for

FY 2014-15 and partial details for FY 2015-16.

3.14.3 The Commission has analysed the details and justification for Net Prior Period expenses/(income). The Commission has considered the treatment of prior period items based on the treatment allowed to that particular item in the true-up of the year to which the expenses/(income) pertain. The Commission has disallowed the prior period expenses/(income) towards depreciation and interest and finance charges since, these expenses had not been allowed by the Commission based on audited accounts. The Commission in the past Orders had allowed depreciation and Interest and finance charges based on its own computations. In cases, where the expenses/(income) have been allowed on actuals earlier, then the prior period expenses/(income) have been accepted. The Prior period Expenses/(Income) approved by the Commission after true-up for FY 2011-12 to FY 2015-16 are given in the Tables below:

**Table 3-32: Prior Period Expenses/(Income) approved by the Commission after true up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Particulars	FY 2011-12		FY 2012-13		FY 2013-14	
	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
<b>Prior Period Income</b>						
Fuel Related Gains	5.47	98.94	-	-	7.18	7.18
Receipt from Consumers	40.93	40.93	16.46	16.46	160.43	160.43
Interest Income	0.11	0.11	5.47	5.47	0.19	0.19
Excess Provision for IT	-		-	-	-	-
Excess Provision for Depreciation	-	-	-	-	-	-
Excess Provision for Interest and Finance Charges	206.42	-	466.96	-	427.63	-
Other Excess Provision	58.64	58.64	79.84	79.84	100.95	100.95
Other Income	933.28	933.28	461.91	461.91	719.29	719.29
<b>Total Prior Period Income</b>	<b>1,244.86</b>	<b>1,131.91</b>	<b>1,030.64</b>	<b>563.68</b>	<b>1,415.67</b>	<b>988.04</b>
<b>Prior Period Expenses</b>						
Short term provision for Power Purchase	1,350.84	-	1,567.43	-	374.56	-
Fuel related losses and expenses	8.62	8.62	0.46	0.46	11.48	11.48
Operating Expenses	0.02	0.02	1.06	1.06	0.06	0.06
Material related Expenses	0.15	0.15	0.00	0.00	4.83	4.83



Particulars	FY 2011-12		FY 2012-13		FY 2013-14	
	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
<b>Prior Period Income</b>						
Employee cost	26.42	26.42	14.64	14.64	562.62	562.62
Depreciation under provided	-	-	-	-	-	-
Interest and finance charges	298.10	-	518.89	-	204.23	-
Other Charges	230.98	230.98	629.32	629.32	296.62	296.62
<b>Total Prior Period Expenses</b>	<b>1,915.14</b>	<b>266.20</b>	<b>2,731.79</b>	<b>645.47</b>	<b>1,454.40</b>	<b>875.61</b>
<b>Net Prior Period Expenses</b>	<b>670.28</b>	<b>(865.71)</b>	<b>1,701.15</b>	<b>81.79</b>	<b>38.73</b>	<b>(112.44)</b>

**Table 3-33: Prior Period Expenses/(Income) approved by the Commission after true up for FY 2014-15 to FY 2015-16 (Rs. Crore)**

Particulars	FY 2014-15		FY 2015-16	
	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
Fuel Related Gains	150.25	150.25	1.19	1.19
Reciept from Consumers	104.96	104.96	39.83	39.83
Interest Income	0.64	0.64	0.51	0.51
Excess Provision for IT	-	-	-	-
Excess Provision for Depreciation	11.26	11.26	715.41	715.41
Excess Provision for Interest and Finance Charges	221.35	-	1,751.11	-
Other Excess Provision	352.51	352.51	86.29	86.29
Other Income	642.52	642.52	696.16	696.16
<b>Total Prior Period Income</b>	<b>1,483.49</b>	<b>1,262.15</b>	<b>3,290.50</b>	<b>1,539.38</b>
<b>Prior Period Expenses</b>				
Short term provision for Power Purchase	896.64	-	360.60	-
Fuel related losses and expenses	48.75	48.75	30.47	30.47
Operating Expenses	8.93	8.93	2.94	2.94
Material related Expenses	-	-	-	-
Employee cost	178.71	178.71	34.43	34.43
Depreciation under provided	0.25	0.25	120.85	120.85
Interest and finance charges	23.68	-	900.44	-
Other Charges	57.37	57.37	397.07	397.07
<b>Total Prior Period Expenses</b>	<b>1,214.34</b>	<b>294.01</b>	<b>1,846.79</b>	<b>585.75</b>
<b>Net Prior Period Expenses</b>	<b>(269.16)</b>	<b>(968.14)</b>	<b>(1,443.71)</b>	<b>(953.64)</b>

### 3.15 Other Income and Non-Tariff Income

3.15.1 TANGEDCO submitted that Other Income mainly comprises 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. Other Income for FY 2011-12 to FY 2015-16 as submitted by TANGEDCO is shown in the Table below:

**Table 3-34: Other Income as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	11.05	12.21	13.19	18.46	12.72
2	Tuticorin TPS	41.63	44.16	52.17	42.02	36.40
3	Mettur TPS	39.89	33.12	28.88	31.26	32.36
4	North Chennai TPS	19.64	24.26	39.64	44.15	29.11
5	Mettur TPS Stage III	-	-	17.96	27.55	34.50
6	NCTPS Stage II			-	8.77	9.78
7	Tirumakottai GTPS	1.93	0.11	0.14	0.15	0.15
8	Kuttalam GTPS	0.02	0.02	0.08	0.70	0.12
9	Basin Bridge GTPS	0.22	0.06	0.08	0.03	0.05
10	Valuthur GTPS	0.05	0.16	0.18	0.29	0.16
11	Erode HEP	0.25	0.05	0.26	0.11	0.10
12	Kadamparai HEP	0.30	0.41	0.25	0.25	0.25
13	Kundah HEP	1.05	0.69	0.89	0.64	0.90
14	Tirunelveli HEP	3.77	1.35	1.38	0.56	0.47
<b>15</b>	<b>Total Generation</b>	<b>119.79</b>	<b>116.61</b>	<b>155.09</b>	<b>174.94</b>	<b>157.07</b>
<b>16</b>	<b>Distribution</b>	<b>144.13</b>	<b>196.41</b>	<b>229.61</b>	<b>302.23</b>	<b>322.02</b>
<b>17</b>	<b>Total TANGEDCO</b>	<b>263.92</b>	<b>313.02</b>	<b>384.70</b>	<b>477.17</b>	<b>479.09</b>

3.15.2 TANGEDCO submitted that Non-Tariff Income pertains only to distribution business. Non-Tariff Income as submitted by TANGEDCO is shown in the Table below:

**Table 3-35: Non-Tariff income as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Meter Rent/Service Line Rentals	19.31	18.06	19.39	28.63	22.22
2	Recoveries of Theft of Power/Malpractices	91.56	101.99	82.83	54.61	56.94
3	Wheeling Charge Recoveries	71.80	322.55	181.54	192.80	175.51
4	Miscellaneous Charges collected from Consumers	370.33	493.21	538.40	576.93	526.20

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
5	Total	553.00	935.80	822.16	852.97	780.86

### Commission's Views

3.15.3 The Commission has approved the Other Income and Non-Tariff Income based on Audited Accounts for FY 2011-12 to FY 2015-16. As break up of Other Income between generating stations and distribution function was not available in the Accounts, it has segregated the approved Other Income between generating stations and distribution function proportionately in accordance with the approach followed in earlier Orders. The Non-Tariff Income has been allocated to distribution function only, based on TANGEDCO's submission.

3.15.4 The Other Income and Non-Tariff Income approved by the Commission after true-up for FY 2011-12 to FY 2015-16 is shown in the Tables below:

**Table 3-36: Other Income and Non-Tariff Income approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Particulars	FY 2011-12			FY 2012-13			FY 2013-14		
	SMT Order	TANG EDCO	Approved after true up	SMT Order	TANG EDCO	Approved after true up	SMT Order	TANG EDCO	Approved after true up
Non-Tariff Income	553.00	553.00	553.01	936.00	935.80	935.81	822.00	822.16	822.32
Other Income	251.93	263.92	271.38	337.33	313.02	321.54	391.00	384.70	391.28
<b>Total</b>	<b>804.93</b>	<b>816.92</b>	<b>824.39</b>	<b>1,273.33</b>	<b>1,248.82</b>	<b>1,257.34</b>	<b>1,213.00</b>	<b>1,206.86</b>	<b>1213.60</b>

**Table 3-37: Other Income and Non-Tariff Income approved by the Commission after true-up for FY 2014-15 and FY 2015-16 (Rs. Crore)**

Particulars	FY 2014-15			FY 2015-16		
	SMT Order	TANGEDCO	Approved after true up	TO 2013	TANGEDCO	Approved after true up
Non-Tariff Income	680.00	852.97	852.97	728.70	780.86	780.86
Other Income	297.76	477.17	481.87	521.36	479.09	494.54
<b>Total</b>	<b>977.76</b>	<b>1,330.14</b>	<b>1,334.84</b>	<b>1,250.06</b>	<b>1,259.95</b>	<b>1,275.40</b>

### 3.16 Summary of Fixed Charges

3.16.1 The summary of fixed cost for FY 2011-12 to FY 2015-16 as submitted by TANGEDCO is shown in the Tables below:

**Table 3-38: Fixed Cost summary for FY 2011-12 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2011-12											
		Dep	Interest and Finance Charges	IWC	ROE	O&M Expenses	Other Debits	Prior Period	Op. Ch and Ex. Ord	Other Income	Non-Tariff Income	Other Interest and Finance Charges	Total Fixed Cost
1	Ennore TPS	36.05	174.69	24.31	34.69	103.78	-	0.55	12.19	11.05	-	1.59	376.80
2	Tuticorin TPS	63.45	302.59	126.90	61.09	191.36	0.79	4.69	6.97	41.63	-	0.36	716.59
3	Mettur TPS	37.65	175.77	89.74	36.27	104.74	0.06	(11.52)	3.53	39.89	-	0.30	396.66
4	North Chennai TPS	67.60	314.40	61.91	65.28	121.32	-	5.13	24.91	19.64	0.00	0.28	641.18
7	Tirumakottai GTPS	15.38	72.33	8.17	14.80	6.13	-	(0.41)	0.41	1.93	-	0.01	114.88
8	Kuttalam GTPS	11.98	49.30	5.53	11.52	5.79	-	(1.05)	0.13	0.02	-	0.01	83.20
9	Basin Bridge GTPS	18.81	91.20	5.98	18.09	5.04	-	0.04	(0.01)	0.22	-	0.14	139.08
10	Valuthur GTPS	18.25	82.93	12.38	17.75	5.89	-	(7.54)	0.00	0.05	-	0.19	129.80
11	Erode HEP	23.75	114.20	5.44	22.84	26.43	0.00	0.18	0.10	0.25	-	0.77	193.46
12	Kadamparai HEP	12.40	58.45	3.13	11.93	20.80	0.00	0.81	2.90	0.30	-	0.55	110.68
13	Kundah HEP	32.61	155.49	7.22	31.37	24.65	0.15	1.01	7.91	1.05	-	0.30	259.64
14	Tirunelveli HEP	13.01	54.20	3.13	12.53	23.25	0.01	1.50	2.87	3.77	-	0.86	107.58
15	<b>Total Generation</b>	<b>350.93</b>	<b>1,645.54</b>	<b>353.84</b>	<b>338.17</b>	<b>639.18</b>	<b>1.00</b>	<b>(6.61)</b>	<b>61.91</b>	<b>119.79</b>	<b>0.00</b>	<b>5.36</b>	<b>3,269.54</b>
16	<b>Distribution</b>	<b>265.10</b>	<b>708.20</b>	<b>-</b>	<b>260.62</b>	<b>3,626.33</b>	<b>36.52</b>	<b>583.84</b>	<b>2.22</b>	<b>144.13</b>	<b>553.00</b>	<b>531.17</b>	<b>5,316.88</b>
17	<b>Total TANGEDCO</b>	<b>616.03</b>	<b>2,353.75</b>	<b>353.84</b>	<b>598.79</b>	<b>4,265.51</b>	<b>37.52</b>	<b>577.23</b>	<b>64.13</b>	<b>263.92</b>	<b>553.01</b>	<b>536.53</b>	<b>8,586.42</b>

**Table 3-39: Fixed Cost summary for FY 2012-13 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2012-13											
		Dep	Interest and Finance Charges	IWC	ROE	O&M Expenses	Other Debits	Prior Period	Op. Ch and Ex. Ord	Other Income	Non-Tariff Income	Other Interest and Finance Charges	Total Fixed Cost
1	Ennore TPS	36.32	193.52	28.03	62.69	88.71	-	3.42	11.19	12.21	-	2.24	413.89
2	Tuticorin TPS	63.96	340.85	150.17	110.41	244.51	0.47	(2.95)	12.96	44.16	0.00	8.39	884.62
3	Mettur TPS	37.92	202.37	111.03	65.56	115.03	0.14	(0.62)	5.58	33.12	-	2.87	506.76
4	North Chennai TPS	68.30	364.21	87.25	117.98	143.97	-	0.64	29.20	24.26	-	2.91	790.20
7	Tirumakottai GTPS	15.48	82.55	10.83	26.74	7.06	-	0.01	0.40	0.11	-	0.18	143.14
8	Kuttalam GTPS	11.13	64.28	2.62	20.82	(41.65)	-	(0.09)	0.18	0.02	-	0.15	57.42
9	Basin Bridge GTPS	18.96	100.95	5.13	32.70	5.90	0.00	0.19	-	0.06	-	0.15	163.92
10	Valuthur GTPS	18.54	99.03	14.31	32.08	14.42	-	(0.23)	-	0.16	-	0.21	178.21
12	Erode HEP	23.92	127.46	7.09	41.29	25.11	-	0.01	0.03	0.05	-	0.78	225.64
13	Kadamparai HEP	12.50	66.56	4.08	21.56	22.83	0.00	(0.45)	0.96	0.41	-	0.58	128.21
14	Kundah HEP	32.86	175.03	9.75	56.70	26.64	0.03	4.32	9.21	0.69	-	0.37	314.21
15	Tirunelveli HEP	12.79	69.90	3.85	22.64	10.93	0.03	1.10	1.98	1.35	-	0.85	122.72
16	<b>Total Generation</b>	<b>352.67</b>	<b>1,886.73</b>	<b>434.12</b>	<b>611.17</b>	<b>663.46</b>	<b>0.67</b>	<b>5.35</b>	<b>71.68</b>	<b>116.61</b>	<b>0.00</b>	<b>19.68</b>	<b>3,928.93</b>
17	<b>Distribution</b>	<b>294.39</b>	<b>1,454.09</b>	<b>-</b>	<b>471.02</b>	<b>3,523.79</b>	<b>10.14</b>	<b>1,695.93</b>	<b>0.13</b>	<b>196.41</b>	<b>935.80</b>	<b>682.51</b>	<b>6,999.80</b>
18	<b>Total TANGEDCO</b>	<b>647.07</b>	<b>3,340.82</b>	<b>434.12</b>	<b>1,082.19</b>	<b>4,187.25</b>	<b>10.82</b>	<b>1,701.28</b>	<b>71.82</b>	<b>313.02</b>	<b>935.80</b>	<b>702.19</b>	<b>10,928.73</b>

**Table 3-40: Fixed Cost summary for FY 2013-14 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2013-14											
		Dep	Interest and Finance Charges	IWC	ROE	O&M Expenses	Other Debits	Prior Period	Op. Ch and Ex. Ord	Other Income	Non-Tariff Income	Other Interest and Finance Charges	Total Fixed Cost
1	Ennore TPS	40.26	311.12	37.15	77.23	106.25	-	13.49	17.21	13.19	-	2.38	591.90
2	Tuticorin TPS	71.20	548.39	149.06	136.93	262.42	0.03	(14.44)	12.97	52.17	-	4.60	1,118.99
3	Mettur TPS	42.49	325.91	136.07	80.58	170.50	0.06	86.64	6.46	28.88	-	3.51	823.33
4	North Chennai TPS	76.58	586.69	90.20	150.93	221.02	0.03	8.27	42.51	39.64	-	3.00	1,139.59
5	Mettur TPS Stage III	-	-	-	-	-	-	197.24	-	17.96	-	0.67	179.95
7	Tirumakottai GTPS	17.30	132.90	11.07	32.71	7.45	-	0.97	0.29	0.14	-	0.20	202.74
8	Kuttalam GTPS	13.87	104.04	13.46	28.01	64.11	-	6.00	0.12	0.08	-	0.10	229.62
9	Basin Bridge GTPS	21.00	162.30	6.87	39.99	7.61	-	0.97	-	0.08	-	0.17	238.83
10	Valuthur GTPS	20.97	159.72	19.78	39.96	8.15	-	1.14	-	0.18	-	0.28	249.81
12	Erode HEP	26.56	204.98	10.61	62.14	31.79	-	4.08	0.13	0.26	-	1.02	341.06
13	Kadamparai HEP	13.94	107.14	6.91	26.70	24.77	0.00	3.36	2.10	0.25	-	0.66	185.33
14	Kundah HEP	36.55	281.60	13.02	69.52	35.66	0.10	8.84	9.93	0.89	-	1.34	455.66
15	Tirunelveli HEP	15.04	113.08	5.67	29.11	29.52	0.00	4.03	3.11	1.38	-	0.97	199.16
16	<b>Total Generation</b>	<b>395.75</b>	<b>3,037.88</b>	<b>499.87</b>	<b>773.82</b>	<b>969.23</b>	<b>0.22</b>	<b>320.57</b>	<b>94.83</b>	<b>155.09</b>	<b>-</b>	<b>18.89</b>	<b>5,955.97</b>
17	<b>Distribution</b>	<b>327.15</b>	<b>2,385.94</b>	<b>-</b>	<b>600.44</b>	<b>3,970.93</b>	<b>21.70</b>	<b>(284.26)</b>	<b>0.08</b>	<b>229.61</b>	<b>822.16</b>	<b>965.35</b>	<b>6,935.58</b>
18	<b>Total TANGEDCO</b>	<b>722.90</b>	<b>5,423.82</b>	<b>499.87</b>	<b>1,374.26</b>	<b>4,940.17</b>	<b>21.92</b>	<b>36.31</b>	<b>94.91</b>	<b>384.70</b>	<b>822.16</b>	<b>984.24</b>	<b>12,891.55</b>

**Table 3-41: Fixed Cost summary for FY 2014-15 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2014-15											
		Dep	Interest and Finance Charges	IWC	ROE	O&M Expenses	Other Debits	Prior Period	Op. Ch and Ex. Ord	Other Income	Non-Tariff Income	Other Interest and Finance Charges	Total Fixed Cost
1	Ennore TPS	57.56	389.94	25.81	63.82	109.07	-	(2.46)	11.85	18.46		2.58	639.71
2	Tuticorin TPS	103.82	686.50	136.98	115.10	261.42	0.64	3.80	8.80	42.02		4.83	1,279.88
3	Mettur TPS	208.11	332.85	122.73	66.89	234.14	0.09	96.90	10.11	31.26		3.80	1,044.37
4	North Chennai TPS	121.94	729.51	82.88	135.19	259.35	-	(2.75)	46.49	44.15		2.65	1,331.10
5	Mettur TPS Stage III	-	-	45.04	-	50.29	-	(182.89)	1.70	27.55		-	(113.41)
6	NCTPS Stage II	-	-	77.87	-	27.78	-	(10.59)	14.18	8.77		-	100.46
7	Tirumakottai GTPS	24.21	166.92	10.16	26.84	5.44	-	1.23	0.36	0.15		0.20	235.22
8	Kuttalam GTPS	25.08	128.05	8.78	27.80	18.08	-	(85.37)	0.16	0.70		0.20	122.07
9	Basin Bridge GTPS	29.37	203.75	6.93	32.56	9.52	-	0.56	-	0.03		0.17	282.84
10	Valuthur GTPS	30.95	199.95	16.86	34.31	6.35	-	0.43	-	0.29		0.26	288.83
12	Erode HEP	63.14	243.99	4.86	70.00	33.19	-	0.30	0.12	0.11		1.13	416.62
13	Kadamparai HEP	20.23	134.20	5.15	22.43	26.78	0.02	0.15	1.66	0.25		0.73	211.11
14	Kundah HEP	51.52	353.43	12.44	57.12	35.38	0.16	0.95	11.00	0.64		(0.23)	521.14
15	Tirunelveli HEP	24.21	140.71	5.91	26.84	35.68	-	(1.04)	2.75	0.56		1.09	235.59
16	<b>Total Generation</b>	<b>760.17</b>	<b>3,709.81</b>	<b>562.40</b>	<b>678.89</b>	<b>1,112.47</b>	<b>0.91</b>	<b>(180.79)</b>	<b>109.18</b>	<b>174.94</b>	<b>-</b>	<b>17.40</b>	<b>6595.52</b>
17	<b>Distribution</b>	<b>525.28</b>	<b>2,992.22</b>	<b>189.53</b>	<b>582.32</b>	<b>4,565.07</b>	<b>25.98</b>	<b>(89.24)</b>	<b>-</b>	<b>302.23</b>	<b>852.97</b>	<b>1,002.90</b>	<b>8,638.88</b>
18	<b>Total TANGEDCO</b>	<b>1285.45</b>	<b>6702.03</b>	<b>751.94</b>	<b>1261.22</b>	<b>5677.54</b>	<b>26.90</b>	<b>(270.03)</b>	<b>109.18</b>	<b>477.17</b>	<b>852.97</b>	<b>1020.30</b>	<b>15234.40</b>

**Table 3-42: Fixed Cost summary for FY 2015-16 as submitted by TANGEDCO (Rs. Crore)**

Sr. No.	Power Station	FY 2015-16											
		Dep	Interest and Finance Charges	IWC	ROE	O&M Expenses	Other Debits	Prior Period	Op. Ch and Ex. Ord	Other Income	Non-Tariff Income	Other Interest and Finance Charges	Total Fixed Cost
1	Ennore TPS	37.33	422.44	28.17	63.82	135.55	-	(18.28)	11.62	12.72		2.93	670.85
2	Tuticorin TPS	54.22	743.69	122.95	115.10	316.49	0.86	0.12	9.46	36.40		11.69	1,338.20
3	Mettur TPS	25.28	441.29	98.01	66.89	241.95	1.13	31.01	3.51	32.36		9.94	886.63
4	North Chennai TPS	49.80	824.36	75.18	135.19	225.72	0.25	133.77	50.03	29.11		6.19	1,471.38
5	Mettur TPS Stage III	171.24	29.90	61.69	163.83	(26.93)	0.99	(0.44)	1.40	34.50		2.75	369.92
6	NCTPS Stage II	372.15	(166.51)	90.79	-	166.59	-	(47.12)	14.09	9.78		2.31	422.53
7	Tirumakottai GTPS	19.14	178.90	11.26	26.84	12.68	-	(3.58)	0.52	0.15		0.51	246.13
8	Kuttalam GTPS	24.38	141.47	11.89	27.80	9.58	-	(0.25)	0.15	0.12		0.48	215.37
9	Basin Bridge GTPS	2.20	220.26	9.72	32.56	8.12	-	0.01	-	0.05		0.47	273.30
10	Valuthur GTPS	49.49	214.84	18.45	34.31	12.03	-	2.98	-	0.16		0.86	332.79
12	Erode HEP	54.67	305.90	5.64	70.00	49.00	-	(0.02)	0.08	0.10		2.59	487.76
13	Kadamparai HEP	12.15	130.19	5.38	22.43	32.43	0.00	(5.37)	1.76	0.25		1.63	200.34
14	Kundah HEP	39.83	395.99	14.86	57.12	50.37	0.09	(9.33)	9.06	0.90		2.67	559.76
15	Tirunelveli HEP	25.71	88.10	5.63	26.84	43.61	0.08	(0.06)	2.69	0.47		2.84	194.97
16	<b>Total Generation</b>	<b>937.60</b>	<b>3,970.82</b>	<b>559.61</b>	<b>842.72</b>	<b>1,277.17</b>	<b>3.41</b>	<b>83.44</b>	<b>104.37</b>	<b>157.07</b>	<b>-</b>	<b>47.86</b>	<b>7,669.92</b>
17	<b>Distribution</b>	<b>670.46</b>	<b>3,501.33</b>	<b>178.74</b>	<b>582.32</b>	<b>4,844.82</b>	<b>13.19</b>	<b>(1,526.91)</b>		<b>322.02</b>	<b>780.86</b>	<b>882.25</b>	<b>8,043.33</b>
18	<b>Total TANGEDCO</b>	<b>1,608.06</b>	<b>7,472.15</b>	<b>738.35</b>	<b>1,425.04</b>	<b>6,122.00</b>	<b>16.59</b>	<b>(1,443.47)</b>	<b>104.37</b>	<b>479.09</b>	<b>780.86</b>	<b>930.12</b>	<b>15,713.25</b>



## **Commission's Views**

### **Distribution Function**

- 3.16.2 TANGEDCO has deducted an amount of Rs. 1042.80 Crore and Rs. 17.76 Crore in FY 2013-14 and FY 2014-15, respectively, from its ARR on account of revenue earned during trial stage.
- 3.16.3 The Commission is of the view that revenue earned from the trial stage cannot be deducted from the ARR, rather it has to be reduced from the total revenue. In the annual accounts for FY 2013-14 and FY 2014-15, revenue earned from trial stage has been deducted from the total revenue earned. Therefore, a different treatment cannot be provided for in the Tariff Order.
- 3.16.4 Further, revenue earned from trial stage is deducted from the total capital cost at the time of the Capital Cost approval. TANGEDCO in its reply submitted that revenue earned from trial stage pertains to NCTPS Stage II and MTPS Stage III. The Commission had provisionally approved the capital cost of NCTPS Stage II and MTPS Stage III vide M.A.P No. 1 of 2015, M.A.P. No. 2 of 2015 and M.A.P. No. 3 of 2015. As it was a provisional approval, the Commission had not considered entire revenue earned from trial stage. However, while undertaking final approval of capital cost for NCTPS Stage II and MTPS Stage III, the Commission will consider the revenue earned from trial stage corresponding to the period of trial stage operations considered by the Commission.
- 3.16.5 Based on the expenses and income approved after truing up as elaborated in the above Sections, the summary of approved Fixed Cost for TANGEDCO's Distribution function is shown in the Tables below:

**Table 3-43: Fixed Cost summary approved by Commission for Distribution function after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Sl.	Details	FY 2011-12			FY 2012-13			FY 2013-14		
		SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
1	Operation & Maintenance Expenses	3,327.36	3,626.33	3,327.36	3,477.42	3,523.79	3,477.42	3,852.37	3,970.93	3,851.31
2	Depreciation	272.78	265.10	271.51	302.13	294.39	297.87	362.39	327.15	327.43
3	Interest and Finance Charges	718.40	708.20	718.47	877.39	1,454.09	877.80	1,034.39	2,385.94	1,037.16
4	Interest on Working Capital	-	-	-	-	-	-	-	-	-
5	Return on Equity	-	260.62	-	-	471.02	-	-	600.44	-
6	Other Debits	14.26	36.52	14.86	16.90	10.14	2.87	19.93	21.70	14.04
7	Sharing of (Gains)/Losses for O&M Expenses			-						-
8	Operating charges	-	2.22	-	-	0.13	-	-	0.08	-
9	Other Interest and Finance Charges	334.69	531.17	391.91	497.62	682.51	569.39	575.99	965.35	802.14
10	<b>Gross Aggregate Revenue Requirement</b>	<b>4,667.49</b>	<b>5,430.18</b>	<b>4,724.10</b>	<b>5,171.46</b>	<b>6,436.08</b>	<b>5,225.34</b>	<b>5,845.07</b>	<b>8,271.61</b>	<b>6,032.08</b>
11	Less: Other Income	141.00	144.13	148.20	197.00	196.41	201.76	264.00	229.61	233.54
12	Less: Non-Tariff Income	553.00	553.00	553.01	936.00	935.80	935.81	822.00	822.16	822.32
13	Add: Net Prior Period Credit / Income	-	583.84	(859.10)	-	1,695.93	81.54	-	(284.26)	(52.84)
14	Less: revenue earned from trial stage								(1,042.80)	
15	<b>Net Aggregate Revenue Requirement</b>	<b>3,973.49</b>	<b>5,316.88</b>	<b>3,163.79</b>	<b>4,038.46</b>	<b>6,999.80</b>	<b>4,169.32</b>	<b>4,759.07</b>	<b>5,892.78</b>	<b>4,923.38</b>

**Table 3-44: Fixed Cost summary for Distribution function from FY 2014-15 to FY 2015-16 as approved by Commission (Rs. Crore)**

Sl.	Details	FY 2014-15			FY 2015-16		
		SMT Order	TANGEDCO	Approved after true up	TO 2013	TANGEDCO	Approved after true up
1	Operation & Maintenance Expenses	4,303.63	4,565.07	4,150.46	4,395.62	4,844.82	4,419.95
2	Depreciation	435.26	525.28	552.44	519.04	670.46	664.47
3	Interest and Finance Charges	1,213.55	2,992.22	1,209.47	1938.68	3,501.33	1,391.53
4	Interest on Working Capital	-	189.53	-	-	178.74	-
5	Return on Equity	-	582.32	-	-	582.32	-
6	Other Debits	6.30	25.98	-	28.42	13.19	-
7	Sharing of (Gains)/Losses for O&M Expenses			-			
8	Operating charges	-	-	-	-	-	-
9	Other Interest and Finance Charges	688.40	1,002.90	852.60	-	882.25	689.22
10	<b>Gross Aggregate Revenue Requirement</b>	<b>6647.15</b>	<b>9,883.31</b>	<b>6,764.98</b>	<b>6881.76</b>	<b>10,673.12</b>	<b>7,165.17</b>
11	Less: Other Income	146.00	302.23	236.28	363.54	322.02	344.84
12	Less: Non-Tariff Income	680.00	852.97	852.97	728.70	780.86	780.86
13	Add: Net Prior Period Credit / Income	-	(89.24)	(319.94)	-	(1,526.91)	(1,008.76)
14	Less: revenue earned from trail stage		(17.76)				
15	<b>Net Aggregate Revenue Requirement</b>	<b>5821.14</b>	<b>8,621.12</b>	<b>5,355.79</b>	<b>5789.52</b>	<b>8,043.33</b>	<b>5,030.71</b>

### **Generation Function (Capacity Charges)**

- 3.16.6 As per Regulation 36 of the Tariff Regulations, fixed components of generation function comprise:

***“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.”*

- 3.16.7 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....”*

- 3.16.8 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 specified in the Tariff Regulations are reproduced 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 (Till Renovation and Modernization works in all units are completed) 50%*

(c) *In respect of Generating Stations of ..... As per PPA*

*Independent Power Producers*

(d) *New Thermal Stations*

80%”

3.16.9 The Commission has considered the station-wise availability for the period from FY 2011-12 to FY 2015-16 as submitted by TANGEDCO in the CIP Petition. Further, while computing recoverable capacity charges, the Commission has not considered prior period expenses/(income). Since such expenses/(income) pertain to previous years, the Commission is of the view that they should not be considered while disallowing capacity charges in cases where actual PAF has been lower than normative PAF. The Commission has added prior period expenses/(income) after determining capacity charges based on actual PAF.

**Table 3-45: PAF considered by the Commission**

Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Ennore TPS	22.66%	36.21%	73.18%	45.84%	35.80%
Tuticorin TPS	85.80%	92.26%	89.60%	91.10%	86.80%
Mettur TPS	93.02%	86.05%	92.14%	91.34%	86.94%
North Chennai TPS	85.05%	93.48%	84.94%	87.08%	87.79%
NCTPS Stage-II (Unit 1)				69.10%	77.80%
MTPS Stage III				75.61%	87.32%
TGTPS	74.68%	98.10%	92.61%	93.04%	82.69%
KGTPS	47.18%	6.31%	97.66%	94.80%	98.00%
BBGTPS	80.00%	98.95%	94.78%	95.40%	97.91%
VGTPS	79.15%	68.90%	86.16%	76.31%	92.78%

3.16.10 Therefore, based on component-wise approval given in the above Section and actual PAF, fixed cost/capacity charges for generating stations approved for FY 2011-12 to FY 2015-16 are shown in the Tables below:

**Table 3-46: Fixed Charges approved by the Commission for Generation function after true-up for FY 2011-12 (Rs. Crore)**

Sl.	Power Station	Depreciation	Interest charges	Return on Equity	IoWC	O&M Expenses	Other Debits	Op. Charges and Extra Ordinary	Prior Period Exp./(Income)	Other Income	Other Int. & Fin. Charges	Total Fixed Cost	Fixed cost allowed to be recovered
1	Ennore TPS	37.03	98.89	-	22.24	104.72	0.21	-	0.55	2.66	1.59	262.57	119.00
2	Tuticorin TPS	42.67	120.81	-	131.84	142.19	0.31	-	4.69	44.53	0.36	398.35	398.35
3	Mettur TPS	29.37	62.35	-	126.83	116.61	0.21	-	(11.52)	46.19	0.30	277.96	277.96
4	North Chennai TPS	57.39	105.44	-	59.52	117.64	0.42	-	5.13	21.79	0.28	324.03	324.03
5	Tirumakottai GTPS	14.37	43.46	-	8.64	7.92	0.10	-	(0.41)	1.67	0.01	72.43	67.61
6	Kuttalam GTPS	10.33	37.24	-	5.84	9.82	0.06	-	(1.05)	0.01	0.01	62.24	36.71
7	Basin Bridge GTPS	17.91	18.74	-	4.61	5.93	0.10	-	0.04	0.22	0.14	47.25	47.25
8	Valuthur Unit	17.72	93.98	-	12.32	14.04	0.21	-	(7.54)	0.06	0.19	130.85	129.46
9	Erode HEP	19.73	75.34	-	4.70	28.88	0.13	-	0.18	0.29	0.77	129.44	129.44
10	Kadamparai HEP	9.84	33.07	-	2.47	19.82	0.10	-	0.81	0.33	0.55	66.33	66.33
11	Kundah HEP	24.49	115.97	-	6.78	41.88	0.21	-	1.01	1.22	0.30	189.41	189.41
12	Tirunelveli HEP	9.14	44.74	-	2.92	24.76	0.10	-	1.50	4.21	0.86	79.83	79.83
	<b>Total Generation</b>	<b>289.98</b>	<b>850.03</b>	<b>-</b>	<b>388.71</b>	<b>634.21</b>	<b>2.17</b>	<b>-</b>	<b>(6.61)</b>	<b>123.18</b>	<b>5.36</b>	<b>2,040.68</b>	<b>1,865.37</b>

**Table 3-47: Fixed Charges approved by the Commission for Generation function after true-up for FY 2012-13 (Rs. Crore)**

Sl.	Power Station	Depreciation	Interest charges	Return on Equity	IoWC	O&M Expenses	Other Debits	Op. Charges and Extra Ordinary	Prior Period Exp./ (Income)	Other Income	Other Int. & Fin. Charges	Total Fixed Cost	Fixed cost allowed to be recovered
1	Ennore TPS	37.04	106.91	-	27.17	110.28	0.03	-	0.16	23.41	2.24	260.44	188.61
2	Tuticorin TPS	42.91	132.06	-	152.71	154.00	0.05	-	(0.14)	35.59	8.39	454.40	454.40
3	Mettur TPS	29.78	70.31	-	140.52	126.82	0.03	-	(0.03)	36.96	2.87	333.33	333.33
4	North Chennai TPS	58.22	114.14	-	91.89	129.26	0.07	-	0.03	17.41	2.91	379.09	379.09
5	Tirumakottai GTPS	14.50	47.39	-	11.09	8.50	0.02	-	0.00	1.37	0.18	80.30	80.30
6	Kuttalam GTPS	10.83	49.59	-	4.26	9.30	0.01	-	(0.00)	0.01	0.15	74.11	5.85
7	Basin Bridge GTPS	17.91	18.69	-	2.58	6.39	0.02	-	0.01	0.17	0.15	45.58	45.58
8	Valuthur Unit	18.09	108.36	-	15.65	15.06	0.03	-	(0.01)	0.04	0.21	157.35	135.52
9	Erode HEP	19.78	84.55	-	6.22	35.07	0.02	-	0.00	0.23	0.78	146.20	146.20
10	Kadamparai HEP	9.89	36.12	-	3.15	21.72	0.02	-	(0.02)	0.26	0.58	71.19	71.19
11	Kundah HEP	24.58	127.80	-	8.64	44.93	0.03	-	0.21	0.96	0.37	205.60	205.60
12	Tirunelveli HEP	9.44	51.46	-	3.86	27.15	0.02	-	0.05	3.36	0.85	89.47	89.47
	<b>Grand Total Generation</b>	<b>292.97</b>	<b>947.38</b>	<b>-</b>	<b>467.73</b>	<b>688.48</b>	<b>0.35</b>	<b>-</b>	<b>0.26</b>	<b>119.78</b>	<b>19.68</b>	<b>2,297.07</b>	<b>2,135.13</b>

**Table 3-48: Fixed Charges approved by the Commission for Generation function after true-up for FY 2013-14 (Rs. Crore)**

Sl.	Power Station	Depreciation	Interest charges	Return on Equity	IoWC	O&M Expenses	Other Debits	Op. Charges and Extra Ordinary	Prior Period Exp./ (Income)	Other Income	Other Int. & Fin. Charges	Total Fixed Cost	Fixed cost allowed to be recovered
1	Ennore TPS	42.11	105.08	-	36.64	124.60	0.14	-	(2.51)	30.80	2.38	277.65	277.65
2	Tuticorin TPS	48.76	138.67	-	189.18	159.43	0.21	-	2.68	46.83	4.60	496.71	496.71
3	Mettur TPS	33.93	76.76	-	165.96	134.18	0.14	-	(16.11)	48.69	3.51	349.69	349.69
4	North Chennai TPS	66.10	111.11	-	88.33	138.05	0.28	-	(1.54)	22.98	3.00	382.37	382.37
5	Mettur TPS Stage III	-	194.91	-		-	-	-	(36.67)		0.67	158.92	158.92
	NCTPS Stage II		197.54	-		-	-	-	-		-	197.54	197.54
6	Tirumakottai GTPS	16.47	46.02	-	11.08	11.90	0.07	-	(0.18)	1.86	0.20	83.69	83.69
7	Kuttalam GTPS	12.25	56.61	-	14.44	8.19	0.04	-	(1.12)	-	0.10	90.51	90.51
8	Basin Bridge GTPS	20.37	16.71	-	3.02	8.08	0.07	-	(0.18)	0.25	0.17	47.99	47.99
9	Valuthur Unit	20.52	110.35	-	27.24	12.81	0.14	-	(0.21)	-	0.28	171.22	171.22
10	Erode HEP	19.60	152.52	-	9.98	39.29	0.08	-	(0.76)	0.25	1.02	221.39	221.39
11	Kadamparai HEP	11.24	34.77	-	3.92	28.56	0.07	-	(0.62)	0.37	0.66	78.22	78.22
12	Kundah HEP	27.95	124.07	-	9.92	47.71	0.14	-	(1.64)	1.24	1.34	208.24	208.24
13	Tirunelveli HEP	10.69	60.06	-	5.03	30.96	0.07	-	(0.75)	4.47	0.97	102.55	102.55
14	Cogen sugar mills under construction		42.69	-				-				42.69	42.69
	<b>Grand Total Generation</b>	<b>329.99</b>	<b>1,467.86</b>	<b>-</b>	<b>564.65</b>	<b>743.75</b>	<b>1.47</b>	<b>-</b>	<b>(59.59)</b>	<b>157.74</b>	<b>18.89</b>	<b>2,909.26</b>	<b>2,909.26</b>



**Table 3-49: Fixed Charges approved by the Commission for Generation function after true-up for FY 2014-15 (Rs. Crore)**

Sl.	Power Station	Depreciation	Interest charges	Return on Equity	IoWC	O&M Expenses	Other Debits	Op. Charges and Extra Ordinary	Prior Period Exp./ (Income)	Other Income	Other Int. & Fin. Charges	Total Fixed Cost	Fixed cost allowed to be recovered
1	Ennore TPS	63.18	102.76	-	32.95	99.17	-	-	(8.84)	25.91	2.58	265.88	243.76
2	Tuticorin TPS	75.75	143.32	-	174.86	237.68	-	-	13.62	58.99	4.83	591.08	591.08
3	Mettur TPS	50.41	83.64	-	156.67	212.88	-	-	347.42	43.88	3.80	810.94	810.94
4	North Chennai TPS	115.18	106.64	-	105.80	235.79	-	-	(9.87)	61.99	2.65	494.20	494.20
5	Mettur TPS Stage III	138.19	415.60	-	57.49	40.35	-	-	(655.71)	38.67	-	(42.75)	(36.93)
6	NCTPS Stage II	-	592.63	-	99.40	64.52	-	-	(37.98)	12.32	-	706.25	667.50
7	Tirumakottai GTPS	24.11	44.29	-	12.97	4.95	-	-	4.39	0.21	0.20	90.70	90.70
8	Kuttalam GTPS	23.12	54.87	-	11.20	16.43	-	-	(306.07)	0.98	0.20	(201.23)	(201.23)
9	Basin Bridge GTPS	29.59	13.88	-	8.85	8.66	-	-	2.01	0.04	0.17	63.12	63.12
10	Valuthur Unit	31.59	108.09	-	21.52	5.77	-	-	1.55	0.41	0.26	168.38	168.38
11	Erode HEP	52.16	221.68	-	6.20	30.17	-	-	1.08	0.16	1.13	312.27	312.27
12	Kadamparai HEP	19.99	33.00	-	6.58	24.35	-	-	0.52	0.35	0.73	84.82	84.82
13	Kundah HEP	53.71	119.30	-	15.89	32.17	-	-	3.41	0.90	(0.23)	223.34	223.34
14	Tirunelveli HEP	21.84	69.04	-	7.55	32.44	-	-	(3.74)	0.78	1.09	127.44	127.44
15	Others	-	108.52	-	-	-	-	-	-	-	-	108.52	108.52
	<b>Grand Total Generation</b>	<b>698.82</b>	<b>2,217.25</b>	<b>-</b>	<b>717.93</b>	<b>1,045.33</b>	<b>-</b>	<b>-</b>	<b>(648.19)</b>	<b>245.60</b>	<b>17.40</b>	<b>3,802.94</b>	<b>3,738.91</b>

**Table 3-50: Fixed Charges approved by the Commission for Generation function after true-up for FY 2015-16 (Rs. Crore)**

Sl.	Power Station	Depreciation	Interest charges	Return on Equity	IoWC	O&M Expenses	Other Debits	Op. Charges and Extra Ordinary	Prior Period Exp./ (Income)	Other Income	Other Int. & Fin. Charges	Total Fixed Cost	Fixed cost allowed to be recovered
1	Ennore TPS	63.31	96.37	-	39.42	125.22	-	-	(12.08)	12.12	2.93	303.05	216.98
2	Tuticorin TPS	78.65	147.34	-	172.07	292.37	-	-	0.08	34.69	11.69	667.51	667.51
3	Mettur TPS	53.81	90.09	-	137.16	223.51	-	-	20.49	30.85	9.94	504.14	504.14
4	North Chennai TPS	70.85	102.73	-	105.22	208.52	-	-	88.38	27.75	6.19	554.13	554.13
5	Mettur TPS Stage III	150.73	398.27	-	86.33	42.66	-	-	(0.29)	32.88	2.75	647.56	629.76
6	NCTPS Stage II	285.73	773.03	-	127.06	71.69	-	-	(31.13)	9.32	2.31	1,219.36	1,219.36
7	Tirumakottai GTPS	27.41	41.97	-	15.75	11.72	-	-	(2.36)	0.14	0.51	94.86	94.86
8	Kuttalam GTPS	26.62	52.40	-	16.64	8.85	-	-	(0.17)	0.11	0.48	104.70	104.70
9	Basin Bridge GTPS	29.55	10.45	-	13.60	7.50	-	-	0.01	0.05	0.47	61.54	61.54
10	Valuthur Unit	37.52	104.67	-	25.82	11.11	-	-	1.97	0.15	0.86	181.79	181.79
11	Erode HEP	52.87	220.30	-	7.89	45.26	-	-	(0.02)	0.09	2.59	328.81	328.81
12	Kadamparai HEP	20.37	30.71	-	7.53	29.96	-	-	(3.55)	0.24	1.63	86.41	86.41
13	Kundah HEP	54.56	112.91	-	20.80	46.53	-	-	(6.16)	0.86	2.67	230.45	230.45
14	Tirunelveli HEP	24.51	69.06	-	7.88	40.28	-	-	(0.04)	0.45	2.84	144.08	144.08
15	Others		131.66	-	-	-	-	-	-	-	-	131.66	131.66
	<b>Grand Total Generation</b>	<b>976.47</b>	<b>2,381.95</b>		<b>783.17</b>	<b>1,165.17</b>	<b>-</b>	<b>-</b>	<b>55.12</b>	<b>149.70</b>	<b>47.86</b>	<b>5,260.05</b>	<b>5,156.18</b>

### **3.17 Variable cost for own generating stations**

#### **3.17.1 Operational Performance Parameters**

3.17.1.1 TANGEDCO submitted the comparison of actual operational performance parameters of generation function like PAF, Plant Load Factor (PLF) Station Heat Rate (SHR), Auxiliary Consumption (AC), Specific Oil Consumption (SOC), etc., achieved during FY 2011-12 to FY 2015-16, in order to derive variable cost of own generation, vis-à-vis operational performance parameters approved by the Commission in the Suo-motu Tariff Order dated December 11, 2014.

3.17.1.2 TANGEDCO submitted that the actual operating parameters achieved during the respective years are dependent of the condition of the machine during the respective years, which is a function of the following factors:

- i. Operation and Maintenance carried out in the plant since commissioning
- ii. Degradation due to ageing
- iii. Water chemistry
- iv. Conditions of the auxiliaries
- v. Overloading and partial loading of machines
- vi. Number of Start/Stops
- vii. Temperature and pressure stress the Machines have been subjected to
- viii. Automation of C&I
- ix. Condenser Vacuum.

3.17.1.3 TANGEDCO submitted the following justification for the deviations between the actual operating parameters and the operating parameters approved by the Commission:

#### **a) Ageing**

3.17.1.4 Frequent tube failures occur due to erosion in the old machines, which may be caused by poor quality of coal and other constraints. Heat transfer gets affected due to various reasons and the SHR increases. AC and SOC increase due to low load/partial load operation because of some technical constraints. Due to many other reasons like vibrations, eccentricity and high bearing temperature, the auxiliary of respective plants fails and causes deterioration in performance parameters. The older machines are affected by such reasons and hence, their performance is poorer as compared to the normative values.

#### **b) Design Constraints**

- 3.17.2 The operational performance parameters for generating stations specified in the Tariff Regulations are based on the norms specified in CERC Tariff Regulations, which in turn is based on design specifications of NTPC Power Plants. Most of the NTPC power plants have 500 MW Units which enable NTPC to achieve the target performance parameters specified in the Regulations.
- 3.17.3 On the other hand, most of the existing plants of TANGEDCO have 110 MW to 210 MW Units. As the Units are older and smaller in size, it is very difficult to achieve the target performance parameters specified in the Tariff Regulations.

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

- 3.17.4 All the Units at Ennore Thermal Power Station (ETPS) are operated under lesser load due to chloride ingress owing to usage of contaminated cooling water, low condenser vacuum, condenser tube failure, boiler tube punctures, turbine vibration, rotor blade failure, etc. Being an old station, outages occur in various equipment due to various reasons, which have reduced the power generation.
- 3.17.5 The Ennore Thermal Power Station has not achieved the full load capacity since inception and average PLF is also lower than 60% due to design deficiency in 110 MW Units.
- 3.17.5.1 The major constraint in achieving higher and sustained generation with reduced outages of the Units at Ennore Thermal Power Station is the highly-contaminated cooling water, i.e., the sea water available at Ennore creek. Since contaminated cooling water is being used for condenser cooling, the cooling water corrodes the condenser tubes resulting in abnormal condenser tube failures. Once the tube fails, the chloride in the cooling water mixes up with the Demineralized water, resulting in scale formation in boiler tubes and salt deposits on turbine blades.
- 3.17.5.2 This results in frequent failures of boiler tubes, high axial shift in turbine and high vibration of turbine rotors resulting in frequent blade failures. As the quality of cooling water available is very poor, the condenser tubes are renewed periodically besides carrying out repair in turbine rotors.
- 3.17.5.3 In Units I & II (60 MW Units), the Boiler tube leakages were analysed and it was observed that the tube leakages were mainly due to flue gas erosion on account of high ash content in the coal. In order to prevent tubes from erosion, shrouds and griddling bands were provided. Subsequently, the tube leakages have reduced.
- 3.17.5.4 Units III & IV (110 MW Units) have served for more than 9 years after Renovation & Modernisation works. Due to ageing and flue gas ducts erosion, punctures occurred in

the R.H. bends. R.H. bends were renewed partially during Annual Overhaul (AOH) period in FY 2008-09 and FY 2009-10. Balance RH bends have been programmed to be renewed during the forthcoming AOH periods.

3.17.5.5 In Unit-V (110 MW Unit) during Renovation & Modernisation period, only partial pressure parts were renewed (platen S.H. and Cold Reheated tubes). Other areas, i.e., Water walls, Economizer, Ceiling Super heater, Hot Reheater and Exit Superheater were not renewed. Boiler has served more than 1,50,000 hours of service and entire boiler replacement was not done during Renovation & Modernisation as carried out in other Units 1 to 4. Hence, Boiler tube leakages occur frequently. Subsequently, RLA study was carried out during 2009, based on which repair works are proposed to be carried out during forthcoming capital overhaul. However, the weak boiler tubes are being replaced during every overhaul.

3.17.5.6 Since ETPS is having low capacity, Units which have already served their life and having perennial cooling water problem, frequent forced outages occur resulting in low generation. Rectification works are being taken up then and there to reduce the forced outages in order to improve the generation and Plant Load Factor. Subsequently, TANGEDCO submitted that all Units of ETPS have been de-commissioned at the end of FY 2016-17.

### 3.17.6 Plant Load Factor (PLF)

3.17.6.1 TANGEDCO submitted that the PLF of its power plants has been in line with the norms approved by the Commission in the last Tariff Order, as shown in the Table below:

**Table 3-51: PLF as submitted by TANGEDCO**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>A</b>	<b>Thermal</b>					
1	Ennore TPS	22.61%	18.67%	30.61%	20.31%	31.08%
2	Tuticorin TPS	85.60%	90.04%	85.80%	83.42%	77.00%
3	Mettur TPS	92.77%	84.26%	88.04%	84.71%	80.25%
4	Mettur Stage III TPS	-	-	80.00%	57.50%	85.00%
5	North Chennai TPS	84.81%	91.68%	74.33%	77.21%	85.00%
6	North Chennai Stage II TPS	-	-	-	53.14%	85.00%
<b>B</b>	<b>Gas</b>					
1	Tirumakottai GTPS	74.68%	76.90%	52.69%	43.81%	42.23%
2	Kuttalam GTPS	46.76%	6.31%	72.49%	56.74%	64.35%
3	Basin Bridge GTPS	2.81%	0.04%	0.08%	0.29%	1.00%
4	Valathur GTPS Unit I	79.15%	54.00%	87.64%	64.95%	86.63%

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
5	Valathur GTPS Unit II	56.21%	60.42%	65.17%		
<b>C</b>	<b>Hydro</b>					
1	Kundah Generation Circle	32.41%	11.68%	21.42%	23.90%	19.13%
2	Kadamparai Generation Circle	4.99%	3.08%	4.89%	19.90%	21.12%
3	Tirunelveli Generation Circle	0.00%	0.00%	0.00%	27.89%	12.26%
4	Erode Generation Circle	31.31%	0.00%	0.00%	37.40%	54.81%

### Commission's Views

3.17.6.2 The Commission has analysed the submissions made by TANGEDCO. It has been observed that the PLF for all the plants achieved is in line with the values approved in the Suo-Motu Order dated December 11, 2014. The Commission has approved the actual PLF values as submitted by TANGEDCO, as shown in the Table below:

**Table 3-52: PLF approved by the Commission after true-up for FY 2011-12 to FY 2015-16**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>A</b>	<b>Thermal</b>					
1	Ennore TPS	22.61%	18.67%	30.61%	20.31%	31.08%
2	Tuticorin TPS	85.60%	90.04%	85.80%	83.42%	77.00%
3	Mettur TPS	92.77%	84.26%	88.04%	84.71%	80.25%
4	Mettur Stage III TPS			80.00%	57.50%	85.00%
5	North Chennai TPS	84.81%	91.68%	74.33%	77.21%	85.00%
6	North Chennai Stage II TPS (Unit 1)				53.14%	85.00%
7	North Chennai Stage II TPS (Unit 2)				53.14%	85.00%
<b>B</b>	<b>Gas</b>					
1	Tirumakottai GTPS	74.68%	76.90%	52.69%	43.81%	42.23%
2	Kuttalam GTPS	46.76%	6.31%	72.49%	56.74%	64.35%
3	Basin Bridge GTPS	2.81%	0.04%	0.08%	5.71%	5.69%
4	Valathur GTPS (Unit 1)	79.15%	54.00%	87.64%	64.95%	86.63%
5	Valathur GTPS (Unit 2)	56.21%	60.42%	65.17%	0.00%	0.00%
<b>C</b>	<b>Hydro</b>					
1	Kundah Generation Circle	32.41%	11.68%	21.42%	23.90%	19.13%
2	Kadamparai Generation Circle	4.99%	3.08%	4.89%	19.90%	21.12%

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
3	Tirunelveli Generation Circle	0.00%	0.00%	0.00%	27.89%	12.26%
4	Erode Generation Circle	31.31%	0.00%	0.00%	37.40%	54.81%

### 3.17.7 Auxiliary Consumption

3.17.7.1 TANGEDCO submitted the approved auxiliary consumption and actual achieved by its generating stations in FY 2011-12 to FY 2015-16 as shown in the Table below. TANGEDCO stated that the Auxiliary Consumption of its power plants has been more or less in line with the norms approved by the Commission in last Tariff Order with very minor variations, as shown in the Table below:

**Table 3-53: Auxiliary Consumption as submitted by TANGEDCO**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>A</b>	<b>Thermal</b>					
1	Ennore TPS	16.73%	17.07%	16.18%	19.83%	12.25%
2	Tuticorin TPS	7.98%	7.99%	8.09%	8.21%	8.20%
3	Mettur TPS	8.26%	8.32%	8.50%	8.60%	8.45%
4	Mettur Stage III TPS	0.00%	0.00%	7.00%	7.28%	6.45%
5	North Chennai TPS	8.36%	8.42%	9.32%	9.29%	8.50%
6	North Chennai Stage II TPS	0.00%	0.00%	0.00%	7.14%	7.29%
<b>B</b>	<b>Gas</b>					
1	Tirumakottai GTPS	6.05%	6.13%	8.36%	7.84%	9.07%
2	Kuttalam GTPS	7.02%	8.50%	7.32%	7.65%	2.00%
3	Basin Bridge GTPS	0.57%	0.96%	5.06%	0%	0%
4	Valathur GTPS Unit I	6.00%	5.76%	5.81%	7.86%	5.65%
5	Valathur GTPS Unit II	6.12%	5.59%	6.17%		
<b>C</b>	<b>Hydro</b>					
1	Kundah Generation Circle	0.00%	0.00%	0.00%	0.41%	0.50%
2	Kadamparai Generation Circle	0.52%	0.61%	0.47%	0.48%	0.50%
3	Tirunelveli Generation Circle	0.48%	0.42%	0.38%	0.43%	0.50%
4	Erode Generation Circle	0.49%	1.02%	0.57%	0.40%	0.50%

## Commission's Views

3.17.7.2 The Commission has accepted 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 considered the normative Auxiliary Consumption as approved in the Suo-Motu Order, as shown in the Table below:

**Table 3-54: Auxiliary Consumption approved by the Commission after true-up for FY 2011-12 to FY 2015-16**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>A</b>	<b>Thermal</b>					
1	Ennore TPS	16.32%	15.00%	15.00%	15.00%	15.00%
2	Tuticorin TPS	8.50%	8.50%	8.50%	8.50%	8.50%
3	Mettur TPS	8.31%	9.00%	8.50%	8.50%	8.50%
4	Mettur Stage III TPS	0.00%	9.00%	8.83%	8.83%	8.83%
5	North Chennai TPS	8.50%	8.50%	8.50%	8.50%	8.50%
6	North Chennai Stage II TPS (Unit 1)	0.00%	0.00%	8.88%	8.50%	8.50%
7	North Chennai Stage II TPS (Unit 2)	0.00%	0.00%	8.83%	8.50%	8.50%
<b>B</b>	<b>Gas</b>					
1	Tirumakottai GTPS	6.00%	6.00%	6.00%	6.00%	6.00%
2	Kuttalam GTPS	6.67%	6.00%	6.00%	6.00%	6.00%
3	Basin Bridge GTPS	0.30%	0.51%	0.99%	0.99%	0.99%
4	Valathur GTPS (Unit 1)	5.87%	6.00%	6.00%	6.00%	6.00%
5	Valathur GTPS (Unit 2)	5.84%	6.00%	6.00%	6.00%	6.00%
<b>C</b>	<b>Hydro</b>					
1	Kundah Generation Circle	0.50%	0.50%	0.50%	0.50%	0.50%
2	Kadamparai Generation Circle	0.50%	0.50%	0.50%	0.50%	0.50%
3	Tirunelveli Generation Circle	0.50%	0.50%	0.50%	0.50%	0.50%
4	Erode Generation Circle	0.50%	0.50%	0.50%	0.50%	0.50%

## 3.17.8 Station Heat Rate (SHR)

3.17.8.1 TANGEDCO requested the Commission to approve actual SHR for its generating stations. TANGEDCO submitted the following justification for the higher than normative SHR of most of its generating stations:



### **Ennore TPS**

- 3.17.8.2 Due to prolonged service of the Units of lower capacity and partial load operations, the performance has deteriorated resulting in increased SHR.

### **Tuticorin TPS**

- 3.17.8.3 The first three Units of TTPS have been operational for more than 30 years, exceeding their life period. Because of the ageing and degradation effect, maintaining SHR of 2453 kcal/kWh is impractical and could not be achieved. TANGEDCO submitted that it will be justifiable to give consideration for this ageing factor, since annual maintenance and overhaul activities will not help to achieve its original SHR (Ageing effect as per Central Electricity Authority [CEA] is 0.2 % per year of designed unit heat rate).
- 3.17.8.4 TANGEDCO added that the boilers for Units I, II and III have been designed for coal of GCV 5950 kcal/kg and ash content of less than 20% and boilers for Units IV and V have been designed for coal of GCV 3855 kcal/kg and ash content of 40.4 %. At present, the ash content of coal received at TTPS is around 40%. Usage of high ash content and inferior coal than the design has led to increase in gas flow in boiler, which in turn is leading to high exit flue gas temperature, thus, decreasing boiler efficiency. Further, operational problems and constraints like part load operation due to SLDC load reduction has increased the SHR.
- 3.17.8.5 Due to high ash content, mill fitness could not be maintained, which is leading to un-burnt bottom and fly ash losses. During rainy season, both at TTPS and at loading port, the case of wet coal is increasing the boiler losses. TANGEDCO submitted that at TTPS, due to the receipt of poor quality of coal (low GCV), more fuel oil has been consumed to maintain higher load to meet the Grid demand and hence, the overall SHR has increased with respect to norms specified in the Tariff Regulations. Generally, due to usage of coal having lower calorific value with very high ash content of more than 40% at TTPS, more ash is generated, which deposits over the Boiler tubes resulting in increased SHR.

### **Mettur TPS**

- 3.17.8.6 TANGEDCO submitted that the deviation of SHR from the norms specified in the Tariff Regulations is due to the calorific value of coal received and the ageing factor of the Station. In respect of MTPS, though the SHR varies to a maximum of about 1.2% over the past five years, considering the ageing factor, calorific value of coal received nowadays affects the SHR of MTPS. TANGEDCO requested the Commission to

revise the SHR as submitted in the Petition.

#### **North Chennai TPS**

- 3.17.8.7 TANGEDCO submitted that the variation in SHR with respect to specified norms is due to higher heat requirement, variation in coal quality and wet coal. Even though the Commission has fixed normative SHR for new thermal Stations as 2500 kcal/kWh, Units I, II and III of NCTPS, which were commissioned during 1994, 1995 and 1996, respectively, have normative SHR of 2466 kcal/kWh. Considering the ageing factor and the calorific value of coal received, TANGEDCO requested the Commission to revise the SHR of NCTPS to 2500 kcal/kWh.

#### **Tirumakottai GTPS**

- 3.17.8.8 TANGEDCO submitted that the gas availability was around 80% during the period. Further, due to replacement of damaged condenser tubes in steam turbine generator for 55 days, the plant was operated under open cycle (gas turbine was alone in operation). Hence, the SHR was slightly higher.

#### **Kuttalam GTPS**

- 3.17.8.9 TANGEDCO submitted that the SHR was higher than the specified norms, since the Unit was running at part load.

#### **Basin Bridge GTPS**

- 3.17.8.10 TANGEDCO submitted that in Basin Bridge Gas station, Naphtha is being used as main fuel. HSD is being used for starting and stopping purposes to avoid accident due to presence of unburnt Naphtha if any, during starting and stopping. As this station is being operated intermittently depending upon the grid demand, consumption of HSD has increased based on the number of starts and stops observed. Hence, SHR was slightly higher during FY 2011-12, FY 2012-13 and FY 2013-14.

#### **Valuthur Unit II**

- 3.17.8.11 TANGEDCO submitted that the Unit was recommissioned on May 7, 2011 after long breakdown from January 9, 2010 due to heavy damages in GT rotor. Even after recommissioning, full load could not be reached due to vibration problems. The vibration problems were sorted by OEM. Leakage in STG was also attended. Hence, the SHR could not be maintained within the specified norms.

- 3.17.8.12 The station-wise SHR as submitted by TANGEDCO is shown in the Table below:

**Table 3-55: SHR as submitted by TANGEDCO (kCal/kWh)**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>A</b>	<b>Thermal</b>					
1	Ennore TPS	3,898	4,333	3,796	4,156	4,156
2	Tuticorin TPS	2,660	2,744	2,599	2,559	2,559
3	Mettur TPS	2,549	2,539	2,393	2,495	2,495
4	Mettur Stage III TPS	-	-	2166	2,495	2,444
5	North Chennai TPS	2,228	2,391	2,528	2,466	2,466
6	North Chennai Stage II TPS	-	-	-	2,466	1,984
<b>B</b>	<b>Gas</b>					
1	Tirumakottai GTPS	1898	1882	2,189	2,144	2,313
2	Kuttalam GTPS	1871	1945	1,831	2,011	1,990
3	Basin Bridge GTPS	3221	3820	3482	3,219	3432
4	Valathur GTPS I	1834	1789	1,878	1,830	1,796
5	Valathur GTPS II	1891	1945	2047		

**Commission's Views**

3.17.8.13 The Commission observed that TANGEDCO has submitted SHR for NCTPS Stage II as 1984 kcal/kWh, which is incorrect as thermal power station cannot achieve such low SHR based on present technology. The Commission has considered the normative SHR of 2450 kcal/kWh for NCTPS Stage II.

3.17.8.14 Regulation 37(iii) of the Tariff Regulations specifies the norms for SHR. TANGEDCO is required to manage its Units at appropriate loads and maintain the quality of coal to achieve the desired operational performance and optimise the generation costs. Therefore, for the purpose of truing up, the Commission has considered the normative SHR for TANGEDCO's generating plants in accordance with the Tariff Regulations as shown in the Table below:

**Table 3-56: SHR approved by the Commission after true-up for FY 2011-12 to FY 2015-16 (kCal/kWh)**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>A</b>	<b>Thermal</b>					
1	Ennore TPS	3,200	3,200	3,200	3,200	3,200
2	Tuticorin TPS	2,453	2,453	2,453	2,453	2,453
3	Mettur TPS	2,500	2,500	2,500	2,500	2,500
4	Mettur Stage III TPS	-	-	2,500	2,450	2,450

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
5	North Chennai TPS	2,393	2,393	2,393	2,393	2,393
6	North Chennai Stage II TPS (Unit 1)	-	-	2,500	2,450	2,450
7	North Chennai Stage II TPS (Unit 2)	-	-	2,450	2,450	2,450
<b>B</b>	<b>Gas</b>					
1	Tirumakottai GTPS	1,850	1,850	1,850	1,850	1,850
2	Kuttalam GTPS	1,850	1,850	1,850	1,850	1,850
3	Basin Bridge GTPS	3,219	3,219	3,219	3,219	3,219
4	Valathur GTPS (Unit 1)	1,850	1,850	1,850	1,850	1,850
5	Valathur GTPS (Unit 2)	1,850	1,850	1,850	1,850	1,850

### 3.17.9 Specific Oil Consumption (SOC)

3.17.9.1 TANGEDCO submitted that the SOC has been calculated in terms of percentage of total calorific requirement of the power generating Unit and it has relation with the size of the generating Unit. For the lower size Units, the SOC remains higher as compared to larger size power generating Units, because certain amount of SOC remains fixed irrespective of the size of the generating Unit. The station-wise SOC as submitted by TANGEDCO is shown in the Table below:

**Table 3-57: SOC as submitted by TANGEDCO (ml/kWh)**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	10.49	7.85	4.78	10.50	10.10
2	Tuticorin TPS	1.92	0.90	0.76	1.09	0.60
3	Mettur TPS	0.52	0.60	0.44	0.38	0.56
4	Mettur Stage III TPS	-	-	4.45	1.60	1.04
5	North Chennai TPS	0.62	0.63	2.44	1.50	1.13
6	North Chennai Stage II TPS	-	-	-	1.50	1.79

### Commission's Views

3.17.9.2 Regulation 37(iv) of the Tariff Regulations specifies the normative SOC for TANGEDCO's generating plants. In the Suo-Motu Tariff Order, the Commission had considered revised SOC norms based on the performance of the generating Stations. The Commission has approved SOC for FY 2011-12 to FY 2015-16 in accordance with the norms considered in the Suo-Motu Tariff Order, as shown in the Table below:

**Table 3-58: SOC as approved by the Commission (ml/kWh)**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Ennore TPS	10.50	7.90	6.03	10.10	12.00
2	Tuticorin TPS	1.92	0.90	0.71	2.39	2.39
3	Mettur TPS	0.53	0.60	0.51	1.40	1.40
4	Mettur Stage III TPS			1.40	1.47	1.47
5	North Chennai TPS	0.62	0.51	1.87	1.76	1.76
6	North Chennai Stage II TPS (Unit 1)			1.76	1.84	1.84
7	North Chennai Stage II TPS (Unit 2)			-	1.84	1.84

**3.17.10 Fuel Related Parameters**

3.17.10.1 TANGEDCO submitted that the Gross Calorific Value (GCV) of coal has been in line with the norms approved by the Commission in the last Tariff Order.

**Commission's Views**

3.17.10.2 The Commission has considered the GCV of coal and gas, as shown in the Table below:

**Table 3-59: GCV approved by the Commission after true-up for FY 2011-12 to FY 2015-16 (kcal/kg) (kcal/scm)**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>A</b>	<b>Thermal</b>					
1	Ennore TPS	3,203	3,235	3,105	3,154	3,154
2	Tuticorin TPS	3,505	3,405	3,285	3,200	3,200
3	Mettur TPS	3,562	3,441	3,019	3,045	3,623
4	Mettur Stage III TPS	-	-	3019	3,045	2,567
5	North Chennai TPS	4,324	4,514	3,621	3,353	4,113
6	North Chennai Stage II TPS (Unit 1)	-	-	-	3,353	3,954
7	North Chennai Stage II TPS (Unit 2)	-	-	-	3,353	3,954
<b>B</b>	<b>Gas</b>					
1	Tirumakottai GTPS	10459	10453	10,453	10,000	10,000
2	Kuttalam GTPS	10386	10393	10,392	10,000	10,000
3	Basin Bridge GTPS	11340	11340	11349	10,572	10572
4	Valathur GTPS (Unit 1)	9655	9684	9,404	9,731	9,735
5	Valathur GTPS (Unit 2)	9655	9684	9,404	9,731	9,735

### 3.17.11 Price of Primary Fuel

3.17.11.1 TANGEDCO submitted the actual primary fuel prices for FY 2011-12 to FY 2015-16.

#### Commission's Views

3.17.11.2 The Commission has approved the actual primary fuel prices for FY 2011-12 to FY 2015-16 as shown in the table below:

**Table 3-60: Price of primary fuel as approved by the Commission (Rs./MT) (Rs./SCM)**

Sl.	Station	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
<b>A</b>	<b>Thermal</b>					
1	Ennore TPS	2,508	2,813	2,614	2,872	3,028
2	Tuticorin TPS	4,040	3,679	3,805	4,163	3,795
3	Mettur TPS	3,674	4,203	4,516	4,652	4,515
4	Mettur Stage III TPS	-	-	4,140	4,140	4,465
5	North Chennai TPS	4,149	4,899	3,926	3,923	3,673
6	North Chennai Stage II TPS	-	-	3,949	3,949	5,167
<b>B</b>	<b>Gas</b>					
1	Tirumakottai GTPS	8.84	9.84	10.38	12.53	12.99
2	Kuttalam GTPS	8.72	13.98	10.90	13.00	13.90
3	Basin Bridge GTPS	59.27	73.08	60.64	15.00	15.45
4	Valathur GTPS (Unit 1)	7.78	10.31	9.96	11.91	13.27
5	Valathur GTPS (Unit 2)	7.78	10.31	9.96	11.91	13.27

### 3.17.12 Computation of Energy Charges

3.17.12.1 TANGEDCO submitted that based on the actual operating parameters and fuel related parameters recorded during FY 2011-12 to FY 2015-16, it has arrived at plant-wise variable cost of generation.

#### Commission's Views

3.17.12.2 The Commission has approved the plant-wise variable cost on the basis of operational parameters and fuel related parameters approved as elaborated in the Sections above. The approved Variable Cost of Generation and Energy Charges for Thermal and Gas stations after true-up for FY 2011-12 to FY 2015-16 is shown in the Tables below. Further, as power purchase submitted by TANGEDCO is in excess of requirement, the

Commission has disallowed excess purchase on the basis of Merit Order Dispatch (MOD), which has been applied to own generation as well as purchase from Other Sources. A detailed computation of energy charges has been attached as Appendix 1.

**Table 3-61: Variable Cost of Generation approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Particulars	FY 2011-12			FY 2012-13			FY 2013-14		
	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
Ennore TPS	262.36	313.10	263.02	261.83	303.00	225.12	328.83	410.00	350.84
Tuticorin TPS	2,299.94	2,462.88	2,287.93	2,192.98	2,484.00	2,235.12	2,391.57	2,399.00	2,273.84
Mettur TPS	2,289.48	1,810.88	1,777.45	2,087.95	1,936.00	1,920.89	2,152.56	2,330.00	2,435.03
Mettur Stage III TPS			-	144.36		-	649.18		699.75
North Chennai TPS	922.76	1,013.78	1,089.84	1,233.94	1,271.00	1,326.71	994.64	1,165.00	1,086.02
North Chennai Stage II TPS			-	5.14		-	487.45		-
<b>Sub-total Thermal</b>	<b>5,774.54</b>	<b>5,600.64</b>	<b>5,418.25</b>	<b>5,926.20</b>	<b>5,994.00</b>	<b>5,707.85</b>	<b>7004.23</b>	<b>6,304.00</b>	<b>6,845.48</b>
Tirumakottai GTPS	117.93	115.10	110.35	126.53	131.00	126.40	102.24	110.00	89.17
Kuttalam GTPS	69.46	73.02	64.01	19.03	22.00	13.52	144.13	132.00	122.70
Basin Bridge GTPS		49.78	49.62		1.00	0.86		2.00	1.43
Valathur GTPS Unit I	153.77	100.93	98.06	158.86	89.00	88.76	287.22	149.00	143.19
Valathur GTPS Unit II		100.93	67.44		89.00	96.62		114.00	102.97
<b>Sub-total Gas</b>	<b>341.16</b>	<b>439.76</b>	<b>389.48</b>	<b>304.42</b>	<b>332.00</b>	<b>326.16</b>	<b>533.59</b>	<b>507.00</b>	<b>459.46</b>
<b>Grand Total</b>	<b>6,115.70</b>	<b>6,040.40</b>	<b>5,807.73</b>	<b>6230.62</b>	<b>6,326.00</b>	<b>6,034.01</b>	<b>7537.82</b>	<b>6,811.00</b>	<b>7,304.93</b>



**Table 3-62: Variable Cost of Generation approved by the Commission after true-up for FY 2014-15 and FY 2015-16 (Rs. Crore)**

Particulars	FY 2014-15			FY 2015-16		
	SMT Order	TANGEDCO	Approved after true up	2013 TO	TANGEDCO	Approved after true up
Ennore TPS	-	246.00	181.59	-	185.00	150.00
Tuticorin TPS	2,324.00	2,576.00	2,504.51	1601.00	2,161.00	2,113.89
Mettur TPS	1,871.00	2,382.00	2,397.82	-	1,847.00	1,863.24
Mettur Stage III TPS	-	1,039.00	1,036.39		1,217.00	1,253.69
North Chennai TPS	1204.00	1,247.00	1,202.00	1148.00	996.00	966.06
North Chennai Stage II TPS	2,123.00	1,655.00	1,662.78		1,706.00	1,579.71
<b>Subtotal</b>	<b>7522.00</b>	<b>9,145.00</b>	<b>8,985.10</b>	<b>2749.00</b>	<b>8,112.00</b>	<b>7,926.59</b>
Tirumakottai GTPS	153.00	111.00	94.09	133.00	120.00	92.77
Kuttalam GTPS	146.00	130.00	117.43	125.00	156.00	151.12
Basin Bridge GTPS	-	6.00	1.38	-	16.00	4.99
Valathur GTPS Unit I	267.00	242.00	119.96	213.00	237.00	182.48
Valathur GTPS Unit II			119.96			
<b>Subtotal</b>	<b>566.00</b>	<b>489.00</b>	<b>452.83</b>	<b>471.00</b>	<b>529.00</b>	<b>431.36</b>
<b>Grand Total</b>	<b>8088.00</b>	<b>9,634.00</b>	<b>9,437.93</b>	<b>3220.00</b>	<b>8,641.00</b>	<b>8,357.95</b>

**Table 3-63: Energy Charge approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs./kWh)**

Particulars	FY 2011-12			FY 2012-13			FY 2013-14		
	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
<b>Thermal</b>									
Ennore TPS	3.53	4.21	3.53	4.12	4.97	3.69	3.25	4.05	3.47
Tuticorin TPS	3.17	3.39	3.15	2.87	3.26	2.93	3.30	3.31	3.14
Mettur TPS	3.65	2.88	2.83	3.69	3.41	3.38	3.63	3.93	4.11
Mettur Stage III TPS	-	-	-	-	-	-	3.44	3.85	-
North Chennai TPS	2.15	2.36	2.53	2.65	2.74	2.86	2.67	3.13	2.92
North Chennai Stage II TPS	-	-	-	-	-	-	-	-	-
<b>Gas</b>									
Tirumakottai GTPS	1.79	1.74	1.66	1.87	1.91	1.85	2.26	2.41	1.95
Kuttalam GTPS	1.81	1.90	1.66	3.73	4.28	2.65	2.41	2.22	2.06
Basin Bridge GTPS	16.74	16.93	16.88	18.73	24.86	20.85	21.25	19.59	17.37
Valathur GTPS I	1.50	1.63	1.58	1.82	2.11	2.10	2.43	2.16	2.08
Valathur GTPS II		2.37			1.94			2.31	

**Table 3-64: Energy Charge approved by the Commission after true-up for FY 2014-15 and FY 2015-16 (Rs./kWh)**

Particulars	FY 2014-15			FY 2015-16		
	SMT Order	TANGEDCO	Approved after true up	2013 TO	TANGEDCO	Approved after true up
Ennore TPS	3.34	5.07	3.74	3.87	4.72	3.82
Tuticorin TPS	3.24	3.66	3.56	2.96	3.32	3.25
Mettur TPS	3.12	4.18	4.21	3.09	3.42	3.45
Mettur Stage III TPS	3.37	3.71	3.70	-	4.57	4.71
North Chennai TPS	2.67	3.23	3.11	2.55	2.45	2.37
North Chennai Stage II TPS	2.73	3.19	3.21		3.82	3.54
Tirumakottai GTPS	2.16	2.91	2.47	1.86	3.31	2.56
Kuttalam GTPS	2.25	2.83	2.56	1.87	2.82	2.74
Basin Bridge GTPS	20.62	20.36		12.49	15.01	
Valathur GTPS	2.15	2.43	2.41	1.73	3.48	2.68

### 3.18 Power Purchase from other sources for FY 2011-12 to 2015-16

- 3.18.1 TANGEDCO submitted that the power purchase cost available in Audited Accounts for FY 2011-12 to FY 2015-16 is inclusive of Wheeling Charges and Wheeling adjustments. However, while considering power purchase in the current petition, Wheeling Charges and Wheeling adjustments have been excluded, in line with the Commission's approach in the last Tariff Order.

#### Commission's Views

- 3.18.2 For truing up purposes, the Commission has considered the actual power purchase as submitted by TANGEDCO. However, power purchase has been restricted to the energy requirement approved by the Commission corresponding to the approved Transmission Loss and Distribution Loss levels, as elaborated in an earlier Section.
- 3.18.3 As power purchase submitted by TANGEDCO is in excess of requirement, the Commission has disallowed excess purchase on the basis of Merit Order Dispatch (MOD). Regulation 75(1) of the Tariff Regulations specifies 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.*

*A two-part tariff structure shall be adopted for all long term contracts to facilitate merit order dispatch."*

- 3.18.4 For the purpose of determination of total power purchase cost to be allowed after true-up, after disallowing the excess power purchase based on MOD, the Commission has adopted the following methodology:
- Energy available from Must-Run Power plants will be dispatched first.
  - Energy availability from Hydro generating plants will not be subjected to MoD.

**Table 3-65: Must run plants**

Sl.	Power Plant
1	Nuclear Power Plants
2	Wind Power Plants
3	Solar Power Plants
4	Cogeneration Power Plants

- 3.18.5 A detailed break-up of the computation done by the Commission has been attached as Appendix 2. The summary of Power Purchase approved by the Commission after truing up for FY 2011-12 to FY 2015-16 is shown in the Tables below:

**Table 3-66: Summary of Power Purchase approved by the Commission after true-up for FY 2011-12**

Source	FY 2011-12								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>									
Ennore TPS	744.02	368.14	4.95	744.02	689.90	9.27	744.02	381.97	5.13
Tuticorin TPS	7,262.24	2,699.18	3.72	7,262.24	3,179.47	4.38	7,262.24	2,686.39	3.70
Mettur TPS	6,279.21	2,570.76	4.09	6,279.21	2,207.54	3.52	6,279.21	2,055.29	3.27
North Chennai TPS	4,301.14	1,238.41	2.88	4,301.14	1,654.96	3.85	4,301.14	324.03	0.75
<b>Total Thermal</b>	<b>18,586.62</b>	<b>6,876.49</b>	<b>3.70</b>	<b>18,586.62</b>	<b>7,731.87</b>	<b>4.16</b>	<b>18,586.62</b>	<b>5,447.68</b>	<b>2.93</b>
TGTPS	660.10	186.11	2.82	663.00	229.98	3.47	663.00	177.95	2.68
KGTPS	383.06	107.36	2.80	385.00	156.22	4.06	385.00	100.77	2.62
BBGTPS		48.20	-	29.00	188.86	65.12	-	47.25	-
VGTPS (Unit 1 and 2)	1,027.15	267.71	2.61	1,045.00	331.66	3.17	1,045.00	294.96	2.82
<b>Total Gas</b>	<b>2,070.30</b>	<b>609.38</b>	<b>2.94</b>	<b>2,122.00</b>	<b>906.71</b>	<b>4.27</b>	<b>2,093.00</b>	<b>620.93</b>	<b>2.97</b>
Erode HEP	1,416.00	128.20	0.91	1,196.00	193.46	1.62	1,196.00	129.44	1.08
Kadamparai HEP	-	65.16	-	1,087.00	110.68	1.02	576.49	66.33	1.15
Kundah HEP	2,455.00	187.68	0.76	1,920.00	259.64	1.35	1,920.00	189.41	0.99
Tirunelveli HEP	952.00	79.35	0.83	583.00	107.58	1.85	583.00	79.83	1.37
<b>Total Hydro</b>	<b>4,823.00</b>	<b>460.39</b>	<b>0.95</b>	<b>4,786.00</b>	<b>671.36</b>	<b>1.40</b>	<b>4,275.49</b>	<b>464.99</b>	<b>1.09</b>
Wind	12.00	3.30	2.75	12.15	3.34	2.75	12.15	3.34	2.75

Source	FY 2011-12								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Total from Own Generating</b>	<b>25,491.92</b>	<b>7,949.57</b>	<b>3.12</b>	<b>25,508.77</b>	<b>9,313.28</b>	<b>3.65</b>	<b>24,967.26</b>	<b>6,536.95</b>	<b>2.62</b>
CGS									
NTPC SR (Ramagundam) (I&II)	4,105.62	869.37	2.12	4105.62	869.37	2.12	4,105.62	869.37	2.12
NTPC SR (Ramagundam) III	1,048.45	284.10	2.71	1048.45	284.10	2.71	1,048.45	284.10	2.71
NLC TS – I	3,145.66	675.76	2.15	3145.66	675.76	2.15	3,145.66	675.76	2.15
NLC TS – II	3,167.34	811.80	2.56	3167.34	811.80	2.56	3,167.34	811.80	2.56
NLC TS Expansion I	1,526.27	489.40	3.21	1526.27	489.40	3.21	1,526.27	489.40	3.21
NLC TS Expansion II	-	-	-	0.00	-		-		
NTPL (JV with NLC)		-							
NTPC Talcher	3,621.59	1,024.53	2.83	3621.59	1,024.53	2.83	3,621.59	1,024.53	2.83
NTPC Simhadri	468.36	176.23	3.76	469.49	176.51	3.76	469.49	176.23	3.75
MAPS	1,604.08	319.21	1.99	1604.08	319.21	1.99	1,604.08	319.21	1.99
KAIGA	1,171.24	365.66	3.12	1171.24	365.66	3.12	1,171.24	365.66	3.12
NTPC Kayamkulam		65.44		205.00	268.00	13.07	-	65.44	
NTPC ER	465.30	177.90	3.82	465.30	177.90	3.82	465.30	177.90	3.82
NTPC Dadri	100.51	41.49	4.13	100.51	41.49	4.13	100.51	41.49	4.13
NTPC Vallur Unit 1 & Unit 2	-	-					-		
New Plants		-					-		
Kudankulam		-					-		

Source	FY 2011-12								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Total CGS</b>	<b>20,424.42</b>	<b>5,300.90</b>	<b>2.60</b>	<b>20,630.55</b>	<b>5,503.74</b>	<b>2.67</b>	<b>20,425.55</b>	<b>5,300.90</b>	<b>2.60</b>
<b>IPP</b>									
GMR Vasavi		158.55		858.00	969.00	11.29	-	158.55	
Samalpatti		115.86		292.00	414.00	14.18	-	115.86	
Madurai Power Corpn		124.30		282.00	420.00	14.89	-	124.30	
PPN		285.50		1,491.00	1,252.00	8.40	932.77	1,068.75	11.46
STCMS – Neyveli	1,688.22	691.09	4.09	1,688.22	653.00	3.87	1,688.22	653.00	3.87
LANCO Power (Aban co)	759.61	240.95	3.17	759.61	240.95	3.17	759.61	240.95	3.17
Penna	359.61	120.66	3.36	359.61	120.66	3.36	359.61	120.66	3.36
<b>Total IPP</b>	<b>2,807.44</b>	<b>1,736.91</b>	<b>6.19</b>	<b>5,730.44</b>	<b>4,069.61</b>	<b>7.10</b>	<b>3,740.21</b>	<b>2,482.07</b>	<b>6.64</b>
<b>Renewables</b>									
Wind	5,711.00	1,758.99	3.08	5,711.00	1,770.00	3.10	5,711.00	1,770.00	3.10
Biomass	72.76	24.37	3.35	72.76	34.00	4.67	72.76	34.00	4.67
Cogeneration	1,284.92	482.01	3.75	1,284.92	506.00	3.94	1,284.92	506.00	3.94
Captive	557.00	232.23	4.17	575.00	237.00	4.12	575.00	237.00	4.12
Solar	11.00	4.59	4.17	11.00	6.00	5.45	11.00	6.00	5.45
<b>Total Renewables</b>	<b>7,636.68</b>	<b>2,502.19</b>	<b>3.28</b>	<b>7,654.68</b>	<b>2,553.00</b>	<b>3.34</b>	<b>7,654.68</b>	<b>2,553.00</b>	<b>3.34</b>
<b>Other Sources</b>									
Trading - Bilateral & Exchange	8297	3838.42	4.63	6,900.00	3,292.00	4.77	6,900.00	3,292.00	4.77

Source	FY 2011-12								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
UI	718	327.04	4.55	718.00	327.04	4.55	718.00	327.04	4.55
STOA				2,203.00	983.00	4.46	2,203.00	983.00	4.46
NTPC NVVN (Solar)	694	262.49	3.78				-	-	
<b>Total Other Sources</b>	<b>9,709.00</b>	<b>4,368.77</b>	<b>4.50</b>	<b>9,821.00</b>	<b>4,602.04</b>	<b>4.69</b>	<b>9,821.00</b>	<b>4,602.04</b>	<b>4.69</b>
<b>Gross Power Purchase</b>	<b>66,069.46</b>	<b>21,858.34</b>	<b>3.31</b>	<b>69,345.44</b>	<b>26,041.67</b>	<b>3.76</b>	<b>66,608.70</b>	<b>21,474.96</b>	<b>3.22</b>
<b>PGCIL Charges</b>									
<i>PGCIL SR and ER wheeling</i>		524.12			330.00			330.00	
<i>PGCIL- Reactive energy</i>		16.98							
<b>Total PGCIL charges</b>	<b>-</b>	<b>541.10</b>		<b>-</b>	<b>330.00</b>		<b>-</b>	<b>330.00</b>	
<b>TANTRANSCO Charges</b>		<b>1,500.00</b>			<b>1,500.00</b>			<b>1,500.00</b>	
<b>Total Power Purchase</b>	<b>66,069.46</b>	<b>23,899.44</b>	<b>3.62</b>	<b>69,345.44</b>	<b>27,871.67</b>	<b>4.02</b>	<b>66,608.70</b>	<b>23,304.96</b>	<b>3.50</b>



**Table 3-67: Summary of Power Purchase approved by the Commission after true-up for FY 2012-13**

Source	FY 2012-13								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>									
Ennore TPS	635.00	354.60	5.58	610.00	716.89	11.75	610.00	413.64	6.78
Tuticorin TPS	7,630.00	2,624.12	3.44	7,620.00	3,368.62	4.42	7,620.00	2,689.37	3.53
Mettur TPS	5,658.00	2,390.00	4.22	5,684.00	2,442.76	4.30	5,684.00	2,254.07	3.97
North Chennai TPS	4,651.00	1,592.94	3.42	4,634.00	2,061.20	4.45	4,634.00	379.09	0.82
NCTPS Stage-II (Unit 1)	19.38	5.14	2.65				-		
MTPS Stage III	339.92	144.36	4.25				-		
Ennore Expansion	-	-					-		
<b>Total Thermal</b>	<b>18,933.30</b>	<b>7,111.17</b>	<b>3.76</b>	<b>18,548.00</b>	<b>8,589.47</b>	<b>4.63</b>	<b>18,548.00</b>	<b>5,736.18</b>	<b>3.09</b>
TGTPS	678.00	202.46	2.99	682.00	274.14	4.02	682.00	206.67	3.03
KGTPS	51.00	25.01	4.90	51.00	79.42	15.57	51.00	19.35	3.79
BBGTPS	-	44.44		-	164.92	-	-	45.58	-
VGTPS (Unit 1 and 2)	873.00	263.25	3.02	885.00	356.21	4.02	885.00	321.00	3.63
<b>Total Gas</b>	<b>1,602.40</b>	<b>535.15</b>	<b>3.34</b>	<b>1,618.00</b>	<b>874.69</b>	<b>5.41</b>	<b>1,618.00</b>	<b>592.60</b>	<b>3.66</b>
Erode HEP	845.45	144.25	1.71	464.00	225.64	4.86	464.00	146.20	3.15
Kadamparai HEP	-	70.44	-	670.00	128.21	1.91	368.08	71.19	1.93
Kundah HEP	1,031.65	203.11	1.97	1,353.00	314.21	2.32	1,353.00	205.60	1.52

Source	FY 2012-13								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Tirunelveli HEP	698.89	89.16	1.28	231.00	122.72	5.31	231.00	89.47	3.87
<b>Total Hydro</b>	<b>2,576.00</b>	<b>506.96</b>	<b>1.97</b>	<b>2,718.00</b>	<b>790.78</b>	<b>2.91</b>	<b>2,416.08</b>	<b>512.46</b>	<b>2.12</b>
<b>Wind</b>	13.00	3.58	2.75	13.00	3.00	2.31	13.00	3.00	2.31
<b>Total from Own Generation</b>	<b>23,124.70</b>	<b>8,156.87</b>	<b>3.53</b>	<b>22,897.00</b>	<b>10,257.93</b>	<b>4.48</b>	<b>22,595.08</b>	<b>6,844.23</b>	<b>3.03</b>
<b>CGS</b>									
NTPC SR (Ramagundam) (I&II)	4,149.00	962.77	2.32	4,149.00	962.77	2.32	4,149.00	962.77	2.32
NTPC SR (Ramagundam) III	981.00	308.10	3.14	981.00	308.10	3.14	981.00	308.10	3.14
NLC TS - I	3,189.00	1,046.54	3.28	3,189.00	1,046.54	3.28	3,189.00	1,046.54	3.28
NLC TS - II	3,291.00	865.41	2.63	3,291.00	865.41	2.63	3,291.00	865.41	2.63
NLC TS Expansion I	1,629.00	513.23	3.15	1,629.00	513.23	3.15	1,629.00	513.23	3.15
NLC TS Expansion II		-		-	-		-	-	
NTPL (JV with NLC)		-						-	
NTPC Talcher	3,405.40	784.69	2.30	3,405.40	784.69	2.30	3,405.40	784.69	2.30
NTPC Simhadri	1,079.00	409.96	3.80	1,079.00	409.96	3.80	1,079.00	409.96	3.80
MAPS	1,775.00	360.68	2.03	1,775.00	360.68	2.03	1,775.00	360.68	2.03
KAIGA	1,261.00	424.69	3.37	1,261.00	424.69	3.37	1,261.00	424.69	3.37
NTPC Kayamkulam	-	-							
NTPC ER	319.00	101.06	3.17	319.00	101.06	3.17	319.00	101.06	3.17
NTPC Dadri	-	-							

Source	FY 2012-13								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
NTPC Vallur Unit 1 & Unit 2	487.90	227.15	4.66	487.90	227.15	4.66	487.90	227.15	4.66
New Plants		-					-	-	
Kudankulam		-		-	-		-	-	
<b>Total CGS</b>	<b>21,566.30</b>	<b>6,004.28</b>	<b>2.78</b>	<b>21,566.30</b>	<b>6,004.28</b>	<b>2.78</b>	<b>21,566.30</b>	<b>6,004.28</b>	<b>2.78</b>
<b>IPP</b>									
GMR Vasavi		167.15		610.00	801.93	13.15	-	167.15	
Samalpatti		108.94		329.00	443.73	13.49	-	108.94	
Madurai Power Corpn		291.51		357.00	502.00	14.06	-	109.59	
PPN		109.59		1,785.00	1,819.00	10.19	-	291.51	
STCMS - Neyveli	1,666.00	749.36	4.50	1,666.00	749.36	4.50	1,514.19	714.22	4.72
LANCO Power (Aban co)	850.00	287.45	3.38	850.00	287.45	3.38	850.00	287.45	3.38
Penna	375.00	134.49	3.59	375.00	134.49	3.59	375.00	134.49	3.59
<b>Total IPP</b>	<b>2,891.00</b>	<b>1,848.49</b>	<b>6.39</b>	<b>5,972.00</b>	<b>4,737.97</b>	<b>7.93</b>	<b>2,739.19</b>	<b>1,813.34</b>	<b>6.62</b>
<b>Renewables</b>									
Wind	7,474.00	2,548.63	3.41	7,474.00	2,549.00	3.41	7,474.00	2,549.00	3.41
Biomass	11.00	4.68	4.25	11.00	5.00	4.55	11.00	5.00	4.55
Cogeneration	1,439.00	516.60	3.59	1,428.00	534.00	3.74	1,428.00	534.00	3.74
Captive	595.00	223.13	3.75	595.00	224.00	3.76	595.00	224.00	3.76

Source	FY 2012-13								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Solar	16.00	8.59	5.63	45.00	22.00	4.89	45.00	22.00	4.89
<b>Total Renewables</b>	<b>9,535.00</b>	<b>3,301.63</b>	<b>3.46</b>	<b>9,553.00</b>	<b>3,334.00</b>	<b>3.49</b>	<b>9,553.00</b>	<b>3,334.00</b>	<b>3.49</b>
<b>Other Sources</b>									
Trading - Bilateral & Exchange	5931	3048.49	5.14	6,935.00	3,557.00	5.13	6,935.00	3,557.00	5.13
UI	111	49.33	4.44	82.00	50.00	6.10	82.00	50.00	6.10
<b>Total Other Sources</b>	<b>6042.00</b>	<b>3097.82</b>	<b>5.13</b>	<b>7,017.00</b>	<b>3,607.00</b>	<b>5.14</b>	<b>7,017.00</b>	<b>3,607.00</b>	<b>5.14</b>
<b>Gross Power Purchase</b>	<b>63,159.00</b>	<b>22,409.09</b>	<b>3.55</b>	<b>67,005.30</b>	<b>27,941.18</b>	<b>4.17</b>	<b>63,470.57</b>	<b>21,602.85</b>	<b>3.40</b>
<b>PGCIL Charges</b>									
<i>PGCIL SR and ER wheeling</i>		540.47			139.00			139.00	
<i>PGCIL- Reactive energy</i>		15.05							
<b>Total PGCIL charges</b>	<b>-</b>	<b>555.52</b>		<b>-</b>	<b>139.00</b>		<b>-</b>	<b>139.00</b>	
<b>TANTRANSCO Charges</b>		<b>2847.00</b>			<b>2,381.00</b>			<b>2,381.18</b>	
<b>Total Power Purchase</b>	<b>63,159.00</b>	<b>25,811.58</b>	<b>4.09</b>	<b>67,005.30</b>	<b>30,461.18</b>	<b>4.55</b>	<b>63,470.57</b>	<b>24,123.03</b>	<b>3.80</b>

**Table 3-68: Summary of Power Purchase approved by the Commission after true-up for FY 2013-14**

Source	FY 2013-14								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>									
Ennore TPS	1,011.31	486.59	4.81	1,011.31	1,001.90	9.91	1,011.31	628.48	6.21
Tuticorin TPS	7,252.62	2,843.19	3.92	7,252.62	3,517.99	4.85	7,252.62	2,770.55	3.82
Mettur TPS	5,928.10	2,474.94	4.17	5,928.10	3,153.33	5.32	5,928.10	2,784.71	4.70
North Chennai TPS	3,720.06	1,319.75	3.55	3,720.06	2,304.59	6.20	3,720.06	382.37	1.03
NCTPS Stage-II (Unit 1)	1,782.00	530.89	2.98				-	158.92	-
MTPS Stage III	1,888.88	781.49	4.14	1,840.00	179.95	0.98	1,840.00	537.16	2.92
Ennore Expansion	-	-		-			-	-	-
<b>Total Thermal</b>	<b>21,582.95</b>	<b>8,436.86</b>	<b>3.91</b>	<b>19,752.08</b>	<b>10,157.76</b>	<b>5.14</b>	<b>19,752.08</b>	<b>7,262.19</b>	<b>3.68</b>
TGTPS	453.17	153.54	3.39	456.00	312.74	6.86	456.00	172.81	3.79
KGTPS	598.01	228.26	3.82	594.00	361.62	6.09	594.00	213.13	3.59
BBGTPS		46.16		-	240.83		-	47.99	-
VGTPS (Unit 1 and 2)	1,180.78	450.93	3.82	1,180.78	512.81	4.34	1,180.78	417.25	3.53
<b>Total Gas</b>	<b>2,231.96</b>	<b>878.89</b>	<b>3.94</b>	<b>2,230.78</b>	<b>1,428.00</b>	<b>6.40</b>	<b>2,230.78</b>	<b>851.17</b>	<b>3.82</b>
Erode HEP	939.83	219.76	2.34	902.00	341.06	3.78	902.00	221.39	2.45
Kadamparai HEP	-	76.32		1,063.00	185.33	1.74	558.56	78.22	1.40
Kundah HEP	2,186.52	203.27	0.93	2,186.52	455.66	2.08	2,186.52	208.24	0.95

Source	FY 2013-14								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Tirunevali HEP	922.38	102.92	1.12	461.00	199.16	4.32	461.00	102.55	2.22
<b>Total Hydro</b>	<b>4048.725</b>	<b>602.27</b>	<b>1.49</b>	<b>4,612.52</b>	<b>1,181.21</b>	<b>2.56</b>	<b>4,108.08</b>	<b>610.40</b>	<b>1.49</b>
<b>Wind</b>	12.00	3.30	2.75	12.58	3.00	2.38	12.58	3.00	2.38
<b>Total from Own Generating</b>	<b>27,875.64</b>	<b>9,921.31</b>	<b>3.56</b>	<b>26,607.96</b>	<b>12,769.97</b>	<b>4.80</b>	<b>26,103.52</b>	<b>8,726.76</b>	<b>3.34</b>
<b>CGS</b>									
NTPC SR (Ramagundam) (I&II)	4,005.14	1,085.46	2.71	4,005.14	1,091.00	2.72	4,005.14	1,091.00	2.72
NTPC SR (Ramagundam) III	1,054.26	385.01	3.65	1,054.26	384.00	3.64	1,054.26	385.01	3.65
NLC TS – I	3,271.10	1,151.21	3.52	3,271.10	1,127.00	3.45	3,271.10	1,127.00	3.45
NLC TS – II	3,347.41	937.60	2.80	3,399.00	933.00	2.74	3,399.00	933.00	2.74
NLC TS Expansion I	1,635.80	574.55	3.51	1,584.00	541.00	3.42	1,584.00	541.00	3.42
NLC TS Expansion II		-		-	-		-	-	
NTPL (JV with NLC)		-						-	
NTPC Talcher	3,475.27	819.35	2.36	3,475.27	814.00	2.34	3,475.27	814.00	2.34
NTPC Simhadri	1,571.86	643.34	4.09	1,571.86	643.34	4.09	1,571.86	643.34	4.09
MAPS	1,332.06	274.84	2.06	1,332.06	326.00	2.45	1,332.06	326.00	2.45
KAIGA	1,581.07	479.86	3.04	1,581.07	475.00	3.00	1,581.07	475.00	3.00
NTPC Kayamkulam	-	1.20		-	-		-	-	
NTPC ER	266.63	103.39	3.88	266.63	95.00	3.56	266.63	95.00	3.56
NTPC Dadri	-	0.01		-	-		-	-	

Source	FY 2013-14								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
NTPC Vallur Unit 1 & Unit 2	2,560.75	1,168.59	4.56	2,558.00	1,168.59	4.57	2,558.00	1,168.59	4.57
New Plants		-					-	-	
Kudankulam	422.74	52.18	1.23	462.00	475.00	10.28	462.00	475.00	10.28
<b>Total CGS</b>	<b>24,524.11</b>	<b>7,676.61</b>	<b>3.13</b>	<b>24,560.40</b>	<b>8,072.94</b>	<b>3.29</b>	<b>24,560.40</b>	<b>8,073.95</b>	<b>3.29</b>
<b>IPP</b>									
GMR Vasavi		154.00		804.00	1,024.00	12.74	-	154.04	
Samalpatti		93.00		299.00	426.00	14.25	-	93.06	
Madurai Power Corpn		111.00		345.06	481.00	13.94	-	110.55	
PPN		85.00		1,427.00	1,974.00	13.83	162.92	224.64	13.79
STCMS - Neyveli	1,721.11	758.25	4.41	1,721.11	835.00	4.85	1,721.11	835.00	4.85
LANCO Power (Aban co)	696.23	246.37	3.54	699.00	246.37	3.52	699.00	246.37	3.52
Penna	363.67	130.15	3.58	363.67	137.00	3.77	363.67	137.00	3.77
<b>Total IPP</b>	<b>2,781.01</b>	<b>1,577.77</b>	<b>5.67</b>	<b>5,658.84</b>	<b>5,123.37</b>	<b>9.05</b>	<b>2,946.70</b>	<b>1,800.66</b>	<b>6.11</b>
<b>Renewables</b>									
Wind	5,109.54	1,466.44	2.87	5,110.00	1,310.00	2.56	5,110.00	1,310.00	2.56
Biomass	6.45	1.03	1.60	20.00	7.00	3.50	20.00	7.00	3.50
Cogeneration	816.53	292.43	3.58	803.00	291.00	3.62	803.00	291.00	3.62
Captive	426.57	179.23	4.20	2,383.00	155.00	0.65	2,383.00	155.00	0.65
Solar	13.78	7.32	5.31	20.00	9.00	4.50	20.00	9.00	4.50

Source	FY 2013-14								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Total Renewables</b>	<b>6,372.87</b>	<b>1,946.46</b>	<b>3.05</b>	<b>8,336.00</b>	<b>1,772.00</b>	<b>2.13</b>	<b>8,336.00</b>	<b>1,772.00</b>	<b>2.13</b>
<b>Other Sources</b>									
Trading - Bilateral & Exchange	3030.00	1964.17	6.48	3,597.00	1,420.00	3.95	3,597.00	1,420.00	3.95
UI	139.39	45.45	3.26	(418.00)	117.00	2.80	(418.00)	117.00	2.80
STOA	562.57	309.41	5.50	3,526.00	1,713.00	4.86	3,526.00	1,713.00	4.86
CPP Traders	5,591.10	2,965.53	5.30				-	-	
Case 1 - Bidding (MTOA)				3,465.00	1,728.00	4.99	3,465.00	1,728.00	4.99
MTOA - Jindal	413.95	164.59	3.98				-	-	
MTOA – Adani	407.40	171.17	4.20				-	-	
MTOA – LANCO (NETS)	203.84	95.54	4.69				-	-	
NTPC NVVN (Solar)	12.13	4.77	3.93				-	-	
<b>Total Other Sources</b>	<b>10,360.38</b>	<b>5720.63</b>	<b>5.52</b>	<b>10,170.00</b>	<b>4,978.00</b>	<b>4.89</b>	<b>10,170.00</b>	<b>4,978.00</b>	<b>4.89</b>
<b>Gross Power Purchase</b>	<b>71,914.02</b>	<b>26,842.77</b>	<b>3.73</b>	<b>75,333.19</b>	<b>32,716.28</b>	<b>4.34</b>	<b>72,116.61</b>	<b>25,351.36</b>	<b>3.52</b>
<b>PGCIL Charges</b>									
<i>PGCIL SR and ER wheeling</i>		647.93			2,219.00			2,219.00	
<i>PGCIL- Reactive energy</i>		17.89						-	
<b>Total PGCIL charges</b>	<b>-</b>	<b>665.82</b>		<b>-</b>	<b>2,219.00</b>		<b>-</b>	<b>2,219.00</b>	
<b>TANTRANSCO Charges</b>		<b>1415.00</b>			<b>2,228.00</b>			<b>2,228.01</b>	
<b>Total Power Purchase</b>	<b>71,914.02</b>	<b>28,923.59</b>	<b>4.02</b>	<b>75,333.19</b>	<b>37,163.28</b>	<b>4.93</b>	<b>72,116.61</b>	<b>29,798.37</b>	<b>4.13</b>



**Table 3-69: Summary of Power Purchase approved by the Commission after true-up for FY 2014-15**

Source	FY 2014-15								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>									
Ennore TPS		276.00		485.00	885.71	18.26	485.00	425.35	8.77
Tuticorin TPS	7,183.00	2,792.00	3.89	7,043.00	3,855.88	5.47	7,043.00	3,095.59	4.40
Mettur TPS	6,005.00	2,200.00	3.66	5,697.00	3,426.37	6.01	5,697.00	3,208.76	5.63
North Chennai TPS	4,502.00	1,580.00	3.51	3,865.00	2,578.10	6.67	3,865.00	1,733.19	4.48
NCTPS Stage-II (Unit 1)	7,784.00	3,088.00	3.97	5,187.00	1,755.46	3.38	5,187.00	1,881.61	3.63
MTPS Stage III	-	671.00		2,802.00	925.59	3.30	2,802.00	1,538.91	5.49
Ennore Expansion	-	-		-			-	-	-
<b>Total Thermal</b>	<b>25,474.00</b>	<b>10,607.00</b>	<b>4.16</b>	<b>25,079.00</b>	<b>13,427.11</b>	<b>5.35</b>	<b>25,079.00</b>	<b>11,883.41</b>	<b>4.74</b>
TGTPS	706.00	235.00	3.33	382.00	346.22	9.06	382.00	184.90	4.84
KGTPS	651.00	237.00	3.64	459.00	252.07	5.49	459.00	(83.79)	1.83
BBGTPS	-	51.00		3.00	288.84	962.80	3.00	63.12	210.38
VGTPS (Unit 1 and 2)	1,243.00	429.00	3.45	996.00	530.83	5.33	996.00	400.52	4.02
<b>Total Gas</b>	<b>2,599.00</b>	<b>952.00</b>	<b>3.66</b>	<b>1,840.00</b>	<b>1,417.96</b>	<b>7.71</b>	<b>1,840.00</b>	<b>564.74</b>	<b>3.07</b>
Erode HEP	1,365.00	332.00	2.43	946.00	416.62	4.40	946.00	312.27	3.30
Kadamparai HEP	-	79.00		1,034.00	211.11	2.04	531.24	84.82	1.60

Source	FY 2014-15								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Kundah HEP	2,257.00	206.00	0.91	2,028.00	521.14	2.57	2,028.00	223.34	1.10
Tirunevali HEP	964.00	120.00	1.24	1,158.00	235.59	2.03	1,158.00	127.44	1.10
<b>Total Hydro</b>	<b>4,586.00</b>	<b>737.00</b>	<b>1.61</b>	<b>5,166.00</b>	<b>1,384.45</b>	<b>2.68</b>	<b>4,663.24</b>	<b>747.87</b>	<b>1.60</b>
<b>Wind</b>	12.00	3.00	2.50	7.81	2.00	2.56	7.81	2.00	2.56
<b>Total from Own Generating</b>	<b>32,671.00</b>	<b>12,299.00</b>	<b>3.76</b>	<b>32,092.81</b>	<b>16,231.52</b>	<b>5.06</b>	<b>31,590.05</b>	<b>13,198.02</b>	<b>4.18</b>
<b>CGS</b>									
NTPC SR (Ramagundam) (I&II)	3,983.20	1,062.39	2.67	3,876.00	1,182.65	3.05	3,876.00	1,182.65	3.05
NTPC SR (Ramagundam) III	995.81	357.10	3.59	949.00	328.25	3.46	949.00	328.25	3.46
NLC TS - I	3,468.96	988.18	2.85	2,851.00	1,005.66	3.53	2,851.00	1,006.52	3.53
NLC TS - II	3,234.76	874.91	2.70	3,276.00	931.77	2.84	3,276.00	931.77	2.84
NLC TS Expansion I	1,469.47	639.07	4.35	1,672.00	573.62	3.43	1,671.00	573.62	3.43
NLC TS Expansion II									
NTPL (JV with NLC)									
NTPC Talcher	3,323.42	807.64	2.43	3,760.00	843.02	2.24	3,760.00	843.02	2.24
NTPC Simhadri	1,531.58	632.18	4.13	1,428.00	625.70	4.38	1,428.00	625.70	4.38
MAPS	1,572.90	332.12	2.11	1,672.00	344.50	2.06	1,672.00	344.50	2.06
KAIGA	1,210.88	375.41	3.10	1,568.00	474.86	3.03	1,568.00	474.86	3.03
NTPC Kayamkulam	-	-		-	-		-		
NTPC ER	363.35	128.69	3.54	239.00	79.02	3.31	239.00	79.02	3.31

Source	FY 2014-15								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
NTPC Dadri	-	-		-	-		-		
NTPC Vallur Unit 1 & Unit 2	4,882.37	2,001.82	4.10	3,850.00	1,440.00	3.74	3,850.00	1,440.25	3.74
New Plants	4,987.74	2,119.79	4.25						
Kudankulum	2,187.81	777.44	3.55	2,071.00	541.43	2.61	2,169.00	541.43	2.50
<b>Total CGS</b>	<b>33,212.26</b>	<b>11,096.73</b>	<b>3.34</b>	<b>27,212.00</b>	<b>8,370.48</b>	<b>3.08</b>	<b>27,309.00</b>	<b>8,371.57</b>	<b>3.07</b>
<b>IPP</b>									
GMR Vasavi				576.00	666.76	11.58	-	73.00	
Samalpatti		135.00		223.00	322.42	14.46	-	82.00	
Madurai Power Corpn		136.00		243.00	343.20	14.12	-	95.00	
PPN		122.00		1,143.00	1,633.53	14.29	-	212.41	
STCMS - Neyveli	1,659.92	731.00	4.40	1,678.00	773.83	4.61	1,678.00	773.83	4.61
LANCO Power (Aban co)	782.59	277.00	3.54	561.00	207.02	3.69	561.00	207.02	3.69
Penna	356.32	128.00	3.59	378.00	137.64	3.64	378.00	137.64	3.64
<b>Total IPP</b>	<b>2,798.83</b>	<b>1,529.00</b>	<b>5.46</b>	<b>4,802.00</b>	<b>4,084.40</b>	<b>8.51</b>	<b>2,617.00</b>	<b>1,580.90</b>	<b>6.04</b>
<b>Renewables</b>									
Wind	5,228.00	1,783.00	3.41	3,963.00	1,303.00	3.29	3,963.00	1,303.00	3.29
Biomass	6.00	3.00	5.00	18.00	7.00	3.89	18.00	7.00	3.89
Cogeneration	817.00	293.00	3.59	1,508.00	779.00	5.17	1,508.00	779.00	5.17
Captive				2,972.00	1,432.00	4.82	2,972.00	1,432.00	4.82

Source	FY 2014-15								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Solar	97.00	52.00	5.36	25.00	12.00	4.80	25.00	12.00	4.80
<b>Total Renewables</b>	<b>6,148.00</b>	<b>2,131.00</b>	<b>3.47</b>	<b>8,486.00</b>	<b>3,533.00</b>	<b>4.16</b>	<b>8,486.00</b>	<b>3,533.00</b>	<b>4.16</b>
<b>Other Sources</b>									
Trading - Bilateral & Exchange				387.00	205.00	5.30	-	-	-
UI				(529.00)	(10.00)	0.19	(529.00)	(10.00)	0.19
STOA				6,790.00	2,118.00	3.12	6,790.00	2,118.00	3.12
CPP Traders							-	-	-
Case 1 - Bidding (MTOA)				6,233.00	3,931.00	6.31	2,296.74	1,448.50	6.31
MTOA - Jindal	1752	861	4.91				-	-	-
MTOA - Adani	1182	686	5.80				-	-	-
MTOA – Lanco (NETS)	876	428	4.89				-	-	-
NTPC NVVN (Solar)	35	16	4.57				-	-	-
KSEB Power							-	-	-
<b>Total Other Sources</b>	<b>3,845.00</b>	<b>1,991.00</b>	<b>5.18</b>	<b>12,881.00</b>	<b>6,244.00</b>	<b>4.85</b>	<b>8,557.74</b>	<b>3,556.50</b>	<b>4.16</b>
<b>Gross Power Purchase</b>	<b>78,675.09</b>	<b>29,046.73</b>	<b>3.69</b>	<b>85,473.81</b>	<b>38,463.40</b>	<b>4.50</b>	<b>78,559.79</b>	<b>30,239.99</b>	<b>3.85</b>
<b>PGCIL Charges</b>									
<i>PGCIL SR and ER wheeling</i>		855.00			978.00			978.00	
<i>PGCIL- Reactive energy</i>		25.00						-	

Source	FY 2014-15								
	SMT Order			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Total PGCIL charges	-	880.00	-	-	978.00	-	-	978.00	-
TANTRANSCO Charges		1692.00			1,374.00			1,373.63	
Total Power Purchase	78,675.09	31,618.73	4.02	85,473.81	40,815.40	4.78	78,559.79	32591.62	4.15

**Table 3-70: Summary of Power Purchase approved by the Commission after true-up for FY 2015-16**

Source	FY 2015-16								
	TO 2013			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>									
Ennore TPS		274		392.00	855.85	21.83	392.00	366.86	9.36
Tuticorin TPS	5406	2071	3.83	6,501.00	3,499.20	5.38	6,501.00	2,781.28	4.28
Mettur TPS		343		5,406.00	2,733.63	5.06	5,406.00	2,367.52	4.38
North Chennai TPS	4507	1527	3.39	4,071.00	2,467.38	6.06	4,071.00	1,993.41	4.90
NCTPS Stage-II (Unit 1)	8198	3151	3.84	4,468.00	2,128.53	4.76	4,468.00	2,732.42	6.12
MTPS Stage III		584		2,664.00	1,586.92	5.96	2,664.00	1,851.58	6.95
Ennore Expansion	1049	403	3.84				-	-	-
<b>Total Thermal</b>	<b>19,160.00</b>	<b>8,353.00</b>	<b>4.36</b>	<b>23,502.00</b>	<b>13,271.50</b>	<b>5.65</b>	<b>23,502.00</b>	<b>12,093.07</b>	<b>5.15</b>
TGTPS	713	212	2.97	363.00	366.13	10.09	363.00	187.67	5.17
KGTPS	667	211	3.16	552.00	371.37	6.73	552.00	255.71	4.63
BBGTPS		45	-	11.00	289.30	263.00	11.00	61.54	55.94
VGTPS (Unit 1 and 2)	1235	369	2.99	680.00	569.79	8.38	680.00	364.21	5.36
<b>Total Gas</b>	<b>2,615.00</b>	<b>837.00</b>	<b>3.20</b>	<b>1,606.00</b>	<b>1,596.59</b>	<b>9.94</b>	<b>1,606.00</b>	<b>869.12</b>	<b>5.41</b>
Erode HEP	4844	337		756.00	487.76	6.45	756.00	328.81	4.35
Kadamparai HEP		78		891.00	200.34	2.25	478.00	86.41	1.81
Kundah HEP		204		1,695.00	559.76	3.30	1,695.00	230.45	1.36

Source	FY 2015-16								
	TO 2013			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Tirunevali HEP		119		1,096.00	194.97	1.78	1,096.00	144.08	1.31
<b>Total Hydro</b>	<b>4844</b>	<b>738.00</b>	<b>1.52</b>	<b>4,438.00</b>	<b>1,442.82</b>	<b>3.25</b>	<b>4,025.00</b>	<b>789.74</b>	<b>1.96</b>
<b>Wind</b>	12.00	3.00	2.50	6.79	2.00	2.95	6.79	2.00	2.95
<b>Total from Own Generating</b>	<b>26,631.00</b>	<b>9,931.00</b>	<b>3.73</b>	<b>29,552.79</b>	<b>16,310.09</b>	<b>5.52</b>	<b>29,139.79</b>	<b>13,753.94</b>	<b>4.72</b>
<b>CGS</b>									
NTPC SR (Ramagundam) (I&II)	3,963.00	893.00	2.25	4,019.71	1,155.87	2.88	4,019.71	1,155.87	2.88
NTPC SR (Ramagundam) III	991.00	290.00	2.93	1,068.75	341.69	3.20	1,068.75	341.69	3.20
NLC TS - I	3,478.00	1,071.00	3.08	2,486.60	933.54	3.75	2,486.60	933.69	3.75
NLC TS - II	3,196.00	809.00	2.53	3,156.88	949.07	3.01	3,156.88	949.07	3.01
NLC TS Expansion I	1,474.00	460.00	3.12	1,629.40	582.61	3.58	1,629.40	582.61	3.58
NLC TS Expansion II	2,220.00	777.00	3.50	306.81	138.61	4.52	306.81	138.61	4.52
NTPL (JV with NLC)				1,299.41	515.03	3.96	1,299.41	515.03	3.96
NTPC Talcher	3,370.00	753.00	2.23	3,713.40	782.99	2.11	3,713.40	782.99	2.11
NTPC Simhadri	1,560.00	582.00	3.73	1,543.84	621.68	4.03	1,543.84	621.68	4.03
MAPS	1,573.00	321.00	2.04	2,090.87	435.39	2.08	2,090.87	435.39	2.08
KAIGA	1,179.00	356.00	3.02	1,869.06	569.33	3.05	1,869.06	569.33	3.05
NTPC Kayamkulam	-			-	-				
NTPC ER	-			284.73	89.05	3.13	284.73	89.05	3.13
NLC Tuticorin	2651.00	928.00	3.50	-	-				

Source	FY 2015-16								
	TO 2013			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
NTPC Vallur Unit 1 & Unit 2	7,112.00	2,489.00	3.50	5,162.08	1,910.52	3.70	5,162.08	1,910.52	3.70
PFBR Kalpakkam	792.00	239.00	3.02	-	-	-	-	-	-
Kudankulum	4,388.00	1,325.00	3.02	1,046.54	412.86	3.94	1,046.54	412.86	3.94
<b>Total CGS</b>	<b>37,947.00</b>	<b>11,293.00</b>	<b>2.98</b>	<b>29,678.09</b>	<b>9,438.23</b>	<b>3.18</b>	<b>29,678.09</b>	<b>9,438.39</b>	<b>3.18</b>
<b>IPP</b>									
GMR Vasavi	-	-	-	-	-	=	-	-	
Samalpatti	-	100.00	-	35.81	85.09	23.76	-	67.00	
Madurai Power Corpn	-	292.00	-	39.95	104.56	26.17	-	75.57	
PPN	-	110.00	-	159.18	346.98	21.80	-	259.09	
STCMS - Neyveli	1,665.00	749.00	4.50	1,384.93	633.40	4.57	1,384.93	633.32	4.57
LANCO Power (Aban co)	783.00	274.00	3.50	620.22	224.56	3.62	620.22	224.57	3.62
Penna	353.00	130.00	3.68	178.67	63.65	3.56	178.67	63.65	3.56
<b>Total IPP</b>	<b>2,801.00</b>	<b>1,655.00</b>	<b>5.91</b>	<b>2,418.76</b>	<b>1,458.24</b>	<b>6.03</b>	<b>2,183.82</b>	<b>1,323.20</b>	<b>6.06</b>
<b>Renewables</b>									
Wind	7145	2229	3.12	2,873.00	945.00	3.29	2,873.00	945.00	3.29
Biomass	11	5	4.55	21.39	10.00	4.67	21.39	10.00	4.67
Cogeneration	2233	823	3.69	508.58	181.00	3.56	508.58	181.00	3.56
Captive	-	-	-	23.55	4.00	1.70	23.55	4.00	1.70
Solar	16	7	4.38	69.09	36.00	5.21	69.09	36.00	5.21



Source	FY 2015-16								
	TO 2013			TANGEDCO			Approved after true up		
	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Cost (Rs. Cr)	Rate (Rs/kWh)	Quantum (MU)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Total Renewables</b>	<b>9,405.00</b>	<b>3,064.00</b>	<b>3.26</b>	<b>3,495.62</b>	<b>1,176.00</b>	<b>3.36</b>	<b>3,495.62</b>	<b>1,176.00</b>	<b>3.36</b>
<b>Other Sources</b>									
Trading - Bilateral & Exchange				14,184.00	7,291.00	5.14	14,184.00	7,291.00	5.14
UI				(230.76)	(43.00)	1.86	(230.76)	(43.00)	1.86
STOA				4,542.06	2,294.00	5.05	3,428.52	1,731.60	5.05
CPP Traders				-	-				
MTOA - Jindal	1,171.00	576.00	4.92						
MTOA – LANCO (NETS)	878.00	429.00	4.89						
MTOA - Adani		231.00							
NTPC NVVN (Solar)	35.00	16.00	4.57						
KSEB Power									
<b>Total Other Sources</b>	<b>2,084.00</b>	<b>1252.00</b>	<b>6.01</b>	<b>18,495.30</b>	<b>9,542.00</b>	<b>5.16</b>	<b>17,381.76</b>	<b>8,979.60</b>	<b>5.17</b>
<b>Gross Power Purchase</b>	<b>52,237.00</b>	<b>17264.00</b>	<b>3.30</b>	<b>83,640.56</b>	<b>37,926.42</b>	<b>4.53</b>	<b>81,879.07</b>	<b>34,671.12</b>	<b>4.23</b>
<b>PGCIL Charges</b>									
<i>PGCIL SR and ER wheeling</i>		637.00			900.00			900.00	
<i>PGCIL- Reactive energy</i>									
<b>Total PGCIL charges</b>	<b>-</b>	<b>637.00</b>		<b>-</b>	<b>900.00</b>		<b>-</b>	<b>900.00</b>	
<b>TANTRANSCO Charges</b>		<b>3,632.00</b>			<b>1,697.00</b>			<b>1,696.89</b>	
<b>Total Power Purchase</b>	<b>52,237.00</b>	<b>21,533.00</b>	<b>4.12</b>	<b>83,640.56</b>	<b>40,523.42</b>	<b>4.84</b>	<b>81,879.09</b>	<b>37,268.01</b>	<b>4.55</b>

### **3.19 Summary of ARR for FY 2011-12 to FY 2015-16**

- 3.19.1 Based on the component-wise approval as elaborated in the above Sections, the summary of Aggregate Revenue Requirement for TANGEDCO as whole for FY 2011-12 to FY 2015-16 as approved in earlier Orders, as submitted by TANGEDCO and as approved after final true up are shown in the Tables below:

**Table 3-71: Summary of ARR approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Details	FY 2011-12			FY 2012-13			FY 2013-14		
	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
Power Purchase Expenses (incl. Trans. Charges)	23,899.44	27,871.90	23,304.96	25,812.33	30,462.88	24,123.03	28,923.58	37,161.91	29,798.37
O&M Expenses	3,327.36	3,626.33	3,327.36	3,477.42	3,523.79	3,477.42	3,852.37	3,970.93	3,851.31
Depreciation	272.78	265.10	271.51	302.13	294.39	297.87	362.39	327.15	327.43
Interest & Finance Charges	718.40	708.20	718.47	877.39	1,454.09	877.80	1,034.39	2,385.94	1,037.16
Interest on Working Capital	-	-	-	-	-	-	-	-	-
Return on Equity	-	260.62	-	-	471.02	-	-	600.44	-
Other Debits	14.26	36.52	14.86	16.90	10.14	2.87	19.93	21.70	14.04
Sharing of (Gains)/Losses for O&M Expenses			-			-			-
Operating charges	-	2.22	-	-	0.13	-	-	0.08	-
Other Interest & Finance Charges	334.69	531.17	391.91	497.62	682.51	569.39	575.99	965.35	802.14
<b>Gross ARR</b>	<b>28,566.93</b>	<b>33,302.08</b>	<b>28,029.06</b>	<b>30,983.79</b>	<b>36,898.96</b>	<b>29,348.37</b>	<b>34,768.65</b>	<b>45,433.52</b>	<b>35,830.45</b>
Less: Other Income	141	144.13	148.20	197.00	196.41	201.76	264.00	229.61	233.54
Less: Non-Tariff Income	553.00	553.00	553.01	936.00	935.80	935.81	822.00	822.16	822.32
Add: Net Prior Period Expense /(Income)	-	583.84	(859.10)	-	1,695.80	81.54	-	(284.26)	(52.84)
Less: Cap. cost of generation during trial stage								(1,042.80)	-
<b>Net ARR</b>	<b>27,872.93</b>	<b>33,188.78</b>	<b>26,468.75</b>	<b>29,850.79</b>	<b>37,462.54</b>	<b>28,292.35</b>	<b>33,682.65</b>	<b>43,054.69</b>	<b>34,721.75</b>

**Table 3-72: Summary of ARR approved by the Commission after true-up for FY 2014-15 to FY 2015-16 (Rs. Crore)**

Details	FY 2014-15			FY 2015-16		
	SMT Order	TANGEDCO	Approved after true up	2013 TO	TANGEDCO	Approved after true up
Power Purchase Expenses (incl. Trans. Charges)	31,618.73	40,817.47	32,591.62	31,467.00	40,524.22	37,268.01
O&M Expenses	4,303.63	4,565.07	4,150.46	4,395.62	4,844.82	4,419.95
Depreciation	435.26	525.28	552.44	519.04	670.46	664.47
Interest & Finance Charges	1,213.55	2,992.22	1,209.47	1,317.23	3,501.33	1,391.53
Interest on Working Capital	-	189.53	-	-	178.74	-
Return on Equity	-	582.32	-	-	582.32	-
Other Debits	6.30	25.98	-	28.42	13.19	-
Sharing of (Gains)/Losses for O&M Expenses			-			-
Operating charges	-	-	-	-	-	-
Other Interest & Finance Charges	688.40	1,002.90	852.60	621.45	882.25	689.22
<b>Gross ARR</b>	<b>38,265.87</b>	<b>50,700.78</b>	<b>39,356.60</b>	<b>38,348.76</b>	<b>51,197.34</b>	<b>44,433.18</b>
Less: Other Income	146.00	302.23	236.28	363.54	322.02	344.84
Less: Non-Tariff Income	680.00	852.97	852.97	728.70	780.86	780.86
Add: Net Prior Period Expense / (Income)	-	(89.24)	(319.94)	-	(1,526.91)	(1,008.76)
Less: Cap cost of generation during trial stage		(17.76)	-	(128)		
<b>Net ARR</b>	<b>33,682.65</b>	<b>49,438.59</b>	<b>37,947.41</b>	<b>37,128.52</b>	<b>48,567.55</b>	<b>42,298.72</b>

### **3.20 Revenue from sale of power**

- 3.20.1 TANGEDCO submitted that revenue available in accounts for all the years is inclusive of revenue from wheeling units. Therefore, it has excluded the revenue earned from wheeling units and then submitted category-wise revenue earned from FY 2011-12 to FY 2015-16.

#### **Commission's view**

- 3.20.2 The Commission has considered the revenue from sales as given in the Audited Accounts for FY 2011-12 to FY 2015-16. However, as revenue in the Audited Accounts consist of revenue from wheeling units also, the same has been deducted from the total revenue, whereas TANGEDCO has reduced the wheeling revenue from the category-wise revenue. Further, as sales to Puducherry have been disallowed by the Commission, corresponding revenue has also not been considered. The revenue from sales approved for FY 2011-12 to FY 2015-16 is shown in the Table below:

**Table 3-73: Revenue from Sales approved by the Commission after true-up for FY 2011-12 to FY 2013-14 (Rs. Crore)**

Consumer category		FY 2011-12			FY 2012-13			FY 2013-14		
		SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
	<b>HT Category</b>									
I (A)	HT Industries	5,649	5,649	7,917 <sup>#</sup>	5,881	4,978	10,362 <sup>#</sup>	6,992	6,552	12,259 <sup>#</sup>
I (B)	Railway Traction	347	347	347	393	393	393	483	483	483
II (A)	Government Educational Institution Etc. (HT)	581	581	581	566	566	566	599	599	599
II (B)	Pvt. Educational Institutions etc.	123	123	128	143	138	143	188	187	197
II (C)	Places of Public Worship	9	9	9	4	4	4	13	13	13
III	Commercial and Other HT	1,311	1,311	1,514	1,288	1,411	1,558	1,651	1,280	1,701
IV	Lift Irrigation and co-ops (HT)	-	-	-	-	-	-	-	-	-
	Supply to Puducherry plus wheeling charges	-	123	-	-	132	-	-	86	-
VI	Temporary Supply	-	-	-	173	173	173	313	313	313
V	Supply to Other States (SWAP)	219	219	219	-	-	-	-	-	-
	<b>TOTAL HT category revenue</b>	<b>8,239</b>	<b>8,362</b>	<b>10,715<sup>#</sup></b>	<b>8,448</b>	<b>7,795</b>	<b>13,200<sup>#</sup></b>	<b>10,240</b>	<b>9,513</b>	<b>15,565<sup>#</sup></b>
	<b>LT Category</b>									
I (A)	Domestic	2,889	2,889	2,889	4,462	4,462	4,462	5,342	5,342	5,342
I (B)	Huts	-	-	-	-	-	-	-	-	-
I (C)	Defence colonies etc. notified area	9	9	9	10	10	10	4	4	4
II (A)	Public Lighting & Water Works	526	526	526	861	861	861	1,074	1,074	1,074

Consumer category		FY 2011-12			FY 2012-13			FY 2013-14		
		SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
II (B)-1	Government Educational Institution	279	279	279	298	298	298	204	204	204
II (B)-2	Pvt. Educational Institutions	136	136	136	131	131	131	164	164	164
II (C)	Places of Public Worship (LT)	25	25	25	27	27	27	52	52	52
III (A)-1	Cottage and Tiny Industries	152	152	152	193	193	193	196	196	196
III (A)-2	Power Loom	121	121	121	153	153	153	184	184	184
III (B)	Industries	1,968	1,968	1,968	2,461	2,461	2,461	2,986	2,986	2,986
IV	Agriculture & Government seed farm	-	-	-	-	-	-	-	-	-
V	Commercial and Other	3,035	3,035	3,035	3,801	3,801	3,801	4,446	4,446	4,446
VI	Temporary Supply	25	25	25	25	25	25	95	95	95
	<b>TOTAL LT category revenue</b>	<b>9,165</b>	<b>9,165</b>	<b>9,165</b>	<b>12,422</b>	<b>12,422</b>	<b>12,422</b>	<b>14,746</b>	<b>14,747</b>	<b>14,746</b>
	<b>TOTAL Revenue from LT &amp; HT</b>	<b>17,404*</b>	<b>17,527*</b>	<b>19,880</b>	<b>20,870*</b>	<b>20,217*</b>	<b>25,621</b>	<b>24,986*</b>	<b>24,259*</b>	<b>30,311</b>
	Less: Revenue from wheeling	-	-	2,476.00	-	-	5,536.00	-	-	6,137.00
	<b>Total revenue from sales</b>	<b>17,404</b>	<b>17,527</b>	<b>17,404.05</b>	<b>20,870</b>	<b>20,217</b>	<b>20,085.19</b>	<b>24,986</b>	<b>24,259</b>	<b>24,174.21</b>

\*Revenue approved in Suo-Motu Order and as submitted by TANGEDCO is after excluding revenue from wheeling units

#Including Revenue from Wheeling, which has been subtracted at the end of the table from the Total Revenue

**Table 3-74: Revenue from Sales approved by the Commission after true-up for FY 2014-15 and FY 2015-16 (Rs. Crore)**

Consumer Category		FY 2014-15		FY 2015-16	
		TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
	<b>HT Category</b>				
I (A)	HT Industries	8,700	14,347 <sup>#</sup>	9,806	16,733 <sup>#</sup>
I (B)	Railway Traction	577	577	621	621
II (A)	Government Educational Institution Etc. (HT)	768	775	1,046	1,052
II (B)	Pvt. Educational Institutions etc.	227	227	267	267
II (C)	Places of Public Worship	-	-	-	-
III	Commercial and Other HT	1,542	1,952	1,986	2,407
IV	Lift Irrigation and co-ops (HT)	-	-	-	-
	Supply to Puducherry plus wheeling charges	126	-	72	-
VI	Temporary Supply	77	77	247	247
V	Supply to Other States (SWAP)	-	-	-	-
	<b>TOTAL HT category revenue</b>	<b>12,017</b>	<b>17,956<sup>#</sup></b>	<b>14,045</b>	<b>21,327<sup>#</sup></b>
	<b>LT Category</b>				
I (A)	Domestic	5,671	5,671	6,756	6,756
I (B)	Huts	-	-	-	-
I (C)	Bulk supply	5	5	5	5
II (A)	Public Lighting & Water Works	1,196	1,196	1,539	1,539
II (B)-1	Government Educational Institution	104	104	97	97
II (B)-2	Pvt. Educational Institutions	177	177	209	209
II (C)	Places of Public Worship (LT)	62	62	67	67
III	Cottage and Tiny Industries	89	89	103	103



Consumer Category		FY 2014-15		FY 2015-16	
		TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
(A)-1					
III (A)-2	Power Loom	226	226	271	271
III (B)	Industries	3,618	3,618	4,376	4,376
IV	Agriculture & Government seed farm	-	-	-	-
V	Commercial and Other	4,816	4,816	5,682	5,682
VI	Temporary Supply	193	193	231	231
	<b>TOTAL LT category revenue</b>	<b>16,157</b>	<b>16,156</b>	<b>19,336</b>	<b>19,336</b>
	<b>TOTAL Revenue from LT &amp; HT</b>	<b>28,174*</b>	<b>34,111</b>	<b>33,381*</b>	<b>40,663</b>
	Less: Revenue from wheeling		6,065.00		7,353.00
	<b>Total revenue from sales</b>	<b>28,174</b>	<b>28,046.44</b>	<b>33,381</b>	<b>33,310.13</b>

\*Revenue submitted by TANGEDCO is after excluding revenue from wheeling units

#Including Revenue from Wheeling, which has been subtracted at the end of the table from the Total Revenue

### 3.21 Revenue Gap/(Surplus) for FY 2011-12 to FY 2015-16

3.21.1 Based on the approved Aggregate Revenue Requirement and Revenue from sales, and after considering subsidy received from GoTN for FY 2011-12 to FY 2015-16, the Revenue Gap/(Surplus) approved by the Commission is shown in the Tables below:

**Table 3-75: Revenue Gap/(Surplus) approved by the Commission after true-up for FY 2011-12 to FY 2012-13 (Rs. Crore)**

Particulars	FY 2011-12			FY 2012-13		
	SMT Order	TANGEDCO	Approved after true up	SMT Order	TANGEDCO	Approved after true up
<b>Net Aggregate Revenue Requirement</b>	<b>27,872.93</b>	<b>33,188.78</b>	<b>26,468.75</b>	<b>29,850.79</b>	<b>37,462.54</b>	<b>28,292.35</b>
Revenue from sales	17,404.00	17,526.70	17,404.05	20,870.00	20,216.56	20,085.19
Govt. subsidy	2,071.00	2,071.41	2,071.41	4,082.00	4,457.23	4,457.23
<b>Total Revenue</b>	<b>19,475.00</b>	<b>19,598.11</b>	<b>19,475.46</b>	<b>24,952.00</b>	<b>24,673.79</b>	<b>24,542.42</b>
<b>Revenue Gap/(Surplus)</b>	<b>8,397.93</b>	<b>13,590.67</b>	<b>6,993.29</b>	<b>4,898.79</b>	<b>12,788.75</b>	<b>3,749.93</b>

**Table 3-76: Revenue Gap/(Surplus) approved by the Commission after true-up for FY 2013-14 to FY 2015-16 (Rs. Crore)**

Particulars	FY 2013-14			FY 2014-15		FY 2015-16	
	SMT Order	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up	TANGEDCO	Approved after true up
<b>Net Aggregate Revenue Requirement</b>	<b>33,682.65</b>	<b>43,054.69</b>	<b>34,721.75</b>	<b>49,438.59</b>	<b>37,947.41</b>	<b>48,567.55</b>	<b>42,298.72</b>
Revenue from sales	24,986.00	24,260.14	24,174.21	28,171.86	28,046.44	33,381.68	33,310.13
Govt. subsidy	4,985.00	4,985.09	4,985.09	5,953.00	5,953.00	6,695.10	6,695.10
<b>Total Revenue</b>	<b>29,971.00</b>	<b>29,245.23</b>	<b>29,159.30</b>	<b>34,124.86</b>	<b>33,999.44</b>	<b>40,076.78</b>	<b>40,005.25</b>
<b>Revenue Gap/(Surplus)</b>	<b>3,711.65</b>	<b>13,809.46</b>	<b>5,562.45</b>	<b>15,313.73</b>	<b>3,947.98</b>	<b>8,490.77</b>	<b>2,293.49</b>

## **4 AGGREGATE REVENUE REQUIREMENT FOR FY 2016-17, FY 2017-18 AND FY 2018-19**

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### **4.1 Energy Sales**

- 4.1.1 TANGEDCO submitted that it has projected energy sales for FY 2016-17 to FY 2018-19 based on the actual sales (excluding wheeling units) in FY 2015-16 and has considered an overall increase of around 9.1%, 10.9%, and 9.1% in FY 2016-17, FY 2017-18, and FY 2018-19, respectively. TANGEDCO further submitted that HT Category sales have been escalated by more than 10% in all three years mainly on account of reduction in R&C measures in the State. LT Category sales have been escalated by about 9%, indicating increase in demand due to more power being available from different sources.
- 4.1.2 TANGEDCO also submitted that in addition to the above, it has also considered nominal sales growth for each consumer category, while projecting sales for FY 2016-17 to FY 2018-19.

#### **Commission's Views**

- 4.1.3 To estimate the sales for Huts and Agriculture category for the Control Period from FY 2016-17 to FY 2018-19, the Commission has adopted the same approach as discussed in Chapter 3. Similarly, sales to Puducherry have not been considered based on past approach.
- 4.1.4 As regards the sales to other categories, projecting sales on the basis of past trends will not be appropriate as in the past R&C measures were in place, and power availability was lower. However, as R&C measures have now been removed and more power is available, the Commission is of the view that TANGEDCO is in a better position to estimate the growth in sales. Therefore, the Commission has approved the projected sales for all categories as submitted by TANGEDCO, except Huts and Agriculture, for the Control Period from FY 2016-17 to FY 2018-19.
- 4.1.5 The category-wise sales projected by TANGEDCO and approved by the Commission have been shown in the Table below:

**Table 4-1: Category wise sales as approved by the Commission (MU)**

Consumer Category	Tariff Category	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
<b>HIGH TENSION</b>							
HT Industries	IA	12,730	15,232	17,331	12,730	15,232	17,331
Railway Traction	IB	880	938	1,009	880	938	1,009
Govt. Educational Institutions, Hospitals, Water supply etc.	IIA	1,502	1,602	1,726	1,502	1,602	1,726
Private Educational Institutions, Cinema Theatres & Studios	IIB	351	365	387	351	365	387
Actual places of public worship, Mutts and Religious Institutions.	IIC						
HT Commercial and all Categories not covered in other HT categories	III	2,160	2,667	3,231	2,160	2,667	3,231
Lift Irrigation and Co-operative Societies	IV	7	8	8	7	8	8
Temporary Supply	V	179	187	207	179	187	207
Supply to Puducherry		188	188	188	-	-	-
<b>Total HT</b>		<b>17,996</b>	<b>21,187</b>	<b>24,087</b>	<b>17,809</b>	<b>20,999</b>	<b>23,899</b>
<b>LOW TENSION</b>							
Domestic, Handloom, etc.	IA	25,368	26,367	27,422	25,368	26,367	27,422
Huts in Village panchayats, TAHDCO etc.	IB*	449	458	467	619	659	699
Bulk Supply	IC	11	11	12	11	11	12
Public Lighting and Public Water Supply & Sewerage	IIA	2,567	2,873	3,215	2,567	2,873	3,215
Govt. Educational Institutions., Hospitals, Water supply etc.	IIB (1)	149	155	162	149	155	162

Consumer Category	Tariff Category	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
Private Educational Institutions, Cinema theatre & Studios	IIB (2)	270	289	309	270	289	309
Actual place of public worship, Mutts and Religious Institutions	IIC	131	140	150	131	140	150
Cottage and Tiny Industries	IIIA (1)	244	261	284	244	261	284
Power loom	IIIA (2)	1,036	1,139	1,248	1,036	1,139	1,248
Coffee grinding and Ice factories etc. and Industries not covered under LT Tariff IIIA	IIIB	7,335	8,581	9,491	7,335	8,581	9,491
Agriculture and Govt. seed farm etc.	IV	11,928	12,544	13,276	10,881	11,187	11,398
Commercial and all categories not covered under IA, IB, IC, IIA, II B1, II B2, II C IIIA 1, III A2, IIIB and IV	V	7,190	8,808	10,182	7,190	8,808	10,182
Temp. supply (a) Lighting and combined installations, (b) Lavish illuminations	VI	197	247	309	197	247	309
<b>Total LT</b>		<b>56,876</b>	<b>61,873</b>	<b>66,526</b>	<b>56,000</b>	<b>60,717</b>	<b>64,881</b>
<b>Grand Total</b>		<b>74,872</b>	<b>83,060</b>	<b>90,613</b>	<b>73,809</b>	<b>81,717</b>	<b>88,780</b>

## 4.2 Energy Balance and Distribution Loss

4.2.1 TANGEDCO submitted that it has considered losses of 20.44%, 19% and 18.7% for FY 2016-17, FY 2017-18, and FY 2018-19, respectively. Based on the projected T&D loss and projected sales, it has estimated quantum of power to be purchased. The Energy Balance for the Control Period from FY 2016-17 to FY 2018-19 (excluding wheeling units) as submitted by TANGEDCO is shown in the Table below:

**Table 4-2: Energy Balance for the Control Period as submitted by TANGEDCO**

Sl.	Particulars	Unit	FY 2016-17	FY 2017-18	FY 2018-19
1	Total Demand/Sales	MU	74,872.45	83,059.93	90,612.78
2	Distribution Loss*	MU	19,234.52	19,483.19	20,842.05
3	Distribution Loss*	%	20.44%	19.00%	18.70%
4	<b>Total Energy required to meet the demand</b>	<b>MU</b>	<b>94,106.97</b>	<b>1,02,543.12</b>	<b>1,11,454.83</b>
5	Power available from own generation	MU	34,925.63	36,922.43	39,344.91
6	Power to be purchased from outside sources	MU	59,181.35	65,620.69	72,109.92

**Note:** \* mentioned as Distribution Loss in TANGEDCO Petition, however, it is actually T&D loss

### Commission's Views

4.2.2 As discussed in Chapter 3 of this Order, in the earlier Orders, the Commission had directed TANGEDCO to undertake a scientific study to determine Distribution Loss. TANGEDCO submitted that it had undertaken a study to assess the Distribution Loss using the Rural Electrification Corporation (REC) methodology and submitted the Report on the same to the Commission. The Commission has analysed the report submitted by TANGEDCO and the brief facts have been discussed below.

4.2.3 TANGEDCO submitted that it has used REC methodology for computation of Distribution Loss. This approach has also been used by Uttar Gujarat Vij Company Limited, one of the State Distribution Licensee in Gujarat, for assessment of its Distribution Loss and its result was accepted by the Gujarat Electricity Regulatory Commission in FY 2014-15. The steps followed by TANGEDCO are as follows:

- a) Since there are 7500 feeders (11/22 kV) as on March 31, 2016, TANGEDCO has selected 3 feeders per circle, i.e., total 128 feeders across 43 circles were selected. Feeder selection has been done based on load distribution factor, which takes into account type of feeder, i.e., rural, urban or industrial. Further, values were given to each type of feeder, rural (2), urban (1.5) and industrial (1).

- b) Feeder details such as voltage, type, length (HT line), connected load, No. of DTs and its kVA rating, feeder peak (kVA), energy consumed, power factor, average hours of supply, etc., were collected.
- c) Based on above collected details, Distribution Loss of each circle was assessed.
- d) Then the circle-wise Distribution Loss was extrapolated for TANGEDCO as a whole.

**Table 4-3: Region-wise Distribution Loss for FY 2015-16 as submitted by TANGEDCO**

Sl. No.	Region	Units sent out (MU)	Total Losses (MU)	Distribution Loss (%)
1	Chennai North	115.49	13.29	11.50%
2	Chennai South	156.77	21.93	13.99%
3	Erode	208.89	19.86	9.51%
4	Madurai	234.82	24.66	10.50%
5	Tirunelveli	197.21	29.89	15.16%
6	Trichy	267.83	51.11	19.08%
7	Vellore	130.14	16.95	13.03%
8	Villupuram	134.23	14.08	10.49%
9	Coimbatore	302.18	33.80	11.19%
<b>10</b>	<b>Total</b>	<b>1,747.55</b>	<b>225.87</b>	<b>12.91%</b>

- 4.2.4 TANGEDCO stated that the Distribution Loss during the period April 2015 to March 2016 is 12.91%. The sub-transmission loss for FY 2015-16 as per the Energy Balance is 1.52%. When this sub-transmission loss is summed up with Distribution Loss arrived at using REC methodology, total Distribution Loss works out to 14.43%. Further, Distribution Loss of 14.43% arrived at using REC methodology is comparable with the AT&C loss of 14.58% for FY 2015-16 committed in the UDAY MoU.
- 4.2.5 The Commission has considered the T&D Loss for FY 2015-16 as 15.60%, while trueing up for FY 2015-16, as elaborated in Chapter 3 of this Order, as the target T&D loss cannot be revised at the time of true-up, and TANGEDCO has also delayed the submission of the loss assessment Report. It should be noted that the above T&D loss of 15.6% included approved Transmission Loss level of 2.7%.
- 4.2.6 However, for the purpose of projections of Energy Requirement for the MYT Control Period, the Commission has considered the Transmission Loss in FY 2015-16 as

4.11%, with annual reduction of 0.1%, as elaborated in the Order in T.P. No. 2 of 2017 dated August 11, 2017 for TANTRANSCO.

4.2.7 As regards the Distribution Losses, the Commission is of the view that it is appropriate to restate the Distribution Losses, based on the Loss Assessment Report submitted by TANGEDCO. If this is not done, the Distribution Loss trajectory may not reflect the ground reality. TANGEDCO would also be subject to continuous disallowance of certain power purchase expenses on account of actual Distribution Losses being higher than the targeted losses, which would further hinder the viability of TANGEDCO in the long run. Hence, for the purpose of projections of Energy Requirement for the MYT Control Period, the Commission has accepted TANGEDCO's submission of 14.43% for FY 2015-16. Further, the Commission has considered annual reduction of 0.3% in Distribution Losses from FY 2016-17 to FY 2017-18. However, the Study Report still has certain lacunae, as observed subsequently, which have to be rectified by TANGEDCO.

4.2.8 The Energy Balance for the MYT Control Period from FY 2016-17 to FY 2018-19 as approved by the Commission is shown in the Table below:

**Table 4-4: Approved Energy Balance for the Control Period**

Particulars	FY 2016-17	FY 2017-18	FY 2018-19
LT Sales	55,999.93	60,717.44	64,880.77
HT Sales (Up to 33 kV)	13,751.15	16,284.23	18,587.18
Sale to Consumers below 33 kV (MU)	69,751.08	77,001.67	83,467.95
Additional Power to Kadamparai (MU)	0	0	0
<b>Distribution Loss (%)</b>	<b>14.13%</b>	<b>13.83%</b>	<b>13.53%</b>
Distribution Loss (MU)	11,477.61	12,358.51	13,060.27
Energy Input at Distribution periphery (MU)	81,228.69	89,360.19	96,528.21
110 kV & 230 kV Sales (MU)	4057	4715	5312
<b>Transmission Losses (%)</b>	<b>4.01%</b>	<b>3.91%</b>	<b>3.81%</b>
<b>Energy required at State boundary</b>	<b>88,849.02</b>	<b>97,903.15</b>	<b>1,05,873.62</b>
PGCIL Losses	985.50	918.07	918.07
<b>Total Power required</b>	<b>89,834.53</b>	<b>98,821.22</b>	<b>1,06,791.69</b>

\*Note- As additional power requirement for Kadamparai PSHES was only 1 MU in FY 2015-16, therefore, the Commission has not considered any additional requirement as of now. It shall be considered while truing up on actual basis.



### 4.3 Energy Availability

#### 4.3.1 Own Generation

4.3.1.1 Total availability from own generating stations as submitted by TANGEDCO is shown in the Table below:

**Table 4-5: Net Generation as submitted by TANGEDCO (MU)**

Particulars	FY 2016-17	FY 2017-18	FY 2018-19
Ennore TPS	786.83	-	-
Ennore Expansion II	-	-	1,735.17
Tuticorin TPS	6,732.94	6,732.94	6,867.59
Mettur TPS	5,386.35	5,386.35	5,494.08
Mettur Stage III TPS	3,833.52	3,833.52	3,910.19
North Chennai TPS	4,039.76	4,415.46	4,502.82
North Chennai Stage II TPS	7,694.78	7,667.03	7,820.37
<b>Total Coal Thermal</b>	<b>28,474.18</b>	<b>28,035.29</b>	<b>30,330.22</b>
Tirumakottai GTPS	710.66	756.85	772.84
Kuttalam GTPS	658.75	706.51	720.51
Basin Bridge GTPS	6.24	6.24	6.24
Valuthur GTPS	625.81	1,286.68	1,313.00
<b>Total Gas Thermal</b>	<b>2,001.47</b>	<b>2,756.30</b>	<b>2,812.60</b>
Kundah Generation Circle	756.00	1,312.00	1,324.00
Kadamparai Generation Circle	891.00	1,369.97	1,409.69
Tirunelveli Generation Circle	1,096.00	1,026.00	1,030.00
Erode Generation Circle	1,695.00	2,410.94	2,425.41
<b>Total Hydro</b>	<b>4,438.00</b>	<b>6,118.91</b>	<b>6,189.10</b>
Wind	12.00	12.00	12.00
<b>Grand Total</b>	<b>34,925.65</b>	<b>36,922.50</b>	<b>39,343.92</b>

#### Commission's Views

4.3.1.2 Based on operating parameters as elaborated in subsequent sections, approved net generation from TANGEDCO's own stations is shown in the Table below:

**Table 4-6: Approved Net Generation for the MYT Control Period (MU)**

Particulars	FY 2016-17	FY 2017-18	FY 2018-19
Ennore TPS	826.11	-	-
Ennore Expansion II	-	-	1,735.17
Tuticorin TPS	6,732.94	6,732.94	6,732.94
Mettur TPS	5,386.35	5,386.35	5,386.3
Mettur Stage III TPS	3,847.39	3,847.39	3,847.39

Particulars	FY 2016-17	FY 2017-18	FY 2018-19
North Chennai TPS	4,039.76	4,039.76	4,039.76
North Chennai Stage II TPS	7,694.78	7,694.78	7,694.78
<b>Total Coal Thermal</b>	<b>28,527.34</b>	<b>27,701.32</b>	<b>29,436.40</b>
Tirumakottai GTPS	710.66	710.66	710.66
Kuttalam GTPS	665.34	665.34	665.34
Basin Bridge GTPS	6.24	6.24	6.24
Valuthur GTPS	1,231.87	1,231.87	1,231.87
<b>Total Gas Thermal</b>	<b>2,614.11</b>	<b>2,614.11</b>	<b>2,614.11</b>
Kundah Generation Circle	1,695.00	2411.00	2,425.00
Kadamparai Generation Circle*	477.00	956.00	996.00
Tirunelveli Generation Circle	1,096.00	1,026.00	1,030.00
Erode Generation Circle	756.26	1,311.97	1,324.43
<b>Total Hydro</b>	<b>4,024.26</b>	<b>5,704.97</b>	<b>5,775.43</b>
Wind	12.00	12.00	12.00
<b>Grand Total</b>	<b>35,177.71</b>	<b>36,032.30</b>	<b>37,837.94</b>

**Note\*** Commission has deducted energy availability from Kadamparai PSHES at the same level as considered in FY 2015-16

#### 4.3.2 Other Sources

4.3.2.1 TANGEDCO submitted that it has projected energy availability for FY 2016-17 to FY 2018-19 based on the energy sources available during the year, upcoming Central Generating Stations (CGS) and other sources with which it has tied up power during the respective year, as shown in the Table below:

**Table 4-7: Energy Availability from other sources as submitted by TANGEDCO (MU)**

Sl.	Name of Station	FY 2016-17	FY 2017-18	FY 2018-19
	<b>NLC Stations</b>			
1	Neyveli TS-I	2,675.00	3,942.00	3,942.00
2	Neyveli TS-II Stage I	3,260.00	3,596.42	3,596.42
3	Neyveli TS-I Expansion	1,675.00	1,675.00	1,675.00
4	Neyveli Expansion Unit II	1,302.00	1,302.00	1,302.00
5	NTPL JV with NLC	2,375.00	2,375.00	2,375.00
	<b>Total NLC</b>	<b>11,287.00</b>	<b>12,890.42</b>	<b>12,890.42</b>
	<b>NTPC Stations</b>			
6	Ramagundam I&II	4,050.00	4,050.00	4,050.00
7	Ramagundam III	1,095.00	967.1	967.1
8	Simhadri Stage II -Unit III	1,525.00	1,673.86	1,673.86
9	NTPC TNEB JV Vallur	7,192.84	7,866.70	7,866.70
10	Talcher	3,810.00	3,925.37	3,925.37

Sl.	Name of Station	FY 2016-17	FY 2017-18	FY 2018-19
11	NTPC ER	325	325	325
	<b>Total NTPC</b>	<b>17,997.84</b>	<b>18,808.04</b>	<b>18,808.04</b>
	<b>Nuclear Stations</b>			
12	Madras APS	2,371.00	2,471.64	2,479.52
13	Kaiga APS	1,825.00	1,653.89	1,653.89
14	Kudankulam Unit I	3,776.54	3,776.54	3,776.54
15	Kudankulam Unit II	944.14	3,776.54	3,776.54
16	PFBR Kalpakkam		458	1,170.34
	<b>Total Nuclear Stations</b>	<b>8,916.68</b>	<b>12,136.62</b>	<b>12,856.83</b>
	<b>IPPs</b>			
17	Pillaiperumalnallur	159.18	159.18	159.18
18	TAQA (STCMS)	1,104.94	1,104.94	1,104.94
19	LANCO Power (Aban co)	793.31	793.4	793.31
20	PIIONEER Power co. (Penna)	370.02	370.35	370.02
	<b>Total IPP</b>	<b>2,427.44</b>	<b>2,427.86</b>	<b>2,427.44</b>
21	Windmill	6,944.49	6,149.52	6,346.62
22	Co-generation	970	970.44	970.44
23	Biomass	20	20	20
24	Captive generation	38.5	38.5	35
25	Solar	1,505.50	2,293.90	2,525.13
26	Traders-MTOA		1,840.40	
27	Traders-LTOA	8,822.84	8,044.49	15,230.28
28	Traders -STOA	250.62		
	<b>Grand Total</b>	<b>59,180.91</b>	<b>65,620.19</b>	<b>72,110.20</b>
	<b>OWN GENERATION</b>			
	Hydel			
31	Kundah	1,703.57	2,423.06	2,437.59
32	Kadamparai	895.25	1,376.85	1,416.78
33	Erode	760.06	1,318.56	1,331.09
34	Tirunelveli	1,101.40	1,031.13	1,035.25
	<b>Sub-Total Hydro (Gross) 1(a)</b>	<b>4,460.27</b>	<b>6,149.60</b>	<b>6,220.71</b>
	<b>Thermal Stations</b>			
35	NCPTS	4,039.76	4,415.46	4,502.82
36	NCTPS Stage II	7,694.78	7,667.03	7,820.37
37	E.T.P.S.	786.83	-	-
38	M.T.P.S.	5,386.35	5,386.35	5,494.08
39	MTPS Stage III	3,833.52	3,833.52	3,910.19
40	T.T.P.S.	6,732.94	6,732.94	6,867.59

Sl.	Name of Station	FY 2016-17	FY 2017-18	FY 2018-19
41	Ennore Expansion	-	-	1,735.17
	<b>Sub Total Thermal 1(b)</b>	<b>28,474.18</b>	<b>28,035.29</b>	<b>30,330.22</b>
	<b>Gas</b>			
42	Tirumakottai GTPS	710.66	756.85	772.84
43	Kuttalam GTPS	658.75	706.51	720.51
44	Basin Bridge GTPS	6.24	6.24	6.24
45	Valathur GTPS	625.81	1,286.68	1,313.48
	<b>Sub Total gas 1(c)</b>	<b>2,001.47</b>	<b>2,756.30</b>	<b>2,813.08</b>
46	Wind	12	12	12
46	<b>Total Own Generation (1a+1b+1c)</b>	<b>34,925.63</b>	<b>36,922.43</b>	<b>39,344.91</b>
	<b>Total Energy Available</b>	<b>94,106.53*</b>	<b>1,02,542.62*</b>	<b>1,11,455.10*</b>

\* TANGEDCO's total computation is incorrect. The correct total energy available is 94,128.54 MU, 1,02,573.36 MU and 1,11,486.20 MU for FY 2016-17, FY 2017-18 and FY 2018-19, respectively.

### **Commission's Views**

#### **Central Generating Stations**

4.3.2.2 The Commission has considered the energy availability from CGS based on the allocated share of TANGEDCO from CGS stations, as submitted by TANGEDCO. Further, operational parameters for such CGS stations have been considered as approved by CERC.

#### **Independent Power Producers**

4.3.2.3 The Commission has considered energy availability from IPPs as submitted by TANGEDCO.

#### **Renewable Energy Sources and Captive Power Plants**

4.3.2.4 The Commission vide its notification dated March 30, 2016, has amended the Renewable Energy Obligation Regulations, 2010. Post-amendment, TANGEDCO is obligated to purchase minimum of 11.50% and 14% of its energy from RE sources in FY 2016-17 and FY 2017-18, respectively. Out of this, 2.50% and 5% has to be purchased from solar sources in FY 2016-17 and FY 2017-18, respectively. As RE purchase obligation is yet to be specified for FY 2018-19, the Commission has considered total RPO of 14% including solar RPO of 5% for FY 2018-19 also.

4.3.2.5 The Commission has considered the energy availability from RE sources and Captive

Power Plants based on installed capacity of such sources in the State, and based on TANGEDCO's projections of the same. Further, it is observed that the actual purchase from Wind Energy Generation sources in the first 11 months of FY 2016-17 is significantly lower than the quantum of purchase projected by TANGEDCO. TANGEDCO should submit the reasons and justification for the same at the time of true-up, along with the submission on how the RPO is being met.

#### **Long-Term / Medium Term Open Access**

- 4.3.2.6 The Commission vide its Order dated July 29, 2016 in P.P.A.P. No. 3 of 2014 had approved TANGEDCO's PPA with 11 Generating Companies for purchase of 3330 MW power on long-term basis. The Commission has projected the energy availability from LTOA sources by considering all bidders available as per the requirement of the PPA.
- 4.3.2.7 The Commission vide its Order dated July 31, 2017, in M.P. No. 4 of 2017 and M.P. No. 5 of 2017, has allowed TANGEDCO to purchase power from M/s NETS, M/s Adani Enterprises Ltd. and M/s Jindal Power Ltd. for a period of two years, i.e., February 1, 2017 to January 31, 2019 for M/s NETS and September 1, 2017 to August 31, 2019 for M/s Adani Enterprises Ltd. and M/s Jindal Power Ltd. On the basis of the above Order, the Commission has considered energy availability from the three MTOA sources.
- 4.3.2.8 The source-wise energy availability from Other Sources considered by the Commission for the MYT Control Period is shown in the Table below:

**Table 4-8: Approved Energy Availability from Other Sources (MU)**

Sl.	Source	Net Energy Availability (MU)		
		FY 2016-17	FY 2017-18	FY 2018-19
<b>1</b>	<b>Central Generating Stations</b>	<b>33,941.08</b>	<b>34,854.88</b>	<b>34,854.88</b>
a)	NTPC SR (Ramagundam) (I&II)	3,639.70	3,727.40	3,727.40
b)	NTPC SR (Ramagundam) III	918.99	941.14	941.14
c)	NLC TS – I	3,236.24	3,236.24	3,236.24
d)	NLC TS - II - Stage 1	1,189.45	1,189.45	1,189.45
e)	NLC TS Expansion I	1,408.57	1,408.57	1,408.57
f)	NLC TS Expansion II	930.88	930.88	930.88
g)	NTPL (JV with NLC)	2,597.54	2,597.54	2,597.54
h)	NTPC Talcher	3,231.59	3,231.59	3,231.59
i)	NTPC Simhadri	1,504.97	1,541.23	1,541.23
j)	MAPS	1,530.78	1,530.78	1,530.78

Sl.	Source	Net Energy Availability (MU)		
		FY 2016-17	FY 2017-18	FY 2018-19
k)	KAIGA	1,175.28	1,175.28	1,175.28
l)	NTPC ER	325.00	325.00	325.00
m)	NTPC Vallur Unit 1 & Unit 2 (NTECL)	7,075.96	7,075.96	7,075.96
n)	PFBR Kalpakkam	-	767.69	767.69
o)	Kudankulam	5,176.14	5,176.14	5,176.14
<b>2</b>	<b>Independent Power Producers (IPP)</b>	<b>1,911.47</b>	<b>1,911.47</b>	<b>1,911.47</b>
a)	PPN	171.39	171.39	171.39
b)	STCMS - Neyveli (TAQA)	914.75	914.75	914.75
c)	LANCO Power (Aban co)	466.69	466.69	466.69
d)	Penna	358.63	358.63	358.63
<b>3</b>	<b>Renewables</b>	<b>9,478.49</b>	<b>10,464.43</b>	<b>10,692.16</b>
a)	Wind	6,944.49	7,141.59	7,141.59
b)	Biomass	20	20	20
c)	Cogeneration	970	970.44	970.44
d)	Captive	38.5	38.5	35
e)	Solar	1,505.50	2,293.90	2,525.13
<b>4</b>	<b>Traders</b>	<b>26,606.14</b>	<b>26,220.14</b>	<b>26,545.84</b>
a)	M/s. D.B.Power Ltd.	1,489.60	1,489.60	1,489.60
b)	M/s. Jindal Power Ltd.	2,864.62	2,864.62	2,864.62
c)	M/s. Ind Bharath Energy (Utkal) Ltd.	3,580.78	3,580.78	3,580.78
d)	M/s. Bharat Aluminium Company Ltd.	1,432.31	1,432.31	1,432.31
e)	M/s. Dhariwal Infrastructure Ltd	716.16	716.16	716.16
f)	M/s. PTC India Ltd.	716.16	716.16	716.16
g)	M/s. KSK Mahanadi Power Company Ltd.	3,580.78	3,580.78	3,580.78
h)	M/s. G.M.R. Energy Trading Ltd.	1,074.23	1,074.23	1,074.23
i)	M/s. IL & FS Tamil Nadu Power Company Ltd.	3,867.24	3,867.24	3,867.24
j)	M/s. Coastal Energen Power Ltd.	3,996.15	3,996.15	3,996.15
k)	M/s. OPG Power Gen Pvt. Ltd.	529.96	529.96	529.96
l)	MTOA	2,507.53	2,372.14	2,697.85
m)	STOA	250.62	-	-
	<b>Total Energy Availability</b>	<b>71,937.18</b>	<b>73,450.92</b>	<b>74,004.35</b>

#### 4.4 Fixed Expenses

##### Recovery of Fixed Charges for Ennore TPS (ETPS)

- 4.4.1 The Commission asked TANGEDCO to justify its claim for recovery of Fixed Charges pertaining to ETPS for FY 2017-18 and FY 2018-19 when the entire power plant has been decommissioned on March 31, 2017.

- 4.4.2 In its reply, TANGEDCO submitted that ETPS thermal Units were established during 1970-1975. After all the Units had served their life-time of more than 1 lakh running hours, Renovation & Modernisation works were contemplated during 1999. After completion of Renovation & Modernisation works, Units I and II served for more than 8 years and Units III, IV and V served for more than 10 years. Considering the major breakdowns and cost of generation, TANGEDCO decided to shut down the plant. Accordingly, the Plant (Units 1 to V) were shut down permanently with effect from March 31, 2017, and TANGEDCO decided to decommission ETPS.
- 4.4.3 After shutdown of the plants, minimum staff will be retained for evaluation and safeguarding the dismantled materials till disposal/closure of Purchase Orders. and works contract, etc. To accommodate establishment expenses payable to retained staff in ETPS, necessary claim under the head O&M expenses and IoWC has been made for FY 2017-18 and FY 2018-19.
- 4.4.4 TANGEDCO submitted that Clause 2.74 of Uniform Commercial Accounting, reproduced below, permits accommodation of the expenses incurred for decommissioning of plant under revenue expenses:
- “Cost of Retirement, scrapping, sale of assets*
- 2.74 All costs incurred on retirement scrapping and sale of assets shall be charged to Revenue Account in the year in which the costs are incurred, examples of such costs are*
- (1) Building / civil works demolition costs*
- (2) Plant decommissioning costs*
- (3) Site restoration costs*
- (4) Expenses like legal charges and stamp duty for transfer of title to the purchaser*
- (5) Freight etc, on transfer of assets to any asset / scrap disposal authority in the Board*
- (6) Expenditure on freight etc, on delivery of the sold assets / scrap to the scrap.”*
- 4.4.5 The Tariff Regulations notified by the Commission are oriented towards creation of plant, determination of tariff for generating plant and purchase of power from generating plant. It does not have any provision with regard to decommissioning of plant.

- 4.4.6 Therefore, TANGEDCO requested the Commission to exercise its powers specified in Regulations 89 and 90 of the Tariff Regulations, reproduced below, to approve the O&M expenses and IoWC claimed in regard to decommissioning of ETPS Plant.

***“89. Power to remove difficulty***

*If any difficulty arises in giving effect to any of these regulations, the Commission, may, of its own motion or otherwise, by an order and after giving a reasonable opportunity to those likely to be affected by such order, make such provisions, not inconsistent with these regulations, as may appear to be necessary for removing difficulties.*

***90. Power to relax / amend***

*The Commission, for reasons to be recorded in writing, may vary / amend any of the provisions of these Regulations on its own motion or on an application made before it.*

- 4.4.7 The Commission has analysed the submissions made by TANGEDCO with regard to the claim of fixed cost towards ETPS for FY 2017-18 and FY 2018-19. The Tariff Regulations do not allow inclusion of such costs. TANGEDCO also books other cost elements in accordance with accounting principles while preparing the annual accounts, however, such costs are not allowed to be recovered in tariff, if the Tariff Regulations do not permit such recovery.
- 4.4.8 The Tariff Regulations link recovery of fixed charges to the availability of the plant. In case of ETPS, the plant has been decommissioned on March 31, 2017. As ETPS will not be available for generation in FY 2017-18 and FY 2018-19, the Commission is disallowing recovery of O&M expenses and IoWC from tariff.
- 4.4.9 TANGEDCO submitted that it has claimed Fixed Cost for FY 2016-17 to FY 2018-19 under the following heads:
- i. Operation and Maintenance Expenses
  - ii. Depreciation
  - iii. Interest and Finance Charges
  - iv. Return on Equity
  - v. Interest on Working Capital
  - vi. Other Debits



## **4.5 Operation and Maintenance (O&M) expenses**

4.5.1 TANGEDCO submitted that it has projected the O&M Expenses for FY 2016-17 to FY 2018-19 by escalating the O&M expense of previous years by 5.72%, with some exceptions as detailed below. O&M expenses comprise employee expenses, A&G expenses and R&M expenses. As per the Tariff Regulations 2005, O&M expenses are to be derived on the basis of actual O&M expenses for the last 5 years based on the audited accounts. However, since TANGEDCO was unbundled from the erstwhile TNEB only on October 30, 2010, it is difficult to derive the O&M expenses pertaining to Generation and Distribution activities for the last 5 years.

4.5.2 The rationale for considering the escalation rates for certain particulars as submitted by TANGEDCO is as follows:

### **a. Employee Cost**

#### **i. Salaries**

4.5.3 TANGEDCO submitted that it has considered normal escalation of 5.72% on Basic Salary for the entire Control Period. However, it has considered an escalation of 15% for FY 2015-16 considering the impact of 7<sup>th</sup> Pay Commission.

#### **ii. Dearness Allowance**

4.5.4 TANGEDCO submitted that during FY 2013-14, DA was estimated at 90% of the Basic Salary during that year. From FY 2016-17 to FY 2018-19, it has considered growth rates of 5.72% on the amount estimated for FY 2013-14. For the ensuing years, additional escalation of 15% had been considered on that of the previous year.

#### **iii. Bonus and Ex-gratia**

4.5.5 TANGEDCO submitted that it has considered an escalation of 5.72% for the entire Control Period.

#### **iv. Other components of Employee cost**

4.5.6 TANGEDCO submitted that all other components of Employee cost have been escalated at 5.72% in line with the Tariff Regulations.

### **b. Administration & General Expenses**

4.5.7 TANGEDCO submitted that all the components of A&G expenses have been escalated at 5.72% for the Control Period.

### **c. Repair & Maintenance Expenses**

- 4.5.8 TANGEDCO submitted that all the components of R&M expenses have been escalated at 5.72% for the Control Period.

### **Commission's Views**

- 4.5.9 The Commission has approved O&M expenses for the Control Period from FY 2016-17 to FY 2018-19 in accordance with Regulation 25 of TNERC Tariff Regulations, 2005, reproduced below:

#### ***“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.*

*...”*

### **Employee Expenses**

- 4.5.10 The Commission has approved the Employee expenses for the Control Period from FY 2016-17 to FY 2018-19, based on the same approach adopted while truing-up for FY 2011-12 to FY 2015-16. The average of actual employee expenses (without DA) for past five years, viz., FY 2011-12 to FY 2015-16, as shown in the audited accounts, has been escalated twice by 5.72%, as per Tariff Regulations, 2005, to arrive at the employee expenses for base year i.e. FY 2015-16 Employee expenses arrived at for FY 2015-16, have been further escalated by 5.72% annually for approving Employee expenses for the Control Period from FY 2016-17 to FY 2018-19.
- 4.5.11 As per the Tariff Regulations, the increase in costs due to inflation is required to be passed through in tariff. The DA percentage notified by the GoTN is dependent on

inflation and hence, increase in employee costs to the extent of DA variation is being allowed as a pass through in tariff. Therefore, the DA rates as notified by GoTN have been used for estimating the DA instead of taking an escalation of 5.72% as per the Tariff Regulations. The DA rate applicable for FY 2016-17 is given in the Table below:

**Table 4-9: Applicable DA rates considered by the Commission**

Year	Effective Date	Rate of DA	Months
FY 2016-17	Apr 1, 2016 to June 30, 2016	125%	3
	July 1, 2016 to Dec 31, 2016	132%	6
	Jan 1, 2017 to Mar 31, 2017	136%	3

- 4.5.12 GoTN vide G.O. No. 105 dated April 26, 2017 had increased the rate of DA from 132% to 136% with retrospective effect from January 1, 2017. Therefore, the Commission has also considered a 4% periodic increase in DA rate throughout the Control Period, as shown in the Table below:

**Table 4-10: DA rates considered by the Commission**

Year	Effective Date	Rate of DA	Months
FY 2017-18	Apr 1, 2017 to June 30, 2017	136%	3
	July 1, 2017 to Dec 31, 2017	140%	6
	Jan 1, 2018 to Mar 31, 2018	144%	3
FY 2018-19	Apr 1, 2018 to June 30, 2018	144%	3
	July 1, 2018 to Dec 31, 2018	148%	6
	Jan 1, 2019 to Mar 31, 2019	152%	3

#### **Repair and Maintenance Expenses**

- 4.5.13 The Commission has approved the R&M expenses for the Control Period from FY 2016-17 to FY 2018-19, based on the same approach adopted while truing-up for FY 2011-12 to FY 2015-16. The average of actual R&M expenses for past five years, viz., FY 2011-12 to FY 2015-16, as shown in the audited accounts, has been escalated twice by 5.72%, as per Tariff Regulations, 2005, to arrive at the R&M expenses for FY 2015-16. R&M expenses arrived at for FY 2015-16, have been further escalated by 5.72% annually for approving R&M expenses for the Control Period from FY 2016-17 to FY 2018-19.

#### **Administrative and General Expenses**

- 4.5.14 The Commission has approved the A&G expenses for the Control Period from FY

2016-17 to FY 2018-19, based on the same approach adopted while truing-up for FY 2011-12 to FY 2015-16. The average of actual A&G expenses for past five years, viz., FY 2011-12 to FY 2015-16, as shown in the audited accounts, has been escalated twice by 5.72%, as per Tariff Regulations, 2005, to arrive at the A&G expenses for FY 2015-16. A&G expenses arrived at for FY 2015-16, have been further escalated by 5.72% annually for approving A&G expenses for the Control Period from FY 2016-17 to FY 2018-19.

#### **O&M Expenses for new generating stations**

- 4.5.15 The Commission has determined the O&M expenses for new generating stations of TANGEDCO, namely MTPS Stage III and NCTPS Stage II (Unit 1 and Unit 2) in accordance with Regulation 25(5) of the Tariff Regulations, as reproduced below:

#### ***“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.”*

- 4.5.16 In the Capital Cost Order for MTPS Stage III and NCTPS Stage II (Unit 1 and 2), the Commission has provisionally approved the project cost and has directed TANGEDCO to file the Petition for approval of final capital cost based on completed actual project cost. Therefore, in case if there is any variation in capital cost of MTPS Stage III and NCTPS Stage II (Unit 1 and 2) after final approval, the consequent impact in O&M expenses will be passed on while truing up for respective years.

**Table 4-11: Approved O&M expenses for the Control Period from FY 2016-17 to FY 2018-19 (Rs. Crore)**

Sl.	Power Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	145.92	21.63	21.63	142.33	-	-
2	Tuticorin TPS	339.30	358.71	379.23	332.32	360.06	389.11
3	Mettur TPS	267.00	282.27	298.42	254.05	275.26	297.46
4	North Chennai TPS	241.70	255.53	270.15	237.01	256.80	277.51
5	Mettur TPS Stage III	103.80	109.74	116.01	45.10	47.67	50.40
6	North Chennai TPS II	177.66	188.27	199.52	75.79	80.12	84.71

Sl.	Power Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
7	Ennore Expansion		-	122.00	-	-	122.00
8	Tirumakottai GTPS	13.64	14.44	15.29	13.32	14.43	15.59
9	Kuttalam GTPS	10.38	11.04	11.74	10.06	10.90	11.78
10	Basin Bridge GTPS (Naphtha)	8.78	9.28	9.81	8.53	9.24	9.98
11	Valuthur GTPS	13.04	13.78	14.57	12.63	69.42	14.79
12	Erode HEP	52.96	55.99	59.19	51.45	55.74	60.24
13	Kadamparai HEP	35.14	37.15	39.27	34.05	36.89	39.87
14	Kundah HEP	54.38	57.49	60.78	52.89	57.31	61.93
15	Tirunelveli HEP	47.17	49.87	52.72	45.79	49.61	53.61
16	<b>Total Generation</b>	<b>1,510.86</b>	<b>1,465.19</b>	<b>1,670.33</b>	<b>1,315.29</b>	<b>1,323.47</b>	<b>1,488.97</b>
17	<b>Distribution</b>	<b>5,234.90</b>	<b>5,534.33</b>	<b>5,850.89</b>	<b>4,989.42</b>	<b>5,393.95</b>	<b>5,817.64</b>
18	<b>Total</b>	<b>6,745.76</b>	<b>6,999.52</b>	<b>7,521.22</b>	<b>6,304.71</b>	<b>6,717.42</b>	<b>7,306.61</b>

\*Note – As ETPS has been decommissioned in FY 2016-17, no O&M has been approved for future years.

## 4.6 Capital Expenditure and Capitalization

- 4.6.1 TANGEDCO submitted that the expenditure incurred in the existing power stations is on account of replacement of worn-out machinery, damaged equipment, transformers, boilers, generators, stators, auxiliary equipment, etc., which are necessary works to be carried out for effective and efficient working of the power station. The additional expenditure incurred on the generation plant is in line with Regulation 19 of the Tariff Regulations, and have been incurred for ensuring efficient and successful operation of the Generating Station, and for the commercial operation of the plant.
- 4.6.2 TANGEDCO submitted that the expenditure incurred for the Distribution function is on account of works, which are necessary for efficient working of the distribution system. The proposed capital works for the distribution function are mainly on account of addition of LT and HT lines, distribution transformers, services rendered during the respective years, and works carried out under RGGVY scheme.
- 4.6.3 The capitalisation proposed by TANGEDCO is shown in the Table below:

**Table 4-12: Capitalization as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	TANGEDCO		
		FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	0.00	0.00	0.00
2	Tuticorin TPS	393.22	245.02	266.40
3	Mettur TPS	217.61	127.67	109.20
4	North Chennai TPS	483.24	260.82	917.82
5	Mettur TPS Stage III	18.42	74.83	52.08
6	North Chennai TPS II	7.67	19.31	71.31
7	Ennore Expansion II	0.00	0.00	5421.00
8	Tirumakottai GTPS	17.52	108.00	43.00
9	Kuttalam GTPS	20.29	12.00	40.00
10	Basin Bridge GTPS	0.00	12.79	0.00
11	Valuthur GTPS	23.16	226.10	15.00
12	Erode HEP	0.00	0.00	0.00
13	Kadamparai HEP	3.68	7.34	14.08
14	Kundah HEP	11.21	14.45	142.37
15	Tirunelveli HEP	174.08	7.50	67.35
16	<b>Total Generation</b>	<b>1370.10</b>	<b>1115.83</b>	<b>7159.61</b>
17	<b>Distribution</b>	<b>5298.47</b>	<b>3073.03</b>	<b>2173.32</b>
18	<b>Total</b>	<b>6668.57</b>	<b>4188.86</b>	<b>9332.93</b>

### Commission's Views

- 4.6.4 TANGEDCO has considered different values of capital expenditure and capitalisation in the CIP Petition and the ARR and Tariff Petition, which is incorrect. The same values should have been considered in both Petitions. The Commission has considered capital expenditure and capitalisation for the Control Period from FY 2016-17 to FY 2018-19 in accordance with the approval given in CIP Order dated 31.07.2017 in M.P. No.28 of 2016. As stated in the CIP Order, the Commission has not approved capital cost for new generating stations while approving the CIP for FY 2016-17 to FY 2018-19. The Commission directs TANGEDCO to file a Petition for determination of provisional tariff for new generating stations six months before the expected COD. The summary of capital expenditure and capitalisation approved by the Commission is shown in the Table below:

**Table 4-13: Capital Expenditure and Capitalization as considered by Commission (Rs. Crore)**

Sl.	Particulars	Capital expenditure			Capitalisation		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
1	Generation	543.16	1,050.53	1,286.48	207.26	1,109.51	1,210.58
2	Distribution	5,298.36	2,883.77	1,966.36	5,034.85	2,938.54	2,025.13
3	<b>Total</b>	<b>5,841.52</b>	<b>3,934.30</b>	<b>3,252.84</b>	<b>5,242.11</b>	<b>4,048.05</b>	<b>3,235.71</b>

#### 4.7 Depreciation

4.7.1 TANGEDCO submitted that it has calculated depreciation for FY 2016-17 to FY 2018-19 considering the Opening GFA and proposed capitalization for FY 2016-17 to FY 2018-19 and weighted average depreciation rate of 5.28%. Depreciation for FY 2016-17 to FY 2018-19 as submitted by TANGEDCO is shown in the Table below:

**Table 4-14: Depreciation as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	TANGEDCO		
		FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	166.55	-	-
2	Tuticorin TPS	130.91	151.67	164.61
3	Mettur TPS	83.98	95.46	102.21
4	North Chennai TPS	156.55	182.07	195.84
5	Mettur TPS Stage III	192.93	193.90	197.85
6	North Chennai TPS II	403.51	403.92	404.94
7	Tirumakottai GTPS	35.46	36.38	42.09
8	Kuttalam GTPS	32.18	33.25	33.88
9	Basin Bridge GTPS	117.11	117.11	117.79
10	Valuthur GTPS	61.59	62.81	74.75
11	Erode HEP	77.08	77.08	77.47
12	Kadamparai HEP	26.88	27.07	27.84
13	Kundah HEP	86.92	87.51	87.91
14	Tirunelveli HEP	38.09	47.28	47.28
15	<b>Total Generation</b>	<b>1,609.74</b>	<b>1,515.53</b>	<b>1,574.44</b>
16	<b>Distribution</b>	<b>203.77</b>	<b>483.53</b>	<b>645.79</b>
17	<b>Total *</b>	<b>1,820.92</b>	<b>2,006.47</b>	<b>2,220.23</b>

\*- Minor error in summation submitted by TANGEDCO

#### Commission's Views

4.7.2 The Commission has approved depreciation for FY 2016-17 to FY 2018-19 in accordance with the Tariff Regulations. The closing GFA for FY 2015-16 as approved

in Chapter 3 has been considered as the opening GFA (excluding land) for each plant. Addition during the year in FY 2016-17 to FY 2018-18 has been considered same as capitalisation approved in CIP Order dated 31.07.2017 and as shown in the Table above. Further, depreciation has been computed on opening GFA for the year. In order to determine depreciation, the Commission has used the depreciation rates specified in the Tariff Regulations, as shown in the Table below:

**Table 4-15: Approved Depreciation for the Control Period from FY 2016-17 to FY 2018-19**  
(Rs. Crore)

Sl.	Power Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	166.55	-	-	98.27	-	-
2	Tuticorin TPS	130.91	151.67	164.61	110.32	110.61	121.94
3	Mettur TPS	83.98	95.46	102.21	72.14	72.27	76.93
4	North Chennai TPS	156.55	182.07	195.84	112.71	118.41	126.91
5	Mettur TPS Stage III	192.93	193.90	197.85	160.62	160.97	162.32
6	North Chennai TPS II	403.51	403.92	404.94	289.46	289.71	289.75
7	Ennore Expansion	-	-	-	-	-	-
8	Tirumakottai GTPS	35.46	36.38	42.09	40.80	40.80	46.05
9	Kuttalam GTPS	32.18	33.25	33.88	34.38	34.38	34.38
10	Basin Bridge GTPS	117.11	117.11	117.79	31.42	31.42	31.97
11	Valuthur GTPS	61.59	62.81	74.75	71.66	71.86	72.59
12	Erode HEP	77.08	77.08	77.47	64.03	64.43	67.94
13	Kadamparai HEP	26.88	27.07	27.84	30.22	30.22	33.74
14	Kundah HEP	86.92	87.51	87.91	103.77	104.32	109.64
15	Tirunelveli HEP	38.09	47.28	47.28	38.97	40.28	42.18
16	<b>Total Generation</b>	<b>1,609.74</b>	<b>1,515.53</b>	<b>1,574.44</b>	<b>1,258.76</b>	<b>1,169.65</b>	<b>1,216.35</b>
17	<b>Distribution</b>	<b>203.77</b>	<b>483.53</b>	<b>645.79</b>	<b>910.73</b>	<b>1,172.58</b>	<b>1,325.41</b>
18	<b>Total</b>	<b>1,820.92</b>	<b>2,006.47</b>	<b>2,220.23</b>	<b>2,169.49</b>	<b>2,342.24</b>	<b>2,541.76</b>

## 4.8 Interest and Financing Charges

- 4.8.1 TANGEDCO submitted that it has a basket of loans, which cannot be separately identified for each project. Hence, it has taken the entire loan balance available in the accounts of FY 2015-16 except working capital loans (closing outstanding loans of FY 2015-16) and the same has been allocated to each project based on the opening GFA of FY 2016-17 to arrive at the Opening Loan balance for each project for FY 2016-17. The



loan additions and deductions during the year have been estimated based on the projections for upcoming works for Generation and Distribution in the ensuing years.

- 4.8.2 TANGEDCO submitted that it has joined the GoI initiated UDAY for revival of Discoms and has entered in to a Tripartite Memorandum of Understanding (MoU) between GoTN, GoI and TANGEDCO on January 9, 2017.
- 4.8.3 TANGEDCO submitted that the total loan outstanding as on March 31, 2017 was estimated to be Rs. 81,782 Crore, and GoTN will take over 75% of the Distribution function's loan of Rs. 30,420 Crore. This will result in an interest savings of approximately Rs 2882 Crore at a weighted average interest rate of 12.25%. The average interest rate of 12.25% has been arrived based on the actual net average interest rate of FY 2013-14 and FY 2014-15.
- 4.8.4 TANGEDCO submitted that the interest rate considered for FY 2016-17 is 11.29%, and 10.50% for FY 2017-18 and FY 2018-19. The other finance charges had been estimated based on the actuals for FY 2015-16 reflecting in accounts of individual projects. The interest and finance charges as submitted by TANGEDCO is shown in the Table below:

**Table 4-16: Interest and Finance charges as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	TANGEDCO		
		FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	399.78	-	-
2	Tuticorin TPS	701.32	285.04	332.29
3	Mettur TPS	419.88	180.13	199.59
4	North Chennai TPS	727.19	330.02	462.03
5	Mettur TPS Stage III	197.29	257.87	255.69
6	North Chennai TPS II	237.14	565.72	542.40
7	Ennore Expansion II	-	-	163.36
8	Tirumakottai GTPS	168.27	72.63	86.05
9	Kuttalam GTPS	140.61	57.38	61.03
10	Basin Bridge GTPS	209.48	199.32	190.54
11	Valuthur GTPS	207.83	129.58	148.92
12	Erode HEP	264.43	133.54	129.61
13	Kadamparai HEP	155.16	48.82	66.81
14	Kundah HEP	338.40	150.99	153.22
15	Tirunelveli HEP	232.16	79.01	75.07
16	<b>Total Generation*</b>	<b>4399.84</b>	<b>2489.85</b>	<b>2866.00</b>
17	<b>Distribution</b>	<b>3807.19</b>	<b>3345.74</b>	<b>3945.15</b>
18	<b>Total</b>	<b>8207.03</b>	<b>5835.59</b>	<b>6811.16</b>

\*- Minor error in summation submitted by TANGEDCO

### Commission's Views

- 4.8.5 The Commission has approved interest on loans for FY 2016-17 to FY 2018-19 in accordance with the methodology adopted while approving interest on loans during the true-up for FY 2011-12 to FY 2015-16, as elaborated in Chapter 3. Further, the Commission has not considered the impact of UDAY while approving the interest on loans. The Commission is of the view that the benefit of loan takeover by GoTN under UDAY is pertaining to TANGEDCO's actual loan basket, which is related to the past losses and Regulatory Asset of TANGEDCO. However, since the Commission does not recognize TANGEDCO's actual loan basket while approving interest on loan, it would be incorrect to consider the impact of UDAY while approving interest on loan as per the Commission's methodology.
- 4.8.6 The interest on loan for the Control Period from FY 2016-17 to FY 2018-19 as approved by the Commission is shown in the Table below:

**Table 4-17: Approved Interest Expenses for FY 2016-17 to FY 2018-19 (Rs. Crore)**

Particulars	Commission		
	FY 2016-17	FY 2017-18	FY 2018-19
<b>Opening Balance</b>	<b>38,578.87</b>	<b>41,466.36</b>	<b>42,119.13</b>
Add: Addition for CAPEX	5,026.93	3,012.89	2,210.32
Add: Addition for Loan Repayment of Existing Loans	(264.72)	(485.39)	(684.91)
Add: For Repayment of new loans	5,425.66	6,309.34	7,179.87
Less: Loan Repayment	7,300.38	8,184.07	9,054.59
<b>Closing Balance</b>	<b>41,466.36</b>	<b>42,119.13</b>	<b>41,769.82</b>
Gross Interest Expenses	4,379.69	4,573.49	4,590.10
IDC	772.64	823.78	830.05
<b>Net Interest Expenses</b>	<b>3,607.05</b>	<b>3,749.71</b>	<b>3,760.05</b>

**Table 4-18: Approved Function-wise Interest Expenses for FY 2016-17 to FY 2018-19 (Rs. Crore)**

Sl.	Power Station	FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	79.65	74.27	74.27
2	Tuticorin TPS	130.89	137.39	168.87
3	Mettur TPS	81.53	80.02	81.24
4	North Chennai TPS	94.15	98.98	113.72

Sl.	Power Station	FY 2016-17	FY 2017-18	FY 2018-19
5	NCTPS Stage-II (unit 1)	313.48	281.96	252.05
6	NCTPS Stage-II (unit 2)	360.61	360.79	362.60
7	MTPS Stage-III	349.37	336.50	323.04
8	Uppur TPP	-	-	-
9	Udangudi TPP	-	-	-
10	NCTPS Stage-III	-	-	-
11	Ennore Expansion	0.00	0.00	0.00
12	Ennore SEZ	-	-	-
13	Ennore replacement	-	-	-
14	<b>Total Thermal</b>	<b>1,409.68</b>	<b>1,369.92</b>	<b>1,375.79</b>
15	Tirumakottai GTPS	34.93	36.63	40.33
16	Kuttalam GTPS	44.71	40.95	37.59
17	Basin Bridge GTPS	6.25	3.46	0.69
18	Valuthur Unit-I	90.09	83.30	78.80
19	<b>Total Gas</b>	<b>175.99</b>	<b>164.33</b>	<b>157.41</b>
20	Erode HEP - (incl. Bhavani Barrage and Bhavani Khattai)	194.68	187.83	181.53
21	Kadamparai HEP	25.32	22.29	26.09
22	Kundah HEP	95.02	84.65	73.45
23	Tirunelveli HEP (incl - Periyar)	61.30	58.64	54.12
24	Drip Work (WB funded)	0.60	11.99	29.59
25	Sillahalla	0.02	0.02	0.02
26	<b>Total Hydro</b>	<b>376.94</b>	<b>365.41</b>	<b>364.81</b>
27	Tirunelveli	-	-	-
28	Udumalpet	-	-	-
29	<b>Total Wind</b>	<b>-</b>	<b>-</b>	<b>-</b>
30	<b>Cogen Sugar Mills Under Modernisation</b>	120.12	120.12	120.12
31	<b>Total Generation</b>	<b>2,082.73</b>	<b>2,019.78</b>	<b>2,018.13</b>
32	<b>Total Distribution</b>	<b>1,524.32</b>	<b>1,729.92</b>	<b>1,741.92</b>
33	<b>Total G&amp;D</b>	<b>3,607.05</b>	<b>3,749.71</b>	<b>3,760.05</b>

### Other Finance Charges

- 4.8.7 Other Finance Charges consist of interest on security deposit and other charges such as cost of raising finance, bank charges, etc. The Commission has estimated security deposit for the Control Period based on the number of consumers projected for FY 2016-17 to FY 2018-19 and average of actual security deposit per consumer for past three years. To determine the interest on security deposit for the Control Period, the Commission has considered the interest rate of 6.90% based on T.O. 1 of 2017 dated March 3, 2017. Any variation in actual interest on security deposit vis-à-vis projected interest on security deposit will be reviewed at the time of true-up.

- 4.8.8 The interest on consumer security deposit as approved by the Commission is shown in the Table below:

**Table 4-19: Approved Interest on Security Deposit for the Control Period from FY 2016-17 to FY 2018-19 (Rs. Crore)**

Sl.	Particulars	FY 2016-17	FY 2017-18	FY 2018-19
1	Opening Security Deposit	7,940.29	8,491.51	9,282.02
2	Closing security deposit	8,491.51	9,282.02	10,107.23
3	Average Deposit	8,215.90	8,886.77	9,694.62
4	Interest rate (%)	6.90%	6.90%	6.90%
5	<b>Interest on security deposit</b>	<b>566.90</b>	<b>613.19</b>	<b>668.93</b>

- 4.8.9 The Commission has approved Other Finance Charges such as cost of raising finance, bank charges, etc., at the same level as that approved for FY 2015-16, as shown in the Table below. Any variation in the Other Finance Charges will be reviewed at the time of true-up.

**Table 4-20: Approved Other Finance Charges for the Control Period from FY 2016-17 to FY 2018-19 (Rs. Crore)**

Sl.	Particulars	FY 2016-17	FY 2017-18	FY 2018-19
1	Other finance charges	245.15	245.15	245.15

## 4.9 Return on Equity

- 4.9.1 TANGEDCO submitted that it has calculated RoE for FY 2016-17 to FY 2018-19 on the basis on the average equity for the corresponding years. TANGEDCO submitted that RoE is a surplus generated, which entitles a Utility to safeguard itself against any uneven contingencies in future. It further submitted that the addition of equity has been considered based on the capitalization of the assets (30% of capitalization). The reasonable rate of return has been considered as 14% as specified in the Tariff Regulations.
- 4.9.2 RoE as submitted by TANGEDCO is shown in the Table below:

**Table 4-21: Return on Equity as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	TANGEDCO		
		FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	63.82	-	-
2	Tuticorin TPS	115.10	120.49	120.49
3	Mettur TPS	66.89	70.02	70.02
4	North Chennai TPS	135.19	141.52	141.52
5	Mettur TPS Stage III	163.83	171.51	171.51
6	North Chennai TPS II	0.00	0.00	0.00
7	Ennore Expansion II	-	-	113.84
8	Tirumakottai GTPS	26.84	28.10	28.10
9	Kuttalam GTPS	27.80	29.11	29.11
10	Basin Bridge GTPS	32.56	34.09	34.09
11	Valuthur GTPS	34.31	35.92	35.92
12	Erode HEP	70.00	73.28	73.28
13	Kadamparai HEP	22.43	23.48	23.48
14	Kundah HEP	57.12	59.80	59.80
15	Tirunelveli HEP	26.84	28.10	28.10
16	<b>Total Generation</b>	<b>842.72</b>	<b>815.42</b>	<b>929.26</b>
17	<b>Distribution</b>	<b>582.32</b>	<b>609.62</b>	<b>609.62</b>
18	<b>Total</b>	<b>1,425.04</b>	<b>1,425.04</b>	<b>1,538.88</b>

**Commission's Views**

4.9.3 In continuation of the approach discussed in detail in Chapter 3 of the Order, the Commission has not approved RoE for the Control Period from FY 2016-17 to FY 2018-19.

**4.10 Interest on Working Capital**

4.10.1 TANGEDCO submitted that the IoWC for FY 2016-17 to FY 2018-19 is based on normative calculations as specified in the Tariff Regulations. Further, it has considered interest rate of 12.25% in FY 2016-17 and 11.50% for FY 2017-18 and FY 2018-19.

4.10.2 TANGEDCO submitted that while calculating the IoWC for distribution function, the amount collected as security deposit has been deducted from the working capital requirement, in line with the past Tariff Order, though the calculation of IoWC as specified under the Regulations does not require the same to be deducted.

**Table 4-22: Interest on Working Capital as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	TANGEDCO		
		FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	35.98	0.63	0.63
2	Tuticorin TPS	129.81	111.66	118.13
3	Mettur TPS	108.83	89.81	94.59
4	North Chennai TPS	74.74	66.05	72.53
5	Mettur TPS Stage III	77.25	71.17	74.10
6	North Chennai TPS II	92.81	113.32	117.56
7	Ennore Expansion II	-	-	45.21
8	Tirumakottai GTPS	13.27	11.39	12.21
9	Kuttalam GTPS	12.02	10.35	10.84
10	Basin Bridge GTPS	11.77	10.90	10.76
11	Valuthur GTPS	14.55	18.49	19.75
12	Erode HEP	6.20	3.82	4.21
13	Kadamparai HEP	6.28	3.92	4.51
14	Kundah HEP	14.81	10.40	10.63
15	Tirunelveli HEP	9.19	5.92	5.93
16	<b>Total Generation</b>	<b>607.51</b>	<b>527.84</b>	<b>601.59</b>
17	<b>Distribution</b>	<b>238.13</b>	<b>235.23</b>	<b>351.19</b>
18	<b>Total</b>	<b>845.64</b>	<b>763.07</b>	<b>952.79</b>

**Commission's Views**

4.10.3 The Commission has approved Interest on Working Capital (IoWC) separately for generating and distribution function of TANGEDCO in accordance with Regulation 26 of TNERC Tariff Regulations, 2005.

*“26. Working Capital*

*(1)...*

*(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.*

*(d) ...*

*(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 days consumption charges.”*

4.10.4 As it is difficult to estimate the historical cost of assets, the Commission has approved maintenance spares at 1% of opening GFA for respective years (in line with the approach adopted in chapter 3. Further, assets were segregated between generation and distribution function based on the GFA details submitted by TANGEDCO. Further, interest rate for approving IoWC has been considered in accordance with Tariff Regulations.

4.10.5 Interest on Working Capital as approved by the Commission for third Control Period FY 2016-17 to FY 2018-19 has been shown in the table below:

**Table 4-23: Approved Interest on Working Capital for the Control Period from FY 2016-17 to FY 2018-19 (Rs. Crore)**

Sl.	Power Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	35.98	0.63	0.63	41.72	-	-
2	Tuticorin TPS	129.81	111.66	118.13	150.56	139.53	139.92
3	Mettur TPS	108.83	89.81	94.59	126.22	116.98	117.30
4	North Chennai TPS	74.74	66.05	72.53	86.68	80.34	80.56
5	Mettur TPS Stage III	77.25	71.17	74.10	89.59	83.03	83.26
6	North Chennai TPS II	92.81	113.32	117.56	107.64	99.76	100.04
7	Ennore Expansion	-	-	45.21	-	-	45.21
8	Tirumakottai GTPS	13.27	11.39	12.21	15.39	14.27	14.31
9	Kuttalam GTPS	12.02	10.35	10.84	13.94	12.92	12.95
10	Basin Bridge GTPS	11.77	10.90	10.76	13.65	12.65	12.69
11	Valuthur GTPS	14.55	18.49	19.75	16.88	15.64	15.69
12	Erode HEP	6.20	3.82	4.21	7.19	6.66	6.68
13	Kadamparai HEP	6.28	3.92	4.51	7.29	6.75	6.77
14	Kundah HEP	14.81	10.40	10.63	17.18	15.92	15.97
15	Tirunelveli HEP	9.19	5.92	5.93	10.66	9.88	9.90
16	<b>Total Generation</b>	<b>607.51</b>	<b>527.84</b>	<b>601.59</b>	<b>704.59</b>	<b>614.32</b>	<b>661.24</b>
17	<b>Distribution</b>	<b>238.13</b>	<b>235.23</b>	<b>351.19</b>	-	-	-
18	<b>Total</b>	<b>845.64</b>	<b>763.07</b>	<b>952.79</b>	<b>704.59</b>	<b>614.32</b>	<b>661.24</b>

\*Note – As ETPS has been decommissioned in FY 2016-17, no IoWC has been approved for future years.

## 4.11 Other Debits

4.11.1 Other Debits as submitted by TANGEDCO is shown in the Table below:

**Table 4-24: Other debits as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	TANGEDCO		
		FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	-	-	-
2	Tuticorin TPS	0.86	0.86	0.86
3	Mettur TPS	1.13	1.13	1.13
4	North Chennai TPS	0.25	0.25	0.25
5	Mettur TPS Stage III	0.99	0.99	0.99
6	North Chennai TPS II	-	-	-
7	Ennore Expansion II	-	-	-
8	Tirumakottai GTPS	-	-	-
9	Kuttalam GTPS	-	-	-
10	Basin Bridge GTPS	-	-	-
11	Valuthur GTPS	-	-	-



Sl.	Power Station	TANGEDCO		
		FY 2016-17	FY 2017-18	FY 2018-19
12	Erode HEP	-	-	-
13	Kadamparai HEP	0.02	0.02	0.02
14	Kundah HEP	0.09	0.09	0.09
15	Tirunelveli HEP	0.08	0.08	0.08
16	<b>Total Generation</b>	<b>3.43</b>	<b>3.43</b>	<b>3.43</b>
17	<b>Distribution</b>	<b>13.19</b>	<b>13.19</b>	<b>13.19</b>
18	<b>Total</b>	<b>16.61</b>	<b>16.61</b>	<b>16.61</b>

### Commission's Views

- 4.11.2 At present, the Commission has not approved Other Debits for the Control Period from FY 2016-17 to FY 2018-19 on projection basis. The Commission shall allow Other Debits after scrutiny at the time of true-up based on prudence check of the audited accounts.

### 4.12 Other Income and Non-Tariff Income

- 4.12.1 TANGEDCO submitted that the Other Income for Generation function has been projected for FY 2016-17 to FY 2018-19 based on the actuals of FY 2015-16. Other Income for FY 2016-17 to FY 2018-19 for Generation and Distribution functions as submitted by TANGEDCO is shown in the Table below:

**Table 4-25: Other Income as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	TANGEDCO		
		FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	12.72	-	-
2	Tuticorin TPS	36.40	36.40	36.40
3	Mettur TPS	32.36	32.36	32.36
4	North Chennai TPS	29.11	29.11	29.11
5	Mettur TPS Stage III	34.50	34.50	34.50
6	North Chennai TPS II	9.78	9.78	9.78
7	Ennore Expansion II	-	-	-
8	Tirumakottai GTPS	0.15	0.15	0.15
9	Kuttalam GTPS	0.12	0.12	0.12
10	Basin Bridge GTPS	0.05	0.05	0.05
11	Valuthur GTPS	0.16	0.16	0.16
12	Erode HEP	0.10	0.10	0.10
13	Kadamparai HEP	0.25	0.25	0.25
14	Kundah HEP	0.90	0.90	0.90
15	Tirunelveli HEP	0.47	0.47	0.47
16	<b>Total Generation</b>	<b>157.07</b>	<b>144.35</b>	<b>144.35</b>
17	<b>Distribution</b>	<b>434.73</b>	<b>586.89</b>	<b>704.27</b>
18	<b>Total</b>	<b>591.80</b>	<b>731.24</b>	<b>848.62</b>

- 4.12.2 The Non-Tariff Income estimated by TANGEDCO for Distribution function is shown in the Table below:

**Table 4-26: Non-Tariff Income as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2016-17	FY 2017-18	FY 2018-19
1	Non-Tariff Income	780.86	952.65	971.70

### **Commission's Views**

- 4.12.3 The Commission has approved Other Income and Non-Tariff Income based on past trend, i.e., 4 year CAGR of 9% and 16% for Non-Tariff Income and Other Income, respectively. Actual Other Income and Non-Tariff Income shall be considered at the time of truing up based on audited accounts and prudence check. The Other Income and Non-Tariff Income approved by the Commission for the Control Period from FY 2016-17 to FY 2018-19 is shown in the Table below:

**Table 4-27: Approved Other Income and Non-Tariff Income for the Control Period from FY 2016-17 to FY 2018-19 (Rs. Crore)**

Particulars	TANGEDCO			Commission		
	FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
Non-Tariff Income	780.86	952.65	971.70	851.20	927.88	1,011.47
Other Income	591.80	731.24	848.62	574.59	667.59	775.65
<b>Total</b>	<b>1,372.66</b>	<b>1,683.89</b>	<b>1,820.32</b>	<b>1,425.79</b>	<b>1,595.48</b>	<b>1,787.13</b>

## **4.13 Summary of Fixed Expenses**

- 4.13.1 Based on above submission, summary of Fixed Cost for the Control Period from FY 2016-17 to FY 2018-19 as submitted by TANGEDCO is shown in the Table below:

**Table 4-28: Fixed Cost summary for FY 2016-17 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2016-17										
		Depreciation	I&FC	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Op. Charges and Extra Ordinary	Other Income	Non-Tariff Income	Other Interest & Fin. Charges	Total Fixed Cost
1	Ennore TPS	166.55	396.74	63.82	35.98	145.92	-	12.09	12.72		3.05	811.42
2	Tuticorin TPS	130.91	689.16	115.10	129.81	339.30	0.86	8.84	36.40		12.16	1,389.75
3	Mettur TPS	83.98	409.54	66.89	108.83	267.00	1.13	3.65	32.36		10.34	918.99
4	North Chennai TPS	156.55	720.75	135.19	74.74	241.70	0.25	50.86	29.11		6.43	1,357.37
5	Mettur TPS Stage III	192.93	194.43	163.83	77.25	103.80	0.99	1.45	34.50		2.86	703.03
6	North Chennai TPS II	403.51	234.73	-	92.81	177.66	-	14.65	9.78		2.40	915.99
7	Tirumakottai GTPS	35.46	167.74	26.84	13.27	13.64	-	0.55	0.15		0.53	257.88
8	Kuttalam GTPS	32.18	140.10	27.80	12.02	10.38	-	0.15	0.12		0.50	223.02
9	Basin Bridge GTPS (Naphtha)	117.11	208.99	32.56	11.77	8.78	-	-	0.05		0.49	379.65
10	Valuthur Unit-I	61.59	206.93	34.31	14.55	13.04	-	-	0.16		0.89	331.15
12	Erode HEP	79.82*	261.74	70.00	6.20	52.96	-	0.08	0.10		2.70	473.39
13	Kadamparai HEP	26.88	153.47	22.43	6.28	35.14	0.02	1.83	0.25		1.69	247.50
14	Kundah HEP	86.92	335.63	57.12	14.81	54.38	0.09	9.42	0.90		2.77	560.24
15	Tirunelveli HEP	38.09	229.21	26.84	9.19	47.17	0.08	2.80	0.47		2.95	355.86
16	<b>Total Generation</b>	<b>1,612.48</b>	<b>4,349.17</b>	<b>842.72</b>	<b>607.51</b>	<b>1,510.86</b>	<b>3.43</b>	<b>106.37</b>	<b>157.07</b>	<b>-</b>	<b>49.78</b>	<b>8,925.24</b>
17	<b>Distribution</b>	<b>203.77</b>	<b>2,945.14</b>	<b>582.32</b>	<b>238.13</b>	<b>5,234.90</b>	<b>13.19</b>	<b>-</b>	<b>434.73</b>	<b>780.86</b>	<b>862.05</b>	<b>8,863.91</b>
18	<b>Total</b>	<b>1,816.25</b>	<b>7,294.31</b>	<b>1,425.04</b>	<b>845.64</b>	<b>6,745.76</b>	<b>16.61</b>	<b>106.37</b>	<b>591.80</b>	<b>780.86</b>	<b>911.83</b>	<b>17,789.15</b>

\*In Table 4-13, Depreciation for Erode has been submitted as Rs. 77.08 Crore

**Table 4-29: Fixed Cost summary for FY 2017-18 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2017-18										
		Depreciation	I&FC	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Op. Charges and Extra Ordinary	Other Income	Non-Tariff Income	Other Interest & Fin. Charges	Total Fixed Cost
1	Ennore TPS	-	-	-	0.63	21.63	-	-	-		-	22.26
2	Tuticorin TPS	151.67	272.40	120.49	111.66	358.71	0.86	9.20	36.40		12.64	1,001.24
3	Mettur TPS	95.46	169.38	70.02	89.81	282.27	1.13	3.80	32.36		10.75	690.26
4	North Chennai TPS	182.07	323.33	141.52	66.05	255.53	0.25	52.89	29.11		6.69	999.23
5	Mettur TPS Stage III	193.90	254.90	171.51	71.17	109.74	0.99	1.51	34.50		2.97	772.19
6	North Chennai TPS II	403.92	563.22	-	113.32	188.27	-	15.24	9.78		2.50	1,276.68
	Ennore Expansion	-	-	-	-	-		-	-		-	-
7	Tirumakottai GTPS	36.38	72.07	28.10	11.39	14.44	-	0.57	0.15		0.56	163.36
8	Kuttalam GTPS	33.25	56.86	29.11	10.35	11.04	-	0.16	0.12		0.52	141.17
9	Basin Bridge GTPS (Naphtha)	117.11	198.80	34.09	10.90	9.28	-	-	0.05		0.51	370.64
10	Valuthur GTPS	62.81	128.65	35.92	18.49	13.78	-	-	0.16		0.93	260.43
12	Erode HEP	79.82*	130.73	73.28	3.82	55.99	-	0.08	0.10		2.81	346.43
13	Kadamparai HEP	27.07	47.06	23.48	3.92	37.15	0.02	1.90	0.25		1.76	142.11
14	Kundah HEP	87.51	148.10	59.80	10.40	57.49	0.09	9.80	0.90		2.89	375.17
15	Tirunelveli HEP	47.28	75.95	28.10	5.92	49.87	0.08	2.91	0.47		3.07	212.70
16	<b>Total Generation</b>	<b>1,518.27</b>	<b>2,441.45</b>	<b>815.42</b>	<b>527.84</b>	<b>1,465.19</b>	<b>3.43</b>	<b>98.06</b>	<b>144.35</b>	<b>-</b>	<b>48.60</b>	<b>6,773.89</b>
17	<b>Distribution</b>	<b>483.53</b>	<b>2,440.64</b>	<b>609.62</b>	<b>235.23</b>	<b>5,534.33</b>	<b>13.19</b>		<b>586.89</b>	<b>952.65</b>	<b>905.10</b>	<b>8,682.11</b>
18	<b>Total</b>	<b>2,001.80</b>	<b>4,882.09</b>	<b>1,425.04</b>	<b>763.07</b>	<b>6,999.52</b>	<b>16.61</b>	<b>98.06</b>	<b>731.24</b>	<b>952.65</b>	<b>953.70</b>	<b>15,456.00</b>

**\*In Table 4-13, Depreciation for Erode has been submitted as Rs. 77.08 Crore**

**Table 4-30: Fixed Cost summary for FY 2018-19 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Power Station	FY 2018-19										
		Depreciation	I&FC	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Op. Charges and Extra Ordinary	Other Income	Non-Tariff Income	Other Interest & Fin. Charges	Total Fixed Cost
1	Ennore TPS	-	-	-	0.63	21.63	-	-	-		-	22.26
2	Tuticorin TPS	164.61	319.14	120.49	118.13	379.23	0.86	9.57	36.40		13.15	1,088.78
3	Mettur TPS	102.21	188.41	70.02	94.59	298.42	1.13	3.95	32.36		11.18	737.55
4	North Chennai TPS	195.84	455.07	141.52	72.53	270.15	0.25	55.01	29.11		6.96	1,168.22
5	Mettur TPS Stage III	197.85	252.60	171.51	74.10	116.01	0.99	1.57	34.50		3.09	783.22
6	North Chennai TPS II	404.94	539.80	-	117.56	199.52	-	15.85	9.78		2.60	1,270.48
	Ennore Expansion	-	163.36	113.84	45.21	122.00		1.57	-		-	445.98
7	Tirumakottai GTPS	42.09	85.47	28.10	12.21	15.29	-	0.59	0.15		0.58	184.18
8	Kuttalam GTPS	33.88	60.49	29.11	10.84	11.74	-	0.17	0.12		0.54	146.64
9	Basin Bridge GTPS (Naphtha)	117.79	190.01	34.09	10.76	9.81	-	-	0.05		0.53	362.93
10	Valuthur GTPS	74.75	147.95	35.92	19.75	14.57	-	-	0.16		0.97	293.74
12	Erode HEP	80.21	126.69	73.28	4.21	59.19	-	0.09	0.10		2.92	346.49
13	Kadamparai HEP	27.84	64.98	23.48	4.51	39.27	0.02	1.98	0.25		1.83	163.67
14	Kundah HEP	87.91	150.22	59.80	10.63	60.78	0.09	10.19	0.90		3.00	381.71
15	Tirunelveli HEP	47.28	71.87	28.10	5.93	52.72	0.08	3.03	0.47		3.19	211.73
16	<b>Total Generation</b>	<b>1,577.18</b>	<b>2,816.06</b>	<b>929.26</b>	<b>601.59</b>	<b>1,670.33</b>	<b>3.43</b>	<b>103.55</b>	<b>144.35</b>	<b>-</b>	<b>50.55</b>	<b>7,607.59</b>
17	<b>Distribution</b>	<b>645.79</b>	<b>2,994.85</b>	<b>609.62</b>	<b>351.19</b>	<b>5,850.89</b>	<b>13.19</b>		<b>704.27</b>	<b>971.70</b>	<b>950.30</b>	<b>9,739.87</b>
18	<b>Total</b>	<b>2,222.97</b>	<b>5,810.91</b>	<b>1,538.88</b>	<b>952.79</b>	<b>7,521.22</b>	<b>16.61</b>	<b>103.55</b>	<b>848.62</b>	<b>971.70</b>	<b>1,000.84</b>	<b>17,347.46</b>

\*In Table 4-13, Depreciation for Erode has been submitted as Rs. 77.47 Crore

## Commission's Views

### Distribution Function

- 4.13.2 Based on the component-wise approval given as elaborated in the above Sections, the summary of TANGEDCO's Fixed Cost for Distribution function for the Control Period from FY 2016-17 to FY 2018-19 is shown in the Table below:

**Table 4-31: Fixed Cost summary for Distribution function from FY 2016-17 to FY 2018-19 as approved by Commission (Rs. Crore)**

Sl.	Details	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
1	Operation & Maintenance Expenses	5,234.90	5,534.33	5,850.89	4,989.42	5,393.95	5,817.64
2	Depreciation	203.77	483.53	645.79	910.73	1,172.58	1,325.41
3	Interest and Finance Charges	2,945.14	2,440.64	2,994.85	1,524.32	1,729.92	1,741.92
4	Interest on Working Capital	238.13	235.23	351.19	-	-	-
5	Return on Equity	582.32	609.62	609.62	-	-	-
6	Other Debits	13.19	13.19	13.19	-	-	-
7	Other Interest and Finance Charges	862.05	905.10	950.30	776.76	825.52	881.57
8	<b>Gross Aggregate Revenue Requirement</b>	<b>10,079.50</b>	<b>10,221.65</b>	<b>11,415.84</b>	<b>8,201.23</b>	<b>9,121.97</b>	<b>9,766.53</b>
9	Less: Other Income	434.73	586.89	704.27	422.09	535.80	643.71
10	Less: Non-Tariff Income	780.86	952.65	971.70	851.20	927.88	1,011.47
11	<b>Net Aggregate Revenue Requirement</b>	<b>8,863.91</b>	<b>8,682.11</b>	<b>9,739.87</b>	<b>6,927.94</b>	<b>7,658.28</b>	<b>8,111.35</b>

### Generation Function (Capacity Charges)

- 4.13.3 As per Regulation 36 of the Tariff Regulations, fixed cost components for Generation function consist of:

#### ***"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.”*

- 4.13.4 Therefore, based on the component-wise approval given in the above Sections, the approved fixed cost/capacity charges for generating stations for the Control Period from FY 2016-17 to FY 2018-19 are shown below:

**Table 4-32: Approved Fixed Charges for Generation function for FY 2016-17 (Rs. Crore)**

Sl.	Power Station	FY 2016-17										
		Depreciation	I&FC	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Op. Charges and Extra Ordinary	Other Income	Non-Tariff Income	Other Interest & Fin. Charges	Total Fixed Cost
1	Ennore TPS	98.27	189.99	-	41.72	142.33	-	-	12.35		3.05	463.01
2	Tuticorin TPS	110.32	330.03	-	150.56	332.32	-	-	35.34		12.16	900.04
3	Mettur TPS	72.14	196.12	-	126.22	254.05	-	-	31.42		10.34	627.45
4	North Chennai TPS	112.71	345.15	-	86.68	237.01	-	-	28.27		6.43	759.72
5	Mettur TPS Stage III	160.62	93.11	-	89.59	45.10	-	-	33.49		2.86	357.78
6	North Chennai TPS II	289.46	112.41	-	107.64	75.79	-	-	9.50		2.40	578.20
7	Tirumakottai GTPS	40.80	80.33	-	15.39	13.32	-	-	0.14		0.53	150.23
8	Kuttalam GTPS	34.38	67.09	-	13.94	10.06	-	-	0.12		0.50	125.86
9	Basin Bridge GTPS (Naphtha)	31.42	100.08	-	13.65	8.53	-	-	0.05		0.49	154.12
10	Valuthur GTPS	71.66	99.10	-	16.88	12.63	-	-	0.16		0.89	201.00
12	Erode HEP	64.03	125.34	-	7.19	51.45	-	-	0.10		2.70	250.61
13	Kadamparai HEP	30.22	73.50	-	7.29	34.05	-	-	0.24		1.69	146.50
14	Kundah HEP	103.77	160.72	-	17.18	52.89	-	-	0.88		2.77	336.46
15	Tirunelveli HEP	38.97	109.77	-	10.66	45.79	-	-	0.45		2.95	207.68
<b>16</b>	<b>Total Generation</b>	<b>1,258.76</b>	<b>2,082.73</b>	<b>-</b>	<b>704.59</b>	<b>1,315.29</b>	<b>-</b>		<b>152.50</b>		<b>49.78</b>	<b>5,258.64</b>



**Table 4-33: Approved Fixed Charges for Generation function for FY 2017-18 (Rs. Crore)**

Sl.	Power Station	FY 2017-18										
		Depreciation	I&FC	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Op. Charges and Extra Ordinary	Other Income	Non-Tariff Income	Other Interest & Fin. Charges	Total Fixed Cost
1	Ennore TPS	-		-	-	-	-	-			-	
2	Tuticorin TPS	110.61	225.35	-	139.53	360.06	-	-	33.23		8.54	810.86
3	Mettur TPS	72.27	140.12	-	116.98	275.26	-	-	29.55		7.26	582.34
4	North Chennai TPS	118.41	267.49	-	80.34	256.80	-	-	26.58		4.52	700.97
5	Mettur TPS Stage III	160.97	210.87	-	83.03	47.67	-	-	31.49		2.01	473.05
6	North Chennai TPS II	289.71	465.94	-	99.76	80.12	-	-	8.93		1.69	928.29
7	Tirumakottai GTPS	40.80	59.62	-	14.27	14.43	-	-	0.13		0.37	129.36
8	Kuttalam GTPS	34.38	47.04	-	12.92	10.90	-	-	0.11		0.35	105.48
9	Basin Bridge GTPS (Naphtha)	31.42	164.47	-	12.65	9.24	-	-	0.05		0.35	218.08
10	Valuthur GTPS	71.86	106.43	-	15.64	69.42	-	-	0.15		0.63	208.10
12	Erode HEP	64.43	108.15	-	6.66	55.74	-	-	0.09		1.89	236.79
13	Kadamparai HEP	30.22	38.93	-	6.75	36.89	-	-	0.23		1.19	113.76
14	Kundah HEP	104.32	122.52	-	15.92	57.31	-	-	0.83		1.95	301.20
15	Tirunelveli HEP	40.28	62.83	-	9.88	49.61	-	-	0.43		2.07	164.24
<b>16</b>	<b>Total Generation</b>	<b>1,169.65</b>	<b>2,019.78</b>	<b>-</b>	<b>614.32</b>	<b>1,323.46</b>	<b>-</b>		<b>131.79</b>		<b>32.81</b>	<b>5,028.25</b>

**Table 4-34: Approved Fixed Charges for Generation function for FY 2018-19 (Rs. Crore)**

Sl.	Power Station	FY 2018-19										
		Depreciation	I&FC	Return on Equity	Interest on Working Capital	O & M Expenses	Other Debits	Op. Charges and Extra Ordinary	Other Income	Non-Tariff Income	Other Interest & Fin. Charges	Total Fixed Cost
1	Ennore TPS	-	-		-	-	-	-	-		-	-
2	Tuticorin TPS	121.94	228.72		139.92	389.11	-	-	33.27		8.46	854.57
3	Mettur TPS	76.93	135.02		117.30	297.46	-	-	29.58		7.19	604.33
4	North Chennai TPS	126.91	326.13		80.56	277.51	-	-	26.61		4.48	788.98
5	Mettur TPS Stage III	162.32	181.03		83.26	50.40	-	-	31.53		1.99	447.46
6	North Chennai TPS II	289.75	386.85		100.04	84.71	-	-	8.94		1.67	854.07
7	Ennore Expansion	-	117.07		45.21	122.00	-	-	-		-	284.28
8	Tirumakottai GTPS	46.05	61.25		14.31	15.59	-	-	0.13		0.37	137.44
9	Kuttalam GTPS	34.38	43.35		12.95	11.78	-	-	0.11		0.35	102.70
10	Basin Bridge GTPS (Naphtha)	31.97	136.17		12.69	9.98	-	-	0.05		0.34	191.11
12	Valuthur GTPS	72.59	106.03		15.69	14.79	-	-	0.15		0.62	209.57
13	Erode HEP	67.94	90.80		6.68	60.24	-	-	0.09		1.88	227.44
14	Kadamparai HEP	33.74	46.57		6.77	39.87	-	-	0.23		1.18	127.90
15	Kundah HEP	109.64	107.65		15.97	61.93	-	-	0.83		1.93	296.29
16	Tirunelveli HEP	42.18	51.51		9.90	53.61	-	-	0.43		2.05	158.83
17	<b>Total Generation</b>	<b>1,216.35</b>	<b>2,018.13</b>	<b>-</b>	<b>661.24</b>	<b>1,488.97</b>	<b>-</b>		<b>131.94</b>		<b>32.51</b>	<b>5,285.26</b>

- 4.13.5 The recovery of capacity charge is governed by Regulation 42 of the Tariff Regulations, which specifies 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....”*

- 4.13.6 The above Capacity Charges as determined by the Commission shall be recoverable when TANGEDCO is able to meet the Availability norms specified in the Tariff Regulations, else, there will be pro-rate reduction in the Capacity Charges recoverable.

#### **4.14 Variable Costs for Own Generating Stations**

##### **4.14.1 Operational Performance**

- 4.14.1.1 TANGEDCO submitted that the actual operating parameters achieved during the year are dependent on the condition of the machine, which is a function of following factors:

- i. O&M carried out in the plant since commissioning
- ii. Degradation due to ageing
- iii. Water Chemistry
- iv. Conditions of the Auxiliaries
- v. Overloading and Partial Loading of machines
- vi. Number of Starts/Stops
- vii. Temperature and Pressure stress the Machines have been subjected to
- viii. Automation of C&I
- ix. Condenser Vacuum

##### **4.14.2 Plant Load Factor**

- 4.14.2.1 Tariff Regulations specifies the Target Plant Load factor of 80%. The Commission has approved PLF for TANGEDCO's generating stations in accordance with the Tariff Regulations. For ETPS, PLF has been approved for FY 2016-17 based on average of actual PLF for past 5 years. For Basin Bridge GTPS, TANGEDCO has projected PLF at the same level as in FY 2015-16, which has been accepted.

4.14.2.2 The PLF for the Control Period from FY 2016-17 to FY 2018-19 as submitted by TANGEDCO (based on actual loading) and as approved by the Commission is shown in the Table below:

**Table 4-35: Approved PLF for Own Generating Stations for FY 2016-17 to FY 2018-19**

Sl.	Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
	<b>Coal Thermal</b>						
1	Ennore TPS	31.08%	-	-	24.65%		
2	Ennore Expansion II			32.80%			32.80%
3	Tuticorin TPS	80.00%	80.00%	81.60%	80.00%	80.00%	80.00%
4	Mettur TPS	80.00%	80.00%	81.60%	80.00%	80.00%	80.00%
5	Mettur Stage III TPS	80.00%	80.00%	81.60%	80.00%	80.00%	80.00%
6	North Chennai TPS	80.00%	87.44%	89.17%	80.00%	80.00%	80.00%
7	North Chennai Stage II TPS	80.00%	80.00%	81.60%	80.00%	80.00%	80.00%
	<b>Gas Thermal</b>						
1	Tirumakottai GTPS	80.00%	85.20%	87.00%	80.00%	80.00%	80.00%
2	Kuttalam GTPS	80.00%	85.80%	87.50%	80.00%	80.00%	80.00%
3	Basin Bridge GTPS	0.01 %	0.01 %	0.01 %	0.6%	0.6%	0.6%
4	Valathur GTPS Unit	80.00%	83.56%	85.30%	80.00%	80.00%	80.00%

#### 4.14.3 Auxiliary Consumption

4.14.3.1 The Commission has approved Auxiliary Consumption for TANGEDCO's generating stations in accordance with the Tariff Regulations. For Mettur Stage III TPS, the Commission in SMT Order has approved the Auxiliary Consumption of 8.83% for FY 2014-15. However, it is observed that the actual auxiliary consumption for FY 2014-15 and FY 2015-16 is 7.28% and 6.45% respectively, which is much lower than the normative Auxiliary consumption of 8.50%. Hence, it would not be appropriate to consider any relaxation in Auxiliary consumption. Accordingly, the Commission has approved the Auxiliary Consumption of 8.50% for Control Period from FY 2016-17 to FY 2018-19 for Mettur Stage III TPS. For Ennore TPS, the Auxiliary Consumption for FY 2016-17 has been considered at the same level as approved in the true-up for FY 2015-16. For Basin Bridge GTPS, TANGEDCO has projected Auxiliary Consumption at the same level as in FY 2015-16, which has been accepted. Auxiliary Consumption for the Control Period

from FY 2016-17 to FY 2018-19 as submitted by TANGEDCO (based on actual data) and as approved by the Commission is shown in the Table below:

**Table 4-36: Approved Auxiliary Consumption (%) for Own Generating Stations for FY 2016-17 to FY 2018-19**

Sl.	Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
	<b>Coal Thermal</b>						
1	Ennore TPS	15.00%			15.00%		
2	Ennore Expansion II			8.50%			8.50%
3	Tuticorin TPS	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%
4	Mettur TPS	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%
5	Mettur Stage III TPS	8.83%	8.83%	8.83%	8.50%	8.50%	8.50%
6	North Chennai TPS	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%
7	North Chennai Stage II TPS	8.50%	8.83%	8.83%	8.50%	8.50%	8.50%
	<b>Gas Thermal</b>						
1	Tirumakottai GTPS	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
2	Kuttalam GTPS	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
3	Basin Bridge GTPS	0.99%	0.99%	0.99%	0.99%	0.99%	0.99%
4	Valathur GTPS Unit	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%

#### 4.14.4 Station Heat Rate (SHR)

4.14.4.1 TANGEDCO submitted that at ETPS, due to prolonged service of the Units of lower capacity and partial load operations, the performance has deteriorated, resulting in increased SHR.

4.14.4.2 As discussed in Chapter 3 of this Order, TANGEDCO has submitted SHR for North Chennai Stage II TPS as 1984 kcal/kWh which is incorrect as coal thermal power stations cannot have such low SHR based on present technology. Regulation 37(iii) of the Tariff Regulations specifies the norms for SHR. For Ennore TPS and Basin Bridge GTPS, the SHR for FY 2016-17 has been considered at the same level as approved in the true-up for FY 2015-16. For other Stations, the Commission has approved SHR for TANGEDCO's generating stations in accordance with the Tariff Regulations, as shown in the Table below:

**Table 4-37: Approved SHR (kcal/kWh) for Own Generating Stations for FY 2016-17 to FY 2018-19**

Sl.	Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
	<b>Coal Thermal</b>						
1	Ennore TPS	3,200	-	-	3,200	-	-
2	Ennore Expansion II			2,450	-	-	2,450
3	Tuticorin TPS	2,450	2,453	2,453	2,453	2,453	2,453
4	Mettur TPS	2,450	2,500	2,500	2,500	2,500	2,500
5	Mettur Stage III TPS	2,450	2,450	2,450	2,450	2,450	2,450
6	North Chennai TPS	2,393	2,393	2,393	2,393	2,393	2,393
7	North Chennai Stage II TPS	1,984	2,450	2,450	2,450	2,450	2,450
	<b>Gas Thermal</b>						
1	Tirumakottai GTPS	1,850	1,850	1,850	1,850	1,850	1,850
2	Kuttalam GTPS	1,850	1,850	1,850	1,850	1,850	1,850
3	Basin Bridge GTPS	3,219	3,219	3,219	3,219	3,219	3,219
4	Valathur GTPS Unit	1,850	1,850	1,850	1,850	1,850	1,850

#### 4.14.5 Specific Fuel Oil Consumption (SFOC)

4.14.5.1 TANGEDCO submitted that the SFOC is calculated in terms of percentage of total calorific requirement of the power generating Unit and has relation with the size of the generating Unit. For the lower size Units, the SFOC remains higher as compared to that for larger size power generating Units as certain amount of SFOC remains fixed irrespective of the size of the generating unit.

4.14.5.2 Regulation 37(iv) of the Tariff Regulations specifies the normative SFOC for TANGEDCO's generating plants. The Commission in SMT Order has approved lower norms for SFOC based on actual performance of Thermal Generating Stations. In this Order, the Commission has considered the SFOC norms at same level as approved in SMT Order, as shown in the Table below:

**Table 4-38: Approved SFOC (ml/kWh) for Own Generating Stations for FY 2016-17 to FY 2018-19**

Sl. No.	Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
1	Ennore TPS	10.10	-	-	10.10	-	-
2	Ennore Expansion II			1.00			1.00
3	Tuticorin TPS	2.39	2.39	2.39	2.39	2.39	2.39
4	Mettur TPS	1.40	1.40	1.40	1.40	1.40	1.40
5	Mettur Stage III TPS	1.40	1.47	1.47	1.47	1.47	1.47
6	North Chennai TPS	1.76	1.76	1.76	1.76	1.76	1.76
7	North Chennai Stage II TPS	1.41	1.47	1.47	1.84	1.84	1.84

#### 4.14.6 Fuel Related Parameters

##### GCV of Coal/Gas

4.14.6.1 TANGEDCO submitted that it has projected GCV for FY 2016-17 to FY 2018-19 based on the actual GCV of primary fuel during FY 2015-16. The Commission has verified the details of actual GCV submitted by TANGEDCO vis-a-vis actual GCV recorded in the audited accounts. The Commission has observed the difference in actual GCV submitted by TANGEDCO and recorded in audited accounts. The Commission has reconciled the actual GCV details and considered accordingly. Therefore, the Commission has approved GCV for FY 2016-17 to FY 2018-19 as shown in the following Table:

**Table 4-39: GCV of coal/gas (kcal/kg) (kcal/SCM) as considered by the Commission**

Sl.	Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
	<b>Coal Thermal</b>						
1	Ennore TPS	3,260			3,260		
2	Ennore Expansion II			3,551			3,551
3	Tuticorin TPS	3,440	3,170	3,170	3,440	3,440	3,440
4	Mettur TPS	3,253	3,028	3,028	3,623	3,623	3,623
5	Mettur Stage III TPS	3,438	2,962	2,962	3,438	3,438	3,438
6	North Chennai TPS	3,837	3,542	3,542	4,113	4,113	4,113

Sl.	Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
7	North Chennai Stage II TPS	3,804	3,141	3,141	3,954	3,954	3,954
	<b>Gas Thermal</b>						
1	Tirumakottai GTPS	10,000	10,000	10,000	10,000	10,000	10,000
2	Kuttalam GTPS	10,000	10,000	10,000	10,000	10,000	10,000
3	Basin Bridge GTPS	10,572	10,572	10,572	10,572	10,572	10,572
4	Valathur GTPS Unit	10,000	10,000	10,000	10,000	10,000	10,000

### Price of coal/gas

4.14.6.2 For projection of fuel cost and energy charges, the Commission has considered the actual price of fuel (coal/gas) as submitted by TANGEDCO, duly verified with actual bills. The price of coal/gas as submitted by TANGEDCO and as considered by the Commission is shown in the Table below:

**Table 4-40: Price of coal/gas as considered by the Commission (Rs./MT) /(Rs./SCM)**

Sl.	Station	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
	<b>Coal Thermal</b>						
1	Ennore TPS	3,205	-	-	3,205	-	-
2	Ennore Expansion II	-	-	3,470	-	-	3,470
3	Tuticorin TPS	4,265	3,771	3,884	4,265	3,771	3,884
4	Mettur TPS	4,610	3,756	3,869	4,610	3,756	3,869
5	Mettur Stage III TPS	4,610	3,756	3,869	4,610	3,756	3,869
6	North Chennai TPS	3,837	3,542	3,542	3,837	3,542	3,542
7	North Chennai Stage II TPS	3,420	3,046	3,147	3,420	3,046	3,147
	<b>Gas Thermal</b>						
1	Tirumakottai GTPS	11.72	12.07	12.43	11.72	12.07	12.43
2	Kuttalam GTPS	11.89	12.25	12.61	11.89	12.25	12.61
3	Basin Bridge GTPS	7.11	7.32	7.54	35.00	35.00	35.00
4	Valathur GTPS Unit	11.21	11.55	11.89	11.21	11.55	11.89

### 4.14.7 Gross Generation from own Generation Power Plants

4.14.7.1 The Commission has approved the station-wise Gross Generation from TANGEDCO's own generating plants based on the generation capacity and approved PLF, as discussed in earlier Sections. The Gross Generation from



TANGEDCO's own generating stations as submitted by TANGEDCO and as approved by the Commission is shown in the Table below:

**Table 4-41: Approved Gross Generation for Own Generating Stations (MU)**

Particulars	TANGEDCO's submission			Commission		
	FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
Ennore TPS	925.69	-	-	971.90	-	-
Ennore Expansion II	-	-	1,896.00	-	-	1,896.36
Tuticorin TPS	7,358.40	7,358.40	7,505.57	7,358.40	7,358.40	7,358.40
Mettur TPS	5,886.72	5,886.72	6,004.45	5,886.72	5,886.72	5,886.72
Mettur Stage III TPS	4,205.00	4,204.80	4,288.90	4,204.80	4,204.80	4,204.80
North Chennai TPS	4,415.04	4,825.64	4,921.11	4,415.04	4,415.04	4,415.04
North Chennai Stage II TPS	8,409.60	8,409.60	8,577.79	8,409.60	8,409.60	8,409.60
<b>Coal Thermal</b>	<b>31,200.45</b>	<b>30,685.16</b>	<b>33,193.82</b>	<b>31,246.46</b>	<b>30,274.56</b>	<b>32,170.92</b>
Tirumakottai GTPS	756.02	805.16	822.18	756.02	756.02	756.02
Kuttalam GTPS	700.80	751.61	766.50	707.81	707.81	707.81
Basin Bridge GTPS	6.31	6.31	6.31	6.31	6.31	6.31
Valuthur GTPS	665.76	1,368.81	1,397.32	1,310.50	1,310.50	1,310.50
<b>Gas Thermal</b>	<b>2,128.89</b>	<b>2,931.89</b>	<b>2,992.30</b>	<b>2,780.63</b>	<b>2,780.63</b>	<b>2,780.63</b>
<b>Total Hydro</b>	<b>4,460.06</b>	<b>6,150.00</b>	<b>6,221.00</b>	<b>4,460.27</b>	<b>6,149.60</b>	<b>6,220.71</b>
Wind	12.00	12.00	12.00	12.00	12.00	12.00
<b>Grand Total</b>	<b>37,801.40</b>	<b>39,779.05</b>	<b>42,419.12</b>	<b>38,499.37</b>	<b>39,216.79</b>	<b>41,184.27</b>

#### 4.14.8 Net Generation from State Owned Power Plant

4.14.8.1 The Commission has approved the station-wise Net Generation from TANGEDCO's own generating plants based on the Gross Generation considered above and approved Auxiliary Consumption norms, as discussed in earlier Sections. Net Generation from TANGEDCO's own generating stations as submitted by TANGEDCO and as approved by the Commission is shown in the Table below

**Table 4-42: Approved Net Generation for Own Generating Stations (MU)**

Particulars	TANGEDCO's submission			Commission		
	FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
Ennore TPS	786.83	-	-	826.11	-	-
Ennore Expansion II	-	-	1,735.17	-	-	1,735.17

Particulars	TANGEDCO's submission			Commission		
	FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
Tuticorin TPS	6,732.94	6,732.94	6,867.59	6,732.94	6,732.94	6,732.94
Mettur TPS	5,386.35	5,386.35	5,494.08	5,386.35	5,386.35	5,386.35
Mettur Stage III TPS	3,833.52	3,833.52	3,910.19	3,847.39	3,847.39	3,847.39
North Chennai TPS	4,039.76	4,415.46	4,502.82	4,039.76	4,039.76	4,039.76
North Chennai Stage II TPS	7,694.78	7,667.03	7,820.37	7,694.78	7,694.78	7,694.78
<b>Coal Thermal</b>	<b>28,474.18</b>	<b>28,035.29</b>	<b>30,330.22</b>	<b>28,527.34</b>	<b>27,701.22</b>	<b>29,436.40</b>
Tirumakottai GTPS	710.66	756.85	772.84	710.66	710.66	710.66
Kuttalam GTPS	658.75	706.51	720.51	665.34	665.34	665.34
Basin Bridge GTPS	6.24	6.24	6.24	6.24	6.24	6.24
Valuthur GTPS	625.81	1,286.68	1,313.00	1,231.87	1,231.87	1,231.87
<b>Coal Thermal</b>	<b>2,001.47</b>	<b>2,756.30</b>	<b>2,812.60</b>	<b>2,614.11</b>	<b>2,614.11</b>	<b>2,614.11</b>
<b>Total Hydro</b>	<b>4,438.00</b>	<b>6,118.91</b>	<b>6,189.61</b>	<b>4,438.26</b>	<b>6,118.97</b>	<b>6,189.43</b>
Wind	12.00	12.00	12.00	12.00	12.00	12.00
<b>Grand Total</b>	<b>34,925.65</b>	<b>36,922.50</b>	<b>39,343.92</b>	<b>35,591.71</b>	<b>36,446.30</b>	<b>38,251.94</b>

#### 4.14.9 Energy Charge

4.14.9.1 Based on the approved performance parameters, viz., SHR, SFOC, and GCV and price of fuel considered, the Station-wise Energy Charges approved for the Control Period from FY 2016-17 to FY 2018-19 are shown in the Table below:

**Table 4-43: Approved Energy Charges (Rs./kWh)**

Particulars	TANGEDCO's submission			Commission		
	FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
<b>Coal Thermal</b>						
Ennore TPS	3.90	-	-	3.90	-	-
Ennore Expansion II	-	-	2.64	-	-	2.64
Tuticorin TPS	3.39	3.27	3.36	3.40	3.02	3.11
Mettur TPS	3.84	3.43	3.54	3.52	2.88	2.97
Mettur Stage III TPS	3.65	3.45	3.56	3.63	2.97	3.06
North Chennai TPS	2.36	2.29	2.37	2.48	2.29	2.30
North Chennai Stage II TPS	1.98	2.64	2.73	2.36	2.11	2.18
<b>Gas Thermal</b>						
Tirumakottai GTPS	2.31	2.38	2.45	2.31	2.38	2.45
Kuttalam GTPS	2.34	2.41	2.48	2.34	2.41	2.48
Basin Bridge GTPS	2.19	2.25	2.32	10.76	10.76	10.76
Valuthur GTPS	2.21	2.27	2.34	2.21	2.27	2.34

4.14.9.2 Based on the approved Net Generation and Energy Charges, the approved variable cost for the Control Period from FY 2016-17 to FY 2018-19 is shown in the Table below:

**Table 4-44: Approved Variable Cost (Rs. Crore)**

Particulars	TANGEDCO's submission			Commission		
	FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
Ennore TPS	307.24	-	-	322.57	-	-
Ennore Expansion II	-	-	458.62	-	-	458.62
Tuticorin TPS	2,284.18	2,199.38	2,310.66	2,287.18	2,032.58	2,093.56
Mettur TPS	2,066.05	1,850.01	1,943.62	1,895.47	1,551.41	1,597.95
Mettur Stage III TPS	1,397.51	1,324.11	1,391.64	968.12	1,140.17	1,197.86
North Chennai TPS	953.07	1,012.72	1,065.59	1,001.23	926.73	927.45
North Chennai Stage II TPS	1,527.29	2,026.98	2,135.76	1,818.43	1,626.71	1,680.35
	<b>8,535.34</b>	<b>8,413.20</b>	<b>9,305.89</b>	<b>8,292.99</b>	<b>7,277.59</b>	<b>7,955.77</b>
Tirumakottai GTPS	164.14	180.03	189.34	163.92	168.84	173.90
Kuttalam GTPS	154.15	170.29	178.87	155.69	160.36	165.17
Basin Bridge GTPS	1.37	1.41	1.45	6.72	6.72	6.72
Valuthur GTPS	138.22	292.54	307.58	271.78	279.93	288.33
	<b>457.88</b>	<b>644.27</b>	<b>677.24</b>	<b>598.11</b>	<b>615.85</b>	<b>634.13</b>
Wind	3.30	3.30	3.30	3.30	3.30	3.30
<b>Grand Total</b>	<b>8,996.52</b>	<b>9,060.77</b>	<b>9,986.43</b>	<b>8,894.41</b>	<b>7,896.75</b>	<b>8,593.20</b>

#### 4.15 Power Purchase from Other Sources

4.15.1 TANGEDCO submitted that it has applied Merit Order Despatch (MOD) for FY 2016-17 to FY 2018-19 and ranked all the outside sources based on the increasing order of their variable cost per unit and had not applied MOD on its own generation and had therefore, considered the entire power available from its own generation in the power purchase cost.

4.15.2 TANGEDCO submitted that it has considered Transmission Charges in the ARR for Distribution function for FY 2016-17 to FY 2018-19 based on 5% escalation over the actual Transmission Charges of FY 2015-16.

4.15.3 Based on MOD, the power purchase expenses estimated to be incurred by TANGEDCO for FY 2016-17 to FY 2018-19 is shown in the Table below:

**Table 4-45: Power Purchase Expenses for FY 2016-17 to FY 2018-19 as submitted by  
TANGEDCO**

Sl.	Name of Station	FY 2016-17		FY 2017-18		FY 2018-19	
		Qty (MU)	Total Cost (Rs. Cr.)	Qty (MU)	Total Cost (Rs. Cr.)	Qty (MU)	Total Cost (Rs. Cr.)
	<b>NLC Stations</b>						
1	Neyveli TS-I	2,675.00	1,024.35	3,942.00	1,539.72	3,942.00	1,570.52
2	Neyveli TS-II Stage I	3,260.00	999.67	3,596.42	1,124.89	3,596.42	1,147.39
3	Neyveli TS-I Expansion	1,675.00	610.9	1,675.00	623.12	1,675.00	635.58
4	Neyveli Expansion Unit II	1,302.00	599.98	1,302.00	611.98	1,302.00	624.22
5	NTPL JV with NLC	2,375.00	960.18	2,375.00	979.38	2,375.00	998.97
	<b>Total NLC</b>	<b>11,287.00</b>	<b>4,195.08</b>	<b>12,890.42</b>	<b>4,879.09</b>	<b>12,890.42</b>	<b>4,976.67</b>
	<b>NTPC Stations</b>						
6	Ramagundam I&II	4,050.00	1,187.87	4,050.00	1,211.63	4,050.00	1,235.86
7	Ramagundam III	1,095.00	357.09	967.1	321.69	967.1	328.12
8	Simhadri Stage II -Unit III	1,525.00	626.37	1,673.86	701.26	1,673.86	715.29
9	NTPC TNEB JV Val lur	7,192.84	2,715.35	7,866.70	3,029.14	7,866.70	3,089.72
10	Talcher	3,810.00	819.43	3,925.37	851.72	3,925.37	869.15
11	NTPC ER	325	103.68	325	105.75	325	107.87
	<b>Total NTPC</b>	<b>17,997.84</b>	<b>5,809.79</b>	<b>18,808.04</b>	<b>6,221.19</b>	<b>18,808.04</b>	<b>6,346.01</b>
	<b>Nuclear Stations</b>						
12	Madras APS	2,371.00	503.6	2,471.64	535.47	2,479.52	537.67
13	Kaiga APS	1,825.00	567.03	1,653.89	524.14	1,653.89	524.47
14	Kudankulam Unit I	3,776.54	1,491.72	3,776.54	1,491.72	3,776.54	1,492.10
15	Kudankulam Unit II	944.14	372.93	3,776.54	1,491.72	3,776.54	1,492.10
16	PFBR Kalpakkam			458	178.62	1,170.34	456.43
	<b>Total Nuclear Stations</b>	<b>8,916.68</b>	<b>2,935.27</b>	<b>12,136.62</b>	<b>4,221.67</b>	<b>12,856.83</b>	<b>4,502.77</b>
	<b>IPPs</b>						
17	Pillaiperumalnallur	159.18	346.98	159.18	353.92	159.18	361
18	TAQA (STCMS)	1,104.94	515.45	1,104.94	525.76	1,104.94	536.27
19	LANCO Power (Aban co)	793.31	292.98	793.4	298.88	793.31	304.82
20	PIONEER Power co. (Penna)	370.02	134.45	370.35	137.26	370.02	139.88
	<b>Total IPP</b>	<b>2,427.44</b>	<b>1,289.86</b>	<b>2,427.86</b>	<b>1,315.82</b>	<b>2,427.44</b>	<b>1,341.97</b>
21	Windmill	6,944.49	2,263.90	6,149.52	2,044.84	6,346.62	2,152.59
22	Co-generation	970	399.64	970.44	407.82	970.44	415.97
23	Biomass	20	-	20	6.3	20	6.43
24	Captive generation	38.5	9.24	38.5	9.42	35	8.74
25	Solar	1,505.50	1,031.60	2,293.90	1,406.09	2,525.13	1,451.95
26	Traders-MTOA			1,840.40	554.33		

Sl.	Name of Station	FY 2016-17		FY 2017-18		FY 2018-19	
		Qty (MU)	Total Cost (Rs. Cr.)	Qty (MU)	Total Cost (Rs. Cr.)	Qty (MU)	Total Cost (Rs. Cr.)
27	Traders-LTOA	8,822.84	3,923.08	8,044.49	3,830.79	15,230.28	7,045.83
28	Traders -STOA	250.62	96.49	-		-	
29	Transmission - PGCIL, POSOCO, STOA charges	-	945.52		992.8		1,042.44
30	TANTRANSCO Charges		1,781.74		1,870.82		1,964.37
	<b>Grand Total</b>	<b>59,180.91</b>	<b>24,681.20</b>	<b>65,620.19</b>	<b>27,760.97</b>	<b>72,110.19</b>	<b>31,255.73</b>

### Commission's Views

4.15.4 The Commission has approved the power purchase cost for the Control Period from FY 2016-17 to FY 2018-19, based on the following:

- Energy Availability approved by the Commission, as elaborated in earlier Sections
- MOD in accordance with Regulation 75(1) of the Tariff Regulations.
- RPO quantum as specified in RPO Regulations, 2010 after amendment dated March 30, 2016.

4.15.5 As elaborated in Chapter 3, the Commission has subjected all sources of power purchase excluding the must run plants, to the merit order principle including TANGEDCO's own generating stations based on approved Energy Charges. The sources have been arranged based on their ranking, with the source having lowest variable cost being ranked first and despatched fully, and with the next ranked sources being despatched to the fullest/partly, till such time the approved Energy Requirement is matched. Further, it is clarified that even in cases where the sources have been considered as partial/zero despatch due to MOD constraints, the Fixed Costs have been considered fully, assuming that they will meet the Availability norms as per the PPA/Regulations. The same will be subject to true-up based on actuals. The Commission reiterates that the whole objective of applying MOD principle is to optimise the power purchase cost, and it should be immaterial to TANGEDCO, whether the power is being procured from its own generation sources or other sources, as long as the rate of power purchase is lower, as the fixed costs of TANGEDCO's generating stations are recovered based on their Availability rather than actual generation.

4.15.6 For FY 2016-17, the Commission has considered Energy Charge per unit and Fixed Charge based on actual data for 11 months. The same Energy Charge per unit have been considered for FY 2017-18 and FY 2018-19 without any annual escalation.

4.15.7 The Commission also observes that TANGEDCO does not appear to be availing the low cost short-term power available in the Power Exchanges. While the majority of power purchase should preferably be from long/medium-term sources, TANGEDCO should assess the opportunities available to meet around 10% of its power requirement from Power Exchanges in case the landed power purchase rates are lower than the variable cost of power available to TANGEDCO from other sources, with the view to minimise the power purchase cost. TANGEDCO should frequently review the prevailing rates in the Power Exchanges in order to optimise the power purchase cost.

**Table 4-46: Must run plants**

Sl.	Power Plant
1	Nuclear Power Plants
2	Wind Power Plants
3	Solar Power Plants
4	Cogeneration Power Plants

**Table 4-47: MOD ranking for FY 2016-17**

Source	Variable Cost (Rs/kWh)
M/s. Ind Bharath Energy (Utkal) Ltd.	0.80
M/s. PTC India Ltd.	1.04
M/s. D.B.Power Ltd.	1.34
M/s. Jindal Power Ltd.	1.37
M/s. G.M.R. Energy Trading Ltd.	1.52
NTPC Talcher	1.65
M/s. Bharat Aluminium Company Ltd.	1.83
M/s. Dhariwal Infrastructure Ltd	1.88
LANCO Power (Aban co)	1.96
Penna	1.97
MTOA	2.00
M/s. KSK Mahanadi Power Company Ltd.	2.06
NTPC SR (Ramagundam) III	2.16
VGTPS (Unit 1 and 2)	2.21
NTPC SR (Ramagundam) (I&II)	2.26
NTPC ER	2.30
TGTPS	2.31
KGTPS	2.34
North Chennai TPS	2.36
NTPC Vallur Unit 1 & Unit 2 (NTECL)	2.40
NLC TS Expansion II	2.42

Source	Variable Cost (Rs/kWh)
MTPS Stage III	2.48
NLC TS Expansion I	2.49
NTPL (JV with NLC)	2.56
NLC TS - II - Stage 1	2.60
NTPC Simhadri	2.68
M/s. IL & FS Tamil Nadu Power Company Ltd.	2.80
M/s. Coastal Energen Power Ltd.	2.85
M/s. OPG Power Gen Pvt. Ltd.	3.12
NLC TS - I	3.36
Tuticorin TPS	3.40
STCMS - Neyveli	3.44
Mettur TPS	3.52
NCTPS Stage-II	3.63
STOA	3.85
Ennore TPS	3.90
PPN	7.47
BBGTPS	10.76

**Table 4-48: MOD ranking for FY 2017-18**

Source	Variable Cost (Rs/kWh)
M/s. Ind Bharath Energy (Utkal) Ltd.	0.80
M/s. PTC India Ltd.	1.04
M/s. D.B.Power Ltd.	1.34
M/s. Jindal Power Ltd.	1.37
M/s. G.M.R. Energy Trading Ltd.	1.52
NTPC Talcher	1.65
M/s. Bharat Aluminium Company Ltd.	1.83
M/s. Dhariwal Infrastructure Ltd	1.88
LANCO Power (Aban co)	1.96
Penna	1.97
MTOA	2.00
M/s. KSK Mahanadi Power Company Ltd.	2.06
North Chennai TPS	2.11
NTPC SR (Ramagundam) III	2.16
NTPC SR (Ramagundam) (I&II)	2.26
VGTPS (Unit 1 and 2)	2.27
MTPS Stage III	2.29
NTPC ER	2.30

Source	Variable Cost (Rs/kWh)
TGTPS	2.38
NTPC Vallur Unit 1 & Unit 2 (NTECL)	2.40
KGTPS	2.41
NLC TS Expansion II	2.42
NLC TS Expansion I	2.49
NTPL (JV with NLC)	2.56
NLC TS - II - Stage 1	2.60
NTPC Simhadri	2.68
M/s. IL & FS Tamil Nadu Power Company Ltd.	2.80
M/s. Coastal Energen Power Ltd.	2.85
Mettur TPS	2.88
NCTPS Stage-II	2.97
Tuticorin TPS	3.02
M/s. OPG Power Gen Pvt. Ltd.	3.12
NLC TS – I	3.36
STCMS - Neyveli	3.44
STOA	3.85
PPN	7.47
BBGTPS	10.76

**Table 4-49: MOD ranking for FY 2018-19**

Source	Variable Cost (Rs/kWh)
M/s. Ind Bharath Energy (Utkal) Ltd.	0.80
M/s. PTC India Ltd.	1.04
M/s. D.B.Power Ltd.	1.34
M/s. Jindal Power Ltd.	1.37
M/s. G.M.R. Energy Trading Ltd.	1.52
NTPC Talcher	1.65
M/s. Bharat Aluminium Company Ltd.	1.83
M/s. Dhariwal Infrastructure Ltd	1.88
LANCO Power (Aban co)	1.96
Penna	1.97
MTOA	2.00
M/s. KSK Mahanadi Power Company Ltd.	2.06
NTPC SR (Ramagundam) III	2.16
North Chennai TPS	2.18
NTPC SR (Ramagundam) (I&II)	2.26
MTPS Stage III	2.30



Source	Variable Cost (Rs/kWh)
NTPC ER	2.30
VGTPS (Unit 1 and 2)	2.34
NTPC Vallur Unit 1 & Unit 2 (NTECL)	2.40
NLC TS Expansion II	2.42
TGTPS	2.45
KGTPS	2.48
NLC TS Expansion I	2.49
NTPL (JV with NLC)	2.56
NLC TS - II - Stage 1	2.60
Ennore Expansion	2.64
NTPC Simhadri	2.68
M/s. IL & FS Tamil Nadu Power Company Ltd.	2.80
M/s. Coastal Energen Power Ltd.	2.85
Mettur TPS	2.97
NCTPS Stage-II	3.06
Tuticorin TPS	3.11
M/s. OPG Power Gen Pvt. Ltd.	3.12
NLC TS – I	3.36
STCMS - Neyveli	3.44
STOA	3.85
PPN	7.47

4.15.8 TANGEDCO should take prior approval from the Commission for purchasing energy from unapproved sources and for power purchase beyond MoD. The Commission appreciates that the MoD is a dynamic activity, as TANGEDCO has to meet the MW requirement as well as MU requirement on a day-to-day basis, and rates of power purchase from other sources are subject to revision. At the same time, TANGEDCO is duty-bound to ensure that the cheapest power (in terms of variable cost) available is procured, which is laid down by the broad MoD stack detailed above. Hence, TANGEDCO is directed to submit the MoD stack of actual power purchased from various sources during the month, on a monthly basis. Further, in case of any variations from the MoD stack approved by the Commission, TANGEDCO should file quarterly Petitions for ratification of such power purchase with proper justification, in the same manner as being done presently for purchase from IPPs outside the MoD stack.

4.15.9 Further, even though the energy availability from RE and captive sources has been considered as projected by TANGEDCO, the purchase from these sources has been

restricted as per RPO requirements, i.e., 9% from Non-Solar sources in FY 2016-17 to FY 2018-19, 2.5% from Solar in FY 2016-17 and 5% from Solar in FY 2017-18 and FY 2018-19. Any shortfall in Solar or Non-Solar requirements has been considered to be met through purchase of REC at the prevalent floor price.

4.15.10 The Commission has observed that on account of the forecasting facility made available during FY 2016-17 by IWPA and NIWE, the purchase from Wind sources has increased. Therefore, in view of grid security and stability, and the desired optimisation of cost and meeting of RPO requirements, the Commission directs TANGEDCO to ensure that forecasting facility for wind generation is available to TANGEDCO. In order to make the forecasting more accurate, suitable in-house forecasting module may also be developed.

4.15.11 The Commission has considered the Transmission Charges for the Control Period from FY 2016-17 to FY 2018-19 in accordance with the Transmission Tariff approved for TANTRANSCO in the MYT Order in T.P. No. 2 of 2017 dated August 11, 2017 and based on allotted transmission capacity of TANGEDCO. SLDC charges for FY 2017-18 and FY 2018-19 have been considered in accordance with the SLDC charges approved for TANGEDCO in T.P. No. 3 of 2017 dated August 11, 2017. PGCIL Charges have been considered at the same level as approved for FY 2015-16.

4.15.12 The summary of the source-wise Power Purchase Costs approved by the Commission for the Control Period from FY 2016-17 to FY 2018-19 is shown in the Tables below:

**Table 4-50: Approved Power Purchase Expenses for FY 2016-17**

Sl .	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh)	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh)	Total Cost (Rs. Cr.)
1.	<b>Own Generating Stations</b>						
	Ennore TPS	-	463.01	3.90	-	-	463.01
	Tuticorin TPS	1,212.15	900.04	3.40	411.77	10.82	1,311.81
	Mettur TPS	-	627.45	3.52	-	-	627.45
	MTPS Stage III	4,039.76	759.72	2.48	1,001.23	4.36	1,760.95
	North Chennai TPS	7,694.78	357.78	2.36	1,818.43	2.83	2,176.21
	NCTPS Stage-II	-	578.20	3.63	-	-	578.20
	TGTPS	710.66	150.23	2.31	163.92	4.42	314.15
	KGTPS	665.34	125.86	2.34	155.69	4.23	281.55
	BBGTPS	-	154.12	10.76	-	-	154.12

Sl .	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh )	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh)	Total Cost (Rs. Cr.)
	VGTPS (Unit 1 and 2)	1,231.87	201.00	2.21	271.78	3.84	472.78
	Erode HEP	756.26	250.61		-	3.31	250.61
	Kadamparai HEP	477.00	146.50		-	3.07	146.50
	Kundah HEP	1,695.00	336.46		-	1.99	336.46
	Tirunelveli HEP	1,096.00	207.68		-	1.89	207.68
	Wind	12.00		2.75	3.30	2.75	3.30
	<b>Total</b>	<b>19,590.82</b>	<b>5,258.64</b>	<b>1.95</b>	<b>3,826.12</b>	<b>4.64</b>	<b>9,084.73</b>
<b>2</b>	<b>CGS</b>						
	NTPC SR (Ramagundam) (I&II)	3,639.70	195.23	2.26	822.57	2.80	1,017.80
	NTPC SR (Ramagundam) III	918.99	75.55	2.16	198.50	2.98	274.05
	NLC TS - I	3,236.24	251.05	3.36	1,087.38	4.14	1,338.43
	NLC TS - II - Stage 1	1,189.45	182.52	2.60	309.26	4.13	491.78
	NLC TS Expansion I	1,408.57	166.33	2.49	350.73	3.67	517.06
	NLC TS Expansion II	930.88	128.68	2.42	225.27	3.80	353.95
	NTPL (JV with NLC)	2,597.54	375.18	2.56	664.97	4.00	1,040.15
	NTPC Talcher	3,231.59	258.12	1.65	533.21	2.45	791.33
	NTPC Simhadri	1,504.97	199.00	2.68	403.33	4.00	602.33
	MAPS	1,530.78	-	2.12	324.52	2.12	324.52
	KAIGA	1,175.28	-	3.13	367.86	3.13	367.86
	NTPC ER	325.00	24.03	2.30	74.75	3.04	98.78
	NTPC Vallur Unit 1 & Unit 2 (NTECL)	7,075.96	953.97	2.40	1,698.23	3.75	2,652.20
	Kudankulam	5,176.14	-	3.50	1,811.65	3.50	1,811.65
	<b>Total</b>	<b>33,941.08</b>	<b>2,809.66</b>	<b>2.61</b>	<b>8,872.24</b>	<b>3.44</b>	<b>11,681.90</b>
<b>3</b>	<b>IPP</b>						
	PPN	-	104.73	7.47	-	-	104.73
	STCMS - Neyveli (TAQA)	-	218.93	3.44	-	-	218.93
	LANCO Power (Aban co)	466.69	44.42	1.96	91.47	2.91	135.89
	Penna	358.63	33.89	1.97	70.65	2.91	104.54
	<b>Total</b>	<b>825.33</b>	<b>401.96</b>	<b>1.96</b>	<b>162.12</b>	<b>6.83</b>	<b>564.08</b>
<b>4</b>	<b>Renewables</b>						
	Wind	5,602.27	-	3.08	1,725.50	3.08	1,725.50
	Biomass	20.00	-	3.08	6.16	3.08	6.16
	Cogeneration	970.00	-	4.12	399.64	4.12	399.64
	Captive	38.50	-	1.78	6.85	1.78	6.85
	Solar	1,505.50	-	6.85	1,031.60	6.85	1,031.60
	REC (Non-Solar)	-			-	-	-
	REC (Solar)	-	33.97			-	33.97
	<b>Total</b>	<b>8,136.27</b>	<b>33.97</b>	<b>3.90</b>	<b>3,169.75</b>	<b>3.94</b>	<b>3,203.72</b>
<b>5</b>	<b>Traders</b>						

Sl .	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh )	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh)	Total Cost (Rs. Cr.)
	<b>LTOA</b>						
	M/s. D.B.Power Ltd.	1,489.60	422.03	1.34	199.61	4.17	621.64
	M/s. Jindal Power Ltd.	2,864.62	847.50	1.37	392.45	4.33	1,239.96
	M/s. Ind Bharath Energy (Utkal) Ltd.	3,580.78	387.27	0.80	286.46	1.88	673.74
	M/s. Bharat Aluminium Company Ltd.	1,432.31	225.05	1.83	262.11	3.40	487.16
	M/s. Dhariwal Infrastructure Ltd	716.16	143.15	1.88	134.64	3.88	277.79
	M/s. PTC India Ltd.	716.16	230.20	1.04	74.48	4.25	304.68
	M/s. KSK Mahanadi Power Company Ltd.	3,580.78	663.61	2.06	737.64	3.91	1,401.25
	M/s. G.M.R. Energy Trading Ltd.	1,074.23	305.07	1.52	163.28	4.36	468.35
	M/s. IL & FS Tamil Nadu Power Company Ltd.	3,867.24	1,033.40	2.80	1,082.83	5.47	2,116.22
	M/s. Coastal Energen Power Ltd.	3,996.15	731.23	2.85	1,138.90	4.68	1,870.13
	M/s. OPG Power Gen Pvt. Ltd.	529.96	81.92	3.12	165.35	4.67	247.27
	MTOA	2,507.53	376.13	2.00	501.51	3.50	877.63
	STOA	-	-	-	-	-	-
	<b>Total</b>	<b>26,355.52</b>	<b>5,446.57</b>	<b>1.956</b>	<b>5,139.26</b>	<b>4.02</b>	<b>10,585.83</b>
4	TANTRANSCO Charges	-	-				2,023.24
5	PGCIL Charges	-	-				900.00
6	<b>Total Power Purchase Cost</b>	<b>88,849.02</b>	<b>13,950.80</b>	<b>2.38</b>	<b>21,169.49</b>	<b>4.28</b>	<b>38,043.54</b>

**Table 4-51: Approved Power Purchase Expenses for FY 2017-18**

Sl .	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh )	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh )	Total Cost (Rs. Cr.)
1.	<b>Own Generating Stations</b>						
	Ennore TPS	-	-	-	-	-	-
	Tuticorin TPS	839.48	810.86	3.02	253.43	12.68	1,064.29
	Mettur TPS	5,386.35	582.34	2.88	1,551.41	3.96	2,133.75
	MTPS Stage III	4,039.76	700.97	2.29	926.73	4.03	1,627.70
	North Chennai TPS	7,694.78	473.05	2.11	1,626.71	2.73	2,099.76
	NCTPS Stage-II	3,847.39	928.29	2.97	1,144.29	5.39	2,072.58
	TGTPS	710.66	129.36	2.38	168.84	4.20	298.20
	KGTPS	665.34	105.48	2.41	160.36	4.00	265.84
	BBGTPS	-	218.08	10.76	-	-	218.08
	VGTPS (Unit 1 and 2)	1,231.87	208.10	2.27	279.93	3.96	488.03
	Erode HEP	1,311.97	236.79		-	1.80	236.79
	Kadamparai HEP	956.00	113.76		-	1.19	113.76
	Kundah HEP	2,411.00	301.21		-	1.25	301.21
	Tirunelveli HEP	1,026.00	164.24		-	1.60	164.24

Sl .	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh )	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh )	Total Cost (Rs. Cr.)
	Wind	12.00		2.75	3.30	2.75	3.30
	<b>Total</b>	<b>30,132.60</b>	<b>4,972.50</b>	<b>2.03</b>	<b>6,115.00</b>	<b>3.68</b>	<b>11,087.50</b>
<b>2</b>	<b>CGS</b>						
	NTPC SR (Ramagundam) (I&II)	3,727.40	195.23	2.26	842.39	2.78	1,037.62
	NTPC SR (Ramagundam) III	941.14	75.55	2.16	203.29	2.96	278.84
	NLC TS – I	-	251.05	3.36	-	-	251.05
	NLC TS - II - Stage 1	1,189.45	182.52	2.60	309.26	4.13	491.78
	NLC TS Expansion I	1,408.57	166.33	2.49	350.73	3.67	517.06
	NLC TS Expansion II	930.88	128.68	2.42	225.27	3.80	353.95
	NTPL (JV with NLC)	2,597.54	375.18	2.56	664.97	4.00	1,040.15
	NTPC Talcher	3,231.59	258.12	1.65	533.21	2.45	791.33
	NTPC Simhadri	1,541.23	199.00	2.68	413.05	3.97	612.05
	MAPS	1,530.78	-	2.12	324.52	2.12	324.52
	KAIGA	1,175.28	-	3.13	367.86	3.13	367.86
	NTPC ER	325.00	24.03	2.30	74.75	3.04	98.78
	NTPC Vallur Unit 1 & Unit 2 (NTECL)	7,075.96	953.97	2.40	1,698.23	3.75	2,652.20
	PFBR Kalpakkam	767.69	-	3.90	299.40	3.90	299.40
	Kudankulum	5,176.14	-	3.50	1,811.65	3.50	1,811.65
	<b>Total</b>	<b>31,618.65</b>	<b>2,809.66</b>	<b>2.57</b>	<b>8,118.59</b>	<b>3.46</b>	<b>10,928.25</b>
<b>3</b>	<b>IPP</b>						
	PPN	-	104.73	7.47	-	-	104.73
	STCMS - Neyveli (TAQA)	-	218.93	3.44	-	-	218.93
	LANCO Power (Aban co)	466.69	44.42	1.96	91.47	2.91	135.89
	Penna	358.63	33.89	1.97	70.65	2.91	104.54
	<b>Total</b>	<b>825.33</b>	<b>401.96</b>	<b>1.96</b>	<b>162.12</b>	<b>6.83</b>	<b>564.08</b>
<b>4</b>	<b>Renewables</b>						
	Wind	6,313.56	-	3.08	1,944.58	3.08	1,944.58
	Biomass	20.00	-	3.08	6.16	3.08	6.16
	Cogeneration	970.44	-	4.12	399.82	4.12	399.82
	Captive	38.50	-	1.78	6.85	1.78	6.85
	Solar	2,293.90	-	6.85	1,571.82	6.85	1,571.82
	REC (Non-Solar)		-		-	-	-
	REC (Solar)	-	179.19			-	179.19
	<b>Total</b>	<b>9,636.40</b>	<b>179.19</b>	<b>4.08</b>	<b>3,929.23</b>	<b>4.26</b>	<b>4,108.42</b>
<b>5</b>	<b>Traders</b>						
	<b>LTOA</b>						
	M/s. D.B.Power Ltd.	1,489.60	422.03	1.34	199.61	4.17	621.64
	M/s. Jindal Power Ltd.	2,864.62	847.50	1.37	392.45	4.33	1,239.96

Sl .	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh )	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh )	Total Cost (Rs. Cr.)
	M/s. Ind Bharath Energy (Utkal) Ltd.	3,580.78	387.27	0.80	286.46	1.88	673.74
	M/s. Bharat Aluminium Company Ltd.	1,432.31	225.05	1.83	262.11	3.40	487.16
	M/s. Dhariwal Infrastructure Ltd	716.16	143.15	1.88	134.64	3.88	277.79
	M/s. PTC India Ltd.	716.16	230.20	1.04	74.48	4.25	304.68
	M/s. KSK Mahanadi Power Company Ltd.	3,580.78	663.61	2.06	737.64	3.91	1,401.25
	M/s. G.M.R. Energy Trading Ltd.	1,074.23	305.07	1.52	163.28	4.36	468.35
	M/s. IL & FS Tamil Nadu Power Company Ltd.	3,867.24	1,033.40	2.80	1,082.83	5.47	2,116.22
	M/s. Coastal Energen Power Ltd.	3,996.15	731.23	2.85	1,138.90	4.68	1,870.13
	M/s. OPG Power Gen Pvt. Ltd.	-	81.92	3.12	-	-	81.92
	MTOA	2,371.14	355.82	2.00	474.43	3.50	830.25
	STOA	-	-	3.85	-	-	-
	<b>Total</b>	<b>25,690.18</b>	<b>5,426.26</b>	<b>1.93</b>	<b>4,946.84</b>	<b>4.04</b>	<b>10,373.10</b>
4	TANTRANSOCO Charges						2,193.88
5	PGCIL Charges						900.00
6	SLDC Charges						24.28
7	<b>Total Power Purchase Cost</b>	<b>97,903.15</b>	<b>13,789.58</b>	<b>2.38</b>	<b>23,271.78</b>	<b>4.10</b>	<b>40,179.52</b>

**Table 4-52: Approved Power Purchase Expenses for FY 2018-19**

Sl. No.	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh)	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh)	Total Cost (Rs. Cr.)
1.	<b>Own Generating Stations</b>						
	Ennore TPS	-	-	-	-	-	-
	Tuticorin TPS	5,811.71	854.87	3.11	1,807.11	4.58	2,661.98
	Mettur TPS	5,386.35	604.33	2.97	1,597.95	4.09	2,202.28
	MTPS Stage III	4,039.76	788.98	2.30	927.45	4.25	1,716.42
	North Chennai TPS	7,694.78	447.46	2.18	1,680.35	2.77	2,127.81
	NCTPS Stage-II	3,847.39	854.07	3.06	1,178.62	5.28	2,032.69
	Ennore Expansion	1,735.17	284.28	2.64	458.62	4.28	742.89
	TGTPS	710.66	137.44	2.45	173.90	4.38	311.34
	KGTPS	665.34	102.70	2.48	165.17	4.03	267.87
	BBGTPS	-	191.11	10.76	-	-	191.11
	VGTPS (Unit 1 and 2)	1,231.87	209.57	2.34	288.33	4.04	497.90
	Erode HEP	1,324.43	227.44	-	-	1.72	227.44

Sl. No.	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh)	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh)	Total Cost (Rs. Cr.)
	Kadamparai HEP	996.00	127.90	-	-	1.28	127.90
	Kundah HEP	2,425.00	296.29	-	-	1.22	296.29
	Tirunelveli HEP	1,030.00	158.83	-	-	1.54	158.83
	Wind	12.00		2.75	3.30	2.75	3.30
	<b>Total</b>	<b>36,910.47</b>	<b>5,285.26</b>	<b>2.24</b>	<b>8,280.80</b>	<b>3.68</b>	<b>13,566.06</b>
2	<b>CGS</b>						
	NTPC SR (Ramagundam) (I&II)	3,727.40	195.23	2.26	842.39	2.78	1,037.62
	NTPC SR (Ramagundam) III	941.14	75.55	2.16	203.29	2.96	278.84
	NLC TS – I	-	251.05	3.36	-	-	251.05
	NLC TS - II - Stage 1	1,189.45	182.52	2.60	309.26	4.13	491.78
	NLC TS Expansion I	1,408.57	166.33	2.49	350.73	3.67	517.06
	NLC TS Expansion II	930.88	128.68	2.42	225.27	3.80	353.95
	NTPL (JV with NLC)	2,597.54	375.18	2.56	664.97	4.00	1,040.15
	NTPC Talcher	3,231.59	258.12	1.65	533.21	2.45	791.33
	NTPC Simhadri	1,541.23	199.00	2.68	413.05	3.97	612.05
	MAPS	1,530.78	-	2.12	324.52	2.12	324.52
	KAIGA	1,175.28	-	3.13	367.86	3.13	367.86
	NTPC ER	325.00	24.03	2.30	74.75	3.04	98.78
	NTPC Vallur Unit 1 & Unit 2 (NTECL)	7,075.96	953.97	2.40	1,698.23	3.75	2,652.20
	PFBR Kalpakkam	767.69	-	3.90	299.40	3.90	299.40
	Kudankulam	5,176.14	-	3.50	1,811.65	3.50	1,811.65
	<b>Total</b>	<b>31,618.65</b>	<b>2,809.66</b>	<b>2.57</b>	<b>8,118.59</b>	<b>3.46</b>	<b>10,928.25</b>
3	<b>IPP</b>						
	PPN	-	104.73	7.47	-	-	104.73
	STCMS - Neyveli (TAQA)	-	218.93	3.44	-	-	218.93
	LANCO Power (Aban co)	466.69	44.42	1.96	91.47	2.91	135.89
	Penna	358.63	33.89	1.97	70.65	2.91	104.54
	<b>Total</b>	<b>825.33</b>	<b>401.96</b>	<b>1.96</b>	<b>162.12</b>	<b>6.83</b>	<b>564.08</b>
4	<b>Renewables</b>						
	Wind	6,952.72	-	3.08	2,141.44	3.08	2,141.44
	Biomass	20.00	-	3.08	6.16	3.08	6.16
	Cogeneration	970.44	-	4.12	399.82	4.12	399.82
	Captive	35.00	-	1.78	6.23	1.78	6.23
	Solar	2,525.13	-	6.85	1,730.26	6.85	1,730.26
	REC (Non-Solar)	-	-	-	-	-	-
	REC (Solar)	-	191.38	-	-	-	191.38
	<b>Total</b>	<b>10,503.29</b>	<b>191.38</b>	<b>4.08</b>	<b>4,283.91</b>	<b>4.26</b>	<b>4,475.30</b>
5	<b>Traders</b>						

Sl. No.	Particulars	Quantum (MU)	Fixed Cost (Rs. Cr.)	Energy Charge (Rs./kWh)	Energy Charge (Rs. Cr.)	Total Cost (Rs./kWh)	Total Cost (Rs. Cr.)
	<b>LTOA</b>						
	M/s. D.B.Power Ltd.	1,489.60	422.03	1.34	199.61	4.17	621.64
	M/s. Jindal Power Ltd.	2,864.62	847.50	1.37	392.45	4.33	1,239.96
	M/s. Ind Bharath Energy (Utkal) Ltd.	3,580.78	387.27	0.80	286.46	1.88	673.74
	M/s. Bharat Aluminium Company Ltd.	1,432.31	225.05	1.83	262.11	3.40	487.16
	M/s. Dhariwal Infrastructure Ltd	716.16	143.15	1.88	134.64	3.88	277.79
	M/s. PTC India Ltd.	716.16	230.20	1.04	74.48	4.25	304.68
	M/s. KSK Mahanadi Power Company Ltd.	3,580.78	663.61	2.06	737.64	3.91	1,401.25
	M/s. G.M.R. Energy Trading Ltd.	1,074.23	305.07	1.52	163.28	4.36	468.35
	M/s. IL & FS Tamil Nadu Power Company Ltd.	3,867.24	1,033.40	2.80	1,082.83	5.47	2,116.22
	M/s. Coastal Energen Power Ltd.	3,996.15	731.23	2.85	1,138.90	4.68	1,870.13
	M/s. OPG Power Gen Pvt. Ltd.	529.96	81.92	3.12	165.35	4.67	247.27
	MTOA	2,697.85	404.68	2.00	539.57	3.50	944.25
	STOA	-	-	-	-	-	-
	<b>Total</b>	<b>26,015.88</b>	<b>5,475.12</b>	<b>1.93</b>	<b>5,011.98</b>	<b>4.03</b>	<b>10,487.09</b>
4	TANTRANSCO Charges						2,756.19
5	PGCIL Charges						900.00
6	SLDC Charges						26.75
7	<b>Total Power Purchase Cost</b>	<b>1,05,873.62</b>	<b>14,163.38</b>	<b>2.44</b>	<b>25,857.40</b>	<b>4.13</b>	<b>43,703.72</b>

#### 4.16 Aggregate Revenue Requirement

4.16.1 Based on the above discussion on Variable and Fixed Cost components of Generation and Distribution functions of TANGEDCO, the summary of ARR as submitted by TANGEDCO is shown in the Table below:

**Table 4-53: ARR for FY 2016-17 to FY 2018-19 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2016-17	FY 2017-18	FY 2018-19
1	Expenses with respect to Generation (Variable Cost)	8,996.51	9,060.77	9,986.45
2	Expenses with respect to Generation (Fixed Cost)	8,925.24	6,773.89	7,607.59
3	Power Purchase Cost from Other Sources	22,899.46	25,890.14	29,291.36
4	Transmission Charges paid to TANTRANSCO	1,781.74	1,870.82	1,964.37



Sl.	Particulars	FY 2016-17	FY 2017-18	FY 2018-19
5	Net O&M Expenses	5,234.90	5,534.33	5,850.89
6	Depreciation	203.77	483.53	645.79
7	Interest & Finance Charges	3,807.19	3,345.74	3,945.15
8	Interest on Working Capital	238.13	235.23	351.19
9	Other Debits and Extra Ordinary Items	13.19	13.19	13.19
10	<b>Sub Total</b>	<b>52,100.13</b>	<b>53,207.65</b>	<b>59,655.98</b>
11	Return on Equity	582.32	609.62	609.62
12	<b>Total Expenditure</b>	<b>52,682.46</b>	<b>53,817.27</b>	<b>60,265.60</b>
13	Less: Non-Tariff Income	780.86	952.65	971.70
14	Less: Other Income	434.73	586.89	704.27
15	<b>Aggregate Revenue Requirement</b>	<b>51,466.87</b>	<b>52,277.74</b>	<b>58,589.63</b>

### Commission's Views

4.16.2 Based on the expenses approved by the Commission for the Control Period from FY 2016-17 to FY 2018-19, the Aggregate Revenue Requirement approved by the Commission is shown in the Table below:

**Table 4-54: Approved ARR for the Control Period from FY 2016-17 to FY 2018-19 (Rs. Crore)**

Sl.	Details	TANGEDCO			Commission		
		FY 2016-17	FY 2017-18	FY 2018-19	FY 2016-17	FY 2017-18	FY 2018-19
1	Power Purchase Expenses (incl. Trans. Charges)	42,602.95	43,595.62	48,849.77	38,043.54	40,179.52	43,703.72
2	Operation & Maintenance Expenses	5,234.90	5,534.33	5,850.89	4,989.42	5,393.95	5,817.64
3	Depreciation	203.77	483.53	645.79	910.73	1,172.58	1,325.41
4	Interest and Finance Charges	2,945.14	2,440.64	2,994.85	1,524.32	1,729.92	1,741.92
5	Interest on Working Capital	238.13	235.23	351.19	-	-	-
6	Return on Equity	582.32	609.62	609.62	-	-	-
7	Other Debits	13.19	13.19	13.19	-	-	-
8	Other Interest and Finance Charges	862.05	905.10	950.30	776.76	825.52	881.57
9	<b>Gross Aggregate Revenue Requirement</b>	<b>52,682.45</b>	<b>53,817.27</b>	<b>60,265.60</b>	<b>46,244.76</b>	<b>49,301.49</b>	<b>53,470.25</b>
10	Less: Other Income	434.73	586.89	704.27	422.09	535.80	643.71
11	Less: Non-Tariff Income	780.86	952.65	971.70	851.20	927.88	1,011.47
12	<b>Net Aggregate Revenue Requirement</b>	<b>51,466.86</b>	<b>52,277.73</b>	<b>58,589.63</b>	<b>44,971.47</b>	<b>47,837.80</b>	<b>51,815.07</b>

#### 4.17 Revenue at existing Tariff for FY 2017-18

4.17.1 Based on sales projection for FY 2017-18 and existing category-wise tariff, the revenue as estimated by TANGEDCO and the Commission is shown in the Table below:

**Table 4-55: Revenue from Approved Sales at existing tariff for FY 2017-18 (Rs. Crore)**

Consumer Category		FY 2017-18	
		TANGEDCO	Commission
	<b>HT Category</b>		
I (A)	HT Industries	12,466	12,750
I (B)	Railway Traction	713	723
II (A)	Government Educational Institution Etc. (HT)	1,208	1,214
II (B)	Pvt. Educational Institutions etc.	291	294
II (C)	Places of Public Worship	-	-
III	Commercial and other HT	2,638	2,644
IV	Lift Irrigation and co-ops (HT)		-
	Supply to Puducherry plus wheeling charges	-	-
VI	Temporary	287	212
V	SWAP	-	-
	<b>TOTAL HT category revenue</b>	<b>17,602</b>	<b>17,836</b>
	<b>LT Category</b>		
I (A)	Domestic	6,309	6,318
I (B)	Huts	-	-
I (C)	Bulk supply	5	5
II (A)	Public Lighting & Water Works	1,980	1,982
II (B)-1	Government Educational Institution	107	106
II (B)-2	Pvt. Educational Institutions	242	241
II (C)	Places of Public Worship (LT)	88	87
III (A)-1	Cottage and Tiny Industries	130	132
III (A)-2	Power Loom	418	418
III (B)	Industries	5,857	5,846
IV	Agriculture & Government seed farm	-	-
V	Commercial and Other	7,722	7,711
VI	Temporary Supply	483	512
	<b>TOTAL LT category revenue</b>	<b>23,440</b>	<b>23,348</b>
	<b>TOTAL Revenue from LT &amp; HT</b>	<b>40,942</b>	<b>41,185</b>

#### 4.18 Revenue Gap/(Surplus) for FY 2016-17 and FY 2017-18

4.18.1 The Commission has estimated the revenue for FY 2016-17 and FY 2017-18 based on estimated energy sales and prevailing applicable tariff. The Commission has not considered the revenue towards FRP bonds, as these FRP bonds are against Regulatory Assets approved for the period prior to unbundling of TNEB, which were taken over by the GoTN. Based on estimated Aggregate Revenue Requirement, Revenue from sales, and projected subsidy to be received from GoTN for FY 2016-17 and FY 2017-18 based on existing tariff structure, the Revenue Gap/(Surplus) projected by the Commission for FY 2016-17 and FY 2017-18 is shown in the Table below:

**Table 4-56: Revenue Gap/(Surplus) for FY 2016-17 and FY 2017-18 (Rs. Crore)**

Particulars	FY 2016-17		FY 2017-18	
	TANGEDCO	Commission	TANGEDCO	Commission
<b>Aggregate Revenue Requirement</b>	<b>51,466.86</b>	<b>44,971.47</b>	<b>52,277.73</b>	<b>47,837.80</b>
Revenue from sales	36,050.50	33,462.65	40,942.42	41,184.69
Govt. subsidy	8,644.35	8,644.35	8,884.71	8,884.71
Other Govt. subsidy (FRP bond takeover)	2,000.00	-	2,343.49	-
<b>Total Revenue</b>	<b>46,694.85</b>	<b>42,107.00</b>	<b>52,170.62</b>	<b>50,069.39</b>
<b>Revenue Gap/(Surplus)</b>	<b>4,772.01</b>	<b>2,864.47</b>	<b>107.12</b>	<b>(2,231.59)</b>

#### 4.19 Cumulative Revenue Gap/(Surplus)

4.19.1 TANGEDCO submitted that the total Revenue Gap derived after final true up of FY 2011-12 to FY 2015-16 and projected ARR for FY 2016-17 and FY 2017-18 based on existing tariff works out to Rs. 66873 Crore.

##### **Commission's View**

4.19.2 TANGEDCO has not claimed recovery of the Revenue Gap upto FY 2016-17 in the instant Petition, and has sought tariff revision based on the stand-alone Revenue Gap/(Surplus) of FY 2017-18. TANGEDCO has stated that it may submit the appropriate proposal for recovery of the Regulatory Asset at the appropriate time, after discussion of the various options with the GoTN. As and when TANGEDCO files its Petition for recovery of the Regulatory Asset, the Commission would deal with the same after due regulatory process. Hence, for the purpose of this Order, the

Commission has computed the cumulative Revenue Gap/(Surplus) till FY 2015-16, with Carrying Cost, as shown in the Table below:

**Table 4-57: Approved Cumulative Revenue Gap/(Surplus) upto FY 2015-16 along with carrying cost (Rs. Crore)**

Sl.	Particulars	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Opening Balance	0	7,377.93	12,145.68	19,350.08	25,511.23
2	Addition of Revenue Gap/(surplus) for recovery	6,993.29	3,749.93	5,562.45	3,947.98	2,293.49
<b>3</b>	<b>Closing Balance</b>	<b>6,993.29</b>	<b>11,127.86</b>	<b>17,708.12</b>	<b>23,298.06</b>	<b>27,937.20</b>
4	Interest Rate	11.00%	11.00%	11.00%	11.00%	11.00%
5	Carrying Cost	384.63	1,017.82	1,641.96	2,345.65	2,946.95
<b>6</b>	<b>Net Closing Balance</b>	<b>7,377.93</b>	<b>12,145.68</b>	<b>19,350.08</b>	<b>25,643.71</b>	<b>30,884.15</b>

- 4.19.3 Further, the above Revenue Gap of Rs. 30,884.15 Crore has been added to the Revenue Gap of FY 2016-17, and the treatment of the corresponding Regulatory Assets has been elaborated in Chapter 5 of this Order.

## 5 TARIFF PHILOSOPHY

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### 5.1 Subsidy Adjustment

5.1.1 TANGEDCO submitted that GoTN had signed a tri-partite MoU with TANGEDCO and Govt. of India on January 9, 2017 to join the Ujwal Discom Assurance Yojana (UDAY). This will result in a sustainable solution for its huge debt, which is a win-win situation for the State Power Sector as well as the end consumers.

5.1.2 The salient features of the MoU signed by TANGEDCO are as follows:

- a) Total debt proposed to be taken-over under UDAY as on September 30, 2015 is Rs. 30,420 Crore, of which 75% of the debt, i.e., Rs. 22,815 Crore will be taken over by GoTN and will be converted into 15-year bonds with 5-year moratorium. The balance 25% debt, i.e., Rs. 7605 Crore will be converted into bonds by TANGEDCO and guaranteed by GoTN.
- b) GoTN will convert the Government loan of Rs. 3352 Crore into equity share capital and Rs. 2871 Crore will continue as interest-free Government loan.
- c) The 75% debt of Rs. 22,815 Crore, taken over by GoTN, will be transferred to TANGEDCO as grants of Rs. 4563 Crore each for five years.
- d) TANGEDCO will endeavour to reduce AT&C losses to 13.50% by FY 2018-19.
- e) The gap between Average Cost of Supply (ACS) and Average Revenue Realisation will be eliminated by FY 2018-19.

5.1.3 Further, the action-plan with timeline to achieve operational efficiency has also been agreed under the MoU. Some of the illustrative action-plans are outlined as under:

- a) Achieving 100% Distribution Transformer (DT) Metering by June 30, 2018.
- b) Achieving 100% feeder metering by June 30, 2017
- c) Undertaking energy audit upto 11 kV level in rural areas by March 31, 2019.
- d) Undertaking Feeder Improvement Program for network strengthening and optimization, to be completed by December 2018
- e) Undertaking Physical Feeder Segregation by December 2019
- f) Installation of Smart Meters for all consumers other than agricultural consumers, consuming above 500 units/month by December 31, 2018 and to consumers consuming above 200 units/ month by December 31, 2019
- g) Implementing ERP system for better and effective inventory management, personnel management, accounts management, etc., to reduce costs and

increase efficiency by March 2019.

- h) Implementing Consumer Indexing and GIS mapping of losses.
- i) Replacing at least 10% of existing agriculture pumps with energy efficient pumps by March 2019.

5.1.4 TANGEDCO submitted that participation in UDAY was based on the concept of providing competitive and quality power to consumers, as the cost advantage will be passed on to consumers each year by way of reduction in cost. The expected benefits from UDAY are as follows:

- a) Due to reduction in interest rate as well as takeover of loan by GoTN, savings on interest are expected to be approximately Rs. 2882 Crore per annum and savings of approximately Rs. 2282 Crore per annum to TANGEDCO in cash flow due to repayment of the principal on account of takeover of the loans by GoTN.
- b) On the remaining 25% loan of Rs. 7605 Crore to be repaid through Bonds, interest savings of Rs. 200 Crore are expected besides the cash flow benefit due to staggered repayment of such loans.
- c) An estimated overall gain of approximately Rs. 3125 Crore by way of reduction in interest burden per annum and cash saving of approximately Rs. 2282 Crore per annum on principal repayment over a 10-year period from sixth year onwards is expected.
- d) Over and above the savings under financial leverage, there will be also an additional saving due to reduction in AT&C losses.
- e) Overall savings due to participation in UDAY is broadly classified into two parts, i.e., reduction in revenue expenditure and cash saving, as shown in the Table below:

**Table 5-1: Savings due to participation in UDAY as submitted by TANGEDCO (Rs. Crore)**

Saving in Revenue Expenditure		Cash saving	
Particulars	Amount	Particulars	Amount
Interest savings due to takeover of Rs. 22815 Crore.	2882	Cash flow savings on annual Principal repayment	2282
Interest savings by converting Rs. 7605 Crore into bond	200		
Interest saving due to conversion of State loan of Rs. 3352 Crore as equity	432		
<b>Total</b>	<b>3514</b>	<b>Total</b>	<b>2282</b>

- 5.1.5 TANGEDCO submitted that the savings of Rs. 3,514 Crore in revenue expenditure, as shown in the above Table, will result in savings of 42 paise per unit in the cost, which will be passed on to the consumers. In addition, the cash flow saving of Rs. 2,282 Crore will provide relief in working capital requirement, resulting in lower dependence on short-term working capital loan, which will result in further saving in interest cost.
- 5.1.6 The loan of Rs. 22,815 Crore, taken over by the GoTN, will be converted into grant to TANGEDCO over a period of five years, which will result in an additional revenue expenditure burden of Rs. 4,563 Crore per annum to the GoTN. The above loan takeover will also result in additional interest burden of Rs. 1,825 Crore per annum to the GoTN.
- 5.1.7 From sixth year onwards, GoTN has to bear the interest burden of Rs. 1,825 Crore on revenue account and Rs. 2,282 Crore on capital account for loan repayment. Thus, GoTN will be bearing the additional financial burden of Rs. 6,388 Crore per year for the first five years and Rs. 4,107 Crore from sixth year onwards, till the repayment of bonds. As a result, the fiscal deficit of GoTN will be breached for FY 2016-17 because of the loan takeover of Rs. 22,815 Crore. However, the Central Government has given relaxation for fiscal deficit for FY 2016-17.
- 5.1.8 For the subsequent years, the additional expenditure burden on the GoTN will reduce its net available funds out of the total borrowings to carry out the normal developmental works. For the GoTN to maintain a fiscal deficit of 3% of the GSDP, a fiscal space up to Rs. 2,500 Crore has to be created to absorb this debt takeover without breaching fiscal deficit norms.
- 5.1.9 Accordingly, TANGEDCO has proposed to adjust the tariff for domestic consumers in order to bring down the subsidy burden of GoTN to an extent of Rs. 2,503.27 Crore. TANGEDCO submitted that it will absorb this amount of Rs. 2,503.27 Crore as it is likely to save Rs. 3,082 Crore by way of interest reset and debt takeover by the GoTN, thereby releasing TANGEDCO from the obligation of servicing debt of Rs. 22,815 Crore and corresponding interest payments.

#### **Commission's Views**

- 5.1.10 GoTN has taken over TANGEDCO's debt liability of Rs. 22,815 Crore, which has resulted in savings in interest to the tune of Rs. 2,882 Crore. However, as discussed in Chapter 4, the Commission has not considered the impact of UDAY while approving the interest on loans. The Commission is of the view that the benefit of

loan takeover by GoTN under UDAY is pertaining to TANGEDCO's actual loan basket. However, since the Commission does not recognize TANGEDCO's actual loan basket while approving interest on loan, it would be incorrect to consider impact of UDAY while approving interest on loan as per the Commission's methodology discussed in above chapters.

- 5.1.11 However, as TANGEDCO's debt liability has reduced by Rs. 22,815 Crore, its requisite treatment has been dealt by the Commission in the subsequent section of Regulatory Assets. The Commission further directs TANGEDCO to achieve the action-plan with timelines as agreed upon in the UDAY MoU and file quarterly status update regarding the same.
- 5.1.12 The Commission's views on TANGEDCO's proposal to adjust the tariff for domestic consumers in order to bring down the subsidy burden of GoTN, have been discussed subsequently in this Chapter, while discussing the Tariff Proposal of TANGEDCO.

## **5.2 Terms and Conditions of Tariff**

- 5.2.1 TANGEDCO submitted that the Commission has classified various consumer categories according to their voltage, purpose of utilisation, time of utilisation, etc. Taking into consideration the difficulties in implementation and improvement of quality in supply and taking into account of directives issued by the Hon'ble APTEL and by the Commission, TANGEDCO has proposed certain changes/modifications for consideration. TANGEDCO's proposal and the Commission's views on each proposal are elaborated below.

### **5.2.2 High Tension Tariff**

#### **Harmonics**

- 5.2.2.1 TANGEDCO submitted that the SMT Order dated December 11, 2014 specifies that only HT IA (Industrial) and HT III category consumers are liable to pay compensation charges at 15% of respective tariff if they are dumping harmonics in the network of TANGEDCO beyond the permissible limits as specified under the CEA Regulations. To avoid system hazards and maintain quality supply, TANGEDCO submitted that this provision may be extended to all HT consumers



excluding HT IV (Lift irrigation). TANGEDCO also submitted that since the field engineers are facing problem in collection of penal charges due to confusion on whether the penal charges are due from the date of measurement or from the date of completion of three months' notice period, necessary modification has been proposed to collect it from the date of measurement.

#### **Commission's view**

5.2.2.2 The Commission has accepted TANGEDCO's proposal to extend the provision of harmonics penalty to all HT categories excluding HT IV (Lift irrigation), as it is necessary to discourage the generation of harmonic distortion.

5.2.2.3 However, it is clarified that the same shall not be applicable for all HT consumers connected at 11 kV and 22 kV, in accordance with the Judgment dated 05.06.2017 of the Honourable High Court of Madras in W.P. No. 25 of 2015 & Others, which held that:

*"32. Further, it is also pertinent to note that the CEA, who is the competent authority to declare the harmonic distortion levels, has not declared harmonic distortion levels to the consumers connected with 11kV/22 kV either through the CEA Regulations, 2007, or by any other relevant provisions. Therefore, until the CEA prescribes any standard of harmonics for 11 kV/22 kV supply lines consumers and makes them also obligatory for harmonic controls, no obligation can be cast upon the 11 kV/22 kV supply lines consumers for compliance."*

5.2.2.4 As regards the date from which penal charges should be levied, the Commission is of the view that there is no ambiguity in the existing provision. The penal charges shall be due from the date of completion of three months' notice period.

#### **a) Tariff for Facilities provided by Private Players in industrial establishments**

5.2.2.5 TANGEDCO submitted that in industrial establishments, the facilities incidental to main activities are provided by the employer and by private players. The facilities provided by the employer can be considered as bonafide purpose, however, the services provided by the private players on commercial basis may not be considered as bonafide. The facilities provided by the private players may be considered as Commercial and charged under respective Tariff.

#### **Commission's View**

5.2.2.6 It is clarified that if facilities provided by the industrial unit to employee have been

outsourced to a private player but they cater to employees of only that particular industrial unit, then such activity cannot be considered under commercial category, as mere outsourcing does not change the purpose of service being rendered. However, if part/entire premises are leased/rented out to a service provider like food outlets, viz., McDonalds, Saravana Bhavan, Adayar Ananda Bhavan, KFC, etc., present in food courts, which provide service in their own name, then such activity will have to be metered separately/sub-metered and categorised under LT V Tariff.

**b) Tariff for Temporary Supply for additional construction in area smaller than 2000 sq. feet**

5.2.2.7 TANGEDCO submitted that it is experiencing difficulties in implementation of respective Tariff to Temporary Supply for additional construction in area smaller than 2000 sq. feet. The consumer can build new construction with minimum square feet by getting temporary supply and extend further required construction in a phased manner to accommodate such construction within 2000 sq. feet with the intention of being classified under respective Tariff. This would be clear evasion and avoidance of higher Tariff applicable for Temporary Supply. Further, any construction should come under single tariff irrespective of new or additional construction. Hence, TANGEDCO submitted that any construction in the premises of HT services has to be classified under LT VI Tariff. Accordingly, any additional construction of all HT consumers excluding HT IV may be billed under LT VI Tariff. Such construction shall be metered separately and only the Energy Charges 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.

**Commission's View**

5.2.2.8 The existing clause pertaining to additional construction is as follows:

*“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.”*

- 5.2.2.9 The Commission is of the view that the existing clause is appropriate and has been prescribed after addressing all concerns expressed in earlier years. Hence, the Commission has retained the existing provisions in this regard.

**c) Enhancement of minimum level of Power Factor**

- 5.2.2.10 Considering the grid stability and compulsion to maintain required frequency level, TANGEDCO submitted that average minimum level of Power Factor may be enhanced from 0.90 to 0.95.

**Commission’s View**

- 5.2.2.11 The Commission is of the view that the present dispensation of levying Power Factor compensation for Power Factor below 0.90 for HT category need not be modified at this stage. However, with the availability of meters capable of reading the kVAh consumption directly, introduction of kVAh tariffs may be considered in lieu of levy of power factor compensation. TANGEDCO is directed to undertake a study on introduction of kVAh tariffs in lieu of Power Factor compensation and submit the same along with its next Tariff Petition.

**d) Integration period of 15 minutes for arriving at Maximum Demand in a month**

- 5.2.2.12 TANGEDCO submitted that the SMT Order dated December 11, 2014 stipulates that the integration period for arriving at Maximum Demand in a month will be 15 minutes, only for HT industries under Tariff IA having arc, induction furnaces or steel rolling process. In ABT regime, the frequency is being monitored in 15-minute time block. Hence, the integration period of 15 minutes for arriving at Maximum Demand in a month may be extended to all HT consumers.

**Commission’s View**

- 5.2.2.13 As the ABT mechanism is based on 15 minute integration of demand, the Commission finds merit in TANGEDCO’s proposal. As regards the contention that 15 minute integration is appropriate only for industries that have spikes and dips in their load pattern, the Commission is of the view that for industries that do not have spikes and dips in their load pattern, it will not make any material difference whether the demand integration is on 15 minute or 30 minute basis. Hence, the

Commission has accepted TANGEDCO's proposal with respect to extending the integration period of 15 minutes for arriving at Maximum Demand for all HT consumers. However, shifting to integration of 15-minute time block would require re-programming of all the meters. Therefore, the Commission directs TANGEDCO to re-programme the meters of all HT consumers to 15-minute time block within 3 months from the date of issue of this Order. After 3 months, TANGEDCO should start measuring Maximum Demand on 15-minute time block basis and raise bills accordingly.

**e) Applicability under HT IA to exclude 'Registered Factories'**

5.2.2.14 TANGEDCO submitted that according to provisions of the SMT Order dated December 11, 2014, HT IA Tariff is applicable to all manufacturing and industrial establishments and registered factories including tea estates, textiles, fertilizer plants, steels plants, heavy water plants, chemical plants. This Tariff is meant for manufacturing and industrial establishment only and not for service units and commercial establishments such as hotel and bottling plants, which are also considered as 'registered factories'. LPG bottling plants were classified under HT Tariff IA based on being 'registered factories'. The Hon'ble APTEL, in its Order dated September 8, 2016 in Appeal No.265 of 2014, ordered that LPG bottling plants are 'Commercial Establishments'. In order to avoid service/commercial units from being classified under HT Tariff IA based on the term 'Registered Factories', TANGEDCO requested the Commission to omit the word 'Registered Factories' under HT Tariff IA.

**Commission's View**

5.2.2.15 The Commission is of the view that the term 'Registered Factories' signifies factories registered under the Factories Act, 1948. As omission of the term 'Registered Factories' under HT Tariff IA may have some unintended consequences, the Commission is not inclined to accept TANGEDCO's proposal. The Commission has addressed the issue of LPG bottling plants not being classified under HT IA, by including a clarification to this effect in the Tariff Applicability under HT IA. It is also clarified that while other activities such as Hotel industry or Tourism industry may qualify as 'industries' for other purposes and classification under other Acts, for the purpose of charging for electricity consumed, they are classified as commercial activities and not as industrial activities, and are hence, not eligible to be charged under HT IA Tariff. In case TANGEDCO identifies the need for specifically excluding any other activity, then

TANGEDCO should submit the necessary proposal for the same, along with necessary justification, along with its next Tariff Petition.

**f) Reintroduction of Provision related to non-utilisation of power for more than 30 days**

5.2.2.16 TANGEDCO submitted that the Tariff Order dated March 15, 2003 issued by the Commission had the provision:

*“If the HT Industrial Consumers (HT I A) does not for any reason utilise the power load for more than 30 days, then the current consumption charges for the power utilised and service for lighting and non-industrial purposes shall be billed under HT III”*

5.2.2.17 This provision has been removed in subsequent Orders. The electricity tariff classification is based on the purpose for which electricity is used. Once the electricity supplied is not used for the purpose for which it is being supplied, it should be billed under appropriate tariff of HT Tariff III. Hence, TANGEDCO submitted that the above-mentioned provision may be reintroduced.

**Commission’s View**

5.2.2.18 The Commission does not find any merit in TANGEDCO’s proposal to re-introduce the clause from the Tariff Order dated March 15, 2003, which has been subsequently deleted by the Commission based on justified reasoning.

**g) Classification of Chennai Metro Rail Corporation**

5.2.2.19 TANGEDCO submitted that the Commission had issued an Order to classify traction railways station of Chennai Metro Rail Corporation (CMRL) under Railway Traction Tariff (HT IB) and to classify other commercial loads such as kiosks, ATMs and shops under Commercial Service. Challenging this Order, CMRL filed an Appeal before the APTEL and TANGEDCO filed a Review Petition before the Commission with the request to consider at par with Indian Railway services. Hence, TANGEDCO submitted that CMRL should be considered at par with Indian Railway services.

**Commission’s View**

5.2.2.20 The Commission is of the view that since the matter is sub-judice, it would not be appropriate to undertake any modification to the classification of CMRL. Hence,

CMRL shall continue to be classified under HT I (B) for its entire contracted load. Other loads like ATM, Kiosks, stalls, hotels, etc., shall be separately metered and charged under Miscellaneous category and the above consumption shall be deducted from the main energy consumption metered at CMRL's point of supply.

**h) Classification of Government-Aided Educational Institutions with self-financed courses**

5.2.2.21 TANGEDCO submitted that the Tariff Order has separate category for Government Educational Institutions including Government-Aided Educational Institutions and Private Educational Institutions. Most of the Government-Aided Educational Institutions are providing self-financed courses also. TANGEDCO submitted that as the field officials are facing problems in classifying these kinds of Educational Institutions, Government-Aided Educational Institutions with self-financed courses should be considered as Private Educational Institutions and tariff levied accordingly.

**Commission's View**

5.2.2.22 Two separate categories of Government Aided Educational Institutions and Private Educational Institutions were created based on differences in fee structure. However, some Government Aided Educational Institutions are also providing self-financed courses, and thus, the fee structure is different. The Commission is of the view that it would be practically difficult to charge two separate tariffs to Government-Aided Educational Institutions, one for the portion offering normal courses and other for the portion offering self-financed courses. Further, the basic nature of the Government Aided Educational Institutions does not change merely because they are offering some self-financed courses. Therefore, the Commission has not accepted TANGEDCO's proposal to classify Government Aided Educational Institutions that also run self-financed courses, under HT II-B Tariff applicable to Private Educational Institutions.

**i) Classification of common loads of residential flats**

5.2.2.23 TANGEDCO submitted that the Commission in its Order in M.P. No. 32 of 2015 had directed TANGEDCO to submit a proposal to propose Tariff Classification for common loads of residential flats. Considering the purpose, Government and private residential colonies and housing complexes can be classified under single tariff. Accordingly, TANGEDCO submitted that residential colonies and housing

complexes, senior citizen communities, old age homes, orphanages and supply used for their common lighting, water supply, lift, etc., may also be classified under HT IIA Tariff.

#### **Commission's View**

- 5.2.2.24 The Commission has approved TANGEDCO's proposal to classify the common loads for lighting, water supply and lift in residential colonies and housing complexes, senior citizen communities, old age homes, and orphanages under HT IIA Tariff.

#### **j) Classification of Start-up Power**

- 5.2.2.25 TANGEDCO submitted that Regulation 25 of the TNERC (Grid Connectivity and Intra-State Open Access) Regulations, 2014 provides for classification of the supply of electricity for Start-up power under HT Tariff V (Temporary Supply). Accordingly, it is proposed to continue to classify Start-up power under HT Tariff V.

#### **Commission's Views**

- 5.2.2.26 The existing provisions classify supply of electricity for Start-up power under HT Tariff V (Temporary Supply). The tariff for supply of electricity for Start-up power was equated to HT Temporary Supply, in accordance with the stipulations of the Tariff Policy. The supply of electricity for Start-up power was restricted to 42 days in a year and 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.
- 5.2.2.27 APTEL has ruled that a separate dispensation has to be provided for Start-up power. The linkage to HT Temporary Supply coupled with the restrictions of load and days of usage has resulted in high effective tariff for such usage. Hence, the Commission has decided that the supply of electricity for Start-up power shall be classified under HT IA industrial category, with the restriction of 42 days in a year and 10% of the highest capacity of the generating unit of the generating station or the percentage auxiliary consumption, whichever is less. However, Power Factor compensation charges shall not be applicable for Start-up Power.

### 5.2.3 Low Tension Tariff

#### a) Enhancement of minimum level of Power Factor

- 5.2.3.1 TANGEDCO submitted that considering the grid stability, obligation to maintain quality of power supply and compulsion to maintain high frequency level, the average minimum level of Power Factor for LT consumers whose connected load is above 18.6 kW (25 HP) may be enhanced from 0.85 to 0.90.

#### Commission's Views

- 5.2.3.2 The Commission is of the view that the present dispensation of levying Power Factor compensation for Power Factor below 0.85 for LT category need not be modified at this stage. At present, the Power Factor compensation is applicable only for LT III B and LT V services having connected load of 18.6kW (25 HP) or above. TANGEDCO's request for extending the levy of Power Factor compensation to all LT consumers whose connected load is above 18.6 kW (25 HP) is not backed up by any data on the impact on consumers or additional revenue to TANGEDCO. Hence, the Commission has not accepted TANGEDCO's submission, and the Power Factor compensation shall continue to be applicable only for LT III B and LT V services having connected load of 18.6kW (25 HP) or above.
- 5.2.3.3 Further, with the availability of meters capable of reading the kVAh consumption directly, introduction of kVAh tariffs may be considered in lieu of levy of power factor compensation. TANGEDCO is directed to undertake a study on introduction of kVAh tariffs in lieu of Power Factor compensation and submit the same along with its next Tariff Petition.

#### b) Calculation of Monthly Fixed Charges

- 5.2.3.4 TANGEDCO submitted that the monthly Fixed Charges are being levied on Contracted Demand from FY 2012-13 and are calculated on the basis of kW. TANGEDCO requested the Commission to approve calculation of monthly Fixed Charges on the basis of per kW or part thereof.

#### Commission's Views

- 5.2.3.5 The Fixed Charges are levied on per kW basis, which effectively means that for part load also, the per kW charges will be applicable. In other words, for



Contracted Demand of say, between 25.1 to 26 kW, the Fixed Charges shall be levied on 26 kW only. However, for ample clarity, the Commission has accepted TANGEDCO's proposal and clarified in the Schedule that monthly Fixed Charges shall be levied on the basis of per kW or part thereof.

**c) Tariff for Temporary Supply for additional construction in area smaller than 2000 sq. feet**

- 5.2.3.6 TANGEDCO submitted that as per the submission made under HT Tariff Philosophy, all new and additional construction under LT categories excluding Domestic/Residential construction may be classified under LT Tariff VI.

**Commission's Views**

- 5.2.3.7 As discussed in the above section, the Commission is of the view that the existing clause is appropriate and has been prescribed after addressing all concerns expressed in earlier years. Hence, the Commission has retained the existing provisions in this regard.

**d) Limitation in area for gardening and other usage**

- 5.2.3.8 TANGEDCO submitted that the LT IA Tariff permits to extend electricity supply for lighting, water and other facilities for domestic animals/pets including chaff cutting, milking, etc., and watering for gardening including growing of trees in and around residential houses/buildings. As there is no limitation in area for gardening and other usage in and around residential houses/ buildings, it can be used for commercial purposes also. In order to have restriction/limitation and for better implementation, TANGEDCO proposed to limit the area of such usage to 500 sq. feet.

**Commission's view**

- 5.2.3.9 The Commission is of the view that limiting area of usage for gardening and other usage in and around residential houses/ buildings to 500 sq. feet will not be feasible to implement. TANGEDCO has sufficient powers to ensure that such area is not used for commercial purposes, and if so, the commercial tariff shall be applicable. Therefore, the Commission does not find merit in TANGEDCO's proposal.

**e) Limitation of Common Supply under Domestic Tariff**

- 5.2.3.10 TANGEDCO submitted that at present, LT IA Tariff provides for the extension of

electricity supply “in respect of multi tenements / residential complexes 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 LT Tariff IA and only one service connection shall be given for the premises for all common facilities.” TANGEDCO submitted that such other facilities include gymnasium, community hall, amphitheatres, etc., and these facilities cannot be considered as domestic/residential usages. Further, for the multi-block residential complexes, a single common LT service is not sufficient for common lighting, water supply, lift. Several representations are being received to extend one service for each block for common usage. Taking into consideration all of the above, TANGEDCO has requested to modify this provision as follows: “in respect of multi tenements/ residential complexes common supply under domestic tariff may be limited to common lighting, water supply and lift. In case of more than one block in a premise, only one service shall be given for each block for common lighting, water supply and lift provided only to the residents.”

#### **Commission’s View**

- 5.2.3.11 The Commission has accepted TANGEDCO’s proposal to restrict common supply under domestic tariff to common lighting, water supply and lifts.
- 5.2.3.12 Further, in case of more than one block in a premise, only one service shall be given for each block for common lighting, water supply and lift provided only to the residents. The other facilities such as gymnasium, community hall, amphitheatres, etc., inside the multi-tenement residential complex can neither be identified with any block, and will hence, continue to be grouped as common facilities, nor are they essential for residential purposes, hence, such other facilities shall not be considered as domestic/residential usage, and shall be classified under the appropriate commercial category, viz., LT V or HT III, depending on the voltage of supply. Separate metering/sub-metering arrangement will have to be done for proper implementation of this provision, and TANGEDCO is directed to implement the above changes, after which, the revised billing method shall come into force.

#### **f) Classification of Government-Aided Educational Institutions with self-financed courses**

- 5.2.3.13 In line with the submission made under HT tariff philosophy, TANGEDCO submitted that Government Aided Educational Institutions with self-financed

courses under LT category may also be classified under Tariff applicable to Private Educational Institutions.

#### **Commission's View**

- 5.2.3.14 Two separate categories of Government Aided Educational Institutions and Private Educational Institutions were created based on differences in fee structure. However, some Government Aided Educational Institutions are also providing self-financed courses, and thus, the fee structure is different. The Commission is of the view that it would be practically difficult to charge two separate tariffs to Government-Aided Educational Institutions, one for the portion offering normal courses and other for the portion offering self-financed courses. Further, the basic nature of the Government Aided Educational Institutions does not change merely because they are offering some self-financed courses. Therefore, the Commission has not accepted TANGEDCO's proposal to classify Government Aided Educational Institutions that also run self-financed courses, under LTII-B(2) Tariff applicable to Private Educational Institutions.

#### **g) Categorisation of Rehabilitation and Training Centres**

- 5.2.3.15 TANGEDCO submitted that 'training and rehabilitation centres' under LT Tariff II-(B) I may be modified as 'rehabilitation and training centres' to avoid ambiguities.

#### **Commission's View**

- 5.2.3.16 The Commission has approved TANGEDCO's request and modified 'training and rehabilitation centres' to 'rehabilitation and training centres', as this is in line with the intent of the classification.

#### **h) Classification of Free Blood Banks**

- 5.2.3.17 TANGEDCO submitted that blood banks providing service free of cost may also be classified under LT Tariff II-(B) I.

#### **Commission's Views**

- 5.2.3.18 The Commission has approved TANGEDCO's proposal to classify blood banks providing service free of cost under LT Tariff II-(B) I.

**i) Load Limit for LT Tariff III-A categories**

5.2.3.19 TANGEDCO submitted that the present SMT Order specifies that the connected load for supply of electricity shall not exceed 10 HP in respect of LT Tariff III –A (1) and LT Tariff III – A (2). Consequent to introduction of static meter with MD recording facilities, it measures accurate measurements including electrical loss of motor. The consumers under this category are representing to enhance the load limit of 10 HP. Considering lower efficiency motors that are used for power loom, TANGEDCO requested the Commission to modify the connected load for these categories to 10 kW instead of 10 HP.

**Commission's Views**

5.2.3.20 The Commission finds merit in TANGEDCO's proposal. However, the Commission is of the view that even 10 KW may be insufficient, and has hence, modified the contracted load in respect of LT Tariff III –A (1) and LT Tariff III – A (2) to 12 kW instead of 10 HP.

**j) Collection of Line Extension Cost from LT III A (1) category**

5.2.3.21 TANGEDCO submitted that the present SMT Order permits to extend LT services under Tariff III-A (1) to agriculture and agriculture allied activities till they reach their seniority under LT Tariff IV for agriculture. While effecting service connection under LT Tariff III –A (1), the line extension cost is being borne by the Licensee. In respect of agricultural service under SFS scheme, the necessary estimate cost for extension should be borne by the consumer. The consumer who have availed service connection under LT Tariff III – A (1) and reached the seniority in LT Tariff IV under SFS scheme will not bear the line extension cost, since cost is already incurred by the Licensee whereas, the consumer directly availing service under LT Tariff IV for agriculture under SFS scheme has to incur such cost. Hence, TANGEDCO requested the Commission for permission to collect such cost from the applicant under SFS category before effecting supply under LT Tariff III A (1) and also include such clause in LT Tariff III B category also.

**Commission's Views**

5.2.3.22 The Commission clarifies that any Applicant seeking agricultural service connection has to necessarily apply under LT IV Agriculture category. In case he wants supply on priority, there would be 2 Options available to such Applicant,

viz., choose either:

- a. To pay the line extension cost under SFS and avail free supply for applicable agricultural connection, or
- b. Service connection under LT III A (1) and pay electricity charges till such time his seniority under normal circumstances is reached.

5.2.3.23 The above 2 Options are mutually exclusive. Further, henceforth, only Applicants who have applied under LT IV will be eligible for seniority under LT IIIA (1). However, because there was some ambiguity in the interpretation of this dispensation, TANGEDCO should give an opportunity to Applicants who have taken agricultural connection under LT IIIA (1) directly, by considering their seniority based on their Application by deeming to have received it under LT IV category.

**k) Extension of LT III B Tariff to LT III-A Tariff categories**

5.2.3.24 TANGEDCO submitted that the present SMT Order permits to extend LT Tariff III B to all industries covered under LT Tariff III A (1) and III A (2) if the connected load of such industries exceeds 10 HP. The agriculture and allied activities are also covered under LT Tariff III A (1). Since agriculture and allied activities are not considered as industries, field officials are finding it difficult to convert such services under LT Tariff III B when connected load exceeds 10 HP. Considering the difficulties in converting the service, TANGEDCO requested the Commission to modify this clause as ‘all services’ instead of ‘all industries’ covered under LT Tariff III A (1) and III A (2) and if the connected load of such industries exceeds ‘10 kW’ instead of ‘10 HP’, as stated earlier.

**Commission’s View**

5.2.3.25 The Commission does not find any merit in TANGEDCO’s proposal to include agriculture and allied activities under LT III B Industries, as agriculture and allied activities cannot be categorised under industrial category.

5.2.3.26 Further, as stated earlier, the Commission has modified the contracted load in respect of LT Tariff III –A (1) and LT Tariff III – A (2) to 12 kW instead of 10 HP. Hence, all industries covered under LT III A (1) and LT III A (2) shall fall under LT III B category, if the connected load of such industries exceeds 12 kW.

#### **l) Certificate for Intending Industrial Consumers**

- 5.2.3.27 TANGEDCO submitted that at present, no certificate is being issued to intending industrial consumers and only Udyog Aadhaar Memorandum is being issued. Hence, the tariff clause should be modified accordingly.

#### **Commission's View**

- 5.2.3.28 The Commission finds merit in TANGEDCO's proposal, and has accordingly modified the clause to submission of Udyog Aadhaar Memorandum by intending industrial consumers.

#### **m) Levy of 20% additional charge from LT services when their contracted load exceeds 65 kW**

- 5.2.3.29 TANGEDCO submitted that the Regulations notified by the Commission restricts extension of more than one service connection in premises which are not physically segregated and to an establishment even though it is physically segregated. At present, to avoid getting HT connection, consumers have availed more than one service connection with maximum load of 112 kW to an establishment in different ownership names. These service connections should be merged and switched over to HT category. At the same time, some consumers who are ready to avail HT service connection are not able to provide adequate infrastructure to extend HT service connection. The minimum load to avail HT service connection is 65 kVA while maximum load to avail LT service connection is 112 kW. To avoid monthly billing and payment of higher charges to TANGEDCO, consumers are not willing to avail HT service connection even though their demand exceeds 65 kW. This behaviour leads to revenue loss for TANGEDCO. Taking into consideration the above and to minimise technical and commercial losses, TANGEDCO requested the Commission to allow TANGEDCO to levy 20% additional charge from LT services when their contracted load exceeds 65 kW.

#### **Commission's Views**

- 5.2.3.30 The Commission does not find merit in TANGEDCO's proposal to levy additional charges of 20% for consumers availing LT supply for load above 65 kVA. As per the TNERC Supply Code, the minimum load for seeking HT Supply is 63 kVA, whereas the maximum load for getting LT supply is 112 kW. As LT supply is permitted upto 112 kW, it is not fair to levy any additional charges on consumers having load above 65 kVA and taking LT supply, as they are within the limit

specified in the TNERC Supply Code. Within this band from 63 kVA to 112 kW, the consumer has the choice of opting for LT supply or HT supply, in accordance with the existing TNERC Supply Code, unless it is amended.

#### **5.2.4 Other Tariff Categorisation changes**

5.2.4.1 In addition to the modifications proposed by TANGEDCO as discussed above, the Commission has also received representations regarding categorisation from certain segments of consumers. The Commission's views on such representations are elaborated below.

##### **a) Categorisation of Prisons**

5.2.4.2 The Commission has classified 'Central Prisons and Other Prisons of the State Government' under LT II B (1) and HT II A, as they qualify under entities under the control of Central/State Government and are intended to house the inmates of the prison.

##### **b) Categorisation of Hotels/Restaurants**

5.2.4.3 The Commission has not accepted the request to classify hotels and restaurants under Industrial category. It is clarified that while activities such as Hotels and Restaurants may qualify as 'industries' for other purposes and classification under other Acts, for the purpose of charging for electricity consumed, they are classified as commercial activities and not as industrial activities, and are hence, not eligible to be charged under HT IA Tariff. It needs to be appreciated that even offices of the State Government Department and the Commission's office are billed under Commercial/Miscellaneous category.

##### **c) Categorisation of Airports**

5.2.4.4 Airports under Airports Authority of India have requested for being classified under HT I A Industry category, and cited certain APTEL Judgments in support of its request. The Commission is of the view that while the Aeronautical services provided by the Airports may be categorised under HT IA Industry category, the Non-Aeronautical services provided by Chennai Airport have to be categorised under HT III Commercial/Miscellaneous category. However, for implementing the above differential tariff, the Aeronautical and Non-Aeronautical load has to be separated and separate metering has to be in place. TANGEDCO is directed to do

the needful in collaboration with the concerned Airports, in order to levy HT IA tariff to Aeronautical Services and HT III Commercial/Miscellaneous Tariff to Non-Aeronautical services.

**d) Categorisation of Spinning Mills**

- 5.2.4.5 The Commission has not accepted the request to have a separate category for Spinning Mills, which has been objected to by TANGEDCO. The Commission is of the view that creation of separate category for each and every purpose and industry, would defeat the objectives of tariff rationalisation and reduction of cross-subsidies.

**5.3 Existing and Proposed Retail Tariff Schedule for FY 2017-18**

**TANGEDCO's Submission**

- 5.3.1 TANGEDCO submitted that it has determined the Revenue Gap for FY 2017-18 considering the projected ARR and revenue at existing tariff, as shown in the Table below:

**Table 5-2: Revenue Gap at Existing Tariff for FY 2017-18 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	FY 2017-18
1	Net Revenue Requirement	52,277.74
2	Revenue from sale of power at existing tariff (including subsidy)	49,827.13
3	Other Govt. Subsidy (FRP bond takeover)	2,343.49
4	<b>Revenue Gap</b>	<b>107.12</b>

- 5.3.2 TANGEDCO submitted that the Aggregate Revenue Requirement for the Control Period from 2016-17 to 2018-19 has been filed without any tariff revision for FY 2017-18.
- 5.3.3 As per the UDAY scheme entered into by the GoTN on January 9, 2017, GoTN is incurring a huge expenditure due to take over of 75% outstanding loans (Rs. 30,420 Crore) as on September 30, 2015 and conversion of Rs. 3,352 Crore into equity share capital. TANGEDCO submitted that with a view to reduce the tariff subsidy burden on the GoTN, it has proposed adjustment in tariff for domestic consumers, while retaining the existing tariffs for the remaining categories of consumers.
- 5.3.4 The existing and retail tariff schedule proposed by TANGEDCO is given in the Table below:



**Table 5-3: Existing and Proposed Retail Tariff Schedule for FY 2017-18 as submitted by TANGEDCO (Rs. Crore)**

Consumer Category	Slabs (Per Month)	Sub Category	Existing Tariff		Proposed Tariff	
			Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)
Tariff of Low Tension Consumers						
LT - IA	Domestic					
	1-50 kWh		3.00	15/ month	2.50	15/ month
	51-100 kWh	0-50 kWh	3.25	15/ month	2.50	10/ month
		51-100 kWh	3.25	15/ month	1.50	10/ month
	101-250 kWh	0-50 kWh	3.50	20/ month	2.50	15/ month
		51-100 kWh	3.50	20/ month	2.00	15/ month
		101-250 kWh	4.60	20/ month	3.00	15/ month
	Above 250	0-50 kWh	3.50	25/ month	2.50	25/ month
		51-100 kWh	3.50	25/ month	3.50	25/ month
		101-250 kWh	4.60	25/ month	4.60	25/ month
		above 250 kWh	6.60	25/ month	6.60	25/ month
LT - IB	Huts					
	Single Slab		4.95 (on installation of energy meter)	145/ month (until installation of energy meter)	4.95 (on installation of energy meter)	145/ month (until installation of energy meter)
LT - IC	LT Bulk Supply					
	Single Slab		4.60	60/ month	4.60	60/ month
LT - IIA	Public Lighting and Water Supply					
	Single Slab		6.35	60/kW/month	6.35	60/kW/month

Consumer Category	Slabs (Per Month)	Sub Category	Existing Tariff		Proposed Tariff	
			Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)
LT – IIB (1)	Govt. Educational Institution					
	Single Slab		5.75	60/kW/month	5.75	60/kW/month
LT - IIB (2)	Pvt. Educational Institution					
	Single Slab		7.50	60/kW/month	7.50	60/kW/month
LT - IIC	Places of Worship					
	0-60 kWh		5.75	60/kW/month	5.75	60/kW/month
	Above 60 kWh		5.75	60/kW/month	5.75	60/kW/month
LT - IIIA (1)	Cottage and Tiny Industries					
	0-250 kWh		4.00	20/kW/month	4.00	20/kW/month
	Above 250 kWh		4.60	20/kW/month	4.60	20/kW/month
LT - IIIA (2)	Power Looms					
	0-250 kWh		5.20	60/kW/month	5.20	60/kW/month
	Above 250 kWh		5.75	60/kW/month	5.75	60/kW/month
LT - IIIB	LT Industries					
	Single Slab		6.35	35/kW/month	6.35	35/kW/month
LT - IV	LT Agriculture					
	Single Slab		3.22 (on installation of energy meter)	2875/HP/Annum	3.22 (on installation of energy meter)	2875/HP/Annum
LT - V	LT Commercial					
	0-50 kWh		5.00	70/kW/month	5.00	70/kW/month
	Above 50 kWh		8.05	70/kW/month	8.05	70/kW/month
LT - VI	Temporary Supply					

Consumer Category	Slabs (Per Month)	Sub Category	Existing Tariff		Proposed Tariff	
			Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)
	Single Slab		12.00	345/kW/month	12.00	345/kW/month
<b>Tariff for High Tension Consumers</b>						
<b>HT - IA</b>	<b>HT Industries</b>					
	Single Slab		6.35	350/kVA/month	6.35	350/kVA/month
<b>HT - IB</b>	<b>Railway Traction</b>					
	Single Slab		6.35	300/kVA/month	6.35	300/kVA/month
<b>HT - IIA</b>	<b>Govt. Educational Institution</b>					
	Single Slab		6.35	350/kVA/month	6.35	350/kVA/month
<b>HT - IIB</b>	<b>Pvt. Educational Institution</b>					
	Single Slab		6.35	350/kVA/month	6.35	350/kVA/month
<b>HT - III</b>	<b>HT Commercial</b>					
	Single Slab		8.00	350/kVA/month	8.00	350/kVA/month
<b>HT - IV</b>	<b>Lift Irrigation Societies</b>					
	Single Slab		6.35	-	6.35	-
<b>HT - V</b>	<b>Temporary Supply</b>					
	Single Slab		11.00	350/kVA/month	11.00	350/kVA/month

### **Commission's Views**

- 5.3.5 As shown in Chapter 5, the Commission has determined standalone revenue surplus of Rs. 2,231.59 Crore for FY 2017-18. Whenever there is surplus revenue, the next logical step under normal operating circumstances, is to provide relief to consumers by way of reducing tariff.
- 5.3.6 TANGEDCO in its submissions, as shown above, has emphasised how taking over of loan by GoTN has proved to be beneficial as it is expected to save approximately Rs. 2882 Crore per annum on interest charges. However, taking over of loan by GoTN will result in breach of Fiscal Deficit target of 3% of the GSDP as GoTN will have to disburse additional funds to meet the shortfall in funds meant for carrying out normal developmental work.
- 5.3.7 The GoTN has been providing subsidy to domestic, huts and agriculture consumers. Based on the past trend, it is observed that GoTN has been paying annual subsidy in the range of Rs. 5000 to 6000 Crore. However, based on the projected sales and energy consumption for FY 2017-18, the amount of subsidy is expected to increase to Rs. 8800 Crore (as GoTN pays subsidy on per unit of consumption).
- 5.3.8 As TANGEDCO is expected to gain immensely from signing UDAY by way of reduction in interest burden and increase in internal efficiency, the Commission is accepting its tariff proposal of reducing subsidy portion of energy charges for domestic category of consumers. The Commission would like to clarify that GoTN provides partial subsidy to domestic consumers, i.e., per unit of consumption, certain energy charge is charged to the domestic consumers and GoTN provides subsidy for the balance portion. Besides, the share of subsidy to domestic consumers is more than 50% of the total subsidy given by the GoTN. Therefore, the Commission is accepting TANGEDCO's proposal to reduce the subsidy portion of energy charges applicable to domestic consumers, as a one-time measure. However, there will be no reduction in effective tariff payable by the domestic consumers. Further, TANGEDCO has also proposed to reduce the Fixed Charges for some of the consumption slabs, in order to reduce the GoTN subsidy burden. However, as the Fixed Charges are already very low, the proposal to reduce the same has not been accepted.
- 5.3.9 In this manner, the overall burden of subsidy will reduce for GoTN, thereby helping it to maintain the fiscal discipline. Besides, it will also ensure that the subsidy is in the usual range of Rs. 5000 to 6000 Crore, in addition to which, GoTN will be

providing support under UDAY.

- 5.3.10 The Commission has further observed certain anomaly in the Tariff Proposal submitted by TANGEDCO, which was also pointed out during the SAC Meeting. As per the TANGEDCO's proposal, the per unit rate of consumption for consumers in lower consumption slab is higher as compared to the per unit rate of consumption for consumers in higher consumption slab. This proposal of TANGEDCO is not in line with the philosophy of telescopic tariff. Hence, the Commission has modified some of the slab-wise rates for domestic category, while the Tariff for all other categories has been retained at existing levels. As a result of this change in the slab-wise rates proposed by TANGEDCO and approved by the Commission, as well as rejection of the proposal to reduce the Fixed Charges, the reduction in subsidy payable by GoTN has undergone a change. GoTN has to make good this revenue loss also, in order to ensure that the tariff payable by the domestic category consumers remains unaffected, after the tariff revision. The revised tariffs approved for FY 2017-18 are shown in the Table below:

**Table 5-4: Existing and Revised Tariff for FY 2017-18 approved by the Commission (Rs. Crore)**

Consumer Category	Slabs (Per Month)	Sub Category	Existing Tariff		Proposed Tariff		Approved Tariff	
			Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)
	Tariff of Low Tension Consumers							
LT - IA	Domestic							
	1-50 kWh		3.00	15/ month	2.50	15/ month	2.50	15/ month
	51-100 kWh	0-50 kWh	3.25	15/ month	2.50	10/ month	2.50	15/ month
		51-100 kWh	3.25	15/ month	1.50	10/ month	2.50	15/ month
	101-250 kWh	0-50 kWh	3.50	20/ month	2.50	15/ month	2.50	20/ month
		51-100 kWh	3.50	20/ month	2.00	15/ month	2.50	20/ month
		101-250 kWh	4.60	20/ month	3.00	15/ month	3.00	20/ month
	Above 250	0-50 kWh	3.50	25/ month	2.50	25/ month	2.50	25/ month
		51-100 kWh	3.50	25/ month	3.50	25/ month	3.50	25/ month
		101-250 kWh	4.60	25/ month	4.60	25/ month	4.60	25/ month
		above 250 kWh	6.60	25/ month	6.60	25/ month	6.60	25/ month
LT – IB	Huts							
	Single Slab		4.95 (on installation of energy meter)	145/ month (until installation of energy meter)	4.95 (on installation of energy meter)	145/ month (until installation of energy meter)	4.95 (on installation of energy meter)	145/ month (until installation of energy meter)

Consumer Category	Slabs (Per Month)	Sub Category	Existing Tariff		Proposed Tariff		Approved Tariff	
			Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)
LT – IC	LT Bulk Supply							
	Single Slab		4.60	60/ month	4.60	60/ month	4.60	60/ month
LT – IIA	Public Lighting and Water Supply							
	Single Slab		6.35	60/kW/month	6.35	60/kW/month	6.35	60/kW/month
LT – IIB (1)	Govt. Educational Institution							
	Single Slab		5.75	60/kW/month	5.75	60/kW/month	5.75	60/kW/month
LT - IIB (2)	Pvt. Educational Institution							
	Single Slab		7.50	60/kW/month	7.50	60/kW/month	7.50	60/kW/month
LT - IIC	Places of Worship							
	0-60 kWh		5.75	60/kW/month	5.75	60/kW/month	5.75	60/kW/month
	Above 60 kWh		5.75	60/kW/month	5.75	60/kW/month	5.75	60/kW/month
LT - IIIA (1)	Cottage and Tiny Industries							
	0-250 kWh		4.00	20/kW/month	4.00	20/kW/month	4.00	20/kW/month
	Above 250 kWh		4.60	20/kW/month	4.60	20/kW/month	4.60	20/kW/month
LT - IIIA (2)	Power Looms							
	0-250 kWh		5.20	60/kW/month	5.20	60/kW/month	5.20	60/kW/month
	Above 250 kWh		5.75	60/kW/month	5.75	60/kW/month	5.75	60/kW/month
LT - IIIB	LT Industries							
	Single Slab		6.35	35/kW/month	6.35	35/kW/month	6.35	35/kW/month

Consumer Category	Slabs (Per Month)	Sub Category	Existing Tariff		Proposed Tariff		Approved Tariff	
			Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)
LT - IV	LT Agriculture							
	Single Slab		3.22 (on installation of energy meter)	2875/HP/ Annum	3.22 (on installation of energy meter)	2875/HP/ Annum	3.22 (on installation of energy meter)	2875/HP/ Annum
LT - V	LT Commercial							
	0-50 kWh		5.00	70/kW/month	5.00	70/kW/month	5.00	70/kW/month
	Above 50 kWh		8.05	70/kW/month	8.05	70/kW/month	8.05	70/kW/month
LT - VI	Temporary Supply							
	Single Slab		12.00	345/kW/month	12.00	345/kW/month	12.00	345/kW/month
Tariff for High Tension Consumers								
HT - IA	HT Industries							
	Single Slab		6.35	350/kVA/month	6.35	350/kVA/month	6.35	350/kVA/month
HT - IB	Railway Traction							
	Single Slab		6.35	300/kVA/month	6.35	300/kVA/month	6.35	300/kVA/month
HT - IIA	Govt. Educational Institution							
	Single Slab		6.35	350/kVA/month	6.35	350/kVA/month	6.35	350/kVA/month
HT - IIB	Pvt. Educational Institution							
	Single Slab		6.35	350/kVA/month	6.35	350/kVA/month	6.35	350/kVA/month
HT - III	HT Commercial							
	Single Slab		8.00	350/kVA/month	8.00	350/kVA/month	8.00	350/kVA/month



Consumer Category	Slabs (Per Month)	Sub Category	Existing Tariff		Proposed Tariff		Approved Tariff	
			Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)	Energy Charges (Rs./kWh)	Fixed Charges (Rs.)
HT - IV	Lift Irrigation Societies							
	Single Slab		6.35	-	6.35	-	6.35	-
HT - V	Temporary Supply							
	Single Slab		11.00	350/kVA/month	11.00	350/kVA/month	11.00	350/kVA/month

**Note:** In addition to the above tariffs, FPCA may also be levied after prior approval of the Commission

## 5.4 Revenue from Sale of Power

5.4.1 TANGEDCO submitted that the revenue from sale of power at proposed tariff is based on projected sales, consumer load and number of connections. The category-wise revenue, including subsidy from existing and proposed tariff, as estimated by TANGEDCO is shown in the Table below:

**Table 5-5: Revenue from Sale of Power at Existing and Proposed Tariff for FY 2017-18 as submitted by TANGEDCO (Rs. Crore)**

Particulars		Existing Tariff	Proposed Tariff
<b>LT Consumer Category</b>			
<b>LT-IA</b>	Domestic	11,374.34	8,871.06
<b>LT-IB</b>	Huts	205.85	205.85
<b>LT-IC</b>	LT Bulk supply	5.20	5.20
<b>LT-IIA</b>	Public lighting and Water supply	1,980.49	1,980.49
<b>LT-IIB (1)</b>	Govt. Educational institution etc.	106.57	106.57
<b>LT-IIB (2)</b>	Pvt. Educational institution etc.	242.34	242.34
<b>LT-IIC</b>	Places of Worship	97.80	97.80
<b>LT-IIIA (1)</b>	Cottage and tiny industries	129.57	129.57
<b>LT-IIIA (2)</b>	Power Looms	687.39	687.39
<b>LT-IIIB</b>	LT Industries	5,857.00	5,857.00
<b>LT-IV</b>	LT Agriculture	3,328.35	3,328.35
<b>LT-V</b>	LT Commercial	7,721.90	7,721.90
<b>LT-VI</b>	Temporary Supply	483.17	483.17
	<b>Total LT</b>	<b>32,219.95</b>	<b>29,716.68</b>
<b>HT Consumer Category</b>			
<b>HT-IA</b>	HT Industries	12,466.09	12,466.09
<b>HT-IB</b>	Railway Traction	712.53	712.53
<b>HT-IIA</b>	Govt. Educational institution etc.	1,207.83	1,207.83
<b>HT-IIB</b>	Pvt Educational institution etc.	291.26	291.26
<b>HT-III</b>	HT Commercial	2,637.87	2,637.87
<b>HT-IV</b>	Lift Irrigation Societies	4.77	4.77
<b>HT-V</b>	Temporary Supply	286.82	286.82
	<b>Total HT</b>	<b>17,607.18</b>	<b>17,607.18</b>
	<b>Total</b>	<b>49,827.13</b>	<b>47,323.86</b>

## Commission's Views

- 5.4.2 Based on the sales, consumer load and number of connections projected by the Commission for FY 2017-18, the category-wise revenue, including subsidy paid by GoTN, from existing and proposed tariff as approved by the Commission is shown in the Table below:

**Table 5-6: Revenue from Sale of Power at Existing and Revised Tariff for FY 2017-18 as approved by the Commission (Rs. Crore)**

Consumer Category		FY 2017-18	
		Existing Tariff	Revised Tariff
	<b>HT Category</b>		
I (A)	HT Industries	12,750	12,750
I (B)	Railway Traction	723	723
II (A)	Government Educational Institution Etc. (HT)	1,214	1,214
II (B)	Pvt. Educational Institutions etc.	294	294
II (C)	Places of Public Worship	-	-
III	Commercial and other HT	2,644	2,644
IV	Lift Irrigation and co-ops (HT)	5	5
	Supply to Puducherry plus wheeling charges	-	-
VI	Temporary	212	212
V	SWAP	-	-
	<b>TOTAL HT category revenue</b>	<b>17,841</b>	<b>17,841</b>
	<b>LT Category</b>		
I (A)	Domestic	11,394	9,334
I (B)	Huts	198	198
I (C)	Bulk supply	5	5
II (A)	Public Lighting & Water Works	1,982	1,982
II(B)-1	Government Educational Institution	106	106
II(B)-2	Pvt. Educational Institutions	241	241
II (C)	Places of Public Worship (LT)	97	97
III (A)-1	Cottage and Tiny Industries	132	132
III (A)-2	Power Loom	687	687
III (B)	Industries	5,846	5,846
IV	Agriculture & Government seed farm	3,220	3,220
V	Commercial and Other	7,711	7,711
VI	Temporary Supply	502	502
	<b>TOTAL LT category revenue</b>	<b>32,123</b>	<b>30,062</b>
	<b>TOTAL Revenue from LT &amp; HT</b>	<b>49,964</b>	<b>47,904</b>

## 5.5 Revenue Gap at Proposed Tariff

- 5.5.1 TANGEDCO submitted that it has arrived at the Revenue Gap of Rs. 2610.39 Crore considering the proposed net revenue requirement and revenue at existing Tariffs, and GoTN subsidy adjustment by reduction of domestic tariff, as shown in the Table below:

**Table 5-7: Revenue Gap at Proposed Tariff for FY 2017-18 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	Amount
1	Net revenue requirement	52,277.74
2	Revenue from sale of power at proposed tariff (including subsidy)	47,323.86
3	Other Govt. Subsidy (FRP bond takeover)	2,343.49
4	<b>Revenue Gap</b>	<b>2,610.39</b>

### Commission's Views

- 5.5.2 In continuation with the philosophy adopted in the true-up for FY 2014-15 and FY 2015-16, the Commission has not considered the GoTN Subsidy of Rs. 2343.49 crore proposed by TANGEDCO for FY 2017-18 against the FRP bond takeover, as this FRP subsidy is against previous Regulatory Assets in existence before unbundling of TNEB.
- 5.5.3 Based on the approved ARR for FY 2017-18 and revenue from revised category-wise tariffs, the net Revenue Gap/(Surplus) approved by the Commission for FY 2017-18 has been shown below:

**Table 5-8: Approved Revenue Gap/(Surplus) at Revised Tariff for FY 2017-18 (Rs. Crore)**

Sl.	Particulars	Amount
1	Net Revenue Requirement	47,837.80
2	Revenue from sale of power at revised tariff (including subsidy)	47,903.50
3	Other Govt. Subsidy (FRP bond takeover)	-
4	<b>Revenue Gap/(Surplus)</b>	<b>(65.70)</b>

- 5.5.4 It should be noted that the above marginal Revenue Surplus is dependent on the actual category-wise sales, especially to the subsidising HT IA category, which has been considered at the same levels as projected by TANGEDCO. Further, the power

purchase rates have been assumed to remain at FY 2016-17 levels in FY 2017-18 and FY 2018-19 also. In case of significant variation in either or both of these assumptions, the scenario of Revenue Gap/(Surplus) may undergo a change, which will have to be addressed at the time of provisional/final true up for these Years.

## **5.6 Regulatory Assets**

- 5.6.1 TANGEDCO submitted that the Regulatory Assets approved in the Tariff Order No. 1 dated March 30, 2012 is the unrecoverable loss for the period November 2010 to March 2013. In the Tariff Order dated March 30, 2012, the Regulatory Assets were dealt in line with Regulation 13 of the Tariff Regulations, as reproduced below:

*“13. Regulatory Asset*

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

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

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

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

- 5.6.2 TANGEDCO submitted that in the Tariff Order, the Commission had expressed a view that the accumulated losses up to the date of unbundling will have to be dealt with in accordance with Para 5.4.3 of the National Electricity Policy and Tariff Policy. The provisions of the National Electricity Policy and Tariff Policy envisages that the gap at the time of unbundling will have to be addressed by financial restructuring and support from the Government rather than passing on the accumulated losses to the successor entities.
- 5.6.3 In line with the Tariff Policy, National Electricity Policy and the Tariff Order dated March 30, 2012, TANGEDCO submitted that it has not claimed any relief on account of accumulated losses prior to unbundling on November 1, 2010 in its

Petition.

- 5.6.4 Further, TANGEDCO has proposed to create Regulatory Assets for the unrecovered deficit post-unbundling only. TANGEDCO submitted that even though it has requested for creation of Regulatory Asset of the amount which is an unrecovered deficit, all efforts have been undertaken to reduce such deficit.

#### **Recovery of Regulatory Assets**

- 5.6.5 TANGEDCO submitted that as approved in the Tariff Order No. 1 dated June 20, 2013, the Regulatory Assets are proposed to be amortized over a period of 5 years commencing from FY 2013-14 onwards. Once the Regulatory Assets are determined, 1/5<sup>th</sup> of the Regulatory Assets would be amortized along with the carrying cost in the first year. The Regulatory Assets would be re-worked out in FY 2014-15 and 1/4<sup>th</sup> of such Regulatory Assets would be amortized in that year and so on, until the entire Regulatory Assets are 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 Assets is done.
- 5.6.6 TANGEDCO submitted that the Commission had arrived at the consolidated Revenue Gap of Rs. 25,464 Crore 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 Assets of Rs. 1,033 Crore as determined in the Tariff Order dated June 20, 2013 for FY 2013-14. Considering the letter received from GoTN, the Commission had estimated the Regulatory Assets pertaining to FY 2010-11 at a carrying cost of 11% and had then amortized 1/4<sup>th</sup> of the estimated Regulatory Assets pertaining to FY 2010-11 in FY 2014-15 and arrived at net Regulatory Assets.
- 5.6.7 TANGEDCO submitted that the treatment of Regulatory Asset along with its carrying cost up to March 31, 2015 as per the Suo Motu Order dated December 11, 2014, is given in the Table below:

**Table 5-9: Regulatory Asset Approved in last Tariff Order (Rs. Crore)**

Particulars	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15
<b>Opening</b>	0	4145	13514	20270	25464
Additions (Revenue Gap approved by Commission)	4050	8398	4898	3711	222
Add: Interest Expenses	95	971	1858	2515	
Less: Amortised Regulatory Asset				1033	1033
<b>Closing</b>	<b>4145</b>	<b>13514</b>	<b>20270</b>	<b>25464</b>	<b>24652</b>

**Revision in Regulatory Assets**

- 5.6.8 TANGEDCO submitted that in order to reduce the subsidy burden on the State exchequer post entering into UDAY scheme, it has proposed adjustment in Tariff for domestic consumers and no change in tariff for the remaining categories of consumers.
- 5.6.9 TANGEDCO submitted that the Revenue Gap of Rs. 66,873 Crore as shown below may be allowed to be deferred for recovery in the ensuing Years from the consumer based on subsequent Tariff Petitions.
- 5.6.10 TANGEDCO submitted that the percentage of sharing of the Regulatory Assets by GoTN is awaited.
- 5.6.11 Based on the total Revenue Gap, which is cumulative of Revenue Gap for FY 2011-12 to FY 2015-16 (final true-up), FY 2016-17 (Revenue Gap for current year) and FY 2017-18 (Revenue Gap of ensuing year), TANGEDCO submitted the revised calculation of Regulatory Assets as shown in the Table below:

**Table 5-10: Regulatory Asset as submitted by TANGEDCO (Rs. Crore)**

Particulars	Regulatory Assets
FY 2011-12	13,591
FY 2012-13	12,789
FY 2013-14	13,809
FY 2014-15	14,314
FY 2015-16	7,491
FY 2016-17	4,772
FY 2017-18	107

Particulars	Regulatory Assets
Total Gap Arrived in Petition	66,873
Total Regulatory Asset Approved by the Commission	24,652
Add: Tariff Reduction Proposed	2,503
Additional Regulatory Asset Proposed	39,717
<b>Total Regulatory Asset Proposed</b>	<b>66,873</b>

### Commission's Views

5.6.12 Firstly, TANGEDCO's representation of the Regulatory Asset proposed, as reproduced in the Table above is incorrect, as TANGEDCO has neither sought tariff increase nor creation of Regulatory Asset against the additional Revenue Gap of Rs. 2503 crore for FY 2017-18, arising on account of the proposed reduction in domestic tariffs. The Regulatory Asset actually sought by TANGEDCO is Rs. 69376 crore (i.e., 66873 + 2503).

5.6.13 In the Suo-Motu Order dated December 11, 2014, the Commission had determined a gap of Rs. 4050 Crore, which was to be amortized over a period of time and GoTN had agreed for amortization of Regulatory Assets through Letter (Ms.) No. 59/C2/2012 dated June 7, 2013 (in accordance with the financial restructuring of the State DISCOMs announced by GoI on October 5, 2012). Accordingly, GoTN was to take over 50% of TANGEDCO's short-term liabilities to the tune of Rs. 6,382.68 Crore in a phased manner. The relevant abstract from the Suo-Moto Order is reproduced below:

*"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.”*

5.6.14 Based on the letter received from GoTN, the Commission amortized 1/4<sup>th</sup> of the gap for FY 2010-11 (amounting to Rs. 5,166.47 Crore after considering carrying cost upto FY 2013-14) in FY 2013-14. Following the same approach, the Commission has amortized the entire gap of FY 2010-11 by FY 2016-17. As GoTN had agreed to bear the burden of interest on the amortized amount, the Commission is of the view

that it would be beneficial to address the gap at the earliest in order to minimise the burden of interest on GoTN.

**Table 5-11: Amortization of Gap pertaining to FY 2010-11 as approved by the Commission (Rs. Crore)**

Sl.	Particulars	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17
1	Opening Balance	-	4,144.77	4,627.02	5,166.47	4,133.47	3,100.47	2,067.47
2	Addition of Revenue Gap/(surplus) for recovery	4,050.00						
3	<b>Closing Balance</b>	4,050.00	4,144.77	4,627.02	5,166.47	4,133.47	3,100.47	2,067.47
4	Interest Rate	11%	11%	11%	0%	0%	0%	0%
5	Carrying Cost	94.77	482.25	539.45	-			
6	Less: Amortization of RA				1,033.00	1,033.00	1,033.00	3,283.68
7	<b>Net Closing Balance</b>	<b>4,144.77</b>	<b>4,627.02</b>	<b>5,166.47</b>	<b>4,133.47</b>	<b>3,100.47</b>	<b>2,067.47</b>	<b>(1,216.21)</b>

- 5.6.15 After amortizing the Revenue Gap for FY 2010-11 against Rs. 6,382.83 Crore received from the GoTN, the balance amount has been used to set off the Regulatory Asset arrived at after undertaking final true up for FY 2011-12 to FY 2015-16, as discussed below.
- 5.6.16 After undertaking final true up for FY 2011-12 to FY 2015-16, the Commission has determined the cumulative Revenue Gap of Rs. 30,884.15 Crore as detailed in Chapter 4 of the Order.
- 5.6.17 As discussed in the above section, GoTN has taken over Rs. 22,815 Crore of debt of TANGEDCO after signing UDAY. The Commission has not considered the consequential impact of debt take over while approving interest on loan for the Control Period from FY 2016-17 to FY 2018-19. However, the Commission has adjusted the Rs. 22,815 Crore against Revenue Gap at the end of FY 2016-17 as UDAY has been signed in FY 2016-17. After adjusting Rs. 22,815 Crore, the Commission has computed carrying cost on Rs. 7,605 Crore at 6.35% (Bank Rate as of August 3, 2017 + 0.1%) in accordance with the UDAY MoU. Carrying cost on remaining balance after subtracting Rs. 7,605 Crore has been considered at 11%.

**Table 5-12: Regulatory Asset at the end of FY 2016-17 as approved by the Commission**  
(Rs. Crore)

Sl.	Particulars	Legend	FY 2016-17
1	Opening balance	A	30,884.15
2	Addition during the year	B	2,864.47
3	Gap of FY 2010-11 amortized under FRP	C	(1,216.21)
4	Closing balance	$D = A + B + C$	32,532.41
5	UDAY debt take over	E	22,815.00
6	Remaining balance after deducting debt taken over	$F = D - E$	9,717.41
7	25% of remaining debt after UDAY takeover	G	7,605.00
8	Balance amount	$H = F - G$	2,112.41
9	Interest rate for computing carrying cost on Rs. 7605 Crore (Bank Rate + 0.1%)	I	6.35%
10	Interest rate for computing carrying cost on balance amount	J	11.00%
11	Carrying Cost	$K = (G * J) + (H * I)$	715.28
12	<b>Regulatory Asset</b>	<b><math>L = F + K</math></b>	<b>10,432.70</b>

### Recovery of Regulatory Asset

5.6.18 The Commission has not considered any methodology for recovery of regulatory assets of Rs. 10,432.70 Crore, as TANGEDCO has not claimed recovery of Regulatory Assets in the instant Petition. As proposed by TANGEDCO, it may submit the appropriate proposal for recovery of the Regulatory Asset at the appropriate time, after discussion of the various options with the GoTN. As and when TANGEDCO files its Petition for recovery of the Regulatory Asset, the Commission would deal with the same after due regulatory process. The Commission further directs TANGEDCO to strive towards reducing a part of the Regulatory Assets by way of improving operational parameters as committed under the UDAY MoU.

### 5.7 Average Cost of Supply, VCOS and Cross Subsidy Trajectory for FY 2017-18

5.7.1 Based on the approved sales and ARR for FY 2017-18, the Average Cost of Supply (ACOS) determined by the Commission is shown in the Table below:

**Table 5-13: Approved Average Cost of Supply for FY 2017-18**

Sl.	Particulars	Units	FY 2017-18
1	Sales	MU	81,717
2	Aggregate Revenue Required	Rs. Crore	47,837.80
3	<b>Average Cost of Supply</b>	<b>Rs./kWh</b>	<b>5.85</b>

5.7.2 The Hon'ble APTEL in its Judgment dated October 27, 2014, in Appeal No. 196 and 199 of 2013, had directed the Commission to determine the Voltage-wise Cost of Supply (VCOS). The relevant extracts of the APTEL Judgment have been reproduced below:

***“viii) Voltage-wise cost of supply and cost to serve:***

*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.”*

5.7.3 In the Tariff Order dated June 20, 2013, the Commission had observed that the data provided by TANGEDCO was not sufficient enough for segregation of network costs for different voltage classes. Hence, TANGEDCO was directed to arrive at voltage-wise and category-wise cost of supply by undertaking accurate and logical studies. However, as complete information was not submitted by TANGEDCO, the Commission had determined voltage wise cost to serve based on the data made available using the Embedded Cost. The relevant paragraphs from the Tariff Order dated June 20, 2013 have been reproduced below:

***“5.27 The Commission would also like to note that the year FY 2012-13 has seen severe shortage of power due to which more stringent R&C measures as well as load shedding was unavoidable. Given such a situation where cyclical load shedding was adopted, the voltage wise consumer contribution to peak would have been misleading. Considering the peculiar difficulties in this specific situation as well as the fact that sufficient data is unavailable, the Commission has resorted to estimate the voltage wise cost to serve based on the data made available.” (emphasis added)***

5.7.4 In the SMT Order dated December 11, 2014, the Commission had stated as under:

*“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 2013-14 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.”*

5.7.5 The present Tariff Order is the next Tariff Order, after the issue of the SMT Order. The Commission analysed the report submitted by TANGEDCO and following observations were made:

- a) There were a few shortcomings in the report and the methodology suggested by the TANGEDCO. While some of the shortcomings were minor, and rectifiable by applying appropriate modifications, there was one key shortcoming which the Commission could not overlook, i.e., TANGEDCO instead of conducting actual field level studies to ascertain the peak loads, had adopted a set of assumptions. TANGEDCO's approach was in contravention to the Commission's direction in Tariff Order dated March 30, 2012, where the Commission had stressed on the importance of a proper sampling exercise and field level studies, while commenting on the need to determine cost to serve.
- b) The impact of such absence of field level study was evident from the fact that the non-coincident peak demand being derived for the LT domestic consumer category was even higher than the system peak given, which is not practically possible.
- c) TANGEDCO has utilised the category-wise “non-coincident peak demand” for the allocation of demand related costs of generation, transmission and distribution, which comes to more than 45% of the total cost. To maintain the integrity of the exercise while determining the actual cost to serve, more than 45% of the total cost cannot be allocated based on a parameter which is derived

purely based on assumptions, without the backing of field level studies, and especially when usage of such parameter leads to unrealistic results.

- 5.7.6 As the methodology submitted by TANGEDCO contained certain flaws, which cannot be overlooked, the Commission has decided to compute the voltage-wise cost of supply based on the methodology suggested by the Hon'ble APTEL in its Judgment dated May 30, 2011 in Appeal No. 102, 103 and 112 of 2010. However, the Commission has used the data submitted by TANGEDCO.
- 5.7.7 The Hon'ble APTEL, in its Judgment dated May 30, 2011 in Appeal No. 102, 103 and 112 of 2010 had stipulated as follows:

*“34. Thus Power Purchase Cost which is the major component of tariff can be segregated for different voltage levels taking into account the transmission and distribution losses, both commercial and technical, for the relevant voltage level and upstream system. As segregated network costs are not available, all the other costs such as Return on Equity, Interest on Loan, depreciation, interest on working capital and O&M costs can be pooled and apportioned equitably, on pro-rata basis, to all the voltage levels including the appellant's category to determine the cost of supply. Segregating Power Purchase cost taking into account voltage-wise transmission and distribution losses will be a major step in the right direction for determining the actual cost of supply to various consumer categories. All consumer categories connected to the same voltage will have the same cost of supply. Further, refinements in formulation for cost of supply can be done gradually when more data is available.”*

### **Cost of Supply (CoS) Model**

#### **Step 1: Segregation of overall costs**

- 5.7.8 The total approved ARR has been split between all generation and power purchase related expenses and network expenses. Generation and power purchase related expenses includes cost of own generation, cost of power purchase, transmission cost and other income for the generation function. All the remaining expenses have been considered as network expenses.

#### **Step 2: Segregation of voltage wise sales**

- 5.7.9 The actual voltage-wise sales upto FY 2015-16 have been considered as provided by TANGEDCO. The voltage-wise sales for FY 2016-17 and FY 2017-18 have been considered based on the ratio of actual voltage-wise sales for FY 2015-16.

### **Step 3: Allocation of Technical Loss**

- 5.7.10 As discussed in the true-up and MYT Chapters of this Order, the Commission had approved a trajectory of combined T&D losses upto FY 2015-16 in the absence of any scientific study submitted by TANGEDCO. However, now when TANGEDCO has submitted the Study Report on Distribution Losses for FY 2015-16, the Commission has approved a revised trajectory of Distribution Losses for TANGEDCO for the Control Period.
- 5.7.11 In the Study Report submitted, it was observed that TANGEDCO has submitted the Distribution Losses at 33 kV as 1.52%, whereas the Transmission Losses of TANTRANSCO upto 110 kV level have been considered as 4.11% in FY 2015-16. It appears illogical that the Losses at the lower voltage of 33 kV will be lower at 1.52% as compared to the Losses of 4.11% at 110 kV. Also, TANGEDCO in its Tariff Petition, has considered Distribution Losses of 6.55% upto 33 kV, which appears more logical. The Commission asked TANGEDCO to reconcile the discrepancy and also submit the break-up of Distribution Losses at each voltage level. However, TANGEDCO has not submitted the break-up of Distribution Losses separately for HT and LT category.
- 5.7.12 In the absence of such break-up, the Commission has assumed Losses upto FY 2015-16 as approved in the Tariff Order dated June 20, 2013. For FY 2016-17 and FY 2017-18, 230 kV and 110 kV losses have been considered same as approved in the TANTRANSCO MYT Order in T.P. No. 2 of 2017 dated August 11, 2017. Losses at 33 kV, 22 kV, 11 kV and LT level have been considered same as that of FY 2015-16. The overall loss upto FY 2015-16 has been considered based on T&D trajectory as approved by the Commission. The overall loss for FY 2016-17 and FY 2017-18 has been considered as approved in Chapter 5 of this Order.
- 5.7.13 The voltage-wise losses considered have been used to determine the cumulative losses up to a voltage level, which has been then applied on the voltage-wise sales to arrive at the technical losses incurred on sales at the respective voltage level.
- 5.7.14 The voltage-wise technical losses considered by the Commission are given in the Table below:

**Table 5-14: Voltage-wise Technical Losses considered by the Commission**

Voltage level	Unit	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
230 kV Losses	%	0.80%	0.80%	0.80%	0.80%	0.80%	0.77%
110 kV Losses	%	1.90%	1.90%	1.90%	1.90%	3.21%	3.14%
33 kV Losses	%	0.66%	0.66%	0.64%	0.62%	1.48%	1.44%
22 kV Losses	%	2.76%	2.76%	2.68%	2.60%	2.45%	2.35%
11 kV Losses	%	2.87%	2.87%	2.78%	2.70%	2.55%	2.45%
LT Losses	%	10.63%	10.20%	9.90%	9.60%	9.20%	8.90%

**Step 4: Calculation of Commercial Losses**

- 5.7.15 Based on overall losses approved by the Commission in this Order and voltage-wise technical losses discussed in the above section, the Commission has arrived at the commercial losses as the difference between required energy input to cover the technical losses and overall energy input required based on overall approved loss.

**Step 5: Allocation of Commercial Losses**

- 5.7.16 The overall commercial losses, as derived in the above step, have been allocated among the various voltage levels, based on the ratio of sales + technical Losses
- 5.7.17 The sum of all sales and losses provides the gross energy consumption at each voltage level.

**Step 6: Allocation of Costs**

- 5.7.18 The generation and power purchase related costs have been allocated in the ratio of the voltage-wise gross energy consumption (sales + Technical Losses + Commercial Losses), whereas the network costs have been allocated in the ratio of sales.

**Step 7: Determination of VCOS**

- 5.7.19 The allocated costs derived above have been divided by corresponding sales at respective voltage level to arrive at the VCOS, as shown in the Table below:



**Table 5-15: Voltage-wise CoS for FY 2012-13 as determined by the Commission**

<b>Voltage Level</b>	<b>Sales</b>	<b>Generation and Power Purchase Costs</b>	<b>Network Costs</b>	<b>Total Costs</b>
<b>kV</b>	<b>MU</b>	<b>Rs./kWh</b>	<b>Rs./kWh</b>	<b>Rs./kWh</b>
400	-	-	-	-
230	716	3.43	0.97	4.40
110	3,268	3.50	0.97	4.47
33	1,901	3.52	0.97	4.49
22	2,255	3.62	0.97	4.59
11	9,180	3.73	0.97	4.70
LT	41,541	4.17	0.97	5.14
<b>Total</b>	<b>58,861</b>	<b>4.01</b>	<b>0.97</b>	<b>4.99</b>

**Table 5-16: Voltage-wise CoS for FY 2013-14 as determined by the Commission**

<b>Voltage Level</b>	<b>Sales</b>	<b>Generation and Power Purchase Costs</b>	<b>Network Costs</b>	<b>Total Costs</b>
<b>kV</b>	<b>MU</b>	<b>Rs./kWh</b>	<b>Rs./kWh</b>	<b>Rs./kWh</b>
400	-	-	-	-
230	707	3.74	0.83	4.57
110	2,391	3.81	0.83	4.64
33	1,174	3.84	0.83	4.67
22	2,063	3.95	0.83	4.78
11	5,912	4.07	0.83	4.90
LT	44,953	4.53	0.83	5.36
<b>Total</b>	<b>57,200</b>	<b>4.41</b>	<b>0.83</b>	<b>5.24</b>

**Table 5-17: Voltage-wise CoS for FY 2014-15 as determined by the Commission**

<b>Voltage Level</b>	<b>Sales</b>	<b>Generation and Power Purchase Costs</b>	<b>Network Costs</b>	<b>Total Costs</b>
<b>kV</b>	<b>MU</b>	<b>Rs./kWh</b>	<b>Rs./kWh</b>	<b>Rs./kWh</b>
400	-	-	-	-
230	659	4.17	0.90	5.07
110	2,804	4.25	0.90	5.15
33	1,646	4.28	0.90	5.17
22	2,477	4.39	0.90	5.29
11	7,376	4.52	0.90	5.42
LT	49,881	5.02	0.90	5.91
<b>Total</b>	<b>64,843</b>	<b>4.88</b>	<b>0.90</b>	<b>5.77</b>

**Table 5-18: Voltage-wise CoS for FY 2015-16 as determined by the Commission**

Voltage Level	Sales	Generation and Power Purchase Costs	Network Costs	Total Costs
kV	MU	Rs./kWh	Rs./kWh	Rs./kWh
400	-	-	-	-
230	720	4.72	0.74	5.46
110	2,990	4.81	0.74	5.55
33	1,942	4.84	0.74	5.58
22	2,590	4.97	0.74	5.71
11	7,898	5.11	0.74	5.85
LT	51,723	5.65	0.74	6.39
<b>Total</b>	<b>67,863</b>	<b>5.49</b>	<b>0.74</b>	<b>6.23</b>

**Table 5-19: Voltage-wise CoS for FY 2016-17 as determined by the Commission**

Voltage Level	Sales	Generation and Power Purchase Costs	Network Costs	Total Costs
kV	MU	Rs./kWh	Rs./kWh	Rs./kWh
400	-	-	-	-
230	786	4.76	0.94	5.70
110	3,271	4.92	0.94	5.86
33	2,149	4.99	0.94	5.93
22	2,855	5.12	0.94	6.06
11	8,747	5.25	0.94	6.19
LT	56,000	5.78	0.94	6.72
<b>Total</b>	<b>73,809</b>	<b>5.15</b>	<b>0.94</b>	<b>6.09</b>

**Table 5-20: Voltage-wise CoS for FY 2017-18 as determined by the Commission**

Voltage Level	Sales	Generation and Power Purchase Costs	Network Costs	Total Costs
kV	MU	Rs./kWh	Rs./kWh	Rs./kWh
400	-	-	-	-
230	924	4.19	0.94	5.13
110	3,791	4.33	0.94	5.27
33	2,553	4.39	0.94	5.33
22	3,388	4.50	0.94	5.44
11	10,343	4.61	0.94	5.55
LT	60,717	5.06	0.94	6.00
<b>Total</b>	<b>81,717</b>	<b>4.92</b>	<b>0.94</b>	<b>5.85</b>

5.7.20 In accordance with the direction given by the Hon'ble APTEL, the Commission has

computed the VCoS based on certain assumptions, as a starting point. However, due to inaccuracy of voltage-wise distribution loss data, as discussed in the above section, the Commission is of the view that it would not be appropriate to determine tariffs on the basis of VCoS at this point in time, and hence, for the purpose of this Order, the Commission has continued to compute the cross-subsidy with respect to the ACoS. This computation has to be refined further based on more accurate and reliable data. The category-wise cross subsidy for FY 2017-18 with respect to ACOS as determined by the Commission is shown in the Table below:

**Table 5-21: Cross-Subsidy w.r.t. ACOS approved by the Commission**

Consumer Category & Consumption Slab	Existing Tariff			Revised Tariff		
	ABR	ACOS	ABR/ACOS	ABR	ACOS	ABR/ACOS
<b>HT Category</b>						
HT Industries	8.37	5.85	143%	8.37	5.85	143%
Railway Traction	7.71	5.85	132%	7.71	5.85	132%
Government Educational Institution Etc. (HT)	7.58	5.85	129%	7.58	5.85	129%
Pvt. Educational Institutions etc.	8.05	5.85	137%	8.05	5.85	137%
Commercial and other HT	9.91	5.85	169%	9.91	5.85	169%
Lift Irrigation and co-ops (HT)	6.35	5.85	108%	6.35	5.85	108%
<b>LT Category</b>						
Domestic	4.32	5.85	74%	3.52	5.85	60%
Huts	3.00	5.85	51%	3.00	5.85	51%
Bulk supply	4.64	5.85	79%	4.64	5.85	79%
Public Lighting & Water Works	6.90	5.85	118%	6.90	5.85	118%
Government Educational Institution	6.85	5.85	117%	6.85	5.85	117%
Pvt. Educational Institutions	8.34	5.85	142%	8.34	5.85	142%
Places of Public Worship (LT)	6.92	5.85	118%	6.92	5.85	118%
Cottage and Tiny Industries	5.06	5.85	86%	5.06	5.85	86%
Power Loom	6.03	5.85	103%	6.03	5.85	103%
Industries	6.81	5.85	116%	6.81	5.85	116%
Agriculture & Government seed farm	2.88	5.85	49%	2.88	5.85	49%
Commercial and Other	8.75	5.85	150%	8.75	5.85	150%

5.7.21 The Hon'ble APTEL directed the Commission to determine the voltage-wise cost of supply and corresponding cross subsidy for each category of consumers, in its Order dated April 9, 2013 in Appeal No. 257 of 2012, as reproduced below:

“V) We notice that the State Commission has increased tariff of the subsidized categories considerably. The tariff of LT domestic consumer has been increased by 40% and that of agricultural consumer by 593%. The average tariff of the subsidized category has been increased by about 73% which is quite substantial. In order to keep the tariff of the Appellant’s category alone within + 20% of the average cost of supply it might require increase in tariff of subsidized LT consumer by about 110% of the pre-revised tariff causing greater shock to them. If other subsidizing consumers have to be brought within +20% of the average cost of supply, the required increase in tariff in the subsidized categories would have been much higher. The comparison of change in cross subsidy with the previous tariff order for FY 2010-11 where the large revenue gap was left uncovered in the tariff would not give a correct picture. Accordingly, we are not inclined to interfere in the tariff determined by the State Commission. **However, the State Commission is directed to determine the voltage-wise cost of supply and corresponding cross subsidy for each category of consumers in the next tariff order.**” (emphasis added)

5.7.22 Accordingly, the category-wise cross subsidy for FY 2017-18 with respect to VCOS as determined by the Commission is shown in the Table below:

**Table 5-22: Cross-Subsidy w.r.t. VCOS approved by the Commission**

Consumer Category & Consumption Slab	Existing Tariff			Revised Tariff		
	ABR	VCOS	ABR/VCOS	ABR	VCOS	ABR/VCOS
<b>HT Category</b>						
HT Industries	8.37	5.27	159%	8.37	5.27	159%
Railway Traction	7.71	5.27	146%	7.71	5.27	146%
Government Educational Institution Etc. (HT)	7.58	5.55	136%	7.58	5.55	136%
Pvt. Educational Institutions etc.	8.05	5.55	145%	8.05	5.55	145%
Commercial and other HT	9.91	5.55	179%	9.91	5.55	179%
Lift Irrigation and co-ops (HT)	6.35	5.55	114%	6.35	5.55	114%
<b>LT Category</b>						
Domestic	4.32	6.00	72%	3.52	6.00	59%
Huts	3.00	6.00	50%	3.00	6.00	50%
Bulk supply	4.64	6.00	77%	4.64	6.00	77%
Public Lighting & Water Works	6.90	6.00	115%	6.90	6.00	115%
Government Educational	6.85	6.00	114%	6.85	6.00	114%

Consumer Category & Consumption Slab	Existing Tariff			Revised Tariff		
	ABR	VCOS	ABR/VCOS	ABR	VCOS	ABR/VCOS
Institution						
Pvt. Educational Institutions	8.34	6.00	139%	8.34	6.00	139%
Places of Public Worship (LT)	6.92	6.00	115%	6.92	6.00	115%
Cottage and Tiny Industries	5.06	6.00	84%	5.06	6.00	84%
Power Loom	6.03	6.00	101%	6.03	6.00	101%
Industries	6.81	6.00	114%	6.81	6.00	114%
Agriculture & Government seed farm	2.88	6.00	48%	2.88	6.00	48%
Commercial and Other	8.75	6.00	146%	8.75	6.00	146%

**Note:** VCOS for HT Industries has been assumed at 110 kV, for Railways at 33kV and for remaining HT categories, VCOS assumed at 11 kV

- 5.7.23 Further, the Hon'ble APTEL, in its Judgment dated October 27, 2014 in Appeal No. 196 of 2013, directed the Commission to formulate the roadmap for reduction of cross-subsidy, as reproduced below:

*“ix) Road Map for reduction of Cross Subsidy:*

*The State Commission is directed to notify road map for reduction of cross subsidy as per the Tariff Policy after following due process of law which should be undertaken immediately.”*

- 5.7.24 The Tariff Policy notified by the Govt. of India vide Gazette notification dated January 28, 2016, states that the road map for reduction of cross subsidy shall be with reference to the average cost of supply, as reproduced below:

**“8.3 Tariff design: Linkage of tariffs to cost of service**

...

*Accordingly, the following principles would be adopted:*

...

*2. For achieving the objective that the tariff progressively reflects the cost of supply of electricity, **the Appropriate Commission would notify a roadmap such that tariffs are brought within  $\pm 20\%$  of the average cost of supply.** The road map would also have intermediate milestones, based on the approach of a gradual reduction in cross subsidy.” (emphasis added)*

5.7.25 Therefore, in order to comply with the direction of the Hon'ble APTEL, the Commission has determined cross subsidy on the basis of VCOS. However, for the purpose of formulating a roadmap for reduction of cross subsidy, it has relied on average cost of supply in accordance with the Tariff Policy.

5.7.26 Accordingly, the cross-subsidy levels approved above for FY 2017-18 have been considered as the opening cross-subsidy level. Given the existing level of cross-subsidy, it looks difficult to reduce the cross-subsidy to  $\pm 20\%$  of the ACOS for all categories within a short span of time, and hence, the Commission has formulated the roadmap for reduction of cross-subsidy, considering the timeframe of 10 years from FY 2017-18, as shown in the Table below:

**Table 5-23: Approved Cross-Subsidy Reduction Trajectory w.r.t. ACOS**

Consumer Category & Consumption Slab	Revised Tariff	Intermediate Milestones				
	FY 2017-18	FY 2019-20	FY 2021-22	FY 2023-24	FY 2025-26	FY 2027-28
<b>HT Category</b>						
HT Industries	143%	136%	132%	128%	124%	120%
Railway Traction	132%	126%	123%	120%		
Government Educational Institution Etc. (HT)	129%	123%	120%			
Pvt. Educational Institutions, etc.	137%	131%	128%	125%	122%	120%
Commercial and other HT	169%	160%	155%	150%	145%	140%
Lift Irrigation and co-ops (HT)	108%	106%	106%	106%	106%	106%
<b>LT Category</b>						
Domestic	60%	60%	65%	70%	75%	80%
Huts	51%	55%	60%	65%	70%	75%
Bulk supply	79%	78%	80%	82%	84%	86%
Public Lighting & Water Works	118%	114%	113%	112%	111%	110%
Government Educational Institution	117%	113%	112%	111%	110%	
Pvt. Educational Institutions	142%	135%	130%	125%	120%	
Places of Public Worship (LT)	118%	114%	113%	112%	111%	110%
Cottage and Tiny Industries	86%	85%	86%	87%	88%	89%
Power Loom	103%	102%	103%	104%	105%	106%

Consumer Category & Consumption Slab	Revised Tariff	Intermediate Milestones				
	FY 2017-18	FY 2019-20	FY 2021-22	FY 2023-24	FY 2025-26	FY 2027-28
Industries	116%	113%	112%	111%	110%	
Agriculture & Government seed farm	49%	50%	55%	60%	65%	70%
Commercial and Other	150%	143%	140%	137%	134%	130%

5.7.27 It needs to be noted that the above approved trajectory for reduction of cross-subsidy is subject to certain variables like overall sales, sales mix, cost structure, ACOS, etc. The Commission will endeavour to ensure that the above approved trajectory for reduction of cross-subsidy is adhered to the extent possible, subject to the above constraints, as no consumer category can be subject to a tariff shock, on account of reduction of cross-subsidy.

## 5.8 Wheeling Charges

5.8.1 TANGEDCO submitted that it has considered O&M Expenses, Interest on Loan, Depreciation, RoE and Other Debits of Distribution function for calculation of Wheeling Charges.

**Table 5-24: Annual Distribution Charges for FY 2017-18 as submitted by TANGEDCO (Rs. Crore)**

Sl.	Particulars	Rs. Crore
1	Net O&M expenses	5,534
2	Interest on Loan and Finance Charges	3,346
3	Interest on Working Capital	235
4	Depreciation	484
5	Return on Equity	610
6	Other Debits	13
7	Annual Wheeling Charges	10,222
8	Less: Interest on Consumer Security Deposits	542
9	<b>Net Annual Distribution Charges</b>	<b>9,680</b>

5.8.2 TANGEDCO submitted that as Open Access is allowed to HT consumers, the

Wheeling Charges have to be determined based on the cost of HT distribution network. Hence, the annual Wheeling Charges are required to be allocated between HT and LT in the ratio of HT and LT networks. As on March 31, 2016, the length of HT and LT lines was in the ratio of 22:78 (1.70 lakh ckt km : 6.11 lakh ckt km). Thus, the annual Wheeling Charges as allocated between HT and LT category by TANGEDCO is shown in the Table below:

**Table 5-25: Allocation of Wheeling Charges into LT and HT Category by TANGEDCO**

Particulars	Nos.	Ratio
HT Lines (Lakh Ckt Km)	1.70	21.77%
LT Lines (Lakh Ckt Km)	6.11	78.23%
<b>Total</b>	<b>7.81</b>	<b>100.00%</b>

5.8.3 The projected units sold through the distribution system and the Wheeling Charges for FY 2017-18 as submitted by TANGEDCO is shown in the Table below:

**Table 5-26: Wheeling Charges per Unit as submitted by TANGEDCO**

Sl.	Particulars	Units	FY 2017-18
1	Projected Energy Fed into the Grid	MU	101,544.55
2	Transmission Loss upto 110kV	%	1.94%
3	Energy sent out in Distribution Network	MU	99,574.58
4	Less: Energy Consumed at 110kV	MU	6,522.14
5	Less: Loss upto 33kV network	%	6.55%
6	Energy fed into 33kV and below	MU	93,052.45
7	Annual Wheeling Charges	Rs. Crore	2,107
8	<b>Wheeling Charges per Unit</b>	<b>Ps./kWh</b>	<b>22.64</b>

### Commission's Views

5.8.4 The Commission has approved the Wheeling Charges in accordance with the Tariff Regulations, which specifies as under:

***“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.*
- 3) *The wheeling charges shall be computed taking into account the projected units sold and wheeled through Distribution System and within the ensuing tariff period.*
- 4) *The normative distribution system loss at the voltage at which the open access transaction is undertaken shall be borne by the consumer in kind.”*

5.8.5 The annual distribution charges for FY 2017-18 (excluding power purchase) as approved in Chapter 4 is shown in the Table below:

**Table 5-27: Approved Annual Distribution Charges for FY 2017-18 (Rs. Crore)**

Sl.	Particulars	Rs. Crore
1	Net O&M expenses	5394
2	Interest on Loan and Finance Charges	2555
3	Interest on Working Capital	0
4	Depreciation	1173
5	Return on Equity	0
6	Other Debits	0
<b>7</b>	<b>Annual Distribution Charges</b>	<b>9122</b>
8	Less: Interest on Consumer Security Deposits	613
<b>9</b>	<b>Net Annual Distribution Charges</b>	<b>8509</b>

5.8.6 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 submitted by TANGEDCO.

5.8.7 Based on the above ratio and the approved Annual Distribution Charges, the approved Wheeling Charges per unit for FY 2017-18 is shown in the Table below:

**Table 5-28: Approved Wheeling Charges for FY 2017-18**

<b>Wheeling Charges</b>	<b>Commission</b>
Energy fed into Grid (in MU)	97,903.15
Transmission Loss upto 110 kV	3.91%
Less: Energy consumed at 230 kV and 110 kV	4,714.95
Energy sent out to Distribution Network	89,360.19
Less: Loss upto 33kV network	1.52%
Energy fed into 33kV and below	88,001.91
Total Annual Wheeling Charges (Rs. Crore)	1852.36
<b>Wheeling charges for Open Access Customer (Paisa/ unit)</b>	<b>21.05</b>

## 5.9 Losses Applicable for Open Access transactions

5.9.1 The applicable losses for Open Access transactions, depending on the voltage of injection and drawal are given in the Table below:

**Table 5-29: Applicable losses for Open Access transactions for FY 2017-18**

<b>Injection Voltage (kV)</b>	<b>Drawal Voltage (kV)</b>	<b>Applicable losses for Open Access transactions (%)</b>
230	230	0.77%
	110	3.89%
	33	5.27%
	22	7.50%
	11	9.76%
110	230	3.89%
	110	3.14%
	33	4.53%
	22	6.78%
	11	9.06%
33	230	5.27%
	110	4.53%
	33	1.44%
	22	3.76%
	11	6.11%
22	230	7.50%

Injection Voltage (kV)	Drawal Voltage (kV)	Applicable losses for Open Access transactions (%)
	110	6.78%
	33	3.76%
	22	2.35%
	11	4.74%
11	230	9.76%
	110	9.06%
	33	6.11%
	22	4.74%
	11	2.45%

## 5.10 Cross-Subsidy Surcharge

5.10.1 The EA 2003 stipulates the surcharge recoverable by the Distribution Licensee for allowing open access. The relevant extract of the provisions to Section 42 (2) of the Electricity Act 2003 is reproduced below:

*“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” (emphasis added)*

5.10.2 Regulation 3 of the Tariff Regulations specifies as under:

*“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.” (emphasis added)*

5.10.3 The Commission has determined the Cross-Subsidy Surcharge (CSS) for FY 2017-18 in accordance with the formula prescribed by the Tariff Policy, 2016, as reproduced below:

***“Surcharge formula:***

$$S = T - [C / (1 - L/100) + D + R]$$

*Where*

*S is the surcharge*

*T is the tariff payable by the relevant category of consumers, including reflecting the Renewable Purchase Obligation*

*C is the per unit weighted average cost of power purchase by the Licensee, including meeting the Renewable Purchase Obligation*

*D is the aggregate of transmission, distribution and wheeling charge applicable to the relevant voltage level*

*L is the aggregate of transmission, distribution and commercial losses, expressed as a percentage applicable to the relevant voltage level*

*R is the per unit cost of carrying regulatory assets.”*

- 5.10.4 Category-wise tariff payable has been considered based on sales and revenue projected for FY 2017-18. Weighted average cost of power purchase has been determined based on total power purchase quantum and cost determined for FY 2017-18 in Chapter 5. The Distribution Loss at HT level and Transmission Loss for FY 2017-18 has been considered at 1.52% and 3.91%, respectively. The value of R has been determined based on projected sales for FY 2017-18 and aggregate of carrying cost to be paid on Revenue Gap determined for FY 2011-12 to FY 2015-16 in Chapter 5. As no past gaps have been allowed to be passed through, the value of R has been considered as zero.

**Table 5-30: Values of various components considered by the Commission**

Particulars	FY 2017-18
HT (33 kV) Loss	1.52%
Transmission Loss	3.91%
Transmission Charge (Rs. Crore)	2,152.94
Carrying Cost (Rs. Crore)	-
Own Sales (MU)	81,716.63

- 5.10.5 Based on the above, the category-wise CSS for FY 2017-18 as determined by the Commission is shown in the table below:

**Table 5-31: Approved CSS for FY 2017-18**

Particulars	ABR	C	C / (1-L%)	D	R	CSS
	Rs/kWh	Rs/kWh	Rs/kWh	Rs/kWh	Rs/kWh	Rs/kWh
<b>HT Sales</b>						
HT IA: HT-Industry	8.37	4.09	4.32	0.43	-	<b>1.67</b>
HT IB: Railway Traction	7.71	4.09	4.32	0.43	-	<b>1.54</b>
HT IIA: Govt. educational institute	7.58	4.09	4.32	0.43	-	<b>1.52</b>
HT IIB: Pvt Educational Institute	8.05	4.09	4.32	0.43	-	<b>1.61</b>
HT III - HT commercial	9.91	4.09	4.32	0.43	-	<b>1.98</b>
HT IV- Lift Irrigation societies	6.35	4.09	4.32	0.43	-	<b>1.27</b>
HT V - Temporary Supply	11.30	4.09	4.32	0.43	-	<b>2.26</b>

**Note:** The above-determined CSS for each category shall remain the same, irrespective of the drawal and injection voltage, on account of capping of the CSS at 20% of the Tariff as per Tariff Policy formula

### 5.11 Additional Surcharge

5.11.1 TANGEDCO submitted that as per the Tariff Policy, 2016, the Additional Surcharge shall become applicable only if it is conclusively demonstrated that the obligation of a Licensee, in terms of existing power purchase commitments, has been and continues to be stranded, or there is an unavoidable obligation and incidence to bear Fixed Costs consequent to such a contract. TANGEDCO has not proposed to claim the Additional Surcharge at present.

#### Commission's Views

5.11.2 As TANGEDCO has not proposed to levy Additional Surcharge, the Commission has not approved any Additional Surcharge.

### 5.12 Grid Availability Charges

5.12.1 TANGEDCO submitted a proposal for approval of Energy Charges plus the Energy Equated Demand Charges applicable to HT Temporary Tariff as Grid Availability Charges. TANGEDCO further submitted that the Grid Availability Charges are

basically for providing standby arrangements to Open Access customers in the following cases:

- i. In case of outages of Generator supplying to an Open Access consumer.
- ii. For start-up power by Generator.
- iii. When the generation as per schedule is not maintained and when the drawal by the Open Access consumer is in excess of the schedule.

5.12.2 TANGEDCO submitted that it is facilitating standby power supply arrangement for Open Access consumers. As per Clause 8.5.6 of the Tariff Policy, a standby arrangement needs to be provided to Open Access consumers to safeguard their supply in case of outages of the Generator. However, such consumer will be charged a Tariff relevant to Temporary Connection as such standby support will be for a temporary period of time.

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

5.12.3 In an interconnection (integrated A.C. Grid), since MW deviations from schedule of an entity are met from the entire Grid, the temporary standby support will result into deviation in the drawal by Licensee resulting in UI applicability.

5.12.4 TANGEDCO submitted that the Commission in SMT Order dated December 11, 2014 approved a separate Tariff category for HT temporary supply and hence, it is prayed to fix the Tariff of Grid Availability Charges equivalent to Energy Charges plus Energy Equated Demand Charges applicable to HT Temporary supply.

#### **Commission’s Views**

5.12.5 The Commission has already clarified in the Order dated December 11, 2014, that the Grid Availability Charges shall be levied for the following conditions:

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

5.12.6 The Grid Availability Charges for Open Access consumers shall be applicable as under:

- 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 an 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 drawal 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 drawal 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 drawal 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 drawal is more than the scheduled energy/demand drawal 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 Regulations/Order.

5.12.7 Further, in the recently issued Order dated 31.07.2017 in I.A. No. 1 of 2015 in M.P. No. 10 of 2015 and M.P. No.10 of 2015, the Commission has clarified as under:

*“6.8. This Commission accordingly clarifies that in case of outage of generator supplying to an open access consumer, the open access consumer is liable to pay the grid support charges at the applicable tariff rates of that category of Consumer considering it as deviation from the schedule.”*

- 5.12.8 The Parallel Operation Charges shall be collected only from the captive generators on the net capacity, i.e., the capacity being utilised for self-consumption, for extending the facility of grid support.
- 5.12.9 The dispensation for Start-up power has already been elaborated separately in earlier sections of this Order.

### **5.13 Time of Day Tariff (ToD)**

- 5.13.1 TANGEDCO submitted that presently under ToD billing, HT IA consumers are billed 20% extra on the energy charges for the energy recorded during peak hours. The duration of peak hours is 06:00 hrs to 09:00 hrs and 18:00 hrs to 21:00 hrs. In the R&C period, the duration of 21:00 hrs to 22:00 hrs was also considered as peak hours. In practice, the load in the system is very high between 21:00 hrs to 22:00 hrs. CERC has considered time duration from 21:00 hrs to 23:00 hrs also as peak hours. In order to avoid ambiguities, difficulties in billing and to reduce demand during this period, TANGEDCO submitted that the peak hour duration may be modified as 06:00 hrs to 09:00 hrs and 18:00 hrs to 22:00 hrs.

#### **Commission's Views**

- 5.13.2 The Peak Hour Charges or Time of Day (ToD) tariff is widely-accepted as an



effective tool for Demand Side Management (DSM). This economic-regulatory tool facilitates separate peak and off-peak tariffs, which would help in reducing consumption during peak hours where power demand and cost of power is high, by shifting the consumption to off-peak hours where power demand and cost of power is relatively lower.

- 5.13.3 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. Hence, ToD tariff assumes importance in the context of propagating and implementing DSM and achieving energy efficiency. The intention of levying such additional charges/rebates is to incentivise consumers to shift their consumption from peak to off peak hours, thereby helping to flatten the load curve, and in case the consumption cannot be shifted, then levy of such additional charges/rebates should enable recovery of the additional cost incurred to meet the demand during such hours.
- 5.13.4 Levy of ToD tariff is supported by the applicable Legal, Policy and Regulatory Framework as discussed below:
- 5.13.5 The Commission can determine TOD tariff as per the provisions of Section 62(3) of the Act, as reproduced below:

*“The Appropriate Commission shall not, while determining the tariff under this Act, show undue preference to any consumer of electricity but may differentiate according to the consumer's load factor, power factor, voltage, total consumption of electricity during any specified period or **the time at which the supply is required or the geographical position of any area**, the nature of supply and the purpose for which the supply is required.” (emphasis added)*

- 5.13.6 The relevant provisions of the Tariff Policy, 2016 are reproduced below:

***“8.4 Definition of tariff components and their applicability***

*1. Two-part tariffs featuring separate fixed and variable charges and Time differentiated tariff shall be introduced on priority for large consumers (say, consumers with demand exceeding 1 MW) within one year. This would also help in flattening the peak and implementing various energy conservation measures.”*

- 5.13.7 The relevant provision of the National Electricity Policy with respect to encouraging metering for TOD is reproduced below:

*“5.4.9 The Act requires all consumers to be metered within two years.*

*The SERCs may obtain from the Distribution Licenses their metering plans, approve these, and monitor the same. The SERCs should encourage use of pre-paid meters. In the first instance, TOD meters for large consumers with a minimum load of one MVA are also to be encouraged. The SERCs should also put in place independent third-party meter testing arrangements”.*

- 5.13.8 The Forum of Regulators (FOR) has given the following recommendations in its Working Group Report on “Metering Issues”:

*“Time of the day metering is important while propagating and implementing Demand Side Management (DSM) and achieving energy efficiency. Hence, TOD metering and automatic meter reading system should be introduced wherever it has not already been done. High-end consumers with the connected load of 25KW and above should be covered under TOD metering.”*

- 5.13.9 As per SMT Order No 9 of 2014, the ToD tariff applicable to the HT IA Category is reproduced below:

*“ ...*

*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.*

*... ”*

- 5.13.10 Thus, the ToD charges are levied on HT IA Industrial consumers in the form of 20% additional charge on energy charges for power consumed during the peak hours (from 06:00 hrs to 09:00 hrs and from 18:00 hrs to 21:00 hrs) and 5% rebate on energy charges for power consumed during off-peak hours (from 22:00 hrs to 05:00 hrs) presently. As per the directions of the Hon’ble APTEL, the ToD charges are to be reconsidered based on the relevant and updated demand and load data submitted by TANGEDCO.

- 5.13.11 The Commission has studied the Report on ToD charges submitted by TANGEDCO, justifying the additional charges applicable to HT IA industrial consumers, in line with the directions given by the Commission in Tariff Order dated June 20, 2013. The Report submitted by TANGEDCO was based on the consumption details for FY 2013-14. However, as the revised ToD tariffs are to be

levied in FY 2017-18 and there have been significant changes in the demand-supply equation over the last 2-3 years, the Commission directed TANGEDCO to submit the latest available hourly demand-supply data.

5.13.12 TANGEDCO submitted the Load Generation Balance Report (LGBR) for FY 2015-16. The Commission notes that during FY 2015-16, the Restriction and Control (R&C) measures were implemented. Hence, the Commission sought the LGBR for FY 2016-17. However, TANGEDCO was unable to submit the LGBR for FY 2016-17. Hence, the Commission has carried out its analysis on the basis of LGBR for FY 2015-16, and approved the ToD tariffs for FY 2017-18, as detailed below.

5.13.13 In line with the directives of the Hon'ble APTEL to determine the differential pricing for peak hours and off-peak hours, the Commission has undertaken the study in two steps:

- (i) Determination of the peak hours and off-peak hours based on latest available load curve
- (ii) Determination of Differential price for peak and off-peak hours

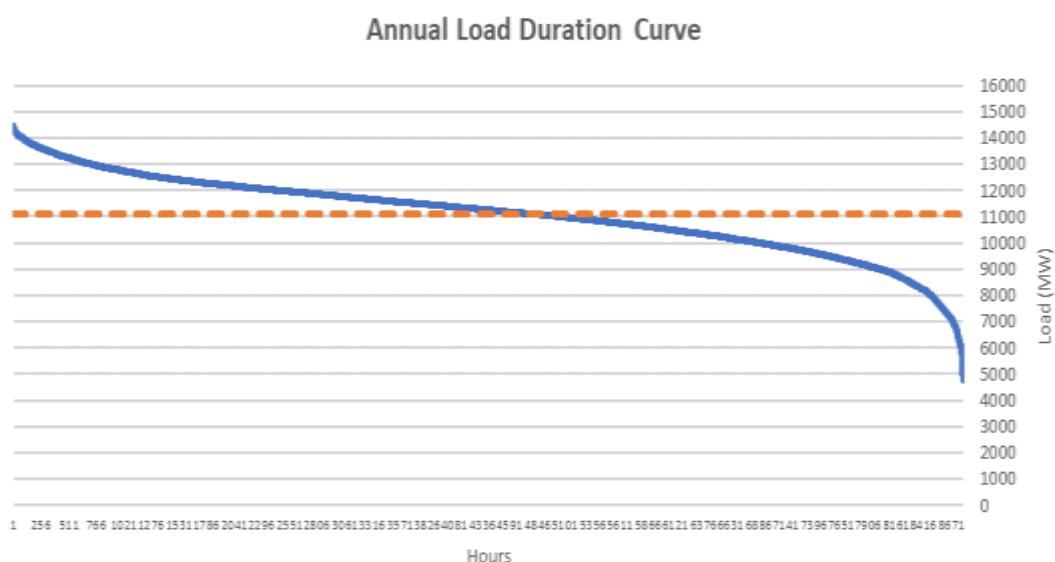
5.13.14 A detailed analysis was conducted by the Commission on the demand met by the Licensee based on the details submitted by TANGEDCO. The hourly data for Demand, Load met, own generation sources utilised (including hydro power), wind power purchased, power purchased from CGS, power purchased from LTOA sources and MTOA sources, power purchased from CPPs, Biomass and Co-generation power plants and power purchased from Exchanges and UI were provided by the Licensee.

5.13.15 The Commission has considered the hourly data for every month of FY 2015-16 (8784 data points) and assessed the load met by the Licensee for every hour of the day for each month. The load curves were then plotted based on the demand met by the Licensee for every one-hour interval. A load curve was also plotted for analysis of how the load curve varied throughout the 24-hour window over the year.

5.13.16 The Commission has observed the daily variation and seasonal variation in the demand met by the Licensee. From the hourly data for each month, it is observed that Maximum Demand for FY 2015-16 was 14,484 MW, which occurred on March 17, 2016 at 1900 hours and March 28, 2016 at 1900 hours. However, Minimum Demand of 4,791 MW was recorded on November 10, 2015 at 0400 hours. At the outset, it is noted that the difference between Maximum Demand and Minimum Demand is very large. However, this difference is the result of the daily variation

and seasonal variation. Such Maximum Demand and Minimum Demand has been recorded for a very small duration, as can be seen from the Load Duration Curve of TANGEDCO for FY 2015-16, as shown in the following Figure:

**Figure 5-32: Annual Load Duration Curve**

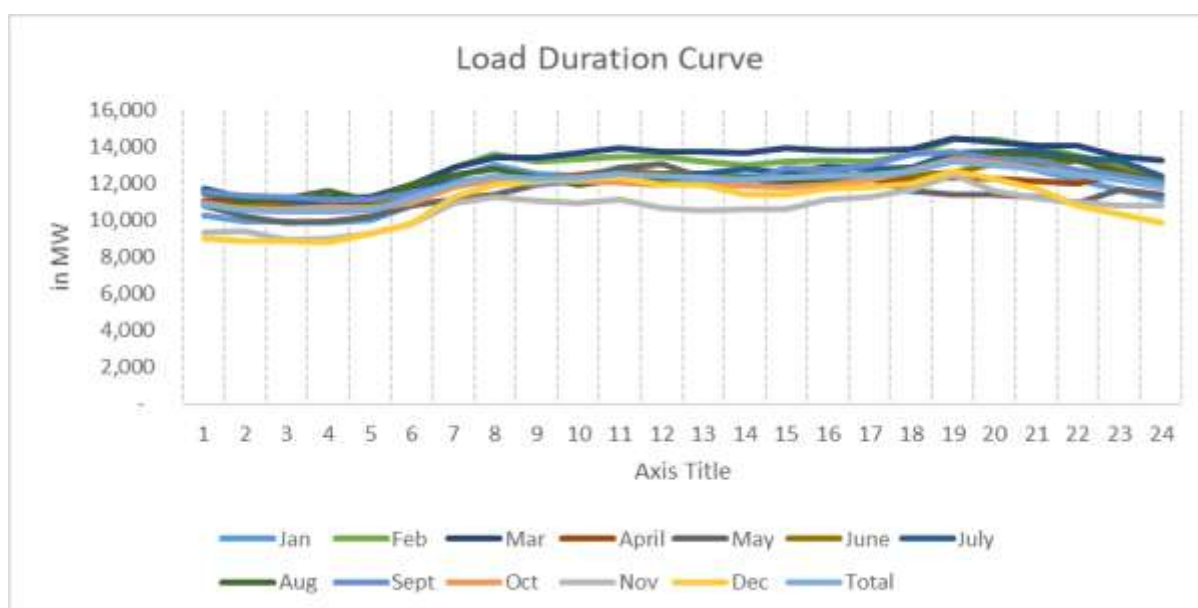


5.13.17 From the yearly Load Duration Curve, it is observed that:

- (i) The Maximum Demand for FY 2015-16 was 14,484 MW.
- (ii) Average demand for the year is 11,094 MW, which was recorded for 55.02% of time.
- (iii) The variation in Maximum Demand is 3,390 MW (14,484 – 11,094 MW) and variation in Minimum Demand is 6,303 MW (11,094 – 4,791 MW).
- (iv) There is sudden decrease in the demand for shorter period of time at the lower end of curve. These data points need to be considered as outliers.
- (v) The Base Load for the Distribution Licensee has been derived by excluding the outliers and considering the equal spread from the average demand for the year. The Base Load has been computed as 7,700 MW, which was recorded for 97% of the time.

5.13.18 For assessing the peak hours and off-peak hours, the Commission has considered the daily load curve of the particular day of the month on which the Maximum Demand in that month has occurred. The Peak hours and off-peak hours for each month have been derived by study of the representative monthly load curves as shown in the Figure below:

**Figure 5-33: Daily Load Curve for each month**



5.13.19 From the above figure, the peak hours, off-peak hours, and normal hours can be observed as under:

- (a) Morning Peak hours - 0600 hours to 0900 hours
- (b) Evening Peak hours – 1800 hours to 2100 hours
- (c) Off-peak hours – 2200 hours to 0500 hours
- (d) Normal hours – 0500 to 0600 hours, 2100 to 2200 hours, and 0900 hours to 1800 hours

5.13.20 It is seen that the above time-slots are same as the prevailing time-slots for peak, off-peak and normal hours. In view of the above, the Commission has retained the above time slots for the applicability of the peak hour charges/ToD tariff.

5.13.21 The Commission notes that TANGEDCO has contracted power with various sources to meet its load. However, some of the sources are used to meet its Base load and rest of the sources for meeting peak load. The actual LGBR, power purchase quantum and cost is available for FY 2015-16. The month-wise Base Load has been computed for FY 2015-16, based on which, the Commission has computed the quantum of energy required and differential price for meeting the load over and above the Base Load.

5.13.22 The Commission has considered the Base Load as 7700 MW for FY 2015-16. Based on month-wise Base Load, the Commission has computed the quantum of energy required and differential price for meeting the load over and above the Base Load as

under:

- (a) The hourly (8784 data points) contracted power has been considered including the power from TANGEDCO's own generating stations, Central Generating Stations, IPPs, CPPs, Biomass and Co-generation plants.
- (b) The power available from these sources after meeting the Base Load for the particular month has been considered against the quantum of power required over and above the Base Load.
- (c) Accordingly, the total round the clock Peak energy requirement has been computed for 8784 data points as 20,590.95 MU for FY 2015-16. Out of this, the peak energy requirement of 2,304 MU is pertaining towards Peak period defined under Time of Day framework.
- (d) For meeting this energy, the sources of power have been considered from the highest rank in the Merit Order stack in descending order, as approved by the Commission for FY 2015-16 after Truing up
- (e) The energy requirement of 2,304 MU has met by sources as shown in the following Table:

**Table 5-34: Computation of Differential price for FY 2015-16**

<b>Sr. No.</b>	<b>Source of Power</b>	<b>Energy purchased (MU)</b>	<b>Energy purchased towards Peak period (MU)</b>	<b>Energy Charges (Rs. /kWh)</b>
1	Trading – Bilateral and Exchange	14,184	2,304	5.14
2	<b>Total</b>	<b>14,184</b>	<b>2,304</b>	<b>5.14</b>

- (f) The weighted average rate of power purchase for meeting peak period energy has thus been computed as **Rs. 5.14/kWh** for FY 2015-16. The average power purchase cost computed for FY 2015-16 as Rs. 4.22/kWh. The weighted average energy charges computed for FY 2015-16 as **Rs. 3.18 /kWh**. Hence, the price for procurement of additional energy for peak period is definitely higher than 20% of the weighted average energy charges for FY 2015-16. Hence, the Commission has decided to continue the same level of extra charges for peak hour consumption.

5.13.23 The break-up of the hours into peak period, off-peak period, and normal period is as

under:

- (a) Morning Peak hours - 0600 hours to 0900 hours
- (b) Evening Peak hours – 1800 hours to 2100 hours
- (c) Off-peak hours – 2200 hours to 0500 hours
- (d) Normal hours – 0500 to 0600 hours, 2100 to 2200 hours, and 0900 hours to 1800 hours

5.13.24 **Thus, the Commission approves levy of extra charge of 20% on energy charges for power consumption during peak hours from 0600 hours to 0900 hours and 1800 hrs to 2100 hrs, and a rebate of 5% on energy charges for power consumption during off-peak hours from 2200 hrs to 0500 hrs for HT IA category consumers.**

5.13.25 Further, the Tariff Policy stipulates that ToD tariffs should be eventually introduced for all consumers including Residential category consuming above identified consumption levels. However, at present, the available data is not sufficient to even modify the existing ToD dispensation, which is applicable for HT IA Industrial category. TANGEDCO is directed to undertake a detailed study of hourly consumption patterns of HT IA category as well as other HT consumer categories, based on ABT metering data, to identify which category is contributing how much to the peak consumption, which category can shift its consumption to off-peak hours, seasonal variation in the peak and off-peak consumption levels. Based on this study, TANGEDCO should submit a comprehensive proposal to modify/upgrade the ToD tariff dispensation, along with its next Tariff Petition. While doing so, TANGEDCO should bear in mind that the objective of the ToD tariff is to facilitate and encourage shift of consumption from peak to off-peak hours, as well as to recover the additional power purchase cost incurred during peak hours.

## 6 TARIFF SCHEDULE

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### 6.1 Tariff for High Tension Supply Consumers

#### 6.1.1 General Provisions applicable for High Tension Supply

**6.1.1.1 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.

#### 6.1.1.2 Harmonics:

- (a) 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. 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 all HT categories of consumers except HT tariff IV (Lift Irrigation).
- (b) It shall not be applicable for all HT consumers connected at 11 kV and 22 kV until the CEA prescribes any standard of harmonics for 11 kV/22kV supply line consumers and makes them also obligatory for harmonic controls.
- (c) The TANGEDCO shall give three months' clear notice to all consumers under the above categories stating that they shall pay 15% compensation charges if the harmonics introduced by their load is not within the permissible limits set by CEA. The penal charges shall be due from the date of completion of three months' notice period unless the harmonics is brought within the permissible limit. As and when the consumer brings down the harmonics within the permissible limit, compensation charges shall be withdrawn.

**6.1.1.3** In case of supply under HT Tariff, except for HT tariff-IV and HT tariff- 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, irrespective of whether they are outsourced to a third party or provided by the consumer himself. However, if such facilities are extended to the public, or if part/full premises are leased/rented out to a service provider like food outlets present in food court, which provide service in their own name, 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.

**6.1.1.4** 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.

**6.1.1.5** 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.

**6.1.1.6 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

**6.1.1.7 Billable Demand:** In case of HT Consumers, maximum Demand Charges for any month will be levied on the kVA demand actually recorded in that month or 90% of

the 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.

- 6.1.1.8 In case of all HT consumers, the integration period for arriving at the maximum demand in a month will be fifteen minutes.

6.1.2 **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

- 6.1.2.1 This Tariff is applicable to:

1. All manufacturing and industrial establishments and registered factories including Tea Estates, Textiles, Fertilizer Plants, Steel Plants, Heavy Water Plants, Chemical plants. However, registered factories such as LPG bottling Units which are of non-manufacturing nature are not to be included in this tariff category.
2. Common effluent treatment plants, Industrial estate's water treatment/supply works,
3. Cold storage units

- 6.1.2.2 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:**

- i. Network Management Services
- ii. Applications Integration

**(b) Processing services includes:**

- i. Outsourced Services in Banking, HR, finance, Technology and other areas
- ii. Outsourced Back office support or Business transformation and Process Consulting Services.

**(c) Information Services Outsourcing includes:**

- i. Outsourced Global Information Support Services
- ii. Knowledge Process Outsourcing
- iii. Outsourced Global Contact Centre Operations
- iv. Outsourced Process Consulting Services.

**(d) Packaged Software Support and Installation includes:**

- i. Software Design and Development, Support and Maintenance
- ii. Application installation, support and maintenance
- iii. Application testing.

**(e) Hardware Support and Installation includes:**

- i. Technical and network operations support
- ii. Hardware installation, administration and management
- iii. Hardware infrastructure maintenance and support

(f) This tariff is also applicable to Aeronautical services provided by the Airports under Airports Authority of India. The Non-Aeronautical services provided shall be categorised under HT III Commercial / Miscellaneous category.

(g) 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 Tariff Regulations, 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.

- (h) 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.
- (i) 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.

### 6.1.3 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

6.1.3.1 This tariff is applicable to:

- (a) Railway traction
- (b) All the connected loads of CMRL. Other loads like ATM, Kiosks, stalls, hotels, etc. shall be separately metered and charged under miscellaneous category and the above consumption shall be deducted from the main energy consumption metered at the CMRL's point of supply.

### 6.1.4 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

6.1.4.1 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) Central Prisons and other Prisons of the State Government.
- (f) Public Lighting and Electric crematorium.
- (g) Public Libraries, Art Galleries and Museums.
- (h) Research Laboratories and institutions
- (i) Dairy units

6.1.4.2 This tariff is also applicable to the following

- (a) Residential colonies and Housing complexes, Senior citizen communities, Old Age Homes, Orphanages and its common supply used for common lighting, water supply, lift.
- (b) Hospitals and Rehabilitation Centres, Rehabilitation and Training 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.
- (c) 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.
- (d) 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”.
- (e) Actual places of public worship.

6.1.5 **High Tension Tariff II – B :**

Tariff category	Commission Determined Tariff
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	<b>Demand Charge in Rs/kVA/ month</b>	<b>Energy charge in Paise per kWh (Unit)</b>
High Tension Tariff II A	350	635

The tariff is applicable to all Private educational institutions and hostels run by them.

#### 6.1.6 High Tension Tariff III :

Tariff category	Commission Determined Tariff	
	<b>Demand Charge in Rs/kVA/ month</b>	<b>Energy charge in Paise per kWh (Unit)</b>
High Tension Tariff III	350	800

This tariff is applicable to all other categories of consumers not covered under High Tension Tariff IA, IB, IIA, IIB, IV and V.

#### 6.1.7 High Tension Tariff IV :

Tariff category	Commission Determined Tariff	
	<b>Demand Charge in Rs/kVA/ month</b>	<b>Energy charge in Paise per kWh (Unit)</b>
High Tension Tariff IV	Nil	635

\*Category to be fully subsidised by the Government

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

#### 6.1.8 High Tension Tariff V

Tariff category	Commission Determined Tariff	
	<b>Demand Charge in Rs/kVA/ month</b>	<b>Energy charge in Paise per kWh (Unit)</b>
High Tension Tariff V	350	1100

6.1.8.1 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.

## **6.2 Tariff for Low Tension Supply Consumers**

### **6.2.1 General Provisions applicable for Low Tension Supply**

- (a) 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.
- (b) 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 above Low Tension Service connections is less than the stipulated limit of 0.85 the following compensation charges will be levied.

<b>Power Factor</b>	<b>Dispensation of Power Factor compensation</b>
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

- (c) 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.
- (d) In case of LT Tariff IIB 1, II B2, IIC, IIIA 1, IIIA2, IIIB, V and VI, the fixed charges shall be calculated on the basis of the contracted demand. The monthly fixed charges shall be calculated on the basis of per kW or part thereof.
- (e) Supply to welding sets shall be charged 15% extra irrespective of category and capacity.

- (f) 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.
- (g) In case of supply under LT Tariff II-B (1), II-B(2), III-B, 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, irrespective of whether they are outsourced to a third party or provided by the consumer himself. However, if such facilities are extended to the public, or if part/full premises are leased/rented out to a service provider like food outlets present in food court, which provide service in their own name, 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 LT supply for billing.

#### 6.2.2 Low Tension Tariff I-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
<b>Low Tension Tariff I-A</b>	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	250
	For consumers who consume from 51 units to 100 units per month (or) 101 to 200 units for two months		
	From 0 to 50 units per month (or) 0 to 100 units for two months*	15	250
	From 51 to 100 units per month (or) 101 to 200 units for two months	15	250
	For consumers who consume from 101 units to 250 units per month (or)		



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
	201 units to 500 units for two months		
	From 0 to 50 units per month (or) 0 to 100 units for two months*	20	250
	From 51 to 100 units per month (or) 101 to 200 units for two months		250
	From 101 to 250 units per month (or) 201 to 500 units for two months		300
	For consumers who consume 251 units and above per month (or) 501 units and above for two months		
	From 0 to 50 units per month (or) 0 to 100 units for two months*	25	250
	From 51 to 100 units per month (or) 101 to 200 units for two months		350
	From 101 to 250 units per month (or) 201 to 500 units for two months		460
	From 251units and above per month (or) 501 units and above for two months		660

\* to be subsidised by the Government

6.2.2.1 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 contracted load not exceeding 2 kW.
  - i. To provide lighting, water and other facilities to domestic animals/pets including chaff cutting, milking etc.
  - ii. 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 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 Centres.
- (f) Old Age Homes, Leprosy Centres 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 provided only to the residents alone shall be given a separate connection and in case of more than one block in a premise, only one service shall be given for each block for common lighting, water supply and lift provided only to the residents.
- (i) In respect of multi tenements/multi-storey flats/residential complexes having both domestic and non-domestic utilities, common facilities such as common lighting, common water supply, lift 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.

### 6.2.3 Low Tension Tariff I-B:

Tariff	Description	Commission Determined Tariff *	
		Fixed charges (Rupees / Month)	Energy charges in Paise / kWh
<b>Low Tension Tariff I-B</b>	Till installation of Energy Meter	145	Nil
	On Installation of Energy Meter	Nil	495

\*Category to be fully subsidised by the Government

6.2.3.1 This tariff is applicable to huts in Village Panchayats and Town Panchayats, houses constructed under Jawahar Velai Vaiippu Thittam, TAHDCO Kamarajar Adi Dravidar housing schemes, huts in Nilgiris District and huts with concrete wall in the schemes of State and Central Governments. This tariff is applicable subject to following conditions:

- 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.
- Only one light not exceeding 40 watts shall be permitted per hut.
- 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.

6.2.3.2 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.

#### 6.2.4 Low Tension Tariff I-C:

Tariff	Commission Determined Tariff	
	Fixed charges (Rupees / Month)	Energy charges in paise / kWh
Low Tension Tariff I-C	60	460

- 6.2.4.1 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 Kudankulam Nuclear power project etc.
- 6.2.4.2 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.
- 6.2.4.3 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”.

#### 6.2.5 Low Tension Tariff II-A:

Tariff	Commission Determined Tariff	
	Fixed charges (Rupees/kW / Month)	Energy charges in paise / kWh
Low Tension Tariff II-A	60	635

- 6.2.5.1 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.
- 6.2.5.2 Private agriculture wells/private wells hired by Government/Local bodies/CMWSSB/TWAD Board/ to draw water for public distribution.
- 6.2.5.3 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.
- 6.2.5.4 Separate service connections for street lights for SIDCO and other Industrial Estates.

6.2.5.5 Supply to Railway level crossings.

**6.2.6 Low Tension Tariff II-B (1)**

Tariff	Commission Determined Tariff	
	Fixed charges (Rupees/kW / Month)	Energy charges in paise / kWh
Low Tension Tariff II-B (1)	60	575

6.2.6.1 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 Centres & sub-centres and Veterinary Hospitals.
- (c) Central Prisons and other Prisons of the State Government.
- (d) Research Laboratories/Institute.
- (e) Elephant Health camp
- (f) State Legal Udhavi Maiyam.
- (g) Art Galleries and Museums.
- (h) Public libraries.

6.2.6.2 This tariff is applicable to the following entities which offer totally free services.

- (a) Dispensaries, Creches and Recreation centres.
- (b) Libraries.
- (c) Emergency Accident Relief Centres 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) Rehabilitation and Training centres.

(f) Student Hostel.

(g) Blood Banks.

6.2.6.3 This tariff is also applicable to Private Art Galleries and Museums run with service motive.

#### 6.2.7 Low Tension Tariff II-B (2)

Tariff	Commission Determined Tariff	
	Fixed charges (Rupees/kW / Month)	Energy charges in paise / kWh
Low Tension Tariff II-B (2)	60	750

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

#### 6.2.8 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

6.2.8.1 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.

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

### 6.2.9 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

- 6.2.9.1 The contracted load for supply under this tariff category shall not exceed 12 kW.
- 6.2.9.2 This tariff is applicable to Cottage and tiny industries, Micro enterprises engaged in the manufacture or production of goods pertaining to any industries specified in the first schedule to Industries (Development and Regulations) Act 1951 (Central Act 65 of 1951).
- 6.2.9.3 The intending consumers applying for service connection under LT Tariff III A (1) claiming to have established the micro enterprise engaged in the manufacture or production of goods shall produce the cottage industries certificates from the industrial department /acknowledgement issued by the District Industries Centre under the Micro Small and Medium Enterprises Development Act, 2006 (Act 27 of 2006 ) as proof for having filed Entrepreneurs Memorandum for setting up of Micro Enterprises for manufacture or production of goods with District Industries Centre under whose jurisdiction the Enterprise is located.
- 6.2.9.4 The existing consumers who are classified under LT Tariff III A (1) based on the SSI / Tiny Industries Certificate may be continued to be charged under the same tariff
- 6.2.9.5 This tariff is applicable to Small Gem cutting units, Waste land development, laundry works and Common effluent treatment plants.
- 6.2.9.6 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.
- 6.2.9.7 This tariff is also applicable for sericulture, floriculture, horticulture, mushroom cultivation, cattle farming, poultry & bird farming and fish/prawn culture.

6.2.9.8 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. As and when such applicant becomes eligible to get regular supply under LT Tariff IV(Normal Category) 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(Normal Category). Thereafter, the terms and conditions of LT Tariff IV only will apply.

**6.2.10 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
	<b>(i) For consumer who consume up to 250 units per month (or) 500 units for two months</b>		
Low Tension Tariff III-A (2)	0 to 250 units per month or 0 to 500 units bimonthly	60	520
	<b>ii) For consumers who consume 251 units and above per month (or) 501 units and above for two months</b>		
	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

6.2.10.1 The contracted load shall not exceed 12 kW under this category.

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



### 6.2.11 Low Tension Tariff III-B:

Tariff	Commission Determined Tariff	
	Fixed charges (Rupees/kW / Month)	Energy charges in paise / kWh
Low Tension Tariff III-B	35	635

6.2.11.1 This tariff is applicable to all industries not covered under LT Tariff III A (1) and III-A (2). All industries covered under LT III A(1) and III A(2) shall also falls under this tariff category, if the connected load of such services exceed 12 kW.

6.2.11.2 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 :**

- i. Network Management Services
- ii. Applications Integration

**(b) Processing services includes:**

- i. Outsourced Services in Banking, HR, finance, Technology and other areas
- ii. Outsourced Back office support or Business transformation and Process Consulting Services.

**(c) Information Services Outsourcing includes:**

- i. Outsourced Global Information Support Services
- ii. Knowledge Process Outsourcing

- iii. Outsourced Global Contact Centre Operations
- iv. Outsourced Process Consulting Services.

**(d) Packaged Software Support and Installation includes:**

- i. Software Design and Development, Support and Maintenance
- ii. Application installation, support and maintenance
- iii. Application testing.

**(e) Hardware Support and Installation includes:**

- i. Technical and network operations support
- ii. Hardware installation, administration and management
- iii. Hardware infrastructure maintenance and support.

6.2.11.3 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 Udyog Aadhar Memorandum from the District Industries Centre.

**6.2.12 Low Tension Tariff IV:**

Tariff	Description	Commission Determined Tariff *	
		Fixed charges (Rupees per HP per annum)	Energy charges in Paise / kWh
<b>Low Tension Tariff IV</b>	Till installation of Energy Meter	2875	Nil
	On Installation of Energy Meter	Nil	322

\*Category to be fully subsidised by the Government

6.2.12.1 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.

- 6.2.12.2 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.
- 6.2.12.3 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 changeover switch as approved and sealed by the licensee. The changeover switch is meant for using the supply either for the pump set or for 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.
- 6.2.12.4 This tariff is applicable irrespective of ownership of land if the usage of electricity is for agriculture and its allied activities.
- 6.2.12.5 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.
- 6.2.12.6 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.
- 6.2.12.7 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.
- 6.2.12.8 Pumping and purifying of drainage water for the purpose of agriculture use.

### 6.2.13 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

6.2.13.1 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.

6.2.13.2 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.

### 6.2.14 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

6.2.14.1 This tariff is applicable for supply of power for temporary activities, construction of buildings and lavish illumination.

6.2.14.2 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.

6.2.14.3 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.

- 6.2.14.4 In case of conversion of temporary supply into applicable permanent supply, the same shall be done subject to compliance of codes/regulations/orders.
- 6.2.14.5 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.
- 6.2.14.6 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 contracted load and duration of temporary supply. Contracted 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.
- 6.2.14.7 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.

### **6.3 Applicability of the Tariff Schedule**

- 6.3.1 The above tariff schedule shall be read with the General Terms and Conditions of Supply Code and Distribution code specified by the Commission.
- 6.3.2 Effecting change in tariff category for a consumer in accordance with this order shall

be the responsibility of TANGEDCO.

- 6.3.3 The tariff schedule of this order shall be displayed prominently by the licensee in all section and other offices of TANGEDCO as well on its website.

## 7 SUMMARY OF DIRECTIVES

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### 7.1.1 The Commission directs TANGEDCO

- a) To file its Tariff Petition on a timely basis every year, as per TNERC Tariff Regulations.
- b) To maintain quality of supply as specified in Tamil Nadu Electricity Distribution Standards of Performance Regulations dated July 21, 2004.
- c) To file the progress of the capital expenditure and capitalization on a quarterly basis.
- d) To ensure that the amount approved for R&M expenses is not diverted for any other purposes.
- e) To provide the demand forecast in terms of monthly energy demand and availability and its plan of scheduling power in accordance to MoD on quarterly basis in the revised formats as provided by the Commission.
- f) To ensure that the unscheduled interchange (UI) and under-drawal at high frequency is minimised, in order to optimise the power purchase costs.
- g) To take prior approval from the Commission for purchasing energy from unapproved sources.
- h) To submit the MoD stack of actual power purchased from various sources during the month, on a monthly basis. In case of any variations from the MoD stack approved by the Commission, TANGEDCO should file quarterly Petitions for ratification of such power purchase with proper justification, in the same manner as being done presently for purchase from IPPs outside the MoD stack.
- i) To pay Transmission Charges determined by the Commission to TANTRANSCO based on the allotted transmission capacity for FY 2017-18.
- j) To undertake a study on introduction of kVAh tariffs in lieu of Power Factor compensation and submit the same along with its next Tariff Petition.
- k) ToD Charges are to be progressively implemented in order to flatten the load curve and to ensure the cost of energy paid by the consumer at any point of time reflects the true cost of supply available at that point of time. TANGEDCO is directed to:

- i. Undertake a detailed study of hourly consumption patterns of all HT consumer categories, based on ABT metering data,
  - ii. Identify the contribution of each category towards the peak consumption and which category can shift its consumption to off-peak hours, seasonal variation in the peak and off-peak consumption levels.
  - iii. Submit a comprehensive proposal to modify/upgrade the ToD tariff dispensation, along with its next Tariff Petition.
- l) To increase the usage of IT enabled services for metering and billing to improve the metering, billing and collection efficiency.
  - m) To install ABT meters with communication facility for all HT consumers, all Generators, all Feeders, and all Distribution Transformers (DTs) by 30.06.2018 and submit bi-monthly reports on progress of implementation of the same.
  - n) To implement automated meter reading of all HT consumers before 31.03.2018.
  - o) To implement Automated Meter Reading (AMR) technology for LT service connections progressively. Initially, a cluster where consumer density is high may be chosen and AMR may be implemented with suitable communication technology within 3 months of issue of this Order.
  - p) To file a Petition for determination of provisional tariff for new generating stations six months before the expected COD.
  - q) To file a Petition for determination of final tariff for new generating stations within six months after the COD.
  - r) To ensure that forecasting facility for wind generation is available to TANGEDCO. In order to make the forecasting more accurate, suitable in-house forecasting module may also be developed.
  - s) To re-programme the meters of all HT consumers to 15-minute time block within 3 months from the date of issue of this Order and start measuring Maximum Demand on 15-minute time block basis and raise bills accordingly after the prescribed time period.
  - t) To implement separate metering/sub-metering arrangement for facilities such as gymnasium, community hall, amphitheatres, etc., inside the multi-tenement



residential complex.

- u) To do the needful in collaboration with the Airports under Airports Authority of India, in order to levy HT IA tariff to Aeronautical Services and HT III Commercial/Miscellaneous Tariff to Non-Aeronautical services.
- v) To strive towards reducing a part of the Regulatory Assets by way of improving operational parameters as committed under the UDAY MoU.
- w) To achieve the action-plan with timelines as agreed upon in the UDAY MoU and file quarterly status update regarding the same.

## APPENDIX 1

ETPS							
Sr. No.	Parameter	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	450	450	450	450	450
2	Allocated Capacity	MW	450	450	450	450	450
3	Days	Nos.	366	365	365	365	366
4	PLF	%	22.61%	18.67%	30.61%	20.31%	31.08%
5	Gross Generation	MU	894	736	1,207	801	1,229
6	Auxiliary consumption	%	16.32%	15.00%	15.00%	15.00%	15.00%
7	Net Generation MU	MU	748	625	1,026	681	1,044
	<b>Variable Cost - Parameters</b>						
8	Station Heat rate	kCal/kWh	3,200	3,200	3,200	3,200	3,200
9	Fuel Oil Consumption	ml/kWh	11	8	6	10	12
10	GCV of Primary Fuel	Kcal/kg	3,203	3,235	3,105	3,154	3,154
11	GCV of Secondary Fuel	kcal/l	10,484	10,483	10,404	10,397	10,340
12	Price of Coal	Rs/MT	2,508	2,813	2,614	2,872	3,028
13	Price of Oil	Rs/kL	51,278	53,801	51,072	36,100	24,730
	<b>Calculations</b>						
14	Total Heat from Coal and Oil	MKCL	28,59,779	23,54,646	38,60,874	25,62,353	39,31,297
15	Heat from Coal	MKCL	27,61,401	22,93,708	37,85,139	24,78,308	37,78,861
16	Heat from Oil	MKCL	98,378	60,938	75,734	84,045	1,52,436
17	Oil Consumed	kL	9,384	5,813	7,279	8,084	14,742
18	Coal Consumed	MT	8,62,130	7,09,029	12,19,046	7,85,829	11,98,212
19	Total Cost of Coal	Rs. Crore	216	199	319	226	363
20	Total Cost of Oil	Rs. Crore	48	31	37	29	36

21	Total Fuel Cost	Rs. Crore	264.32	230.74	355.78	254.84	399.26
22	Energy Charge	Rs. /kWh	3.53	3.69	3.47	3.74	3.82
<b>TTPS</b>							
Sr. No.	Parameter	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	1050	1050	1050	1050	1050
2	Allocated Capacity	MW	1050	1050	1050	1050	1050
3	Days	Nos.	366	365	365	365	366
4	PLF	%	85.60%	90.04%	85.80%	83.42%	77.00%
5	Gross Generation	MU	7,895	8,282	7,892	7,673	7,102
6	Auxiliary consumption	%	8.50%	8.50%	8.50%	8.50%	8.50%
7	Net Generation MU	MU	7224	7578	7221	7021	6498
<b>Variable Cost - Parameters</b>							
8	Station Heat rate	kCal/kWh	2453	2453	2453	2453	2453
9	Fuel Oil Consumption	ml/kWh	1.92	0.90	0.71	2.39	2.39
10	GCV of Primary Fuel	Kcal/kg	3,505	3,405	3,285	3,200	3,200
11	GCV of Secondary Fuel	kcal/l	10,560	10,640	10,575	10,565	10,515
12	Price of Coal	Rs/MT	4,040	3,679	3,805	4,163	3,795
13	Price of Oil	Rs/kL	40,945	48,180	50,357	40,030	40,030
<b>Calculations</b>							
14	Total Heat from Coal and Oil	MKCL	1,93,66,580	2,03,15,450	1,93,58,791	1,88,21,869	1,74,20,897
15	Heat from Coal	MKCL	1,92,06,506	2,02,36,142	1,92,99,259	1,86,28,123	1,72,42,421
16	Heat from Oil	MKCL	1,60,074	79,307	59,532	1,93,746	1,78,476
17	Oil Consumed	kL	15,159	7,454	5,630	18,338	16,973
18	Coal Consumed	MT	54,79,745	59,43,067	58,74,965	58,21,516	53,88,467
19	Total Cost of Coal	Rs. Crore	2,214	2,187	2,236	2,423	2,045
20	Total Cost of Oil	Rs. Crore	62	36	28	73	68
21	Total Fuel Cost	Rs. Crore	2275.99	2222.63	2263.95	2496.61	2112.87
22	Energy Charge	Rs. /kWh	3.15	2.93	3.14	3.56	3.25

**MTPS**

Sr. No.	Parameter	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	840	840	840	840	840
2	Allocated Capacity	MW	840	840	840	840	840
3	Days	Nos.	366	365	365	365	366
4	PLF	%	92.77%	84.26%	88.04%	84.71%	80.25%
5	Gross Generation	MU	6,845	6,200	6,479	6,233	5,921
6	Auxiliary consumption	%	8.31%	9.00%	8.50%	8.50%	8.50%
7	Net Generation MU	MU	6276	5642	5928	5703	5418
	<b>Variable Cost - Parameters</b>						
8	Station Heat rate	kCal/kWh	2500	2500	2500	2500	2500
9	Fuel Oil Consumption	ml/kWh	0.53	0.60	0.51	1.40	1.40
10	GCV of Primary Fuel	Kcal/kg	3,562	3,441	3,019	3,045	3,623
11	GCV of Secondary Fuel	kcal/l	10,507	10,472	10,923	10,892	10,284
12	Price of Coal	Rs/MT	3,674	4,203	4,516	4,652	4,515
13	Price of Oil	Rs/kL	42,297	49,984	53,734	39,058	40,266
	<b>Calculations</b>						
14	Total Heat from Coal and Oil	MKCL	1,71,12,055	1,55,00,873	1,61,96,365	1,55,82,500	1,48,02,491
15	Heat from Coal	MKCL	1,70,74,226	1,54,62,174	1,61,60,051	1,54,87,415	1,47,17,208
16	Heat from Oil	MKCL	37,829	38,698	36,314	95,085	85,283
17	Oil Consumed	kL	3,600	3,695	3,325	8,730	8,293
18	Coal Consumed	MT	47,93,438	44,92,990	53,52,783	50,86,179	40,62,067
19	Total Cost of Coal	Rs. Crore	1,761	1,888	2,417	2,366	1,834
20	Total Cost of Oil	Rs. Crore	15	18	18	34	33
<b>21</b>	<b>Total Fuel Cost</b>	<b>Rs. Crore</b>	<b>1776.42</b>	<b>1906.65</b>	<b>2434.93</b>	<b>2400.43</b>	<b>1867.41</b>
<b>22</b>	<b>Energy Charge</b>	<b>Rs. /kWh</b>	<b>2.83</b>	<b>3.38</b>	<b>4.11</b>	<b>4.21</b>	<b>3.45</b>

**MTPS Stage III**

Sr. No.	Parameter	Unit	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	600	600	600
2	Allocated Capacity	MW	600	600	600
3	Days	Nos.	365	365	366
4	PLF	%	80.00%	57.50%	85.00%
5	Gross Generation	MU	4,204.80	3,022.00	4,479.84
6	Auxiliary consumption	%	8.83%	8.83%	8.83%
7	Net Generation MU	MU	3833.38	2755.06	4084.12
	<b>Variable Cost - Parameters</b>				
8	Station Heat rate	kCal/kWh	2,500.00	2450	2450
9	Fuel Oil Consumption	ml/kWh	1.40	1.47	1.47
10	GCV of Primary Fuel	Kcal/kg	3,019.00	3,045	2,567
11	GCV of Secondary Fuel	kcal/l	10,440.00	10,403	10,242
12	Price of Coal	Rs/MT	4,140.00	4,140	4,465
13	Price of Oil	Rs/kL	42,015.00	42,015	37,410
	<b>Calculations</b>				
14	Total Heat from Coal and Oil	MKCL	1,05,12,000	74,03,900	1,09,75,608
15	Heat from Coal	MKCL	1,04,50,517	73,57,667	1,09,08,133
16	Heat from Oil	MKCL	61,483	46,233	67,475
17	Oil Consumed	kL	5,889	4,444	6,588
18	Coal Consumed	MT	34,61,582	24,16,311	42,49,416
19	Total Cost of Coal	Rs. Crore	1,433	1000.35	1897.36
20	Total Cost of Oil	Rs. Crore	25	18.67	24.65
<b>21</b>	<b>Total Fuel Cost</b>	<b>Rs. Crore</b>	<b>1457.84</b>	<b>1019.02</b>	<b>1922.01</b>
<b>22</b>	<b>Energy Charge</b>	<b>Rs. /kWh</b>	<b>3.80</b>	<b>3.70</b>	<b>4.71</b>

**NCTPS**

Sr. No.	Parameter	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	630	630	630	630	630
2	Allocated Capacity	MW	630	630	630	630	630
3	Days	Nos.	366	365	365	365	366
4	PLF	%	84.81%	91.68%	74.33%	77.21%	85.00%
5	Gross Generation	MU	4,693	5,059	4,102	4,261	4,704
6	Auxiliary consumption	%	8.50%	8.50%	8.50%	8.50%	8.50%
7	Net Generation MU	MU	4,294	4,629	3,754	3,899	4,304
	<b>Variable Cost - Parameters</b>						
8	Station Heat rate	kCal/kWh	2393	2393	2393	2393	2393
9	Fuel Oil Consumption	ml/kWh	0.62	0.51	1.87	1.76	1.76
10	GCV of Primary Fuel	Kcal/kg	4,324	4,514	3,621	3,353	4,113
11	GCV of Secondary Fuel	kcal/l	10,314	10,387	10,357	10,373	10,395
12	Price of Coal	Rs/MT	4,149	4,899	3,926	3,923	3,673
13	Price of Oil	Rs/kL	46,177	55,748	52,214	38,162	28,965
	<b>Calculations</b>						
14	Total Heat from Coal and Oil	MKCL	1,12,30,823	1,21,07,336	98,16,648	1,01,96,573	1,12,56,270
15	Heat from Coal	MKCL	1,12,00,811	1,20,80,534	97,37,410	1,01,18,959	1,11,70,408
16	Heat from Oil	MKCL	30,011	26,802	79,238	77,614	85,862
17	Oil Consumed	kL	2,910	2,580	7,651	7,482	8,260
18	Coal Consumed	MT	25,90,382	26,76,237	26,89,150	30,17,882	27,15,768
19	Total Cost of Coal	Rs. Crore	1,075	1,311	1,056	1,184	998
20	Total Cost of Oil	Rs. Crore	13	14	40	29	24
<b>21</b>	<b>Total Fuel Cost</b>	<b>Rs. Crore</b>	<b>1088.15</b>	<b>1325.55</b>	<b>1095.80</b>	<b>1212.51</b>	<b>1021.43</b>
<b>22</b>	<b>Energy Charge</b>	<b>Rs. /kWh</b>	<b>2.53</b>	<b>2.86</b>	<b>2.92</b>	<b>3.11</b>	<b>2.37</b>

**NCTPS Stage II**

Sr. No.	Parameter	Unit	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	1200	1200
2	Allocated Capacity	MW	1200	1200
3	Days	Nos.	365	366
4	PLF	%	53.14%	85.00%
5	Gross Generation	MU	5,586.00	8,959.68
6	Auxiliary consumption	%	8.50%	8.50%
7	Net Generation MU	MU	5111.19	8198.11
	<b>Variable Cost - Parameters</b>			
8	Station Heat rate	kCal/kWh	2450	2450
9	Fuel Oil Consumption	ml/kWh	1.84	1.84
10	GCV of Primary Fuel	Kcal/kg	3,353	3,954
11	GCV of Secondary Fuel	kcal/l	10,368	10,250
12	Price of Coal	Rs/MT	3,949	5,167
13	Price of Oil	Rs/kL	38,162	31,376
	<b>Calculations</b>			
14	Total Heat from Coal and Oil	MKCL	1,36,85,700	2,19,51,216
15	Heat from Coal	MKCL	1,35,78,915	2,17,81,887
16	Heat from Oil	MKCL	1,06,785	1,69,329
17	Oil Consumed	kL	10,299	16,520
18	Coal Consumed	MT	40,49,781	55,09,124
19	Total Cost of Coal	Rs. Crore	1599.18	2846.56
20	Total Cost of Oil	Rs. Crore	39.30	51.83
<b>21</b>	<b>Total Fuel Cost</b>	<b>Rs. Crore</b>	<b>1638.48</b>	<b>2898.40</b>
<b>22</b>	<b>Energy Charge</b>	<b>Rs. /kWh</b>	<b>3.21</b>	<b>3.54</b>

**TKGTPS**

Sr. No.	Parameter	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	108	108	108	108	108
2	Allocated Capacity	MW	108	108	108	108	108
3	Days	Nos.	366	365	365	365	366
4	PLF	%	74.68%	76.90%	52.69%	43.81%	42.23%
5	Gross Generation	MU	707.67	726.74	497.92	414.00	400.19
6	Auxiliary consumption	%	6.00%	6.00%	6.00%	6.00%	6.00%
7	Net Generation MU	MU	665.21	683.13	468.04	389.16	376.18
	<b>Variable Cost - Parameters</b>						
8	Station Heat rate	kCal/kWh	1,850.00	1,850.00	1,850.00	1,850.00	1,850.00
9	GCV of Primary Fuel	Kcal/SCM	10459	10453	10,453	10,000	10,000
10	Price of Coal	Rs/SCM	8.84	9.84	10.38	12.53	12.99
	<b>Calculations</b>						
11	Heat from Gas	MKCL	13,09,192	13,44,460	9,21,146	7,65,900	7,40,354
12	Gas Consumed	SCM	12,51,73,757	12,86,19,511	8,81,22,687	7,65,90,000	7,40,35,413
13	Total Cost of Gas	Rs. Crore	110.71	126.58	91.47	95.97	96.17
14	Transportation Cost	Rs. Crore	0.00	0.00	0.00	0.00	0.00
<b>15</b>	<b>Total Fuel Cost</b>	<b>Rs. Crore</b>	<b>110.71</b>	<b>126.58</b>	<b>91.47</b>	<b>95.97</b>	<b>96.17</b>
<b>16</b>	<b>Energy Charge</b>	<b>Rs. /kWh</b>	<b>1.66</b>	<b>1.85</b>	<b>1.95</b>	<b>2.47</b>	<b>2.56</b>



**KGTPS**

Sr. No.	Parameter	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	101	101	101	101	101
2	Allocated Capacity	MW	101	101	101	101	101
3	Days	Nos.	366	365	365	365	366
4	PLF	%	46.76%	6.31%	72.49%	56.74%	64.35%
5	Gross Generation	MU	414.85	55.84	641.37	501.97	570.87
6	Auxiliary consumption	%	6.67%	6.00%	6.00%	6.00%	6.00%
7	Net Generation MU	MU	387.18	52.49	602.88	471.85	536.62
	<b>Variable Cost - Parameters</b>						
8	Station Heat rate	kCal/kWh	1,850.00	1,850.00	1,850.00	1,850.00	1,850.00
9	GCV of Primary Fuel	Kcal/SCM	10386	10393	10,392.00	10,000.00	10,000.00
10	Price of Coal	Rs/SCM	8.72	13.98	10.90	13.00	13.90
	<b>Calculations</b>						
11	Heat from Gas	MKCL	7,67,467	1,03,298	11,86,527	9,28,645	10,56,116
12	Gas Consumed	SCM	7,38,94,415	99,39,233	11,41,76,973	9,28,64,450	10,56,11,604
13	Total Cost of Gas	Rs. Crore	64.42	13.89	124.45	120.72	146.80
14	Transportation Cost	Rs. Crore	0.00	0.00	0.00	0.00	0.00
<b>15</b>	<b>Total Fuel Cost</b>	<b>Rs. Crore</b>	<b>64.42</b>	<b>13.89</b>	<b>124.45</b>	<b>120.72</b>	<b>146.80</b>
<b>16</b>	<b>Energy Charge</b>	<b>Rs. /kWh</b>	<b>1.66</b>	<b>2.65</b>	<b>2.06</b>	<b>2.56</b>	<b>2.74</b>

**BBGTPS**

Sr. No.	Parameter	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	120	120	120	120	120
2	Allocated Capacity	MW	120	120	120	120	120
3	Days	Nos.	366	365	365	365	366
4	PLF	%	2.81%	0.04%	0.08%	5.71%	5.69%
5	Gross Generation	MU	29.65	0.42	0.87	60.02	59.98
6	Auxiliary consumption	%	0.30%	0.51%	0.99%	0.99%	0.99%
7	Net Generation MU	MU	29.56	0.41	0.86	59.43	59.38
	<b>Variable Cost - Parameters</b>						
8	Station Heat rate	kCal/kWh	3,219.00	3,219.00	3,219.00	3,219.00	3,219.00
9	GCV of Primary Fuel	Kcal/SCM	11340	11340	11349	10,572.00	10572
10	Price of Coal	Rs/SCM	59.27	73.08	60.64	15.00	15.45
	<b>Calculations</b>						
11	Heat from Gas	MKCL	95,447	1,340	2,786	1,93,216	1,93,066
12	Gas Consumed	SCM	84,16,809	1,18,200	2,45,477	1,82,76,174	1,82,62,056
13	Total Cost of Gas	Rs. Crore	49.89	0.86	1.49	27.41	28.21
14	Transportation Cost	Rs. Crore	0.00	0.00	0.00	0.00	0.00
<b>15</b>	<b>Total Fuel Cost</b>	<b>Rs. Crore</b>	<b>49.89</b>	<b>0.86</b>	<b>1.49</b>	<b>27.41</b>	<b>28.21</b>
<b>16</b>	<b>Energy Charge</b>	<b>Rs. /kWh</b>	<b>16.88</b>	<b>20.85</b>	<b>17.37</b>	<b>4.61</b>	<b>4.75</b>

**VGTPS**

Sr. No.	Parameter	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
1	Installed Capacity(MW)	MW	95	95	95	187	187
2	Allocated Capacity	MW	95	95	95	187	187
3	Days	Nos.	366	365	365	365	366
4	PLF	%	79.15%	54.00%	87.64%	64.95%	86.63%
5	Gross Generation	MU	660.52	449.40	729.33	1,063.93	1,422.95
6	Auxiliary consumption	%	5.87%	6.00%	6.00%	6.00%	6.00%
7	Net Generation MU	MU	621.75	422.44	685.57	1000.10	1337.57
	<b>Variable Cost - Parameters</b>						
8	Station Heat rate	kCal/kWh	1,850.00	1,850.00	1,850.00	1,850.00	1,850.00
9	GCV of Primary Fuel	Kcal/SCM	9655	9684	9,404.00	9,731.00	9,735.25
10	Price of Coal	Rs/SCM	7.78	10.31	9.96	11.91	13.27
	<b>Calculations</b>						
11	Heat from Gas	MKCL	12,21,965	8,31,397	13,49,264	19,68,273	26,32,461
12	Gas Consumed	SCM	12,65,62,937	8,58,52,685	14,34,77,690	20,22,68,361	27,04,05,116
13	Total Cost of Gas	Rs. Crore	98.47	88.54	142.90	240.90	358.83
14	Transportation Cost	Rs. Crore	0.00	0.00	0.00	0.00	0.00
<b>15</b>	<b>Total Fuel Cost</b>	<b>Rs. Crore</b>	<b>98.47</b>	<b>88.54</b>	<b>142.90</b>	<b>240.90</b>	<b>358.83</b>
<b>16</b>	<b>Energy Charge</b>	<b>Rs. /kWh</b>	<b>1.58</b>	<b>2.10</b>	<b>2.08</b>	<b>2.41</b>	<b>2.68</b>

## APPENDIX 2

Source	FY 2011-12					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>						
Ennore TPS	744.02	119.00	262.98	3.53	381.97	5.13
Tuticorin TPS	7,262.24	398.35	2,288.04	3.15	2,686.39	3.70
Mettur TPS	6,279.21	277.96	1,777.32	2.83	2,055.29	3.27
North Chennai TPS	4,301.14	324.03	-	-	324.03	0.75
<b>Total Thermal</b>	<b>18,586.62</b>	<b>1,119.33</b>	<b>4,328.35</b>		<b>5,447.68</b>	<b>2.93</b>
TGTPS	663.00	67.61	110.34	1.66	110.34	1.66
KGTPS	385.00	36.71	64.06	1.66	64.06	1.66
BBGTPS	-	47.25	-	16.88	-	-
VGTPS (Unit 1 and 2)	1,045.00	129.46	165.50	1.58	165.50	1.58
<b>Total Gas</b>	<b>2,093.00</b>	<b>281.04</b>	<b>339.89</b>		<b>620.93</b>	<b>1.62</b>
Erode HEP	1,196.00	129.44			129.44	1.08
Kadamparai HEP	576.49	66.33			66.33	1.15
Kundah HEP	1,920.00	189.41			189.41	0.99
Tirunelveli HEP	583.00	79.83			79.83	1.37
<b>Total Hydro</b>	<b>4,275.49</b>	<b>464.99</b>			<b>464.99</b>	<b>1.09</b>
<b>Wind</b>	12.15				3.34	2.75
<b>Total from Own Generating</b>	<b>24,967.26</b>	<b>1,865.37</b>			<b>6,536.95</b>	<b>2.51</b>
<b>CGS</b>						
NTPC SR (Ramagundam) (I&II)	4,105.62	217.32	652.05	1.59	869.37	2.12
NTPC SR (Ramagundam) III	1,048.45	88.23	195.87	1.87	284.10	2.71
NLC TS - I	3,145.66	155.25	520.51	1.65	675.76	2.15

Source	FY 2011-12					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
NLC TS - II	3,167.34	197.24	614.56	1.94	811.80	2.56
NLC TS Expansion I	1,526.27	212.37	277.03	1.82	489.40	3.21
NTPC Talcher	3,621.59	283.95	740.58	2.04	1,024.53	2.83
NTPC Simhadri	469.49	73.73	102.50	2.18	176.23	3.75
MAPS	1,604.08	-	319.21	1.99	319.21	1.99
KAIGA	1,171.24	-	365.66	3.12	365.66	3.12
NTPC Kayamkulam	-	65.44	-	13.07	65.44	-
NTPC ER	465.30	43.24	134.66	2.89	177.90	3.82
NTPC Dadri	100.51	15.11	26.38	2.62	41.49	4.13
<b>Total CGS</b>	<b>20,425.55</b>	<b>1,351.88</b>			<b>5,300.90</b>	<b>2.60</b>
<b>IPP</b>						
GMR Vasavi	-	158.55	-	11.29	158.55	-
Samalpatti	-	115.86	-	14.18	115.86	-
Madurai Power Corpn	-	124.30	-	14.89	124.30	-
PPN	932.77	285.50	783.25	8.40	1,068.75	11.46
STCMS - Neyveli	1,688.22	314.62	338.38	2.00	653.00	3.87
LANCO Power (Aban co)	759.61	106.50	134.45	1.77	240.95	3.17
Penna	359.61	56.29	64.37	1.79	120.66	3.36
<b>Total IPP</b>	<b>3,740.21</b>	<b>1,161.62</b>	<b>1,320.45</b>		<b>2,482.07</b>	<b>6.64</b>
<b>Renewables</b>						
Wind	5,711.00				1,770.00	3.10
Biomass	72.76				34.00	4.67
Cogeneration	1,284.92				506.00	3.94
Captive	575.00				237.00	4.12
Solar	11.00				6.00	5.45
<b>Total Renewables</b>	<b>7,654.68</b>				<b>2,553.00</b>	<b>3.34</b>

Source	FY 2011-12					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Other Sources</b>						
Trading - Bilateral & Exchange	6,900.00				3,292.00	4.77
UI	718.00				327.04	4.55
STOA	2,203.00				983.00	4.46
<b>Total Other Sources</b>	<b>9,821.00</b>				<b>4,602.04</b>	<b>4.69</b>
<b>Gross Power Purchase</b>	<b>66,608.70</b>				<b>21,474.96</b>	<b>3.18</b>
<b>PGCIL Charges</b>						
<i>PGCIL SR and ER wheeling</i>					330.00	
<i>PGCIL- Reactive energy</i>						
<b>Total PGCIL charges</b>	-				<b>330.00</b>	
<b>TANTRANSCO Charges</b>					<b>1,500.00</b>	
<b>Total Power Purchase</b>	<b>66,608.70</b>				<b>23,304.96</b>	<b>3.50</b>

Source	FY 2012-13					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>						
Ennore TPS	610.00	188.61	225.04	3.69	413.64	6.78
Tuticorin TPS	7,620.00	454.40	2,234.98	2.93	2,689.37	3.53
Mettur TPS	5,684.00	333.33	1,920.74	3.38	2,254.07	3.97
North Chennai TPS	4,634.00	379.09	-	-	379.09	0.82
NCTPS Stage-II (Unit 1)	-	-	-	-	-	-
<b>Total Thermal</b>	<b>18,548.00</b>	<b>1,355.43</b>	<b>4,380.75</b>	<b>2.36</b>	<b>5,736.18</b>	<b>3.09</b>

Source	FY 2012-13					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
TGTPS	682.00	80.30	126.37	1.85	206.67	3.03
KGTPS	51.00	5.85	13.50	2.65	19.35	3.79
BBGTPS	-	45.58	-	20.85	45.58	-
VGTPS (Unit 1 and 2)	885.00	135.52	185.49	2.10	321.00	3.63
<b>Total Gas</b>	<b>1,618.00</b>	<b>267.25</b>	<b>325.35</b>	<b>2.01</b>	<b>592.60</b>	<b>3.66</b>
Erode HEP	464.00	146.20			146.20	3.15
Kadamparai HEP	368.08	71.19			71.19	1.93
Kundah HEP	1,353.00	205.60			205.60	1.52
Tirunelveli HEP	231.00	89.47			89.47	3.87
<b>Total Hydro</b>	<b>2,416.08</b>	<b>512.46</b>			<b>512.46</b>	<b>2.12</b>
<b>Wind</b>	13.00		3.00		3.00	2.31
<b>Total from Own Generating</b>	<b>22,595.08</b>	<b>2,135.13</b>	<b>4,709.10</b>	<b>2.08</b>	<b>6,844.23</b>	<b>3.03</b>
<b>CGS</b>						
NTPC SR (Ramagundam) (I&II)	4,149.00	250.30	712.47	1.72	962.77	2.32
NTPC SR (Ramagundam) III	981.00	110.39	197.71	2.02	308.10	3.14
NLC TS - I	3,189.00	333.07	713.47	2.24	1,046.54	3.28
NLC TS - II	3,291.00	217.08	648.33	1.97	865.41	2.63
NLC TS Expansion I	1,629.00	218.51	294.72	1.81	513.23	3.15
NTPC Talcher	3,405.40	282.73	501.96	1.47	784.69	2.30
NTPC Simhadri	1,079.00	190.56	219.40	2.03	409.96	3.80
MAPS	1,775.00	-	360.68	2.03	360.68	2.03
KAIGA	1,261.00	-	424.69	3.37	424.69	3.37
NTPC ER	319.00	32.63	68.43	2.15	101.06	3.17
NTPC Vallur Unit 1 & Unit 2	487.90	125.63	101.52	2.08	227.15	4.66

Source	FY 2012-13					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Total CGS</b>	<b>21,566.30</b>	<b>1,760.90</b>	<b>4,243.37</b>		<b>6,004.28</b>	<b>2.78</b>
<b>IPP</b>						
GMR Vasavi	-	167.15	-	-	167.15	-
Samalpatti	-	108.94	-	-	108.94	-
Madurai Power Corpn	-	109.59	-	-	109.59	-
PPN	-	291.51	-	-	291.51	-
STCMS - Neyveli	1,514.19	363.63	350.59	2.32	714.22	4.72
LANCO Power (Aban co)	850.00	117.51	169.94	2.00	287.45	3.38
Penna	375.00	57.82	76.67	2.04	134.49	3.59
<b>Total IPP</b>	<b>2,739.19</b>	<b>1,216.15</b>	<b>597.19</b>		<b>1,813.34</b>	<b>6.62</b>
<b>Renewables</b>						
Wind	7,474.00				2,549.00	3.41
Biomass	11.00				5.00	4.55
Cogeneration	1,428.00				534.00	3.74
Captive	595.00				224.00	3.76
Solar	45.00				22.00	4.89
<b>Total Renewables</b>	<b>9,553.00</b>				<b>3,334.00</b>	<b>3.49</b>
<b>Other Sources</b>						
Trading - Bilateral & Exchange	6,935.00				3,557.00	5.13
UI	82.00				50.00	6.10
<b>Total Other Sources</b>	<b>7,017.00</b>				<b>3,607.00</b>	<b>5.14</b>
<b>Gross Power Purchase</b>	<b>63,470.57</b>				<b>21,602.85</b>	<b>3.40</b>
<b>PGCIL Charges</b>						
<i>PGCIL SR and ER wheeling</i>					139.00	



Source	FY 2012-13					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<i>PGCIL- Reactive energy</i>						
<b>Total PGCIL charges</b>	-				<b>139.00</b>	-
<b>TANTRANSCO Charges</b>					<b>2,381.18</b>	
<b>Total Power Purchase</b>	<b>63,470.57</b>				<b>24,123.03</b>	<b>3.80</b>

Source	FY 2013-14					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>						
Ennore TPS	1,011.31	277.65	350.84	3.47	628.48	6.21
Tuticorin TPS	7,252.62	496.71	2,273.84	3.14	2,770.55	3.82
Mettur TPS	5,928.10	349.69	2,435.02	4.11	2,784.71	4.70
North Chennai TPS	3,720.06	382.37	-	-	382.37	1.03
NCTPS Stage-II (Unit 1)	-	158.92	-	-	158.92	-
MTPS Stage III	1,840.00	-	537.16	2.92	537.16	2.92
<b>Total Thermal</b>	<b>19,752.08</b>	<b>1,665.33</b>	<b>5,596.86</b>	<b>2.83</b>	<b>7,262.19</b>	<b>3.68</b>
TGTPS	456.00	83.69	89.12	1.95	172.81	3.79
KGTPS	594.00	90.51	122.62	2.06	213.13	3.59
BBGTPS	-	47.99	-	17.37	47.99	#DIV/0!
VGTPS (Unit 1 and 2)	1,180.78	171.12	246.13	2.08	417.25	3.53
<b>Total Gas</b>	<b>2,230.78</b>	<b>393.31</b>	<b>457.86</b>	<b>2.05</b>	<b>851.17</b>	<b>3.82</b>
Erode HEP	902.00	221.39			221.39	2.45
Kadamparai HEP	558.56	78.22			78.22	1.40
Kundah HEP	2,186.52	208.24			208.24	0.95

Source	FY 2013-14					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Tirunelveli HEP	461.00	102.55			102.55	2.22
<b>Total Hydro</b>	<b>4,108.08</b>	<b>610.40</b>			<b>610.40</b>	<b>1.49</b>
<b>Wind</b>	12.58		3.00		3.00	2.38
<b>Total from Own Generating</b>	<b>26,103.52</b>	<b>2,718.57</b>	<b>6,057.73</b>	<b>2.32</b>	<b>8,776.29</b>	<b>3.36</b>
<b>CGS</b>						
NTPC SR (Ramagundam) (I&II)	4,005.14	253.07	837.93	2.09	1,091.00	2.72
NTPC SR (Ramagundam) III	1,054.26	99.54	285.47	2.71	385.01	3.65
NLC TS - I	3,271.10	285.24	841.76	2.57	1,127.00	3.45
NLC TS - II	3,399.00	203.91	729.09	2.15	933.00	2.74
NLC TS Expansion I	1,584.00	189.83	351.17	2.22	541.00	3.42
NTPC Talcher	3,475.27	288.35	525.65	1.51	814.00	2.34
NTPC Simhadri	1,571.86	273.57	369.78	2.35	643.34	4.09
MAPS	1,332.06	53.94	272.06	2.04	326.00	2.45
KAIGA	1,581.07	(0.49)	475.49	3.01	475.00	3.00
NTPC ER	266.63	23.78	71.22	2.67	95.00	3.56
NTPC Vallur Unit 1 & Unit 2	2,558.00	624.79	543.80	2.13	1,168.59	4.57
Kudankulum	462.00	-	475.00	10.28	475.00	
<b>Total CGS</b>	<b>24,560.40</b>	<b>2,295.53</b>	<b>5,778.41</b>	<b>2.35</b>	<b>8,073.95</b>	<b>3.29</b>
<b>IPP</b>						
GMR Vasavi	-	154.04		-	154.04	-
Samalpatti	-	93.06		-	93.06	-
Madurai Power Corpn	-	110.55		-	110.55	-
PPN	162.92	85.34	139.30	8.55	224.64	13.79
STCMS - Neyveli	1,721.11	436.51	398.49	2.32	835.00	4.85
LANCO Power (Aban co)	699.00	106.62	139.75	2.00	246.37	3.52
Penna	363.67	62.65	74.35	2.04	137.00	3.77
<b>Total IPP</b>	<b>2,946.70</b>	<b>1,048.76</b>	<b>751.89</b>	<b>2.55</b>	<b>1,800.66</b>	<b>6.11</b>
<b>Renewables</b>						

Source	FY 2013-14					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Wind	5,110.00				1,310.00	2.56
Biomass	20.00				7.00	3.50
Cogeneration	803.00				291.00	3.62
Captive	2,383.00				155.00	0.65
Solar	20.00				9.00	4.50
<b>Total Renewables</b>	<b>8,336.00</b>				<b>1,772.00</b>	<b>2.13</b>
<b>Other Sources</b>						
Trading - Bilateral & Exchange	3,597.00				1,420.00	3.95
UI	(418.00)				117.00	-2.80
STOA	3,526.00				1,713.00	4.86
Case 1 - Bidding (MTOA)	3,465.00				1,728.00	4.99
<b>Total Other Sources</b>	<b>10,170.00</b>				<b>4,978.00</b>	<b>4.89</b>
<b>Gross Power Purchase</b>	<b>72,116.61</b>				<b>25,351.36</b>	<b>3.52</b>
<b>PGCIL Charges</b>						
<i>PGCIL SR and ER wheeling</i>					2,219.00	
<i>PGCIL- Reactive energy</i>					-	
<b>Total PGCIL charges</b>	<b>-</b>				<b>2,219.00</b>	<b>-</b>
<b>TANTRANSCO Charges</b>					<b>2,228.01</b>	
<b>Total Power Purchase</b>	<b>72,116.61</b>				<b>29,798.37</b>	<b>4.13</b>

Source	FY 2014-15					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>						

Source	FY 2014-15					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Ennore TPS	485.00	243.76	181.59	3.74	425.35	8.77
Tuticorin TPS	7,043.00	591.08	2,504.51	3.56	3,095.59	4.40
Mettur TPS	5,697.00	810.94	2,397.82	4.21	3,208.76	5.63
North Chennai TPS	3,865.00	494.20	1,238.99	3.21	1,733.19	4.48
NCTPS Stage-II (Unit 1)	5,187.00	(36.93)	1,918.54	3.70	1,881.61	3.63
MTPS Stage III	2,802.00	667.50	871.41	3.11	1,538.91	5.49
<b>Total Thermal</b>	<b>25,079.00</b>	<b>2,770.54</b>	<b>9,112.87</b>	<b>3.63</b>	<b>11,883.41</b>	<b>4.74</b>
TGTPS	382.00	90.70	94.20	2.47	184.90	4.84
KGTPS	459.00	(201.23)	117.44	2.56	-83.79	-1.83
BBGTPS	3.00	63.12	-	-	63.12	210.38
VGTPS (Unit 1 and 2)	996.00	160.60	239.92	2.41	400.52	4.02
<b>Total Gas</b>	<b>1,840.00</b>	<b>113.19</b>	<b>451.55</b>	<b>2.45</b>	<b>564.74</b>	<b>3.07</b>
Erode HEP	946.00	312.27			312.27	3.30
Kadamparai HEP	531.24	84.82			84.82	1.60
Kundah HEP	2,028.00	223.34			223.34	1.10
Tirunelveli HEP	1,158.00	127.44			127.44	1.10
<b>Total Hydro</b>	<b>4,663.24</b>	<b>747.87</b>			<b>747.87</b>	<b>1.60</b>
<b>Wind</b>	7.81		2.00		2.00	2.56
<b>Total from Own Generating</b>	<b>31,590.05</b>	<b>3,631.60</b>	<b>9,556.42</b>	<b>3.03</b>	<b>13,198.02</b>	<b>4.18</b>
<b>CGS</b>						
NTPC SR (Ramagundam) (I&II)	3,876.00	232.00	944.00	2.44	1,182.65	3.05
NTPC SR (Ramagundam) III	949.00	88.00	240.00	2.53	328.25	3.46
NLC TS – I	2,851.00	251.00	755.52	2.65	1,006.52	3.53

Source	FY 2014-15					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
NLC TS – II	3,276.00	207.00	724.00	2.21	931.77	2.84
NLC TS Expansion I	1,671.00	225.00	349.00	2.09	573.62	3.43
NTPC Talcher	3,760.00		549.00	1.46	843.02	2.24
NTPC Simhadri	1,428.00	294.00	372.00	2.61	625.70	4.38
MAPS	1,672.00		344.00	2.06	344.50	2.06
KAIGA	1,568.00		475.00	3.03	474.86	3.03
NTPC ER	239.00			-	79.02	3.31
NTPC Vallur Unit 1 & Unit 2	3,850.00	695.00	745.00	1.94	1,440.25	3.74
Kudankulum	2,169.00		541.00	2.49	541.43	2.50
<b>Total CGS</b>	<b>27,309.00</b>	<b>1,992.00</b>	<b>6,038.52</b>		<b>8,371.57</b>	<b>3.07</b>
<b>IPP</b>						
GMR Vasavi	-	73.00	-	-	73.00	-
Samalpatti	-	82.00	-	-	82.00	-
Madurai Power Corpn	-	95.00	-	-	95.00	-
PPN	-	205.00	-	-	205.00	-
STCMS - Neyveli	1,678.00	344.00	431.00	2.57	773.83	4.61
LANCO Power (Aban co)	561.00	66.00	141.00	2.51	207.02	3.69
Penna	378.00	43.00	97.00	2.57	137.64	3.64
<b>Total IPP</b>	<b>2,617.00</b>	<b>908.00</b>	<b>669.00</b>		<b>1,580.90</b>	<b>6.04</b>
<b>Renewables</b>						
Wind	3,963.00				1,303.00	3.29
Biomass	18.00				7.00	3.89
Cogeneration	1,508.00				779.00	5.17
Captive	2,972.00				1,432.00	4.82

Source	FY 2014-15					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Solar	25.00				12.00	4.80
<b>Total Renewables</b>	<b>8,486.00</b>				<b>3,533.00</b>	<b>4.16</b>
<b>Other Sources</b>						
Trading - Bilateral & Exchange	-				-	5.30
UI	(529.00)				(10.00)	0.19
STOA	6,790.00				2,118.00	3.12
Case 1 - Bidding (MTOA)	2,296.74				1,448.50	6.31
<b>Total Other Sources</b>	<b>8,557.74</b>				<b>3,556.50</b>	<b>4.16</b>
<b>Gross Power Purchase</b>	<b>78,559.79</b>				<b>30,239.99</b>	<b>3.85</b>
<b>PGCIL Charges</b>						
<i>PGCIL SR and ER wheeling</i>					978.00	
<i>PGCIL- Reactive energy</i>					-	
<b>Total PGCIL charges</b>	<b>-</b>				<b>978.00</b>	<b>-</b>
<b>TANTRANSCO Charges</b>					<b>1,373.63</b>	
<b>Total Power Purchase</b>	<b>78,559.79</b>				<b>32,591.62</b>	<b>4.15</b>

Source	FY 2015-16					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>Own Generating Stations</b>						
Ennore TPS	392.00	216.98	149.88	3.82	366.86	9.36
Tuticorin TPS	6,501.00	667.51	2,113.77	3.25	2,781.28	4.28

Source	FY 2015-16					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
Mettur TPS	5,406.00	504.14	1,863.38	3.45	2,367.52	4.38
North Chennai TPS	4,071.00	554.13	1,439.28	3.54	1,993.41	4.90
NCTPS Stage-II (Unit 1)	4,468.00	629.76	2,102.67	4.71	2,732.42	6.12
MTPS Stage III	2,664.00	1,219.36	632.22	2.37	1,851.58	6.95
<b>Total Thermal</b>	<b>23,502.00</b>	<b>3,791.88</b>	<b>8,301.20</b>	<b>3.53</b>	<b>12,093.07</b>	<b>5.15</b>
TGTPS	363.00	94.86	92.80	2.56	187.67	5.17
KGTPS	552.00	104.70	151.01	2.74	255.71	4.63
BBGTPS	11.00	61.54	-	-	61.54	55.94
VGTPS (Unit 1 and 2)	680.00	181.79	182.42	2.68	364.21	5.36
<b>Total Gas</b>	<b>1,606.00</b>	<b>442.89</b>	<b>426.23</b>	<b>2.65</b>	<b>869.12</b>	<b>5.41</b>
Erode HEP	756.00	328.81			328.81	4.35
Kadamparai HEP	478.00	86.41			86.41	1.81
Kundah HEP	1,695.00	230.45			230.45	1.36
Tirunelveli HEP	1,096.00	144.08			144.08	1.31
<b>Total Hydro</b>	<b>4,025.00</b>	<b>789.74</b>	<b>-</b>		<b>789.74</b>	<b>1.78</b>
<b>Wind</b>	6.79		2.00		2.00	2.95
<b>Total from Own Generating</b>	<b>29,139.79</b>	<b>5,024.51</b>	<b>8,729.43</b>	<b>2.95</b>	<b>13,753.94</b>	<b>4.65</b>
<b>CGS</b>						
NTPC SR (Ramagundam) (I&II)	4,019.71	234.21	921.66	2.29	1,155.87	2.88
NTPC SR (Ramagundam) III	1,068.75	92.22	249.48	2.33	341.69	3.20
NLC TS - I	2,486.60	217.55	716.14	2.88	933.69	3.75
NLC TS - II	3,156.88	201.49	715.99	2.27	949.07	3.01
NLC TS Expansion I	1,629.40	217.56	365.06	2.24	582.61	3.58
NLC TS Expansion II	306.81	64.72	73.89	2.41	138.61	4.52
NTPL (JV with NLC)	1,299.41	212.58	302.45	2.33	515.03	3.96
NTPC Talcher	3,713.40	283.38	499.61	1.35	782.99	2.11
NTPC Simhadri	1,543.84	238.95	382.73	2.48	621.68	4.03

Source	FY 2015-16					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
MAPS	2,090.87		435.39	2.08	435.39	2.08
KAIGA	1,869.06		569.33	3.05	569.33	3.05
NTPC ER	284.73	22.48	66.57	2.34	89.05	3.13
NTPC Vallur Unit 1 & Unit 2	5,162.08	889.12	1,021.40	1.98	1,910.52	3.70
Kudankulum	1,046.54		412.86	3.94	412.86	3.94
<b>Total CGS</b>	<b>29,678.09</b>	<b>2,674.26</b>	<b>6,732.56</b>		<b>9,438.39</b>	<b>3.18</b>
<b>IPP</b>						
Samalpatti	-	67.00	-	-	67.00	-
Madurai Power Corpn	-	75.57	-	-	75.57	-
PPN	-	259.09	-	-	259.09	-
STCMS - Neyveli	1,384.93	235.84	397.48	2.87	633.32	4.57
LANCO Power (Aban co)	620.22	64.50	160.07	2.58	224.57	3.62
Penna	178.67	16.07	47.58	2.66	63.65	3.56
<b>Total IPP</b>	<b>2,183.82</b>	<b>718.07</b>	<b>605.13</b>	<b>2.77</b>	<b>1,323.20</b>	<b>6.06</b>
<b>Renewables</b>						
Wind	2,873.00				945.00	3.29
Biomass	21.39				10.00	4.67
Cogeneration	508.58				181.00	3.56
Captive	23.55				4.00	1.70
Solar	69.09				36.00	5.21
<b>Total Renewables</b>	<b>3,495.62</b>				<b>1,176.00</b>	<b>3.36</b>
<b>Other Sources</b>						
Trading - Bilateral & Exchange	14,184.00				7,291.00	5.14
UI	(230.76)				(43.00)	1.86
STOA	3,428.52				1,731.60	5.05
<b>Total Other Sources</b>	<b>17,381.76</b>				<b>8,979.60</b>	<b>5.17</b>
<b>Gross Power Purchase</b>	<b>81,879.07</b>		<b>26,012.12</b>	<b>3.18</b>	<b>34,671.12</b>	<b>4.23</b>



Source	FY 2015-16					
	Quantum (MU)	Fixed Charges (Rs. Cr.)	Energy Charge (Rs. Crore)	Energy Charge (Rs./Unit)	Total Cost (Rs. Cr)	Rate (Rs/kWh)
<b>PGCIL Charges</b>						
<i>PGCIL SR and ER wheeling</i>					900.00	
<i>PGCIL- Reactive energy</i>						
<b>Total PGCIL charges</b>	-				<b>900.00</b>	-
<b>TANTRANSCO Charges</b>					<b>1,696.89</b>	
<b>Total Power Purchase</b>	<b>81,879.07</b>			-	<b>37,268.01</b>	<b>4.55</b>

Sd/-  
(Dr. T. Prabhakara Rao)  
Member

Sd/-  
(G. Rajagopal)  
Member

Sd/-  
(S. Akshayakumar)  
Chairman

(By Order of the Commission)

Sd/-  
(S. Chinnarajalu)  
Secretary, TNERC

# ANNEXURES

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## **Annexure I- The list of participants at the State Advisory Committee**

### **Members Present:**

- 1) Thiru. S. Akshaya Kumar, Chairman, TNERC
- 2) Thiru. G. Rajagopal, Member, TNERC
- 3) Dr. T. Prabhakara Rao, Member, TNERC
- 4) Dr. M. Saikumar, CMD, TNEB Ltd. & TANGEDCO Ltd. and Chairman, TANTRANSCO Ltd.
- 5) Thiru Vikram Kapur, Principal Secretary to Govt., Energy Department (Represented by Tmt. N. Sumathi, Deputy Secretary to Govt., Energy Department, GoTN)
- 6) Thiru. N.K. Gupta, Chief Electrical Engineer, Southern Railways
- 7) Dr. A.S. Kandasamy, Member, SAC
- 8) Dr. G. Uma, Professor and Head, Dept. of Electrical and Electronics Engg., Anna University, Member, SAC
- 9) Thiru. K. Alagu, Vice-President, Tamil Nadu Chamber of Commerce and Industry, Member, SAC
- 10) Dr. K. Selvaraj, Member, SAC
- 11) Thiru. C. Babu, President, Tamil Nadu Small & Tiny Industries Association (TANSTIA), Member, SAC
- 12) Thiru. M.R. Krishnan, Deputy Director, Consumers Association of India, Member, SAC
- 13) Thiru. K.Kathirmathiyon, Secretary, Coimbatore Consumer Cause Member, SAC
- 14) Thiru. P. Ravichandran, Chairman, CII (Tamil Nadu) (Represented by Thiru. K.P. Gopal, Convenor, MSME Confederation of Indian Industry (CII), Tamil Nadu)

**Annexure II- The list of stakeholders who have submitted written objections/ suggestions/ views in response to Public Notice**

List of stakeholders who have submitted written objections/suggestions in response to Public Notice

Sl. No	Name and Address
1	M/s Indian Energy Exchange Ltd. Fourth Floor, Plot No.7, TDI Centre, District Centre, Jasola, New Delhi – 110025.
2	Citizen consumer and civic Action Group (CAG), 9/5, Second Street, Padmanabha Nagar, Adyar, Chennai – 600 020.
3	M/s Cauvery Power Generation Chennai Pvt. Ltd. No.5, Ranganthan Garden, Anna Nagar, Chennai – 600 040.
4	Thiru. S. Narayanaswamy, Member (Generation) Retd., TANGEDCO, Ramana Shree, Old No.12, New No.10/1, Anandan Street, T-Nagar, Chennai – 600 017.
5	Consumer Federation of Tamilnadu (CONFET), No.72, Duraisamy Nagar, Cuddalore – 607 001.
6	Federation of Consumer Organisations – Tamil Nadu & Pondicherry (FEDCOT), No.9, Kullappirai Street, Tirunelveli Town – 627 006.
7	The Southern India Mills Association, Post Box No.3783, 41, Race Course, Coimbatore – 641 018.
8	Power Engineer Society of Tamil Nadu, No.45/28, Balaguru Garden, Peelamedu, Coimbatore – 641 004.
9	Indian Wind Power Association, Door No. E, 6th Floor, Tower-1, Sakthi Towers, No.766, Anna Salai, Chennai – 600 002.
10	Thiru P.Selvaraj, 124, R.S.Road, Erode – 638 006.
11	M/s Kamachi Industries Ltd., ABC Trade Centre, 3rd Floor, (inside Devi Theatre Complex), Old No.50, New No.39, Anna Salai, Chennai – 600 002.
12	M/s Tulsyan NEC Ltd. Apex Plaza, 1st Floor, No.3, Nungambakkam High Road, Chennai – 600 034.
13	Tamil Nadu Spinning Mills Association (TASMA), No.2, Karur Road, Modern Nagar, Dindigul – 624 001.
14	Orient Green Power Company Limited, Sigapi Achi Building 4th Floor, 18/3, Rukminilakshmipathi Road, Egmore, Chennai – 600 008.
15	Thiru P. Muthusamy, muthusamy palanisamy <muthusamy14@yahoo.com.
16	Thiru. K. Eswaran. 1/29, Lenin Street, Vilankurichi, Coimbatore – 641 035.
17	Anti Corruption Movement, Admn. Office: No.155, Konnur High Road, Ayanavaram, Chennai – 600 023.
18	Thiru. M.R. Krishnan, “M.R.Krishnan” <concert.mrk@gmail.com.

<b>Sl. No</b>	<b>Name and Address</b>
19	Thiru. E.Balasubramanian, 256, T.H. Road, Theradi, Thiruvottiyur, Chennai 600 019.
20	Thiru. M.Thuyamurthy, General Secreary, Association of Transparency and Anti-Corruption, No.2, Alwarnagar 1st Street, Ullagaram, Chennai – 600 061.
21	Thiru. D.Rajenderan, Chairman, Vandimedu All Public Welfare Association, No.56, Virattikuppam Pathai, Vandimedu, Villupuram – 605 602.
22	Thiru. S. Murali, AGM(E&I), SKI Carbon Black (India) Pvt. Ltd., Unit: Hi-Tech Carbon, Gummidipoondi.

List of stakeholders who have submitted written objections/suggestions submitted at Chennai Public Hearing

<b>Sl. No.</b>	<b>Name and address</b>
1	Dr. A.C. Mohan,M.S., FRCS, Secretary, Federation of Tamil Nadu Rice Mill Owners and Paddy – Rice Dealers Association., No. 1 Singara Garden 2nd Street, Washermenpet, Chennai – 600 021.
2	Red Hills Rice Mill Owners and Paddy- Rice Dealers Association, No. 485 G.N.T. Road (Samiyarmadam), Red Hills, Chennai – 600 052.
3	K.N. Gunasekaran, 3/34, Sothupakkam Salai, Theerathakirayampattu, Red Hills, Chennai – 600 052.
4	Kancheepuram Rice Mill Owners Association, No. 20-21, Kamarajar Street, Kancheepuram – 631 502.
5	People Awareness Association (Nanganallur Chapter), C-42, 6th Street, Lakshmi Nagar, Nanganallur, Chennai – 600 061.
6	Tulsyan NEC Ltd., Apex Plaza, 1st Floor, No. 3 Nungambakkam High Road, Chennai – 600 034.
7	Thiru.D.Rajendiran,Secretary, Vandimedu House Owners Associations, 56 Virattikuppam Street, Vandimedu, Villupuram.
8	Thiru.S.Nagalsamy, I.A.A.S.(R)., M.A., B.L., “THULASI” 15 A, P.T.Rajan Salai, KK Nagar, Chennai – 600 078.

List of stakeholders who have submitted written objections/suggestions submitted at Madurai Public Hearing

Sl. No.	Name and Address
1.	The President, SriVee. Paddy – Rice Dealers Association, 2, Rajapalayam Bypass Road, Srivilliputhur-626 125.
2.	Thiru R. Marimuthu, President, Pudukkottai District Rice Mill Owners & Paddy – Rice Dealers Association, RM MRM,Pudukkottai.
3.	Thiru K. Vasanthavel, President, The Madurai District Rice Mill Owners' Association, Arisi Aalai Arangam A/C, Plot No. 217, Aringar Anna Nagar, Madurai-625 020.
4.	Thiru R. Kathiresan, State President, Tamil Nadu Meen Valarppu Vivasagal Nala Sangam, No. 32, Sunnambukara Street, Orathanaadu-614625, Thanjavur District.
5.	Thiru M. Ramsingh, President, Theni District Rice Mill Owners & Paddy - Rice Wholesalers Association, 136, Rice Mill Street, Theni – 625 531.
6.	Thiru R.Jayakumar, Exe.VP (Works), DCW Limited, 358(Old No.645), 3rd Floor, Anna Salai, Thousand Lights, Chennai-600 006.
7.	Thiru T.S.A. Subramanian, Secretary, Master Weavers Association, No. 4, Vadakasiammankovil, 1st Street, Sankarankovil-627 756.
8.	Thiru K.Ramachandran, President, Sankarankovil Thaluk Consumer Rights and Protection Welfare Association, 21/43, Klavaadi Vinaayagar Kovil Street, Sankarankovil-627756,Thirunelveli District.
9.	Thiru A. Abdul Rahim, President, District Rice Mill Owners & Paddy-Rice Wholesale Dealers Association, Villupuram District.
10.	Thiru S.K.R. Ramesh, President, Madurai Screen Printer's Association, 17, Panthadi 8th Street, Madurai-625001.
11.	Thiru.M.Anandkumar, Treasurer, Madurai Spinners Association, D-35, Sidco Industrial Estate, First Floor, Kappalur, Madurai-625008.
12.	Thiru T.K. Chandramohan, 14, CSB Lane, Old Kuyaparapalayam Road, Madurai-9.

<b>Sl. No.</b>	<b>Name and Address</b>
13.	Thiru N.K. Gupta, Chief Electrical Engineer, Southern Railway.
14.	Thiru V.K. Sathishkumar, Kancheepuram Apex, Hand-Loom Weaver's Silk, 140, East Veli Street, Madurai-625001.
15.	Thiru V.S. Subramaniam, The Kancheepuram Kamashiamman, Silk Co-op. Society Ltd. No.G-1612, 139, East Veli Street, Madurai-625001.
16.	Thiru V.S. Sundarlal, Dr. Kalaignar Karunanithi Silk Weavers P&S Society Ltd., K.H. No. 139, East Veli Street, Madurai-625001.
17.	Thiru V.S. Kannan, Arignar Anna Silk Hand-loom, Weaver's Co-op. P&S Society Ltd. No.KH., 141, East Veli Street, Madurai-625001.
18.	Thiru C. Virumaandi, 108, E/5, Coodal Malai Street, Thiruparankundram.

List of stakeholders who have submitted written objections/suggestions submitted at Coimbatore Public Hearing

<b>Sl. No.</b>	<b>Name and Address</b>
1	Thiru P. Dhandapani, Secretary, Avinashi Rice Mill & Paddy, Rice Merchant Association, cheyur Road, Avinashi 641 654.
2	Thiru S. Pazhanisami, President, Kangayam Taluk Arisi Aalai Urimaiyalargal Sangam, 6/33-A, Ayyasamy Nagar colony, Main Road, Kangayam – 638 701.
3	Thiru P. Murugesan, Secretary, Erode, Kodumudi, Modakurichi Taluk Rice Mill Owners Association, 217/3, Karur-By Pass Road, Kollampalayam, Erode – 638 002.
4	Thiru R. Pazhanisamy, Secretary, Perunthurai Taluk Rice Mill Owners Association, 567, Old Bus Depo, Perunthurai – 638052.
5	Thiru R. Sathish, President, Uthukuli Taluk Rice Mill Owners Association, Uthukuli – 638 751, Tirupur District.
6	Thiru M. Ramasamy, President, Tiruppur District Rice Mill Owners Association, 160, Sennimalai Road, Kangayam-638 701, Tiruppur District.
7	Thiru P. Chandrasekar, President, Erode District Rice Mill Owners and Paddy-Rice Whole sale Association, 217/4, Rice Mill Owners Arangam, Karur By-Pass Road, Kollampalayam, Erode – 638 002.
8	Thiru K.P. Rathinasamy, President, Gobi District Rice Mill Owners

Sl. No.	Name and Address
	Association, 141, Veerasamy Street, Paariyur Road, Gobichettipalyam – 638 476.
9	Thiru K. Ilango, Secretary, Tamil Nadu Electricity Consumers' Association, 1st Floor, SIEMA Building, 8/4, Race Course, Coimbatore-641 018.
10	Thiru M. Chinnasamy, President, Tarapur Taluk Rice Mill Owners Association, Tarapur Tiruppur District.
11	Thiru K.C.M. Duraisamy, President, Tiruppur, Palladam Taluk Rice Mill Owners Association, 128, Old Market Street, Tiruppur – 641 604.
12	Thiru M.V. Loganathan, President, Coimbatore SIDCO Industrial Estate Manufacturers Welfare Association, Plot No. 91, Sidco Industrial Estate, Industrial Estate (P.O), Coimbatore – 641 021.
13	M.V. Power Consultants and Engineers (P) Ltd, New No.14, Old No.38/6A, 1st Floor, M.V. Power Complex, Alandur Road, (Near Market Subway), Saidapet, Chennai-15.
14	Prison Superintendent, Tamil Nadu Prison Department, Central Jail, Coimbatore – 18.
15	Thiru N. Logu, Secretary, Coimbatore Consumer Voice, Opp. To Medical College, Avinasi road, Kovai-14.
16	Thiru N. Logu, Secretary, Coimbatore Consumer Voice, Opp. To Medical College, Avinasi road, Kovai-14.
17	Proprietor, Sri Shubam Spinners, SF No. 270, Mangalam Road, Andipalayam, Tirupur-641 687.
18	Proprietor, D.R. K. Cottons, 29, Upstair, Kurunji Nagar Main Road, Tirupur – 641 604.
19	Partner, Parasakthi Mills, 3D, East Colony, Amman Nagar, Komarapalayam – 638 183, Namakkal Dist. (T.N.)
20	Managing Partner, Lakshhmi Saraswathi OE Mills, No.6, Andal Nagar Extn., (opp.) Chinnasamy Lay-out, Uppilipalayam Post, Coimbatore – 641 015.
21	ASM Aandal Spinning Mills, 3/303, Nathegoundenpudur(via), Kovilpalayam (Post), Kunnathur Village, Coimbatore – 641 107.
22	Sree Venkatsai Textiles, 8-1, Ramasamy Nagar, Neelikoanmpalayam, Coimbatore – 641 033.
23	Tmt. C. Kanagavalli, Venkateshwara Restaurant, Pollachi Salai, Tarapuram – 638 656.
24	Tmt. S. Punithavalli, 6-A, NSR Road, Sai Baba Colony, Kovai-641011.
25	Thiru SP. Natarajan, 5/111, Konganayakkan Palayam (P.O.), Kattur, Pallam (TK), Tiruppur District.`
26	Partner, Anusri Mills, S.F. No. 793, Therkupathi, E. Chettipalayam (PO),

Sl. No.	Name and Address
	Nambiyur – 638 458, Gobi (Tk), Erode District.
27	Proprietor, Vetri Textiles, No.11, Jaya Nagar, 2nd Street, Neelikonampalayam (PO), Coimbatore – 641 033.
28	Aditya Yarns, 115N, Thanner Pandal Road, Peelamedu, Coimbatore – 4.
29	Thiru N.R. Ravishankar, Maths Professor (Retd.) and Social Enthusiast, 2/38, Shree Ambal Nagar, Vilaangurichi Post, Kovai – 641 035.
30	Partner, Tarunika Textiles, 2/44, East Street, Kalngal (Post), Suler (via), Coimbatore – 641 402.
31	Proprietor, M.R.S. Cotton Mills, SF No.1749, Sengalipalayam Road, Kanjappalli (PO), Annur – 641 653.
32	Proprietor, N.N. TEX, SF No. 1749, Sengalipalayam Road, Kanjappalli (PO), Annur – 641 653.
33	R. Velusamy, President, Tiruppur District Powerloom Waive for Hire Owners Association, 11-A, Lakshmi Jewellery Building 1st Floor, Near Police Station, Mangalam Road, Palladam – 641 664.
34	Managing Director, Supreme Mills India (P) Ltd., SF No. 251/2, 252/2, ERA Mohan Nagar, Kalapatti Post, Coimbatore – 641 048.
35	Thiru K. Ravichandran, 78-GVL Nagar, Kovaipudur Road, Perur Chettipalayam, Coimbatore-641 010.
36	Thiru C. Palanisamy, Managing Partner, Velmurugan Spinners, Door No. 9/487-A, Vellakovil Road, Muthur – 638 105. Kangayam (TK), Tiruppur (Dt). Tamilnadu.
37	Anburaja Spinners, No.85-C, Mettukkadai, Kodumudi Road, Muthur-638105, Tirupur Dist., Tamilnadu.
38	Shree Balamurugan Spinners, SF No.81A, Neyyal Road, K. Paramathi (Po)., Karur – 639 111.
39	Thiru K. Natarayan, 201/6, Udumalai Road, Near Kumar Way Bridge Pollachi, Kovai District.
40	Sri Kumaran Mills, 1/475, A-1, Chettikadu Thottam, Pooamalur (PO), Mangalam (via), Palladam-641663, Coimbatore District.
41	Partner, Sri Selvabayaki Mills, 19, Main Road, Velayuthampalayam, Pallapalayam (Po), Mangalam (via), Palladam (Tk), Tirupur-641 663.
42	Proprietor, Sri Sivambika Tex, 21-A, Gandhi Nagar Street, Velayuthampalayam, Mangalam-641 663, Tirupur District.
43	Sivamurugan Textiles, 1/475, Chettikadu Thottam, Poomalur (PO), Mangalam (via), Palladam-641663. Tirupur Dist.
44	Managing Director, Shree Hari Textiles, S.F. 169, Velliampalayam Pirivu, Pukkulam Post, Udumalpet – 642154.
45	Arunn Bhalaji Cotton Mills, No.9, Kumaravel Nagar, Pallakatturpudur, Uthukuli Road, Chennimalai-638051.



<b>Sl. No.</b>	<b>Name and Address</b>
46	Sri Arulmurugan Spinners, 186/4-A, Muthalipalayam, Arasur Post, Coimbatore-641407.
47	Dr. K. Selvaraju, Secretary General, The Southern India Mills' Association, Post Box. No. 3783, 41 Race Course, Coimbatore-641018.
48	Tmt. Yogi Trivedi, Q.4, Kovaipudur, Yogita Nivas, Coimbatore-641 042.
49	Thiru T.Karthikeyan, Windmill Incharge, Sheela Clinic, New No.117, (Old No.46), East Power House Road, Coimbatore-641012.
50	Partner, Panchami Spinning Mills, SF No. 154/B1-A, Palappampatty, Palani Main Road, S.V.Mill (Po), Udumalpet-642 128. Tirupur (Dist.)
51	Partner, Kaviharan Spintex, SF No. 344/2B, Velappanaicken Pudur, Gudimangalam (Po.) Udumalpet-642 201.
52	Partner, Kavita Spinners, Shed No. 14 & 15, Sidco Industrial Estate, Gudimangalam, Udumalpet T.K. Pin – 642 201.
53	Partner, Sri Shakthi Spinners, SF No. 88/2A, Sri Shakthi Garden, Vadukapalayam Village, Sunkaramadakku (Po), Udumalpet (Tk), Tirupur (Dt.)
54	Managing Director, S.M. Textiles, 14/452, Contractor Colony, Amaravathi Nagar, Udumalpet – 642102.
55	Partner's, SPT Textiles, SF No.2/8, Thathanaickenpatti (PO), Karadikootam, Palani (TK)-625 621.
56	Proprietor, Aanantham Textiles, 145/1, Dharapuram Road, Udumalpet-642 126.
57	Thiru R. Balasubramanian, General Secretary, Federation of Consumer Organisations Tamilnadu & Pondicherry – FEDCOT, No.604, C.T.H. Road, Pattabiram, Chennai-600072.
58	Partner, Sri Selvalakshmi Spinners, SF. No. 190/4, Sedan Thottam, Edayarpalayam Road, Pappampatti, Coimbatore – 641 016.
59	G.V.R. Textiles, 84A, Vinayakar Street, Sivananda Colony, Coimbatore – 641 012.
60	Managing Partner/Partner, Tirubbaty Spin Mill, 27, SIDCO Industrial Estate, Gudimangalam-642 201. Udumalpet (TK).
61	Partner, Shree Govarthanaa Textiles, 21/5, Maheswari Nagar, 2nd Street, Thanneerpandal, Peelamedu, Coimbatore-641004.
62	Partner, Sri Sakthi Spinners, 6/110, C Vadakuthottam, Rangasamuthiram, Panikkampatti(PO)-641 664. Palladam Tk, Tirupur Dt.
63	Proprietor, Sri Bagavathi Amman Mills, Yarn & Cloth Manufactureres, 11, Settukaran Thottam, Main Road Street, Paramasivampalayam, Pallapalayam (PO), Mangalam (Via), Tirupur Dt. – 641 663.
64	Partner, Sri Srinivasa Spintex, 4/654-A, Pethamuchipalayam, Ayyampalayam Post, Palladam Taluk, Tirupur Dt. 641 663.

<b>Sl. No.</b>	<b>Name and Address</b>
65	Proprietor, Padma Textile Engineers, SF No. 110, Bharathi Nagar, 1st Cross, Ganapathy, Coimbatore-641006.
66	Shri Saampavi Spinning Mills, D.No. 127-J, Nachipalayam, Mulanur Road, Karattupalayam (PO), Vellakovil – 638 111. Tirupur Dist. Tamil Nadu.
67	Thiru S.K. Rangarajan, President, The South India Spinners Association, Flat No.103-A Block, 1st Floor, Raheja Centre, 1073 & 1074, Avinashi Road, Coimbatore-641018.
68	Thiru B. Shahul Hameed, Managing Director, Athi Sivan Steels (Pvt.) Ltd., Door No. 1, Panapatty Road, Varapatty Village, Chandrapuram PO, Sulur TK, Coimbatore Dist – 641 402.
69	Tmt. Malliga Devi, 7/41-B, Avinashi Road, Civil Aerodrome (PO), Coimbatore-14.
70	Partner, N.R.C. Spintex, No.277/2, Kuttakattuputhur, Vellakovil-638 111, Tirupur Dist. (T.N)
71	Proprietor, Hari Krishna Spin Tex, No. 277/1, Kuttakattuputhur, M. Palanisamy Nagar West, Vellakovil-638 111, Tirupur Dist. (T.N.)
72	Tmt. Parimala Antony, 54/4, Park Town, Coimbatore-641045.
73	Tmt. R. Vijaya, 33, Park Town, Trichy Road, Sungam, Coimbatore – 641045.
74	Tmt. R. Devaki, 32, Park Town, Trichy Road, Sungam, Coimbatore – 641045.
75	Sree Adithya Mills, 2/442-A, Semmipalayam, Kovai Road, K.S.N.Puram (Po), Palladam – 641 662. Tirupur (Dt.)
76	Thiru V. Sundaram, President, CODISSIA, G.D. Naidu Towers, Post Box No. 3827, Huzur Road, Coimbatore-641 018.
77	Managing Partner, Alagu spinners, 335, D.R. Nagar, Muthur Road, Vellakovil – 638 111.
78	Proprietor, Skantha Cotton Yarn, 4/294, Karuvalai Thottam, Sennimalaipalayam, Thekkalur, Avinashi – 641 654, Tirupur (Dt.)
79	Partner, Shivamani Spinners, D.No. 4/292-1, Karuvalai Thottam, Sennimalaipalayam, Thekkalur (PO), Avainashi – 641 654.
80	Proprietor, Necter Cotton Mills, No. 1/428, Puliampatti Road, Polavapalayam, Nambiyur, Gobi – 638 458, Erode (Dt.)
81	Thiru L. Francis Rozario, 9A, Parri Nagar, Sugam Bypass Road, Coimbatore-641 045.
82	Partner, Sri Deksa Textiles, D.No.1, 534 H, Thondi Thottam, Poomalur (PO), Mangalam (via), Tirupur (Dt) – 641 663.
83	Secretary, Open End Spinning Mills Association, 67, C.R. Complex, Avinashi Road, Opp-Sitra, Civil Aerodrome Post, Coimbatore – 641 014.

<b>Sl. No.</b>	<b>Name and Address</b>
84	Partner, Giri Tex, 493, Kaliyamman Kovil Street, Idayankulam Village, Srivilliputtur Road, Rajapalayam – 626 117.
85	Partner, AVS Cotton Mill, SF No. 650/7, Kadaiyuran Valasu, Uppupalayam Post, Vellakovil, Kangayam (TK), Tirupur Dist.
86	Partner, Sri Manivel Tex, 33-35, L.K.C. Nagar, Kovai Main Road, Vellakovil – 638 111.
87	Partner, Sri Ram Spinners, No.1, Sakthi Co-operative Industrial Estate, Udumalai Road, Pollachi – 642 003.
88	Partner, Shri Renganath Spintex, W4/113, Varagunaramapuram Village, Gopalapuram Post, Rajapalayam-626 136.
89	Partner, Thangasamy Mills, Sri Venkateswara Willow Factory Campus, 442/2, Kothankulam Village, Srivilliputtur Road, Rajapalayam-626 117.
90	Partner, Sri Karpaga Vinayagar Spinning Mills, 355/6, Reddiyapatti Mukku Road, S. Thiruvenkadapuram, Rajapalayam – 626 136.
91	Managing Partner, Premier Spinning Mills, 13/147, Valliarachal Road, Pappampalayam, Vellakovil – 638 111. Tirupur Dist.
92	Thiru M. Kaliyappan, R-9, 100 feet Road, Kovai Pudur, Coimbatore – 641 042.
93	Proprietor, Visvam Weaving, 3/134-J, Thattan Thottam, Sivamurugu Nagar, Ganeshapuram, S.S.Kumal(via), Coimbatore-641 107.
94	Proprietor, Sri Swamy Yarns, 401-G, Thelungupalayam, Pillyapampalayam (PO), Annur-641 653, Coimbatore.
95	Partner, LR Spinners, SF No. 230/8A, Dasappagounder Thottam, Thelungupalayam, Pillayapampalayam (PO)., MGC Palayam (Village), Annur-641 653, Coimbatore Dist.
96	Partner, Amritaya Spintex, SF No. 191/B1 & B2, palani Road, Palappampatti, S.V. Mill Post, Udumalpet – 642 128, Tirupur Dist.
97	Thiru M. Sherif, No. 239, Diwan Bhadur Road, R.S.Puram, Coimbatore-641002.
98	Partner, Udhayam Textiles, 3/258-A, Ganapathipalayam, Mangalam – 641 663. Tirupur.
99	Proprietor, RKR Cotton Mills, SF No. 43, D.No. 9/107, Thonimedu Thottam, A.G. Puthur (PO), Mangalam (Via)-641663, Tirupur Dist.
100	Proprietor, Sri Latha Mills, No.10/189D, Chinnaputhur, Agraharaputhur Post, Managalam, Tirupur-641 663.
101	Partner, Shri Angalamman Cottons & Textile Mills, 10/72. Malaikovil Privu, chinnaputhur, agraharaputhur, Mangalam (via), Tirupur-641 663.
102	Partner, Tirumalavasa Cotton and Textile Mills, 4/321-1, Vengamedu, Mangalam Road, Pudhupalayam (PO), Avinashi – 641 654.
103	Thiru R. Vishu Prabakar, A-84, Sreevatsa Garden, Mettupalayam Road,

Sl. No.	Name and Address
	Coimbatore – 641034.
104	Thiru S. Ramasubbu, Chief Electrical Distribution Engineer, Souther Railway, Electrical Branch, Chennai-600 003.
105	Thiru C. Palanisamy, President, Kovai Tirupur District Powerloom Waive for hire Owners Association, Power House Road, Somanur – 641 668. Kovai District.
106	Thiru A. Manikkam, President, TamilNadu Small Powerloom Cloth Manufacturers Association, 130/38, Mettu Street, Ammapet, Salem – 636 003.
107	Sree Mahanthraam OE Texts, No.1, Maruthi Nagar Extn., Gandhi Nagar, Gobichettipalayam – 638 452.
108	Partner, Shri Maha Gurubaran Mills, No. 19, Kungarpalayam Road, Kungarpalayam Post, Uthiyur9via), Kangayam- 638 708. Tirupur District.
109	Thiru A.P. Kalyanam, General Secretary, Tamil Nadu Fisheries Farmers Welfare Association, P.K.C. Ilam – Door No. 3/275 Sathiyamurthy Street, Sembanar Kovil – 609 309. Tharagampatti Circle – Nagai District.
110	Thiru P.K.C.C. Ganesan, State Hon.President, Tamil Nadu Fisheries Farmers Welfare Association, No. 32, Sunnambukara Street, Oratha Nadu – 614 625.
111	Thiru M. Rajagopal, 347/41, Giriappan Kovil Street, Peelamedu, Coimbatore – 641 004.
112	Managing Partner, Shri Hari Textiles, 5/208-1, Velliampalayam Pirivu – Pukkulam (Po) – Udumalpet.
113	Managing Parter, Shri Selvamurugan Spinners, 3/411, S.V.Puram, S,V,Mills, (PO), Udumalpet – 642 128.
114	Partner, P.K. Spinners, SF. No. 68/A3A, Guruvappanaickanur, Manupatti Post, Udumalpet (Tk), Tirupur (Dt.)
115	Partner, sri Venkateswara Spintex, 3/138-B, Chinnaveerampatty, Pukkulam-642154. Udumalpet (TK), Tirupur (Dist).
116	Jaya Shankari Textile, 3/203-A, Karavali Mathappur, Somanur-641 668. Coimbatore Dt.
117	Thiru A. Nataraj, Sri Kumaran Mills, 55-C, Senthil Nagar, Somsnur, Sulur (TK), Coimbatore (Dist).
118	Partner, Sri Venkatalakshmi Mills, 6/739-E, Indira Nagar, Unjapalayam, Somanur-641 668.
119	Proprietor, Shree Textiles, 366/2E, Sangaramanallur, Madathur.
120	Partner, Shree Cotton, 28, JSR Nagar, Madathukulam, Tirupur (Dist).
121	Partner, Srivari Textiles, 13/66A1, Garden, S.V. Mill Post, Udumalpet, Tirupur – 642 128.
122	Thiru K. Sivakumar, Sri Velavan Textiles, 36, Sakthi Co-operative

Sl. No.	Name and Address
	Industrial Estate, Bodipatty, Udumalpet.
123	Proprietor, R.P. Textiles, 521, solamadevi, Medu, Madathukulam (TK), Tirupur (Dist.)
124	Proprietor, R.P. Cottons, 1/128-D, R.G. Nagar, 4th Street, S.V. Mills (PO), Udumalpet-642128.
125	Proprietor, Sri Akkamma textiles, SF No. 3/c – Poolavadi Main Road, Kondampatty (Post) – 642 201. Udumalpet (Tk), Tirupur (Dist).
126	Managing Partner, Sri Vijayaganapathy Spintex, 192/3B, Sundaragoundanur, Poosaripatti – PO, Pollachi-Tk., coimbatore (Dist)-642 205.
127	Thiru R. Varatharajan, Director, Vivegam Spinnerss (India) Private Limited, 255, Pudur Road, Periyanaickenpalayam, Coimbatore-641 020.
128	Thiru R. Natarajan, National Leader, Law Foundation India, 54F, Sivasakthi Complex, Selvarajapuram, Chinthamani Pudur, Kovai – 641 103.
129	Thiru S. Ponnusamy, Law Awareness India, 26/2010, Pallakadu Thottam, Naduvelampalayam, Naranapuram Extn. Office.
130	Managing Partner, S.K. Yaarns, 13/97-B, Subramaniagounden Valasu, Mulanur Road, Vellakovil-638 111. Kangayam (Tk), Tirupur(Dt.)
131	Managing Director, Sri Kumaran Spinning Mill, 131, Nall Road, Racikyavalasu(Po), Mulanur (via), Vellakovil – 638 111.
132	Thiru M. Thangaraj, Partner, Vinaykha Mills, 415/2, Nartayankovil Road, Mandhapuram, Metttupalayam Village, Vellakovil – 638 111.
133	Partner, Vinayaka Tex, SF No. 415/2, Near Natrayankovil, Mandhapuram Road, Metttupalayam (Po), Vellakovil – 638 111. Kangayam Tk., Tirupur Dist.
134	Thiru K. Ilangovan, State General Secretary, Tamil Nadu Electricity Board Employees United Association, Central Office Complex, TNEB, Tatabad, Coimbatore-641 012.
135	Thiru S. Ravikumar, Leader, Coimbatore, Tirupur State Tiny Industries & Rural Industries Entrepreneurs Association, 19/3, Lucky Plaza, 1st Floor, Sanganur Main Road, Ganapathi, Coimbatore – 641 006.
136	Managing Partner, Vikrant Textiles, D.No. 53-A, Valliarachai Road, Vellakovil – 638 111. Kangayam Tk., Tirupur Dist., Tamilnadu.
137	Partner, V.P.S. Spinnings, SF. No. 187, Udumalpet Road, P. Vadugapalayam, Palladam – 641 664.
138	Thiru D. Palanisamy, D.P.M. Cotton Spinning Mill, 5/31, Pallakattuthpattam, Pariyandipalayam, Thoppupalayam, Chennimalai – 638 051. Erode District, T.N.
139	D.P.M. Spinning Mill, 3/155, Gandhi Nagar, uthukkuli Road, Chennimalai

<b>Sl. No.</b>	<b>Name and Address</b>
	– 638 051.
140	S.A.N.M. Mills, 5/34, Periyandipalayam, Thoppupalayam (PO), Chennimalai – 638051, Perundurai (Taluk), Erode Dist.,
141	Thiru N. Pradeepkumar, General Secretary, Tamilnadu Consumer Association, 12-C, North Car Street, Perur-PO, Coimbatore-641 010.
142	Thiru P. Venkatesan, President, Covai Consumer Centre, Old. No. 83, New No. 127-B, Subramaniam Road, R.S.Puram, Coimbatore-2.
143	Thiru M. Mariappan, President, City Consumer Association, 52-A, Govindasamy Lay-out Ashok Nagar, Chetti Street, Coimbatore – 641 001.
144	Dr. D. Ramesh, General Secretary, Tamilnadu Consumer Education Centre, 5-B, Chinna Koil Street, Perur-Po, Coimbatore-641 010.
145	Revathy Textiles, 34, Water Tank Street, Samalpuram, Somanur – 641 663. Tirupur (Dt.) TN.
146	Thiru R. Kathiresan, State Leader, Tamil Nadu Fisheries Farmers Welfare Association, No. 32, Sunnambukara Street, Orathanadu – 614 625. Thanjur District.
147	Thiru Giridhar JG, CEO & Managing Director, SIERRA ODC Pvt. Ltd. No.6, (SF.218/2A), Annamalai Industrial Estate, Kalapatti, Coimbatore-641 048.

### **Annexure III- The list of participants at each Public Hearing.**

#### **List of participants in the Public Hearing held at Chennai :**

<b>Sl. No.</b>	<b>Name and Address of the speakers</b>
1	Dr. A.C. Mohan,Secretary, Federation of Tamil Nadu Rice Mills owners & Dealers Association, No.491, GNT Road, Balaji Nagar, Puzhal , Chennai 61.
2	Thiru. V.S. Kumaran, 5-2/4, Lapoliare Street, Soorakkalpattu, Cuddalore 607 001 (Tamil Nadu Consumer Organisation)
3	Thiru. Thooyamurthy, Association of Transparency & Anti corruption, No.2, Alwar Nagar 1st Street, Ullagaram, Chennai 61
4	Thiru. C. Selvaraj, Federation of Anti Corruption Teams India, No.2, Vyasara Street, North Usman Road, T.Nagar, Chennai 17
5	Thiru. S. Nagalsamy, 15A, P.T. Rajan Salai, K.K. Nagar, Chennai 78.
6	Thiru. R. Sivakumar, Siva Sundar Consultant, Plot No.4 & 4A, Kiruba Nagar,(Via) Moorthy Nagar, Kathivedu, Chennai 66.
7	Thiru. D. Rajendran, Secretary, Vandimedu House Owner Association, 56, Virattikuppam Pattai, Vandimedu, Villupuram 605 602.
8	Thiru. K.N. Gunasekaran,No.3/34, Sothupakkam Salai, Red Hills, Chennai 92
9	Thiru. K. Kalyanasundaram, General Secretary, Tamil Nadu Electricity Board (Engineers Union),No.29, Lal Bahadur Shastri Street, Lakshmi Nagar, Madhuravoyal , Chennai 95.
10	Thiru. V. Ramarao, Peoples Awareness Association, Nanganallur, Chennai 61.
11	Thiru. D. Eswaramoorthy, General Manager, Tulsiyan point, Apex plaza 6th Floor, No.3, Nungambakkam High Road, Chennai - 34.
12	Thiru. S. Gandhi, Power Engineers Society of Tamil Nadu, 45, Balaguru Garden, Peelamedu, Coimbatore 04.
13	Thiru. A. Ponnambalam, Orient Green Power Company Ltd., Egmore, Chennai 8
14	Thiru. Shakeel Ahmed, Assistant Manager - BD, IEX (Indian Energy Exchange), 4th Floor, Plot No.7, TDI Centre, District Centre, Jasola, New Delhi 110 025.
15	Thiru.V. Ravichandran, Founder Chairman, Citizens Guardians, New No.1, Old No:2, Bank of India Colony, Near 8th Avenue, Ashok Nagar, Chennai – 83
16	Thiru.B. Sivagami Sundaram, F3- Aiswaryam Apartments, Saravana Bhava Nagar, 3rd Cross Street, Mudichur Road, Chennai – 63
17	Thiru.G.V. Nandha Kumar, 39, Subbiah Nagar, Iyyappanthangal, Chennai – 56
18	Thiru.S. Ragunathan, No.57, 2nd Cross Street, Brindhavan Nagar,

Sl. No.	Name and Address of the speakers
	Valasaravakkam, Chennai -87
19	Thiru.Anbu , The Pensioners Association
20	Thiru. T.R. Srinivasan, Old No.16/2 New No.41/2, Srinivasan Iyyar Street, West Mambalam, Chennai 33
21	Thiru.K.Vishnu Mohan Rao, Citizen consumer and civic Action Group, 9/5, 2nd Street, Padmanabha Nagar, Adyar, Chennai – 600 020.

**List of participants in the Public Hearing held at Madurai :**

Sl. No.	Name and Address of the speakers
1.	Thiru.,R.Kathiresan, State Chairman, Tamil Nadu Fish Farmers Welfare Association, No. 32 Sunnampukara Street, Orathanadu, Thanjavur – 614625.
2.	Thiru. Maanal Paramasivam, Joint Secretary, Tamil Nadu Fish Farmers Welfare Association, Oranthanadu, Pudur, Thanjavur.
3.	Thiru. Dinesh Singh, Executive Member, Tamil Nadu Rice Mill Owners Association, Madurai.
4.	Thiru.M.Gunasekar, Proprietor, MSG Modern Rice Mill, MSG Agencies, 82 Koogaiyur Road, Chinnasalem - 606 201.
5.	Thiru.M.Rajendran, Sri Saravana Hitech Agro Foods, Chinnasalem, Villupuram District.
6.	Thiru. S.K.R. Ramesh, President, Madurai Screen Printers Association, Madurai.
7.	Thiru. Pichaiah (Fish Farmer), Kallidaikurichi, Tirunelveli District – 627 416.
8.	Thiru. R. Kumaresan, (Retd. Chief Engineer),Proprietor, Ranga Blue Metals, Thendral Nagar, Theni.
9.	Thiru. Jayaprakash, May-17 Movement, 45/C, New Ramnad Road, Thangavel Thevar Compound, Madurai – 9.
10.	Thiru. Sivakumar, May – 17 Movement, 3479 TNHB Mela Anuppanadi, Madurai – 9.
11.	Thiru. Karthik Babu, Madurai Spinners Association, Kapalur, Madurai – 8.
12.	Thiru. A.K. Ramesh, Secretary, Cluster Development, 159/5, 2 Renganayaki Ammal Street, Kamarajar Salai, Madurai – 9.
13.	Thiru. T.K. Chandra Mohan, No. 14, CSB Lane, Old Kuyavarpalayam Road, Madurai – 9.



**List of participants in the Public Hearing held at Coimbatore :**

<b>S. No.</b>	<b>Name &amp; address of the Speakers</b>
1	Thiru. S. Ravikumar, Coimbatore & Tirupur District Micro and cottage Entrepreneur Association, (COTMA), Coimbatore 641 006.
2	Thiru. P. Balasubrananiam, Powerloom Association, Avinashi, Tirupur District
3	Thiru. D. Balasundaram, Ex. President, Indian Chamber of commerce & Industry, Coimbatore 641 018.
4	Thiru. K. Elango, Secretary, Tamil Nadu Electricity Consumers Association, (TECA), Coimbatore 641 018.
5	Thiru. K. Kasturirangaiyan, Chairman, Indian Wind Power Association, Coimbatore 641 018.
6	Thiru. T.S.B. Selvam, Erode District Rice Mill Owners' Association, Elumathur, Erode 638 104.
7	Thiru. M. Ramasamy, President, Tirupur Rice Mill Owner Association, 165, Chenimalai Road, Coimbatore.
8	Dr. K. Selvaraj, Secretary General, The Southern India Mills Association, 41, Race Course, Coimbatore 641 018.
9	Thiru. S.K. Rangarajan, President, The South India Spinners Association, Flat No.103, A Block, 1st Floor, Raheja Avinashi Road, Coimbatore 641 018.
10	Thiru. S.P. Velliangiri, 120 D, Pioneer mill Road, Peelamedu, Coimbatore 641 004.
11	Thiru. M. Krishnasamy, Maniakaran Palayam, Ex- Councillor, Coimbatore.
12	Thiru. A. Manickam, President, TamilNadu Small Power and Manufacture Association, 130/38, Mettu Street, Amapet, Salem-636003.
13	Thiru. V. Sundaram, President, Coimbatore District Small Scale Industrial Association ,(CODISSIA) Hozur Road, Coimbatore-18.
14	Thiru. K. Kamaraj, Kaveri Power Trading Private Limited, The Lords, Ekkatuthangal, Chennai-32.
15	Thiru. P.P. Subramanian, P.P. Associates, Electrical Engineers & Contractors, 1st Floor, 33, Kalidass Road, Ram Nagar, Coimbatore - 641 009.
16	Thiru. A.D. Thirumoorthy, Consultant, 603, Pioneer Apartment, Coimbatore – 18
17	Dr. Manokaran, Cheif Engineer (Retired), 360 A, 1st Street, Gandhipuram, Coimbatore - 12.
18.	Thiru. Maniraj, Coimbatore Pumpset Manufacturers Association, (COPMA) Coimbatore 641 006

<b>S. No.</b>	<b>Name &amp; address of the Speakers</b>
19	Thiru. K.C.M. Duraisamy, President, Tirupur Palladam Taluk Rice Mill Owners' Association, Tirupur - 641 604.
20	Thiru. K. Eswaran, Sivabharathi Sintex India Private Ltd. Kurumbapalayam (Post), Coimbatore - 107.
21	Thiru. M. Murugan, Chief Executive Officer, MV Power Consultants & Engineers (P) Ltd., Old No.38/6A, New No.14, I st Floor, M.V. Power Complex, Alandhur Road, Saidapet, Chennai - 15.
22	Thiru. R. Selvam, C/o Selvam Textiles, 1/99, Old Post Office Road, Kangayampalayam - 641 401.
23	Thiru. C. Krishnasamy, Electrical Supervisor, Central Prison, Coimbatore - 18.
24	Thiru. S. Rama Subbu, Chief Electrical Distribution Engineer, Southern Railway, Chennai - 02.
25	Thiru. Arulmozhi, Secretary, Open End Spinning Mill Association, 67, CR Complex, Avinashi Road, Opposite SITRA, Civil Aerodrome Post, Coimbatore.
26	Thiru. N. Selvaraj, No.24, Nehru Avenue, Maniakaran Palayam, Coimbatore-06.
27	Thiru. N. Logu, Secretary, Coimbatore Consumer Voice, Opposite Medical College, Avinashi Road, Coimbatore - 14.
28	Thiru. K. Natarajan, 11-Mookambigai Nagar, 1st Street, Ganapathy, Coimbatore-06.
29	Thiru. N. Sundarajan, Ex- Assistant Engineer, TNEB No.232, Nethaji Road, Pappanayakanpalayam, Coimbatore-37.
30	Thiru. V. Arunachalam, Kovai Solar Power (P) Ltd, Kovai Tower, 2nd Floor, No.44, Dr. Balasundaram Road, Coimbatore - 641 018.
31	Thiru. M. Murugesan, General Secretary, Power Engineers Society of TamilNadu (PESOT), 74, Swarnambika Layout, Coimbatore-09.
32	Thiru. S. Nedunchezhiyan, Thiruvalluvar Illam, No.21, S.K.C. Road, Erode-01.
33	Thiru. Era. Velusamy, President, Tirupur District Job Work Power loom weavers Association, 2/391, Udumalai Road, P. Vadugapalayam, Palladam - 641 664.
34	Thiru. S. Sanjay Kondass, Managing Director, Kondass Automation Pvt. Ltd., 5B, Sri Alamelu Nagar, Kamaraj Road, Coimbatore-641 015.
35	Thiru. K.A. Mohammed Anoo, 10/11, Kasthuri Layout, Kalavai, Kuniamuthur, Coimbatore - 641 008. .
36	Thiru. K. Natrayan, 210/16, Udumalpet Road, Near Kumar weigh Bridge, Pollachi, Coimbatore.
37	Thiru. R. Balasubramanian, General Secretary, Federation of Consumer

<b>S. No.</b>	<b>Name &amp; address of the Speakers</b>
	Organisation, Tamilnadu & Puducherry - FECOT. Nava Bhavan Buildings, Brough Road, Erode - 638 001.
38	Thiru. C.M. Jayaraman, Citizens Voice, Coimbatore.
39	Thiru. R. Shantha Kumar, Member, Code Review Panel of TANGEDCO, No.81, West Venkatasamy Road, R.S. Puram, Coimbatore - 02.
40	Thiru. A. Ramachandran, 3/8, Cheran Residency, Karumathanpatti, Coimbatore-641 668.
41	Thiru. R. Govindharajan, General Secretary, TNEB Engineer's Union, K.K. Nagar, Chennai-78.

**Annexure IV - Copy of the Final Transfer Scheme as notified by the State  
Government vide G.O. (Ms.) No.49, Energy (B1) Department, dated August 13, 2015.**



## **ABSTRACT**

Reorganization of the Tamil Nadu Electricity Board as per the provisions of the Electricity Act, 2003 – Tamil Nadu Electricity (Re-organization and Reforms) Transfer Scheme 2010- Published in Tamil Nadu Government Gazette Extra-Ordinary Part-II – Section 2 dated 19.10.10 – Amendments – Orders -Issued.

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### **Energy (B1) Department**

G.O. Ms.No.49

Dated 13.08.2015

THIRUVALLUVAR AANDU 2046  
AADI 28

Read:

- 1) G.O.Ms.No.100, Energy (B2) Department, dated 19.10.2010
- 2) G.O.Ms.No.2, Energy (B2) Department, dated 2.1.2012
- 3) From the Chairman and Managing Director, Tamil Nadu Generation and Distribution Corporation Limited, Letter No.SE/PLG/EE/GP/AEE4/F.Transfer Scheme /D.275/2014, dated 5.11.2014.

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### **ORDER:-**

In the Government order first read above, Government have notified the Tamil Nadu Electricity (Re-organisation and Reforms) Transfer Scheme, 2010. The erstwhile Tamil Nadu Electricity Board has been reorganized with effect from 01.11.2010, as per the provisions of the Electricity Act, 2003. In the above transfer scheme, the assets and liabilities were segregated based on the available unaudited balance sheet of erstwhile Tamil Nadu Electricity Board as on 31.03.2009 instead of balance sheet as on 31.10.2010 which was not ready at that time and stated that this shall be provisional for a period of one year from the respective date of transfer as per the clause 9(1) of the said scheme (i.e., upto 31.10.2011).

(2) Now, the Chairman and Managing Director, Tamil Nadu Generation and Distribution Corporation Limited has stated that as the audited balance sheet as on 31.10.2010 is ready, it is essential to issue notification for the final amendment to the earlier transfer scheme notified in Government Order 2<sup>nd</sup> read above for giving effect to the transfer of assets and liabilities to successor entities of erstwhile Tamil Nadu Electricity Board as on 01.11.2010.

(3) Amendment to the existing Tamil Nadu Electricity (Reorganisation and Reforms) Transfer Scheme, 2010 notified in G.O.Ms.No.100, dated 19.10.2010,

subsequently amended in G.O.(Ms.) No.2, Energy (B2) Department, dated 02.01.2012 by issuing Notification for giving effect to transfer of assets and liabilities to successor entities of erstwhile Tamil Nadu Electricity Board Limited as on 01.11.2010 be issued.

(4) The Notification appended to this order will be published in the Tamil Nadu Government Gazette, Extraordinary, dated 13.08.2015

//By Order of the Governor//

RAJESH LAKHONI  
SECRETARY TO GOVERNMENT.

To  
The Works Manager, Government Central Press,  
Chennai -79 (w.e)  
(With a request to publish the Notification in the Tamil Nadu Government Gazette  
Extraordinary, dated 13.08.2015  
The CMD, Tamil Nadu Generation and Distribution Corporation Limited,  
Chennai -2(w.e)  
The Secretary, Tamil Nadu Generation and Distribution Corporation Limited,  
Chennai -2(w.e)  
The Secretary,  
TNERC, Chennai -8(w.e)  
The CE (Planning),  
Tamil Nadu Generation and Distribution Corporation Limited ,  
Chennai -2  
Copy to  
The Secretary to Government of India,  
Ministry of Power,  
Government of India, New Delhi-1(w.e)  
The Chief Minister's Office, Chennai -108(w.e)  
The Senior P.A to Minister,  
(E,P&E), Chennai -9 (w.e)  
The Law Department, Chennai -9  
The Director,  
National Informatics Centre,  
Secretariat Network Centre,  
Chennai-9  
(for hosting in the tn.gov.in website)  
SF/SC

//Forwarded by Order//

SECTION OFFICER

## APPENDIX.

### NOTIFICATION.

In exercise of the powers conferred by sections 131 and 133 of the Electricity Act, 2003 (Central Act 36 of 2003), read with sub-clause (3) of clause 12 of the Tamil Nadu Electricity (Reorganisation and Reforms) Transfer Scheme, 2010, the Governor of Tamil Nadu hereby makes the following amendments to the said Scheme :-

2. The amendments hereby made shall be deemed to have come into force on and from the 1<sup>st</sup> day of November 2010.

### AMENDMENTS.

In the said Scheme, in clause 5 :-

(1) In sub-clause (9), for the expression “The transfer value of the Fixed Assets forming part of Schedules A, B and C of the respective Transferees have been done at book values excluding the land and turbine machinery of gas based power plant which was revalued based on the guideline value resulting into Revaluation Reserve of Rs.8355.32 Crores”, the expression “The transfer value of the Fixed Assets forming part of Schedules A, B and C of the respective Transferees have been done at book values excluding the land, buildings, plant and machineries, lines, cables and network, which are revalued based on the guideline value resulting into Revaluation Reserve of Rs.51,441.00 Crores” shall be substituted;

(2) after sub-clause (9), the following sub-clause shall be added, namely :-  
“(10) The function-wise Account Rendering Units/Circle offices shall be as set out in Schedule-D.”;

(3) in the Appendix,-

(a) in Schedule-A, in Part-II Generation and Distribution Undertakings, for the entries under the heading “Aggregate Assets and Liabilities vested in Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)”, the following entries shall be substituted, namely:-

"OPENING BALANCE SHEET OF TANGEDCO AS ON 1st NOVEMBER 2010					
LIABILITIES	Rs. In Crores		ASSETS	Rs. In Crores	
<b><u>SOURCES OF FUNDS</u></b>			<b><u>APPLICATION OF FUNDS</u></b>		
<b><u>SHAREHOLDERS FUND</u></b>			<b><u>FIXED ASSETS</u></b>		
Equity Share Capital TNEB Limited		2,290.72	Gross Fixed Assets	45,601.98	
			Less: Accumulated Depreciation	-	
<b><u>RESERVES AND RESERVE FUNDS</u></b>			<b>Net Fixed Assets</b>	<b>45,601.98</b>	
1% Property Insurance Reserves	590.31		<b>Capital Works in Progress</b>	<b>5,070.79</b>	<b>50,672.77</b>
Material cost variance reserves	48.45				
Hydro Balancing Fund	1,171.46		<b>INVESTMENTS</b>		<b>684.32</b>
Consumer Contributions, Grants & Subsidies	2,522.12				
Revaluation Reserves of Depreciable Assets	12,265.99	16,598.33	<b>ASSETS NOT IN USE</b>		<b>2.68</b>
<b>TOTAL SHAREHOLDERS FUND</b>		<b>18,889.06</b>	<b>DEFERRED COST</b>		<b>1.31</b>
<b><u>LOAN FUNDS</u></b>			<b><u>CURRENT ASSETS, LOANS AND ADVANCES</u></b>		
Rural Electrification Corporation (REC)	4,281.67		Stock	887.92	
Power Finance Corporation (PFC)	4,074.03		Net Receivables against Supply of Power	4,296.93	
PFC (Asian Development Bank)	6.82		Cash and Bank Balances	440.11	
Tamil Nadu Power Finance Corporation (TNPFC)	2,615.30		Loans and Advances	604.35	
NABARD	52.58		Sundry Receivables	504.90	
Medium Term Loans	7,811.01		<b>TOTAL CURRENT ASSETS, LOANS AND ADVANCES</b>	<b>6,734.21</b>	
APDRP / RAPDRP Loan	418.65				
RGGVY	27.05		<b>SUBSIDY RECEIVABLE FROM GoTN</b>	<b>87.79</b>	
PMGY	20.54				
<b>TOTAL CAPITAL LIABILITIES</b>	<b>19,307.65</b>		<b><u>LESS: CURRENT LIABILITIES AND PROVISIONS</u></b>		
<b>BORROWINGS FOR WORKING CAPITAL</b>	<b>6,106.80</b>	<b>25,414.45</b>	Security Deposits from Consumers	4,228.93	
			Other Fuel Related Liabilities, unpaid coal bills and Liabilities	671.05	
			Liability for Purchase of Power	2,963.82	
			Staff Related Liabilities, Provision and Contribution from Staff	1,427.29	
			Other Current Liabilities	4,588.48	
			<b>TOTAL CURRENT LIABILITIES</b>	<b>13,879.57</b>	
			<b>NET CURRENT ASSETS</b>		<b>(7,057.56)</b>
<b>TOTAL LIABILITIES</b>		<b>44,303.51</b>	<b>TOTAL ASSETS</b>		<b>44,303.51</b>

**Note:-**

1. The transfer value of the fixed assets are determined based on revenue potentials.
2. The transfer value of the Land is determined based on the guideline value as on 31<sup>st</sup> October 2010.



3. The values of Buildings, Plant & Machineries and Lines & Cables Network are valued based on the report provided by the Chartered Engineer and Government Registered Valuer.
  4. Notwithstanding the transfer, the guarantees provided to the lenders of the Board, by the State Government, shall be deemed to be guarantees provided on behalf of the TANGEDCO in respect of the loans allocated, until fully discharged.
  5. The Contingent liabilities to the extent they are recognized and are associated with or related to Generation and Distribution activities or to the undertakings or assets shall be discharged by TANGEDCO.
  6. The shares to the extent of the value of the share capital mentioned above shall be issued by the TANGEDCO in favour of TNEB Limited at par". ;
- (b) in Schedule-B, in Part-II Transmission Undertaking, for the entries under the heading "Aggregate Assets and Liabilities vested in Tamil Nadu Transmission Corporation Limited (TANTRANSCO)", the following entries shall be substituted, namely:-

"OPENING BALANCE SHEET OF TANTRANSCO AS ON 1st NOVEMBER 2010					
LIABILITIES	Rs. In Crores		ASSETS	Rs. In Crores	
<b><u>SOURCES OF FUNDS</u></b>			<b><u>APPLICATION OF FUNDS</u></b>		
<b><u>SHAREHOLDERS FUND</u></b>			<b><u>FIXED ASSETS</u></b>		
Equity Share Capital – TNEB Limited		1,506.15	Gross Fixed Assets	23,035.92	
			Less: Accumulated Depreciation	-	
<b><u>RESERVES AND RESERVE FUNDS</u></b>			<b>Net Fixed Assets</b>	<b>23,035.92</b>	
1% Property Insurance Reserves	11.26		<b>Capital Works in Progress</b>	<b>1,481.11</b>	<b>24,517.02</b>
Material cost variance reserves	12.82				
Consumer Contributions, Grants & Subsidies	1,040.73		<b><u>CURRENT ASSETS, LOANS AND ADVANCES</u></b>		
Revaluation Reserves of Depreciable Assets	7,163.58	8,228.39	Stock	102.00	
			Cash and Bank Balances	12.29	
<b>TOTAL SHAREHOLDERS FUND</b>		<b>9,734.54</b>	Loan and Advances	19.40	
			Sundry Receivables	12.69	
<b><u>LOAN FUNDS</u></b>			<b>TOTAL CURRENT ASSETS, LOANS AND ADVANCES</b>	<b>146.37</b>	
Rural Electrification Corporation (REC)	1,448.87		<b><u>LESS: CURRENT LIABILITIES AND PROVISIONS</u></b>		
Power Finance Corporation (PFC)	662.35		Staff Related Liabilities, Provision and Contribution from Staff	150.82	
Tamil Nadu Power Finance Corporation (TNPFC)	3,180.57		Other Current Liabilities	556.50	
Medium Term Loans	1,952.75		<b>TOTAL CURRENT LIABILITIES</b>	<b>707.33</b>	
TNEB Bonds	2,860.66				
Life Insurance Corporation (LIC)	880.87		<b>NET CURRENT ASSETS</b>		<b>(560.95)</b>
HUDCO	1,708.75				
<b>TOTAL CAPITAL LIABILITIES</b>	<b>12,694.83</b>				
<b>BORROWINGS FOR WORKING CAPITAL</b>	<b>1,526.70</b>	<b>14,221.53</b>			
<b>TOTAL LIABILITIES</b>		<b>23,956.07</b>	<b>TOTAL ASSETS</b>		<b>23,956.07</b>

**Note:-**

1. The transfer value of the fixed assets are determined based on revenue potentials.
2. The transfer value of the Land is determined based on the guideline value as on 31<sup>st</sup> October 2010.
3. The values of Buildings, Plant & Machineries and Lines are valued based on the report provided by the Chartered Engineer and Government Registered Valuer.
4. The Opening Balance Sheet of TANTRANSCO also includes the assets and liabilities of SLDC.
5. Notwithstanding the transfer, the guarantees provided to the lenders of the Board, by the State Government, shall be deemed to be guarantees provided on behalf of the TANTRANSCO in respect of the loans allocated, until fully discharged.
6. The Contingent liabilities to the extent they are recognized and are

associated with or related to Transmission activities or to the undertakings or assets shall be discharged by TANTRANSCO.

7. The shares to the extent of the value of the share capital mentioned above shall be issued by the TANTRANSCO in favour of TNEB Limited at par.”;

(c) in Schedule-C, in Part-II-Holding Undertaking, for the entries under the heading “Aggregate Assets and Liabilities vested in TNEB Limited”, the following entries shall be substituted, namely:-

“OPENING BALANCE SHEET OF TNEB LIMITED AS ON 1ST NOVEMBER 2010					
LIABILITIES	Rs. In Crores		ASSETS	Rs. In Crores	
<b><u>SOURCES OF FUNDS</u></b>			<b><u>APPLICATION OF FUNDS</u></b>		
<b><u>SHAREHOLDERS FUND</u></b>			<b><u>FIXED ASSETS</u></b>		
Equity Share Capital – Government of Tamil Nadu		3,806.02	Gross Fixed Assets	496.93	
			Less: Accumulated Depreciation	-	
<b><u>RESERVES AND RESERVE FUNDS</u></b>			<b><u>Net Fixed Assets</u></b>	<b>496.93</b>	<b>496.93</b>
Revaluation Reserves of Depreciable Assets	487.79	487.79			
			<b><u>INVESTMENT IN SUBSIDIARY COMPANIES</u></b>		3,796.88
<b>TOTAL SHAREHOLDERS FUND</b>		<b>4,293.81</b>			
			<b><u>CURRENT ASSETS, LOANS AND ADVANCES</u></b>		
			Cash and Bank Balances	108.47	
			<b>TOTAL CURRENT ASSETS, LOANS AND ADVANCES</b>	<b>108.47</b>	
			<b><u>LESS: CURRENT LIABILITIES AND PROVISIONS</u></b>		
			Staff Related Liabilities, Provision and Contribution from Staff	108.47	
			<b>TOTAL CURRENT LIABILITIES</b>	<b>108.47</b>	
			<b>NET CURRENT ASSETS</b>		-
<b>TOTAL LIABILITIES</b>		<b>4,293.81</b>	<b>TOTAL ASSETS</b>		<b>4,293.81</b>

**Note:-**

- The value of the buildings are determined based on PWD Schedule Rates for Construction based on notification issued for the FY 2010-11.
- The shares to the extent of the value of the share capital mentioned above shall be issued by the TNEB Limited in favour of State Government at

par”.;

(d) after “Schedule-C”, the following Schedule shall be added, namely:-

**“SCHEDULE - D**

**List of Function-wise Accounts Rendering Units / Circle Offices**

<b><u>TANGEDCO</u></b>		<b><u>TANTRANSCO</u></b>
<b><u>GENERATION</u></b>	<b><u>DISTRIBUTION</u></b>	<b><u>TRANSMISSION</u></b>
<b><u>THERMAL GENERATING STATIONS</u></b>	CHNNAI EDC/CENTRAL	GENERAL CONSTRUCTION CIRCLE/COIMBATORE
ENNORE TPS	CHENNAI EDC/NORTH	GENERAL CONSTRUCTION CIRCLE/MADRAS
METTUR TPS	CHENNAI EDC/SOUTH	GENERAL CONSTRUCTION CIRCLE/MADURAI
NORTH CHENNAI TPS	CHENNAI EDC/WEST	GENERAL CONSTRUCTION CIRCLE/SALEM
TUTICORIN TPS	CHENGALPATTU EDC	GENERAL CONSTRUCTION CIRCLE/TRICHY
	COIMBATORE EDC/ METRO	PROTECTION AND COMMUNICATION CIRCLE/COIMBATORE
<b><u>GAS BASED GENERATING STATIONS</u></b>	COIMBATORE EDC /NORTH	PROTECTION AND COMMUNICATION CIRCLE/MADURAI
BASIN BRIDGE GTPS	COIMBATORE EDC /SOUTH	OPERATION CIRCLE /COIMBATORE
KUTTALAM GTPS	CUDDALORE EDC	OPERATION CIRCLE / <b>KORATTUR</b>

<b><u>TANGEDCO</u></b>		<b><u>TANTRANSCO</u></b>
<b><u>GENERATION</u></b>	<b><u>DISTRIBUTION</u></b>	<b><u>TRANSMISSION</u></b>
THIRUMAKOTTAI GTPS	DHARMAPURI EDC	OPERATION CIRCLE /MADURAI
VAZHUDUR GTPS	DINDIGUL EDC	OPERATION CIRCLE /SALEM
	ERODE EDC	OPERATION CIRCLE /SRIPERUMPUDUR
<b><u>HYDEL GENERATING CIRCLES</u></b>	GOPI EDC	OPERATION CIRCLE /TIRUNELVELI
GENERATION/ERODE	KANCHEEPURAM EDC	OPERATION CIRCLE /TRICHY
GENERATION/KADAMPARAI	KANYAKUMARI EDC	OPERATION CIRCLE /TRUVALLAM
GENERATION/KUNDAH	KARUR EDC	OPERATION CIRCLE /VILLUPURAM
GENERATION/TIRUNELVELI	MADURAI EDC/METRO	SLDC/ERODE
	MADURAI EDC	WEDC - UDUMALPET
<b><u>WIND GENERATING CIRCLES</u></b>	METTUR EDC	WEDC -TIRUNELVELI
WEDC - UDUMALPET	NAGAPATTINAM EDC	
WEDC –TIRUNELVELI	NAMAKKAL EDC	<b><u>HEAD OFFICE</u></b>
	NILGIRIS EDC	CENTRAL PAYMENT
<b><u>HEAD OFFICE</u></b>	PERAMBALORE EDC	CASH
COAL	PUDUKOTTAI EDC	FUNDS
RESOURCES	RAMNAD EDC	RESOURCES
	SALEM EDC	
<b><u>PROJECT</u></b>	SIVAGANGAI EDC	
L.M.H.E.P / BHAVANI	THANJAVUR EDC	
CIVIL MAINTENANCE/ MADURAI	THENI EDC	

<b><u>TANGEDCO</u></b>		<b><u>TANTRANSCO</u></b>
<b><u>GENERATION</u></b>	<b><u>DISTRIBUTION</u></b>	<b><u>TRANSMISSION</u></b>
CIVIL MAINTENANCE/ EMERALD	THIRUPPUR EDC	
METTUR THERMAL POWER PROJECT (MTPP)	TIRUNELVELI EDC	
	TIRUPATTUR EDC	
	TIRUVANNAMALAI EDC	
	TRICHY EDC / METRO	
	TUTICORIN EDC	
	UDUMALPET EDC	
	VELLORE EDC	
	VILLUPURAM EDC	
	VIRUDHUNAGAR EDC	
	<b><u>HEAD OFFICE</u></b>	
	CENTRAL PAYMENT	
	BALANCE SHEET	
	CASH	
	FUNDS	
	COST	
	RESOURCES	
	<b><u>OTHERS</u></b>	
	METTUR WORKSHOP CIRCLE	
	CHENNAI DEVELOPMENT CIRCLE	

RAJESH LAKHONI,  
SECRETARY TO GOVERNMENT.

//TRUE COPY//

SECTION OFFICER