# GUJARAT ELECTRICITY REGULATORY COMMISSION

**Tariff Order**

Truing up for FY 2015-16,
Determination of Final ARR for FY 2016-17,
Approval of ARR for FY 2016-17 to FY 2020-21 and
Determination of Tariff for FY 2017-18

**For**

TORRENT POWER LIMITED - GENERATION
AHMEDABAD

**Case No. 1626 of 2016**
**9th June, 2017**

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# GUJARAT ELECTRICITY REGULATORY COMMISSION (GERC)

## GANDHINAGAR

**Tariff Order**

Truing up for FY 2015-16,

Determination of Final ARR for FY 2016-17,

Aggregate Revenue Requirement for FY 2016-17 to FY 2020-21

And Determination of Tariff for FY 2017-18

For

# Torrent Power Limited (TPL)-Generation Ahmedabad

**Case No. 1626 of 2016**

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# ABBREVIATIONS

| | |
|---|---|
| A&G | Administration and General Expenses |
| ARR | Aggregate Revenue Requirement |
| CAPEX | Capital Expenditure |
| CERC | Central Electricity Regulatory Commission |
| DISCOM | Distribution Company |
| EA | Electricity Act, 2003 |
| FPPPA | Fuel and Power Purchase Price Adjustment |
| FY | Financial Year |
| GERC | Gujarat Electricity Regulatory Commission |
| GFA | Gross Fixed Assets |
| GoG | Government of Gujarat |
| HT | High Tension |
| kV | Kilo Volt |
| kVA | Kilo Volt Ampere |
| kVAh | Kilo Volt Ampere Hour |
| kWh | Kilo Watt Hour |
| LT | Low Tension |
| MTR | Mid-Term Review |
| MUs | Million Units (Million kWh) |
| MW | Mega Watt |
| MYT | Multi-Year Tariff |
| O&M | Operations and Maintenance |
| p.a. | Per Annum |
| PPA | Power Purchase Agreement |
| R&M | Repairs and Maintenance |
| SBI | State Bank of India |
| Second Control Period | FY 2011-12 to FY 2015-16 |
| SLDC | State Load Despatch Centre |
| Third Control Period | FY 2016-17 to FY 2020-21 |

# Before the Gujarat Electricity Regulatory Commission at Gandhinagar

## Case No. 1626 of 2016

**Date of the Order: 09.06.2017**

**CORAM**

Shri Anand Kumar, Chairman
Shri K. M. Shringarpure, Member
Shri P.J. Thakkar, Member

## ORDER

# 1 Background and Brief History

## 1.1 Background

Torrent Power Limited (hereinafter referred to as TPL or the petitioner) has filed petition under Section 62 of the Electricity Act, 2003, read in conjunction with Gujarat Electricity Regulatory Commission (Multi-Year Tariff) Regulations, 2011, for the True-up of FY 2015-16, Aggregate Revenue Requirement for FY 2016-17 to FY 2020-21 and for determination of tariff for its generation business at Ahmedabad for the FY 2017-18 on 30th November, 2016.

After technical validation of the petition, it was registered on 3rd December, 2016 and as provided under Regulation 29.1 of GERC MYT Regulations, 2016, the Commission has proceeded with this tariff order.

## 1.2 Torrent Power Limited (TPL)

Torrent Power Limited (TPL) is a company incorporated under the Companies Act, 1956 is carrying on the business of Generation and Distribution of Electricity in the cities of Ahmedabad, Gandhinagar and Surat. The present petition has been filed by TPL-Generation (Ahmedabad) for its generation business in Ahmedabad.

TPL had assumed the business, consequent upon the amalgamation of Torrent Power Ahmedabad Limited (TPAL), Torrent Power Surat Limited (TPSL) and Torrent Power Generation Limited (TPGL) with Torrent Power Limited. Besides, TPL is also engaged in other businesses, which do not come under the regulatory purview of the Commission.

TPL has existing generation facilities, with a total installed capacity of 422 MW, at Ahmedabad and has a Combined Cycle Power Plant (CCPP) of 1147.5 MW (SUGEN) capacity near Surat out of which a share of 835 MW. The generation facilities at Ahmedabad consist of a 422 MW coal based Thermal Power Plant at Sabarmati and a 100 MW gas based CCPP at Vatva, which has since been retired from 31.03.2014.

## 1.3 Commission's Order for the Second Control Period

TPL filed its petition under the Multi-Year Tariff Framework for the control period from FY 2011-12 to FY 2015-16 on 24th February, 2011, in accordance with Gujarat Electricity Regulatory Commission (Multi-Year Tariff Framework) Regulations, 2007, notified by the Commission.

The Commission issued the new MYT Regulations, notified as GERC (Multi-Year Tariff) Regulations, 2011, on March 22, 2011.

Regulation 1.4 (a) of GERC (Multi-Year Tariff) Regulations, 2011 reads as under:

*"These Regulations shall be applicable for determination of tariff in all cases covered under these Regulations from 1st April, 2011 and onwards."*

The Commission, in exercise of the powers vested in it under Sections 61, 62 and 64 of the Electricity Act, 2003, and all other powers enabling it in this behalf, and after taking into consideration the submissions made by TPL, the objections by various stakeholders, response of TPL, issues raised during the public hearing and all other relevant material, issued the Multi-Year Tariff order on 6th September, 2011 for the control period from FY 2011-12 to FY 2015-16, based on the GERC (MYT) Regulations, 2011. The Commission issued the following Orders on the dates shown against each:

- For truing up for FY 2010-11 and Tariff determination for FY 2012-13 on 2nd June, 2012.
- For truing up for FY 2011-12 and Tariff determination for FY 2013-14 on 16th April, 2013.

## 1.4 Commission's Orders for Mid-term Review of Business plan for TPL-G (APP)

TPL filed its Petition for Mid-term Review of Business Plan and revision of ARR for balance years for FY 2014-15 and FY 2015-16 of the control period in terms of Regulation 16.2(i) of GERC (MYT) Regulations, 2011.

The Commission in exercise of the powers vested in it under Sections 61, 62 and 64 of the Electricity Act, 2003 and all other powers enabling it in this behalf and after taking into consideration the submission made by TPL, the objections by various stakeholders, response of TPL, issues raised during public hearing and all other relevant material, approved the revised ARR for FY 2014-15 and FY 2015-16 in the Mid-term Review of Business Plan for TPL on 29th April, 2014.

The Commission issued the order for truing up for FY 2012-13 and determination of Tariff for FY 2014-15 on 29th April, 2014.

The Commission issued the order for truing up for FY 2013-14 and determination of Tariff for FY 2015-16 on 31st March, 2015.

The Commission in its order dated 2nd December, 2015, on the Petition No. 1534/2015 stated that the Commission has decided that the approved ARR of FY 2015-16 of the licensees / generating companies concerned be considered as provisional ARR of the licensees / generating companies for FY 2016-17.

The Commission also decided that the licensees / generating companies shall file the ARR for FY 2016-17 based on the MYT Regulations for FY 2016-17 to FY 2020-21 and the true up for the same shall also be governed as per the new MYT Regulations. It was also decided that the licensees / generating companies shall file the petition for determination of ARR and tariff for FY 2016-17 and true-up for FY 2014-15 within 3 weeks from the date of issuance of this order for Commission's consideration and decision.

Accordingly, the petitioner filed its petition for Truing-up of FY 2014-15 and determination of tariff for FY 2016-17 on 23rd December, 2015. The petition was registered on 28th December, 2015. The Commission approved the provisional ARR vide order dated 31st March, 2016, and the tariff for FY 2016-17 was determined accordingly.

## 1.5 Background for the present Petition

The Regulation 16.2 (iii) of the MYT Regulations, 2011 provides for the truing up of previous year's expenses and revenue based on audited accounts vis-à-vis the approved forecast and categorization of variation in performance as those caused by factors within the control of the applicant (controllable factors) and those caused by factors beyond the control of the applicant (uncontrollable factors).

Subsequently, the Commission has notified the GERC (MYT) Regulations, 2016 for the control period of FY 2016-17 to FY 2020-21. The Regulation 16.2 (i) of the GERC MYT Regulations, 2016 provides for filing a Multi-Year Tariff Application comprising the forecast of Aggregate Revenue Requirement (ARR) for the entire Control Period.

## 1.6 Registration of the Current Petition and the Public Hearing Process

The Petitioner submitted the current Petition for Truing–up of FY 2015-16, determination of final ARR for FY 2016-17, determination of ARR for the 3rd Control Period from FY 2016-17 to FY 2020-21 and determination of tariff for FY 2017-18 on 29th November, 2016. The above petition (Case No. 1626 of 2016) was registered on 3rd December, 2016.

In accordance with Section 64 of the Electricity Act, 2003, TPL was directed to publish its application in an abridged form to ensure public participation.

The Public Notice, inviting objections / suggestions from its stakeholders on the petition filed by TPL, was published in the following newspapers.

| Sl. No. | Name of Newspaper | Language | Date of Publication |
|---|---|---|---|
| 1 | The Indian Express (Ahmedabad Edition) | English | 09/12/2016 |
| 2 | Sandesh (Ahmedabad & Surat Editions) | Gujarati | 09/12/2016 |
| 3 | Gujarat Samachar (Ahd. & Surat Editions) | Gujarati | 09/12/2016 |
| 4 | Divya Bhaskar (Ahd. & Surat Editions) | Gujarati | 09/12/2016 |
| 5 | NavGujarat Samay (Ahmedabad Edition) | Gujarati | 09/12/2016 |
| 6 | Gujarat Mitra (Surat Edition) | Gujarati | 09/12/2016 |
| 7 | Gujarat Guardian (Surat Edition) | Gujarati | 09/12/2016 |

The Petitioner also placed the public notice and the petition on its website (www.torrentpower.com) for inviting objections and suggestions on the petition.

The interested parties / stakeholders were asked to file their objections / suggestions on the petition on or before 9th January, 2017.

The Commission received objections / suggestions from consumers / consumer organizations as shown in the Table below. The Commission examined the objections / suggestions received from the stakeholders and fixed the date for public hearing for the petition on 10th February, 2017 at the Commission's Office, Gandhinagar and subsequently a communication was sent to the objectors to take part in the public hearing process for presenting their views in person before the Commission. The Commission received request from one stakeholder to postpone the date of public hearing and considering the request, the Commission fixed second date of public hearing for the petition on 14th February, 2017. The public hearing was conducted in the Commission's Office at Gandhinagar as scheduled on the above dates.

The status of stakeholders who submitted their written suggestion / objections, those who remained present in public hearing, those who could not attend the public hearings and those who made oral submissions is given in the Table below:

| Sr. No. | Name of Stakeholders | Written Submission | Oral Submission | Present on 10.02.2017 | Present on 14.02.2017 |
|---|---|---|---|---|---|
| 1. | Akhil Gujarat Grahak Sewa Kendra | Yes | No | No | No |
| 2. | K.K. Bajaj | Yes | Yes | Yes | No |
| 3. | Aam Aadmi Party, Gujarat | Yes | Yes | Yes | Yes |
| 4. | Shree Chhatrapati Shivaji Charitable Trust | Yes | Yes | Yes | No |
| 5. | Gandhinagar Shaher Vasahat Mahamandal | Yes | No | No | No |
| 6. | Shri Gujarat Vijdi Contractor Mandal | Yes | Yes | Yes | No |
| 7. | Sushrut Orthopaedic Hospital Pvt. Ltd. | Yes | No | No | No |
| 8. | Om Skin Care & Cosmetic Clinic | Yes | No | No | No |
| 9. | Green Cross Pathology Laboratory - Naroda | Yes | No | No | No |
| 10. | Aashirwad Hospital | Yes | No | No | No |
| 11. | Krishna Surgical Hospital | Yes | No | No | No |
| 12. | Parvati Jadav Hospital | Yes | Yes | Yes | No |
| 13. | Chirayu Hospital | Yes | No | No | No |
| 14. | Aarogya Children & Dental Hospital | Yes | No | No | No |
| 15. | Shrinagar (Saijpur) Co. Op. Housing Society Ltd. & 30 Others | Yes | Yes | Yes | No |
| 16. | Utility Users' Welfare Association (UUWA) | Yes | Yes | Yes | No |
| 17. | Jankalyan Foundation | Yes | No | No | No |

| | | | | | |
|---|---|---|---|---|---|
| 18. | Laghu Udyog Bharti - Gujarat | Yes | Yes | No | Yes |
| 19. | R.G. Tillan | No | Yes | No | Yes |

A note on the main issues raised by the objectors in the submissions with respect to the petition along with the response of TPL-G (APP) and the Commission's views on the response are given in Chapter 3.

The Commission also note that the Utility Users' Welfare Association (UUWA) and others have separately filed the petition regarding admissibility and maintainability of this MYT Petition. The Commission initiated hearing in the matters filed by UUWA and others.

Further, as per Section 64 of the Act, the Commission shall require to pass the tariff orders within 120 days from the receipt of the tariff petitions. It is also necessary as per GERC (MYT) Regulations, 2011 and 2016 notified by the Commission.

Moreover, the Hon'ble APTEL vide order dated 11.11.2011 in OP No. 1 of 2011 decided and directed to all SERCs that "It should be the endeavour of every State Commission to ensure that the tariff for the financial year is decided before 1st April of every tariff year."

In view of the above, we decide to issue Orders in this MYT petition of TPL subject to final outcome of the petition filed by UUWA and others.

## 1.7 Contents of this Order

The Order is divided into six chapters as detailed under:-

The first chapter provides a brief background regarding the Petitioner, the petition on hand and details of the public hearing process and approach adopted in this Order.

The second chapter outlines the summary of TPL's Petition.

The third chapter deals with the public hearing process, including the objections raised by various stakeholders, TPL's response and Commission's views on the response.

The fourth chapter focuses on the details of truing up for FY 2015-16.

The fifth chapter deals with the determination of ARR for FY 2016-17 to FY 2020-21.

The sixth chapter deals with compliance of directives and issue of fresh directives.

## 1.8 Approach of this Order

The GERC (MYT) Regulations, 2011, provide for “Truing up” of the previous year and determination of tariff for the ensuing year. The Commission has approved ARR for five years of the control period of FY 2011-12 to FY 2015-16 in the MYT Order dated 6th September, 2011 and the revised ARR for FY 2014-15 and FY 2015-16, based on Mid-term Review of the Business Plan vide MTR Order dated 29th April, 2014.

The Commission, vide suo-motu order dated 02.12.2015 in Petition No. 1534/2015 decided to consider approved ARR of FY 2015-16 in Mid-Term Review order dated 29.04.2014 as provisional ARR for FY 2016-17 for determination of tariff for FY 2016-17 in view of delay in finalization of final GERC (Multi-Year Tariff) Regulations for the third Control Period i.e. FY 2016-17 to FY 2020-21. It was also decided in the said order that Generating Companies, Transmission Licensees and Distribution Companies shall file final ARR for FY 2016-17 based on the new GERC (Multi-Year Tariff) Regulations, 2016 and truing up of the same shall be governed in accordance with new GERC (Multi-Year Tariff) Regulations, 2016.

The GERC (Multi-year Tariff) Regulations, 2016 provides for determination of ARR for the third Control Period i.e. FY 2016-17 to FY 2020-21 and determination of tariff for FY 2017-18.

TPL has approached the Commission with the present Petition for “Truing up” of the FY 2015-16, determination of final ARR for FY 2016-17, determination of ARR for the third control period i.e. FY 2016-17 to FY 2020-21 and determination of tariff for the FY 2017-18.

In this Order, the Commission has considered the “Truing up” for the FY 2015-16, as per GERC (MYT) Regulations, 2011.

The Commission has undertaken “Truing up” for the FY 2015-16, based on the submissions of the Petitioner. The Commission has undertaken the computation of gains and losses for the FY 2015-16, based on the audited annual accounts.

While truing up for 2015-16, the Commission has been primarily guided by the following principles:

1. Controllable parameters have been considered at the level approved under the MYT Order, unless the Commission considers that there are valid reasons for revision of the same.
2. Un-controllable parameters have been revised, based on the actual performance observed.

The truing up for the FY 2015-16 has been considered, based on the GERC (MYT) Regulations, 2011. For the determination of the ARR for FY 2016-17 to FY 2020-21, the Commission has considered GERC (MYT) Regulations, 2016 and its Amendment thereof as the base.

# 2 A Summary of TPL's Petition

## 2.1 Actuals for FY 2015-16 submitted by TPL-G (APP)

Torrent Power Limited (TPL) submitted the current petition seeking approval of True-up for ARR of FY 2015-16. The details of expenses under various heads of ARR are given in Table below:

**Table 2.1: Actuals claimed by TPL for FY 2015-16**

**(Rs Crore)**

| Sr. No. | Particulars | True-Up Year (2015-16) | | |
|---|---|---|---|---|
| | | MTR Order | Claimed in Petition | Deviation |
| | | (a) | (b) | (c) = (b) - (a) |
| 1 | Fuel Related Expenses | 801.31 | 728.28 | -73.03 |
| 2 | Operation & Maintenance Expenses | 141.86 | 123.41 | -18.45 |
| 2.1 | Water Charges | 8.37 | 12.28 | 3.91 |
| 3 | Depreciation | 44.70 | 48.96 | 4.26 |
| 4 | Interest Expenses / Interest & Finance Charges on Loan Capital | - | 17.39 | 17.39 |
| 5 | Interest on Working Capital | 17.96 | 16.63 | -1.33 |
| **6** | **Total Revenue Expenditure** | 1,014.20 | 946.95 | -67.25 |
| 7 | Add: Return on Equity | 44.95 | 59.73 | 14.77 |
| 8 | Add:Income Tax | 18.51 | 15.77 | -2.74 |
| 9 | Add: Incentive | - | 34.61 | 34.61 |
| 10 | Less: Non-Tariff Income | 25.25 | 17.43 | -7.82 |
| **11** | **Aggregate Revenue Requirement** | **1,052.41** | **1,039.63** | **-12.78** |

## 2.2 ARR for 3rd Control Period from FY 2016-17 to FY 2020-21

TPL, in its petition, has also furnished the ARR for the period FY 2016-17 to FY 2020-21 which is depicted below.

**Table 2.2: ARR as claimed by TPL for FY 2016-17 to FY 2020-21**

**(Rs Crore)**

| Sr. No. | Particulars | MYT Control Period | | | | |
|---|---|---|---|---|---|---|
| | | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| | | Projected | Projected | Projected | Projected | Projected |
| 1 | Fuel Related Expenses | 812.21 | 786.98 | 786.90 | 788.48 | 803.81 |
| 2 | Operation & Maintenance Expenses | 157.77 | 166.80 | 176.34 | 186.43 | 197.09 |
| 2.1 | Water Charges | 13.50 | 14.85 | 16.34 | 17.97 | 19.77 |
| 3 | Depreciation | 49.79 | 52.32 | 53.31 | 54.74 | 57.96 |
| 4 | Interest Expenses / Interest & Finance Charges on Loan Capital | 11.77 | 8.70 | 4.44 | 0.99 | - |
| 5 | Interest on Working Capital | 14.92 | 14.68 | 14.80 | 14.94 | 15.33 |
| **6** | **Total Revenue Expenditure** | 1,059.97 | 1,044.34 | 1,052.13 | 1,063.55 | 1,093.96 |
| 7 | Add: Return on Equity | 60.79 | 62.22 | 63.13 | 64.37 | 66.97 |
| 8 | Add: Income Tax | 15.77 | 15.77 | 15.77 | 15.77 | 15.77 |
| 9 | Less: Non-Tariff Income | 13.29 | 10.92 | 10.92 | 10.92 | 10.92 |
| **10** | **Aggregate Revenue Requirement** | **1,123.23** | **1,111.40** | **1,120.11** | **1,132.77** | **1,165.78** |

## 2.3 TPL's request to the Commission

a) Admit the petition for truing up of FY 2015-16 and determination of ARR for FY 2016-17 to FY 2020-21

b) Approve the trued-up ARR of FY 2015-16.

c) Approve the sharing of gains/losses as proposed for FY 2015-16.

d) Approve the ARR for FY 2016-17 to FY 2020-21.

e) Approve the cumulative Gap / (Surplus).

f) Allow recovery of the costs as per the Judgments of the Hon'ble Tribunal on the Appeals filed by the Petitioner.

g) Allow additions / alterations / changes / modifications to the application at a future date.

h) Permit the Petitioner to file all necessary pleading and documents in the proceeding and documents from time to time for effective consideration of the proceeding.

i) Allow any other relief, order or direction that the Commission deems fit to be issued.

j) Condone any inadvertent omissions / errors / rounding off difference / shortcomings.

# 3 Stakeholder's suggestions/objections, Petitioner's response and the Commission's view

In response to the public notice inviting objections / suggestions from stakeholders on the Petition filed by TPL-G for Truing up of FY 2015-16 under GERC (MYT) Regulations, 2011 and determination of ARR for FY 2016-17 to FY 2020-21 under GERC (MYT) Regulations, 2016, a number of Consumers / organizations filed their objections / suggestions in writing. Some of these objectors participated in the public hearing also. The objections / suggestions by the consumer / consumers organizations, the response from the Petitioner and the views of the Commission are given below:

### 3.1.1 Low PLF

**Objection:**

i) PLF of the station are lower, even though R&M has been completed

ii) No requirement of CAPEX for C-station at Ahmedabad generating facility

**Response of TPL**

The lower PLF of 'C' station is on account of lower off-take; which is beyond the control of the Petitioner. Further, due to lower PLF, it is a well-established fact that it reflects higher auxiliary consumption percentage and higher SHR.

The Petitioner has stated that to ensure smooth and consistent operations with higher level of efficiency considering the size and vintage of the plant, only that capital expenditure which is necessary has been proposed to be incurred in the MYT period. The Petitioner further mentioned that regarding the environmental norms, representations are being made before the Ministry of Environment & Forests (MoEF) to grant relief under these norms. Since the matter is yet to be decided by the MoEF, the Petitioner has not considered any CAPEX towards modifications required for complying with the MoEF notification in the present petition. And that the Petitioner shall approach the Hon'ble Commission at appropriate stage in this regard.

**Commission's view**

The Commission has directed TPL to explore the possibility of decommissioning C Station at the earliest and no costs on account C Station are allowed from FY 2018-19 onwards.

### 3.1.2 Accounting statements are not as per regulations

**Objection: Account Statements with the petitions are not as per the MYT Regulations**

The Objector has alleged that the audited accounts are not maintained by the Petitioner for separate units or in segment-wise manner as per the Companies Act, 1956. It has further alleged that the Petitioner's accounts need to be audited by CAG as it is loading expenses of its other businesses in Ahmedabad/ Gandhinagar and Surat Supply Area.

**Response of TPL**

The Petitioner has clarified that separate accounts are being maintained for Regulated businesses and the same have been furnished, duly verified by the Statutory Auditors' of the Company. The Petitioner prepares and maintains the accounts in accordance with the Accounting Standards issued by the Institute of Chartered Accountants of India. Further, the Accounting Statement of the Petitioner is prepared in line with the Companies Act and duly verified by the Statutory Auditor of the Company. The Petitioner has submitted that all the requisite information for the present proceedings is already provided in accordance with the GERC MYT Regulations.

**Commission's view**

The Commission has noted the objection and response of the Petitioner. The true-up petition filed by the Petitioner as per the provisions of GERC (MYT) Regulations, 2011 is examined with reference to the relevant Regulations and Annual Accounts submitted by the Petitioner to arrive at the gains/ loss.

The utility has provided the accounts for Ahmedabad, Surat, Dahej and TPL-G separately.

### 3.1.3 High tariff despite of fuel price reduction

**Objection:**

i) High tariff despite fall in International Crude Oil Prices

ii) The generation cost is higher than the market price

iii) The generation cost is high as compared to GUVNL & Power Exchange

The Objector has questioned the high price of power even when the fuel prices have reduced in such power surplus state of Gujarat.

**Response of TPL**

The Petitioner has submitted that it is entrusted with the obligation of supplying electricity in its areas of supply. The State and Central Commission's Regulations specified under the EA, 2003 provides for long term arrangement between the generator and distribution licensee for supply of electricity at regulated tariff irrespective of market fluctuations. In the Regulatory regime, the generating station has two part tariff structure i.e. Capacity Charge and Energy Charge. The distribution licensee is liable to pay the fixed cost spread over its life in accordance with the provisions of the Regulations irrespective of the level of utilization. The Petitioner's gas based plants was not fully utilized because fuel was not allocated by Government of India due to lower availability of domestic gas in the scenario of unexpected reduction in production of gas from KG basin. These are the factors which are beyond the control of the Petitioner. Further, the determination of capacity charges and its payment is in accordance with the Regulations of the Commission. It is not correct to compare the cost of power available on Power Exchange with the committed power arranged by licensee to ensure reliable and quality power to its consumer on long-term basis.

The Petitioner further submitted that it is making all efforts to source power at competitive rate but the cost of power purchase depends upon various factors including quantum, period and market conditions. The Petitioner further states that the variation in the fuel and power purchase cost are beyond the control of the licensee.

**Commission's view**

The Commission is of the view that the price of petroleum products as well as coal is subjected to market fluctuations. The Commission has done all necessary prudence check before approving any tariff.

The Commission, however, is in agreement with the objector that the price of power from exchange or market is lower than the rate at which TPL-D procures power from TPL-G. However, this cannot be compared with generation cost of TPL-G since TPL-G is an embedded generation power plant providing long term reliability irrespective of any market demand conditions. Besides, it also islands Ahmedabad and Surat from the grid thereby ensuring the continuous supply irrespective of western region grid condition.

### 3.1.4 SLDC Scheduling

**Objection: TPL does not schedule its generation**

The Objector has requested the Commission to direct the scheduling to be done through SLDC.

**Response of TPL**

The Petitioner has submitted that it is an integrated utility having its own generation and it duly schedules power requirements at Ahmedabad and Surat supply areas through SLDC in accordance with the Regulations notified by the Hon'ble Commission. However, the Ahmedabad Generation, being embedded generation, all data is made available to SLDC.

**Commission's view**

The Commission has noted the objector's request and the response of the Petitioner and has issued appropriate directive to TPL in this regard in the present order.

### 3.1.5 Maintainability of Petition

**Objection: The petition is not maintainable and the Commission cannot decide the tariff on cost plus basis as there is no legal relationship between TPL-Generation and TPL-Distribution**

The Objector has observed that there is no power purchase agreement between TPL-G (APP) and TPL-D which is in contravention to the provisions of the Electricity Act, 2003. And that TPL-G (APP) is a separate legal entity as per the provisions of EA, 2003.

**Response of TPL**

The Petitioner has denied the allegations made by the Objector. The Petitioner further submitted that TPL-G (APP) is the embedded generation and is the approved source of power purchase. The Petitioner would like to submit that it has filed the tariff petitions for its Generation Facilities at Ahmedabad and Distribution businesses of Ahmedabad-Gandhinagar and Surat Supply Areas as per the Regulations notified by the Commission from time to time.

The Petitioner further submits that it prepares and maintains the accounts as per the Accounting Standards specified by the Institute of Chartered Accountants of India in accordance with the Companies Act. The segregated Accounting Statements for the FY 2015-16, duly certified by the Statutory Auditors of the Company, have also been made available along with the Petition.

**Commission's view**

Section 62 of the Act mandates the Commission to determine tariff.

Moreover, though the generation business is de-licensed, the generation tariff is determined by the Commission as the power is supplied to a distribution licensee. As mentioned earlier, the tariff is approved by the Commission after detailed scrutiny.

### 3.1.6 Depreciation

**Objection: Not allow any depreciation without any basis**

The Objector submitted that the depreciation should not be allowed without any basis for the assets which have completed the life of 25 years or more than that.

**Response of TPL**

The Petitioner has submitted that it has provided the details of depreciation in the petition.

The same does not amount to any higher recovery of depreciation and has no negative implication to the consumers. It is as per the accounts being maintained for Regulated business and the same has been furnished, duly verified by the Statutory Auditors of the Company

**Commission's view**

The Commission allows depreciation as per the Regulations.

### 3.1.7 Recovery of fixed charge for Unit C

**Objection: It has recovered full fixed charge with incentive, even though the PAF of C Station is 99.5%, whereas the PLF is 9%**

The Objector has submitted that fixed cost from C station was recovered by not declaring availability to SLDC. The Objector has alleged the Petitioner is being awarded incentives in spite of non-achievement of the approved targets.

**Response of TPL**

The Petitioner has submitted that the Commission allows treatment to various parameters in accordance with the provisions of the GERC MYT Regulations. Regarding retirement of its generating stations, the Petitioner submits that it appreciates the concerns of the objector and will exercise the necessary business prudence.

The Petitioner further submits that PLF of any station depends on actual system demand which in turn depends upon the drawal by the consumers which is beyond the control of the Petitioner. Further, the Petitioner has scheduled less power from C station due to high variable cost. Therefore, the overall PLF at Sabarmati Power Station is lower.

**Commission's view**

Incentive is allowed by the Commission based on the provisions of MYT Regulations. The PAF submitted by TPL to the Commission has been endorsed by SLDC. Regarding C station, the Commission has advised TPL to explore the possibility of decommissioning the station at the earliest. However, from FY 2018-19, the fixed cost of C station is not approved by the Commission.

### 3.1.8 PSDF Funds

**Objection: PSDF fund has not been used for the benefit of the consumers.**

The Objector has alleged that the PSDF fund has not been used for the benefit of the consumers

**Response of TPL**

The Petitioner has submitted that it has procured power under the E-bid RLNG Scheme for Utilization of Gas based Power Generation Capacity. Further, the PSDF Support was made available by the GOI to the Generator under E-bid RLNG Scheme for Utilization for Gas based Power Generation Capacity and the DISCOM was merely a conduit for receiving the money from Government of India. Accordingly, PSDF support is passed on to the e-bid Generator. For the SUGEN Plant, the benefit of the RLNG Scheme in terms of reduction in variable cost has been passed on to the Consumers through quarterly FPPPA. In respect of DGEN and UNOSUGEN Plants, the benefit of the RLNG Scheme is passed on by way of Power Procurement at prices lower than the price at which the Distribution Licensee was procuring electricity from GUVNL. Thus, the benefits of reduction in power purchase cost by procuring power under e-bid RLNG Scheme has been passed on to the consumers through FPPPA by reduction in power purchase cost during FY 2015-16.

**Commission's view**

The issue of PSDF scheme has been dealt by the Commission in the Tariff Order of TPL D for FY 2017-18n.

# 4 Truing up for FY 2015-16

## 4.1 Introduction

This chapter deals with the truing up of FY 2015-16 for TPL-G Ahmedabad Power Plant (APP).

The Commission has studied and analysed each component of the ARR for the FY 2015-16 in the following paragraphs.

## 4.2 Generating Stations of TPL-G (APP)

TPL has existing power generation facilities with total installed capacity of 422 MW at Ahmedabad [TPL-G (APP)] that consist 4 units viz. C-Station (60 MW), D-Station (120 MW), E-Station (121 MW) and F-Station (121 MW) - coal based thermal power plant at Sabarmati. TPL had also commissioned a combined cycle power plant (CCPP) of 1147.5 MW (SUGEN) at Akhakhol village near Surat in FY 2009-10. For its distribution business, TPL sources power from its own generation facilities in Ahmedabad, SUGEN (to the extent of 835 MW) and balance from other sources.

The Commission is required to determine the generation cost for the TPL-G (APP) stations. The generation costs of these stations are discussed as below:

The details of the stations existing as on 1st April 2015 along with their capacities and dates of commission are given in the table below:

**Table 4.1: Capacity, COD and age of TPL-G (APP) Stations as on 1st April 2015**

| Name of the station | Capacity in MW | Year of COD | Age/ Years |
|---|---|---|---|
| **Sabarmati Thermal Power Plant (Coal based)** | | | |
| C Station | 2X30MW | 1961/1997*<br>*(Year of turbine retrofitting) | 56 |
| D Station | 1X120MW | 1978/2004*<br>*(Uprating capacity) | 38 |

| Name of the station | Capacity in MW | Year of COD | Age/ Years |
|---|---|---|---|
| E Station | 1X110MW | 1984 | 32 |
| F Station | 1X110MW | 1988 | 28 |

## 4.3 Operational Performance Parameters

The fuel cost of a generation station depends on (i) the performance parameters, such as Plant Load Factor (PLF), Station Heat Rate (SHR), Auxiliary Consumption, Secondary Fuel Oil Consumption and Transit Loss and cost parameters such as Gross Calorific Value of fuel, type of fuel and price of fuel etc.

TPL has submitted the actual operational performance on Plant Availability Factor (PAF), Plant Load Factor (PLF), Station Heat Rate (SHR), Auxiliary Consumption and Specific Oil Consumption and coal transit loss for FY 2015-16 for the individual stations. The Commission has taken up the truing up of the annual performance parameters for FY 2015-16, which are discussed in the following sections.

### 4.3.1 Plant Availability Factor (PAF)

**Petitioner's submission**

TPL has submitted the actual plant availability factor for its four stations for FY 2015-16. The PAF approved in the MTR Order dated 29th April, 2014 and the actuals as furnished by TPL in the present petition for FY 2015-16 are given in the Table below:

**Table 4.2: Plant Availability Factor of TPL-G (APP) for FY 2015-16**

**(%)**

| Sl. No. | Station | Approved for FY 2015-16 in the MTR Order | Actuals for FY 2015-16 |
|---|---|---|---|
| 1 | C Station | 84.20 | 99.43 |
| 2 | D Station | 93.50 | 95.56 |
| 3 | E Station | 93.50 | 94.15 |
| 4 | F Station | 94.84 | 95.30 |

| Sl. No. | Station | Approved for FY 2015-16 in the MTR Order | Actuals for FY 2015-16 |
|---|---|---|---|
| | **TPL-G(APP)** | **92.56** | **95.63** |

TPL has submitted that at the time of filing of the MTR petition, the estimated availability of the units was based on the annual planned maintenance schedule. The variation in plant availability at all units except C station is marginal. The reason for major variation in actual and approved availability for the C generating station is on account of the project of turbine overhauling being put on hold which has resulted in higher availability.

**Commission's Analysis**

It is found in the analysis that the PAF level is higher than the approved levels of the last MTR Order for all stations of TPL-G. It may be mentioned that, according to Regulation 54.1 of GERC (MYT) Regulations, 2011, Normative Annual Plant Availability Factor for full recovery of annual fixed charges shall be 85% for all thermal generating stations. Since the actual PAF for all the stations of TPL, has been more than 85%, they are eligible for recovery of fixed charges, as per GERC (MYT) Regulations, 2011.

**The Commission considers the Plant Availability Factor for various stations, as in the MTR Order dated 29th April, 2014, for FY 2015-16, for truing up purpose, since this is a controllable parameter.**

Hence, for truing up for the FY 2015-16, the PAF level considered is as given in the Table below:

**Table 4.3: Plant Availability Factor of TPL-G (APP) approved for truing up for FY 2015-16**

**(%)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 | Considered for truing up for 2015-16 |
|---|---|---|---|---|
| 1 | C Station | 84.20 | 99.43 | 84.20 |
| 2 | D Station | 93.50 | 95.56 | 93.50 |
| 3 | E Station | 93.50 | 94.15 | 93.50 |
| 4 | F Station | 94.84 | 95.30 | 94.84 |

### 4.3.2 Plant Load Factor (PLF)

**Petitioner's submission**

TPL has submitted the actual plant load factor (PLF) of different stations for FY 2015-16. The PLF approved in the MTR Order dated 29th April, 2014 and the actuals, as furnished by TPL in the present petition, are given in the Table below:

**Table 4.4: Plant Load Factor of TPL-G (APP) for FY 2015-16**

**(%)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 |
|---|---|---|---|
| 1 | C Station | 69.35 | 9.83 |
| 2 | D Station | 75.12 | 73.48 |
| 3 | E Station | 76.13 | 72.82 |
| 4 | F Station | 78.56 | 76.30 |

It is submitted that the Commission in its MTR order had approved the projection of PLF for different stations as projected by the Petitioner. The actual PLF was lower as compared to approved PLF. The variation in PLF was mainly on account of higher backing down. The major variation between approved and actual is noticed in C station which was operated under reserved shutdown during the year due to lower offtake by TPL-D.

It is submitted that PLF is dependent on actual system demand which in turn depends upon the drawal by the consumers of the licensee which is beyond the control of the Petitioner. Therefore, the variation in the PLF is uncontrollable.

**Commission's Analysis**

The Commission has taken note of the abnormal reduction in PLF for C Station. For the D, E & F Stations, the PLF achieved is marginally less than that approved in the MTR Order.

Regarding the low PLF of C station, Commission understands the fact that due to low demand from TPL-D, the unit was not run, however at the same time, the Commission is apprehensive about the fact that C station has been maintained at 99.43%, thereby making it eligible for fixed cost recovery although no real utilization of the unit has been done. Commission has also noted that C station has completed 56 years of its project life, and considering there would not be much increase in demand from the distribution utilities, it would remain notionally available and lead to certain fixed cost recovery every year. Hence, Commission is of the view that TPL-G(APP) may explore the possibility of decommissioning C Station at the earliest.

**The Commission considers the Plant Load Factor for various stations at actuals for FY 2015-16, for truing up purposes, as it is an uncontrollable parameter.**

**Table 4.5: Plant Load Factor of TPL-G (APP) approved for truing up for FY 2015-16**

**(%)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 | Approved for truing up |
|---|---|---|---|---|
| 1 | C Station | 69.35 | 9.83 | 9.83 |
| 2 | D Station | 75.12 | 73.48 | 73.48 |
| 3 | E Station | 76.13 | 72.82 | 72.82 |
| 4 | F Station | 78.56 | 76.30 | 76.30 |

### 4.3.3 Auxiliary consumption

**Petitioner's submission**

TPL has submitted the actual auxiliary consumption of different stations for FY 2015-16.

The Petitioner has submitted that it has made continuous efforts to maintain the auxiliary consumption at approved levels but the actual auxiliary consumption was higher than the approved value due to variation in demand. The Petitioner claimed that it had to operate its plants at lower level during the lower demand hours which resulted in the increase in Auxiliary consumption percentage.

The Petitioner submitted that the variation in Auxiliary consumption due to variation in system demand should be considered as uncontrollable. However, in the present petition for the purpose of quantification of gains/loss, the Petitioner has considered the entire variation in Auxiliary consumption as controllable parameter.

For FY 2015-16, the approved & actual Auxiliary Consumption is detailed in the following

Table:

**Table 4.6: Auxiliary consumption of TPL-G (APP) for FY 2015-16**

**(%)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 |
|---|---|---|---|
| 1. | C Station | 9.50 | 11.71 |
| 2. | D Station | 9.00 | 9.30 |
| 3. | E Station | 9.00 | 8.92 |
| 4. | F Station | 9.00 | 9.27 |

**Commission's Analysis**

It is noted that, except for the E station, the actual Auxiliary Consumption is higher than what is approved in the MTR Order.

**The Commission approves the auxiliary consumption for various stations, as approved in the MTR Order dated 29th April, 2014 for FY 2015-16, for truing up purpose, as it is a controllable parameter as given in the Table below :**

**Table 4.7: Auxiliary consumption of TPL-G (APP) approved for truing up for FY 2015-16**

**(%)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 | Approved for 2015-16 for truing up |
|---|---|---|---|---|
| 1 | C Station | 9.50 | 11.71 | 9.50 |
| 2 | D Station | 9.00 | 9.30 | 9.00 |
| 3 | E Station | 9.00 | 8.92 | 9.00 |
| 4 | F Station | 9.00 | 9.27 | 9.00 |

### 4.3.4 Station Heat Rate (SHR)

**Petitioner's submission**

The Petitioner has submitted that TPL-G (APP) has been making all efforts to improve and maintain the SHR at the approved level. TPL-G (APP) submitted that during FY 2015-16, the variation in SHR has resulted due to part load operation of the plants due to higher backing down.

The variation in SHR is a controllable parameter within the operating range of PLF and the variation in fuel consumption on account of this should be considered for sharing of gains/losses. The actual SHR achieved for each of the station is provided in the table below:

**Table 4.8: Station Heat Rate of TPL-G (APP) claimed for FY 2015-16**

**(kcal/kWh)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 |
|---|---|---|---|
| 1 | C Station | 3150 | 3158 |
| 2 | D Station | 2450 | 2483 |
| 3 | E Station | 2455 | 2480 |
| 4 | F Station | 2455 | 2474 |

**Commission's Analysis**

The SHR achieved is beyond the approved levels for all stations including that for C station, which is marginally more than the approved one.

For the purpose of True-up for FY 2015-16, the Commission approves the SHR as given in the Table below:

**Table 4.9: Station Heat Rate approved by Commission for TPL-G (APP) in FY 2015-16**

**(kcal/kWh)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 | Approved for 2015-16 for truing up |
|---|---|---|---|---|
| 1 | C Station | 3150 | 3158 | 3150 |
| 2 | D Station | 2450 | 2483 | 2450 |
| 3 | E Station | 2455 | 2480 | 2455 |

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 | Approved for 2015-16 for truing up |
|---|---|---|---|---|
| 4 | F Station | 2455 | 2474 | 2455 |

### 4.3.5 Secondary Fuel Oil Consumption (SFC)

**Petitioner's submission**

The Petitioner submitted that the Commission in the MYT Order had approved the SFC considering the GERC (MYT) Regulations, 2011 and same was retained in the MTR order for FY 2014- 15 and FY 2015-16. During FY 2015-16, TPL-G (APP) achieved the lower SFC due to lower forced outages, in line with that approved by the Hon'ble Commission for all the plants.

It is submitted that for future years, the SFC may increase from the current levels due to the vintage of the plant & equipment and change in loading pattern of the plant. The actual Secondary Fuel Oil Consumption is provided in the table below:

**Table 4.10: Secondary Fuel Oil Consumption of TPL-G (APP) for FY 2015-16**

**(ml/kWh)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 |
|---|---|---|---|
| 1 | C Station | 2.00 | 1.06 |
| 2 | D Station | 1.00 | 0.32 |
| 3 | E Station | 1.00 | 0.39 |
| 4 | F Station | 1.00 | 0.24 |

**Commission's Analysis**

The actual Secondary Fuel Consumption (SFC), for all the stations is within the approved values.

Since the SFC is a controllable performance parameter, the Commission approves, for truing up purpose, the SFC values, as mentioned in the MTR Order for FY 2015-16.

Accordingly, the SFC approved for FY 2015-16, for truing up purpose, is given in the Table below:

**Table 4.11: Secondary Fuel Oil Consumption approved for truing up for FY 2015-16**

**(ml/kWh)**

| Sl. No. | Station | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 | Approved for 2015-16 for truing up |
|---|---|---|---|---|
| 1 | C Station | 2.00 | 1.06 | 2.00 |
| 2 | D Station | 1.00 | 0.32 | 1.00 |
| 3 | E Station | 1.00 | 0.39 | 1.00 |
| 4 | F Station | 1.00 | 0.24 | 1.00 |

### 4.3.6 Transit Loss

**Petitioner's submission**

The petitioner submitted that the Commission had approved the transit loss for FY 2015-16 at 0.80%. The actual transit loss is at 1.55%. TPL-G (APP) has been making continuous efforts to contain the Transit Losses.

However, it is pertinent to note that there are various uncontrollable factors such as moisture loss, windage and slippage losses due to which transit loss is still higher.

TPL-G (APP) has submitted that it has considered the transit loss as controllable parameter in its calculation as per MYT Regulations. However, it has requested the Commission to kindly consider the transit loss as uncontrollable due to the factors beyond its control.

**Table 4.12: Transit Loss of TPL-G (APP) for FY 2015-16**

**(%)**

| Stations | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 |
|---|---|---|
| All coal based stations | 0.80 | 1.55 |

**Commission's Analysis**

Keeping in view the historical data, the Commission has prescribed the trajectory for higher transit loss in GERC (MYT) Regulations, 2011, compared to the norms set for transit loss in the GERC (Terms and Conditions of Tariff) Regulations, 2005. Based on the above observation, the percentage of transit loss for truing up for FY 2015-16 is approved, as given in the Table below:

**Table 4.13: Transit loss approved for truing up for FY 2015-16**

**(%)**

| Stations | Approved for 2015-16 in the MTR Order | Actuals for 2015-16 | Approved for 2015-16 for truing up |
|---|---|---|---|
| All coal based stations | 0.80 | 1.55 | 0.80 |

### 4.3.7 Summary of performance parameters approved for truing up for FY 2015-16

Based on the analysis in the preceding paragraphs, the performance parameters approved for different power generation stations of TPL-G (APP) for the FY 2015-16, for truing up purpose are listed in the table below:

**Table 4.14: Performance parameters for TPL-G (APP) stations approved for truing up for the FY 2015-16**

| Sl. No. | Station | PAF (%) | PLF (%) | Aux. Consumption (%) | Station Heat Rate Kcal/kWh (on GCV basis) | Secondary fuel oil consumption (gm/kWh) | Transit loss of coal (%) |
|---|---|---|---|---|---|---|---|
| 1 | C Station | 84.20 | 9.83 | 9.50 | 3150 | 2.00 | 0.80 |
| 2 | D Station | 93.50 | 73.48 | 9.00 | 2450 | 1.00 | 0.80 |
| 3 | E Station | 93.50 | 72.82 | 9.00 | 2455 | 1.00 | 0.80 |
| 4 | F Station | 94.84 | 76.30 | 9.00 | 2455 | 1.00 | 0.80 |

## 4.4 Gross and Net generation

The gross and net generation of power in different stations, as per actuals submitted by TPL and as approved for truing up purpose for the FY 2015-16 are given in the table below:

**Table 4.15: The gross and net generation of power for truing up for FY 2015-16**

| Sl. No. | Station | As per actuals submitted by TPL | | | | As approved by the Commission | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Gross generation (MU) | Aux consum-ption (%) | Aux consum-ption (MU) | Net generation (MU) | Gross generation (MU) | Aux consum-ption (%) | Aux consum-ption (MU) | Net generation (MU) |
| 1 | C Station | 51.82 | 11.71% | 6.07 | 45.75 | 51.82 | 9.50% | 4.92 | 46.90 |
| 2 | D Station | 774.52 | 9.30% | 72.00 | 702.53 | 774.52 | 9.00% | 69.71 | 704.81 |
| 3 | E Station | 773.99 | 8.92% | 69.06 | 704.93 | 773.99 | 9.00% | 69.66 | 704.33 |
| 4 | F Station | 810.97 | 9.27% | 75.15 | 735.82 | 810.97 | 9.00% | 72.99 | 737.98 |
| | **Total** | **2411.30** | | **222.28** | **2189.02** | **2411.30** | | **217.28** | **2194.02** |

## 4.5 Cost Parameters

The cost parameters include GCV of fuel, mix of fuel and price of fuel. The Sabarmati C, D, E & F Stations of TPL-G (APP) run on coal as the primary fuel. A mix of indigenous and imported coal is used in these stations.

TPL submitted the details of actual Wt. Av. GCV of mix of coal and Wt. Av price of fuel for different stations, as discussed below for FY 2015-16.

### 4.5.1 Mix of coal

TPL has furnished the details of actual percentages of the mix of indigenous and imported coal in its coal based power stations during the FY 2015-16, as given in the table below:

**Table 4.16: The mix of different types of coal for FY 2015-16**

| Sl. No. | Station | Indigenous coal (%) | Imported coal (%) |
|---|---|---|---|
| 1 | C Station | 100.00 | 0.00 |
| 2 | D Station | 60.00 | 40.00 |
| 3 | E Station | 59.00 | 41.00 |
| 4 | F Station | 59.00 | 41.00 |

*Note: The mix of coal for different stations is as per the additional information furnished by TPL vide its letter dated 30th January, 2016. The percentages is arrived at based on the quantities of indigenous and imported coals used in each station.*

### 4.5.2 Wt. Av. Gross Calorific Value (GCV) of fuel

TPL has furnished the actual Wt. Av. Calorific Value of fuels for all the stations put together for FY 2015-16, as given in the Table below:

**Table 4.17 : Actual Wt. Av. Gross Calorific value (GCV) of Different Fuels for Coal- based Stations for FY 2015-16**

| Particulars | Calorific Value |
|---|---|
| Wt. Av. GCV of Indigenous coal (kcal / kg) | 4013 |
| Wt. Av. GCV of Imported coal (kcal / kg) | 4896 |
| Wt. Av. GCV of secondary fuel oil (kcal / L) | 9971 |

### 4.5.3 Wt. Av. Prices of Fuel

TPL has furnished the actual Wt. Av. Price per unit of different fuels for all the stations put together for FY 2015-16, as given in the table below:

**Table 4.18: Wt. Av. Price / unit of fuels for FY 2015-16 (Actuals)**

| Sl. No. | Station | Wt. Av. cost of indigenous coal (Rs/MT) | Wt. Av. cost of imported coal (Rs/MT) | Wt. Av. cost of secondary fuel oil (Rs/KL) | Wt. Av. cost of gas (Rs/MMBTU) |
|---|---|---|---|---|---|
| 1 | All the coal stations | 4943.83 | 5638.68 | 41678.08 | - |

In its communication dated 30th January 2017, TPL has furnished the actual Wt. Av. cost / MT of different fuels for different stations for FY 2015-16, as given in the Table below:

**Table 4.19: Av. Price / Unit of Fuels for FY 2015-16 (Actuals) for Different Stations**

| Sl. No. | Station | Av. Price of Indigenous coal (Rs. /MT) | Av. Price of Imported coal (Rs. /MT) | Av. Price of Secondary oil (Rs. /kL) |
|---|---|---|---|---|
| 1 | C Station | 4639.82 | - | 43,800 |
| 2 | D Station | 4761.37 | 5780.30 | 41,978 |
| 3 | E Station | 4742.27 | 5778.93 | 40,659 |
| 4 | F Station | 4762.20 | 5775.35 | 42,281 |

**Commission's Analysis**

The Commission, after due validation, approves the Wt. Av. GCV of fuels, percentage mix of coal and prices of fuels (actuals), as furnished by TPL for individual stations and considered for truing up purpose for FY 2015-16, as these are uncontrollable items.

## 4.6 Fuel Costs

Based on the performance and cost parameters, the normative fuel costs for each of the stations, along with actuals furnished by TPL, are as given in the Table below:

**Table 4.20: Fuel Cost of TPL-G (APP) for truing up for FY 2015-16**

| Sl. No. | Stations | As per actual submitted by TPL | | | | Approved by the Commission | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Gross generation (MUs) | Net Gen (MUs) | Fuel cost (Rs. Crore) | Fuel cost per unit net (Rs./kWh) | Gross generation (MUs) | Net Gen (MUs) | Fuel cost (Rs. Crore) | Fuel cost per unit net (Rs./kWh) |
| 1 | C Station | 51.82 | 45.75 | 19.85 | 4.34 | 51.82 | 46.90 | 19.81 | 4.22 |
| 2 | D Station | 774.52 | 702.53 | 233.29 | 3.32 | 774.52 | 704.81 | 230.85 | 3.28 |
| 3 | E Station | 773.99 | 704.93 | 232.47 | 3.30 | 773.99 | 704.33 | 230.63 | 3.27 |
| 4 | F Station | 810.97 | 735.82 | 242.67 | 3.30 | 810.97 | 737.98 | 241.76 | 3.28 |
| | **Total** | **2411.30** | **2189.02** | **728.28** | | **2411.30** | **2194.02** | **723.05** | |

Detailed computation of the fuel cost for each of the stations has been given in Annexures 4.1 to 4.4 at the end of this chapter.

### 4.6.1 Variation between actual costs and approved costs

The Commission has computed the normative fuel cost for the purpose of computing the gains/losses, due to the controllable factors.

The actual fuel costs of all the stations of TPL are almost equal to the normative costs.

The Commission has verified the actual fuel cost submitted by TPL with the annual accounts and observed that the fuel cost as per annual accounts is Rs. 728.28 Crore, which matches with actual fuel cost submitted by TPL in the Petition.

The comparison between the fuel costs of all stations put together, as per annual accounts for FY 2015-16 and the cost approved for truing up purpose is given in the Table below:

**Table 4.21: Fuel Cost Approved for truing up for FY 2015-16**

**(Rs. Crore)**

| Particulars | As per actuals | Approved for 2015-16 |
|---|---|---|
| Total Fuel Cost | 728.28 | 723.05 |

### 4.6.2 Gains and losses in fuel costs due to controllable factors

TPL has arrived at the fuel expenses incurred for FY 2015-16, on the basis of the actual operational parameters, such as station heat rate (SHR), auxiliary consumption, specific fuel oil consumption (SFC) and transit loss of coal. The Commission has compared the fuel expenses, so derived by TPL with the fuel expenses, on the basis of the approved operational performance parameters for actual net generation for computation of gains / losses on account of variation in these parameters and approves the gains / losses station-wise, as given in the Table below:

**Table 4.22: Approved Gains / (Losses) from Fuel Expenses (due to Controllable Factors) for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Station | Fuel cost arrived at with approved parameters for actual net generation for 2015-16* | Actual fuel cost approved for truing up for 2015-16 | Gains / (Losses) due to controllable factors |
|---|---|---|---|---|
| 1 | C Station | 19.33 | 19.85 | (0.53) |
| 2 | D Station | 230.10 | 233.29 | (3.19) |
| 3 | E Station | 230.82 | 232.47 | (1.65) |
| 4 | F Station | 241.05 | 242.67 | (1.62) |
| | **Total** | **721.30** | **728.28** | **(6.99)** |

**Note: Detailed computation of the fuel cost for each of the stations, with approved parameters for actual net generation, has been given in Annexures 4.1 to 4.4 at the end of this chapter.*

## 4.7 Fixed Charges

### 4.7.1 Operation and Maintenance (O&M) expenses

TPL has claimed Rs. 123.41 Crore as O&M expenses as against Rs. 141.86 Crore of composite O&M expenses approved for FY 2015-16 in the MTR Order.

**Table 4.23: O&M Expenses of TPL-G (APP) Claimed for FY 2015-16**

**(Rs Crore)**

| All figures in Rs. Crore | MTR Order | Actual |
|---|---|---|
| Operations and Maintenance Expenses | 141.86 | 123.41 |

**Petitioner's Submission**

The Petitioner has submitted that it was in discussions with unionized Employees of TPL-G (APP) for wage revision. As wage revision had to come into effect from 1st April-2013, the Petitioner had made the provision of Rs. 1.20 Crores and Rs. 11.95 Crores for wage revision in the employee expenses for FY 2013-14 and FY 2014-15, respectively, in its books. The Petitioner claimed that as the wage settlement was concluded in FY 2015-16, the total impact of wage settlement crystalized during FY 2015-16. The Petitioner has hence requested the Commission to allow the total impact of wage revision as uncontrollable in FY 2015-16.

The Petitioner has submitted that the variation in O&M expense on account of change in law and factors beyond the control should be considered as uncontrollable and the Commission should allow to pass on the impact. In the present petition, the Petitioner has considered the entire O&M expenses as controllable, except the impact of wage revision.

The Petitioner has requested to consider such expenses as an exception and treat it as an uncontrollable item of expenditure.

**Commission's Analysis**

TPL has submitted the actual O&M expenses at Rs. 123.41 Crore in the truing up for FY 2015-16.

The actual O&M cost as per the audited accounts includes donations of Rs 1.53 crore, water charges of Rs.12.28 crore, insurance claim receipt Rs 3.63 crore and expenses of Vatva Station of Rs. 0.74 Crore. Such cost components have been deducted to arrive at the O&M expense to be claimed.

The Commission has ensured employee cost, and other A&G cost components which were allocated to capital works, repair and other relevant revenue accounts are deducted from the claimed O&M expense.

**The Commission, accordingly, approves the O&M expenses at Rs. 123.41 Crore, as per the annual accounts for truing up for FY 2015-16.**

TPL has requested to consider the impact of the wage revision crystallized in FY 2015-16 and was allowed in truing up of FY 2013-14 and FY 2014-15 as uncontrollable deviation after adjusting the deviation allowed as controllable item while truing up of FY 2013-14 and FY 2014-15. The Commission does not find it appropriate to revisit the treatment of O&M expenses given in previous years i.e. FY 2013-14 and FY 2014-15 in earlier GERC orders, while truing up of FY 2015-16.

Accordingly, Gain/(Losses) on account of O&M expenses in truing up of FY 2015-16 is approved by the Commission as given in the Table below:

**Table 4.24: O&M Expenses and Gains / (Losses) Approved in truing up for FY 2015-16**

**(Rs. Crore)**

| Particulars | Approved for 2015-16 in MTR Order | Approved in truing up for 2015-16 | Deviation + / (-) | Gains / (Losses) due to Controllable factor | Gains / (Losses) due to uncontrollable factor |
|---|---|---|---|---|---|
| O&M Expense | 141.86 | 123.41 | 18.45 | 18.45 | - |

## 4.8 Water Charges

TPL has claimed Rs. 12.28 Crore towards actual water charges in the truing up for FY 2015-16, as against Rs. 8.37 Crore approved in the MTR Order dated 29.04.2014. The details are given in the Table below:

**Table 4.25: Water Charges Claimed in the truing up by TPL-G APP for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Approved for 2015-16 in MTR Order | Actual claimed in truing up for 2015-16 |
|---|---|---|---|
| 1 | Water Charges | 8.37 | 12.28 |

### Commission's Analysis

The Commission, accordingly, approves the water charges at Rs. 12.28 Crore in the truing up, as per the annual accounts.

The deviation is considered as uncontrollable and the gains and losses are considered, as detailed below:

**Table 4.26: Gains / (Losses) Approved in the truing up for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Approved for 2015-16 in MTR Order | Approved for truing up for 2015-16 | Deviation +/(-) | Gains / (Losses) due to uncontrollable factor |
|---|---|---|---|---|---|
| 1 | Water Charges | 8.37 | 12.28 | (3.91) | (3.91) |

## 4.9 Capital expenditure, Capitalisation and Sources of Funding

TPL has claimed Rs. 18.64 Crore towards actual capital expenditure in the truing up for FY 2015-1, as against Rs. 35.56 Crore approved in the MTR Order for FY 2015-16. The details are given in the Table below:

**Table 4.27: Capital Expenditure Claimed by TPL-G (APP) For FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | MTR Order | Actual |
|---|---|---|---|
| 1 | Refurbishment of cooling tower at D station | | 0.48 |
| 2 | Refurbishment of D,E and F station | | 0.48 |
| 3 | Upgradation of E station | - | 3.22 |
| 4 | Refurbishment of C station Building | 8.00 | 0.00 |
| 5 | Upgradation of compressor system | | 5.16 |

| Sl. No. | Particulars | MTR Order | Actual |
|---|---|---|---|
| 6 | Normal Capex - Sabarmati | 25.07 | 8.91 |
| 7 | Misc. Items | 2.49 | 0.39 |
| 8 | **Total Cost** | **35.56** | **18.64** |

**Petitioner's Submission**

The main reasons for variation in the capital expenditure against the approved items are described below:

**a) Refurbishment of Cooling Tower at D station** – The scope of the project was changed from construction of new cooling tower to refurbishment due to the space constraints. The activity of refurbishment was initiated in FY 2012-13 and was executed in a phased manner and is likely to be completed in FY 2016-17. During FY 2015-16, the Petitioner incurred the capex of Rs. 0.48 Crores.

**b) Refurbishment of D, E, F station civil structures/buildings** – TPL has submitted that the expenditure towards such works was estimated in MYT petition to the tune of Rs. 12 Crores. The refurbishment was done based on the availability of the front in the running plant. Due to feasibility issue at many locations, the Petitioner at times had to change the plan/scheme in consultation with Tata Consulting Engineers. While the project is likely to be completed during FY 2016-17, the Petitioner has incurred the capex of Rs. 0.48 Crores.

**c) Upgradation of E station** – The major activity of uprating and modernization was carried out in FY 2013-14. Due to increase in foreign exchange rate and interest capitalisation, total cost of Rs. 184.86 Crores has been incurred out of which Rs. 3.22 Crores has been incurred in FY 2015-16.

**d) Refurbishment of C station Building** – The building & structure of C station at Sabarmati Power Station is very old. The repair/refurbishment was planned to strengthen this building based on the outcome of the RLA studies. Due to change in the scope of work, the project has now been deferred to MYT 3rd Control Period.

**e) Upgradation of compressor system** – It was planned to incur capex for upgradation of compressor system of D, E, and F station during FY 2013-14. However, due to unavailability of front and site feasibility, the capex was deferred. The work has been initiated in FY 2015-16 and cost of Rs. 5.16 Crores has been incurred. Balance work is to be carried out during FY 2016-17.

**f) Normal Capital Expenditure –** TPL G (APP) incurred the expenditure of Rs. 8.91 Crores against approval of Rs. 25.07 Crores. The major variation is on account of deferment of major capital expenditure related to C station like turbine and ESP overhauling, pressure part replacement, and auxiliary transformer, turbine generator spares.

**g) Misc. Capital Expenditure –** TPL G (APP) incurred the expenditure of Rs. 0.39 Crores against approval of Rs. 2.49 Crores. The majority of the expenditure was to be incurred for the Training Centre Building. However, the same has been deferred to FY 2016-17

### Commission's Analysis

TPL has claimed a capital expenditure of Rs. 18.64 Crore and capitalisation of Rs. 17.71 Crore against the capital expenditure of Rs. 35.76 Crore approved in MTR Order for FY 2015-16.

TPL has submitted the quantum of debt and equity, as detailed in the Table below:

**Table 4.28: Capitalisation and Sources of Funding Claimed in truing up for FY 2015-16**

**(Rs. Crore)**

| All figures in Rs. Crore | | Actual submitted by Petitioner |
|---|---|---|
| Opening GFA | (a) | 1126.27 |
| Addition to GFA | (b) | 17.71 |
| Deletion to GFA | (c) | 6.06 |
| Closing GFA | (d)=(a)+(b)-(c) | 1137.92 |
| Capitalization considered for Debt and Equity | (e)=(b)-(c) | 11.65 |

| All figures in Rs. Crore | | Actual submitted by Petitioner |
|---|---|---|
| Normative Debt @ 70% | (f)=(e)*70% | 8.16 |
| Normative Equity @ 30% | (g)=(e)*30% | 3.50 |

The Commission observed that the actual capital expenditure incurred was much lower than the capital expenditure approved in the MTR Order for FY 2015-16. The net capitalisation, as verified from the annual accounts is Rs. 17.71 Crore. TPL has decapitalised the asset to the extent of Rs. 6.06 Crore during FY 2015-16. Further, TPL has reduced the capitalisation during the year by the amount of deletion of fixed assets to work out net capitalisation for debt and equity component as provided in Regulation 39.1 of the GERC, (MYT) Regulation, 2011.

**The Commission approves the capitalisation and sources of funding, as shown in the Table below in the truing up for FY 2015-16.**

**Table 4.29: Approved Capitalisation and Sources of Funding in truing up for FY 2015-16**

**(Rs. Crore)**

| All figures in Rs. Crore | | Approved in Truing up for FY 2015-16 |
|---|---|---|
| Opening GFA | (a) | 1126.27 |
| Addition to GFA | (b) | 17.71 |
| Deletion to GFA | (c) | 6.06 |
| Closing GFA | (d)=(a)+(b)-(c) | 1137.92 |
| Capitalization considered for Debt | (e)=(b)-(c) | 11.65 |
| Capitalization considered for Equity | (f)=(b)-(c) | 11.65 |
| Normative Debt @ 70% | (g)=(e)*70% | 8.16 |
| Normative Equity @ 30% | (h)=(f)*30% | 3.50 |

## 4.9.1 Interest expenses

TPL has claimed a sum of Rs. 17.39 Crore towards actual interest expenses in the truing up for FY 2015-16, as against Rs. Nil approved in the MTR Order for FY 2015-16, as detailed in the Table below:

**Table 4.30: Total Interest Expenses Claimed in truing up for TPL-G (APP) for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Approved for 2015-16 in MTR Order | Actual claimed in truing up for 2015-16 |
|---|---|---|---|
| 1 | Interest Expenses | Nil | 17.39 |

### Petitioner's Submission

TPL has submitted that the GERC MYT Regulation, 2011 provides for the calculation of interest expenses on normative basis by considering the amount of depreciation of assets as the amount of repayment.

The Petitioner has considered the interest expenses as per the GERC (MYT) Regulations, 2011 on loans. The Petitioner has calculated the interest expenses by applying the opening Weighted Average Rate of interest, on the actual loan portfolio of the Petitioner at the beginning of the year (i.e. 01.04.2015), on the loan component while repayment has been considered equal to the depreciation of the assets for the year.

It is submitted that the Commission while approving the interest expenses for FY 2014-15 had reduced the loans corresponding to the assets retired though the loans are pending. The Petitioner has filed an appeal before the Hon'ble ATE in this regard and the matter is subjudice. The Petitioner for the purpose of calculating interest expenses has considered the Commission approved loan balance for FY 2015-16 in the present petition.

The normative loan schedule for FY 2015-16 and the corresponding interest expense is submitted for the approval of the Commission. The interest expense is an uncontrollable item as it depends on the actual capitalization and variation in rate of interest. The interest expense for FY 2015-16 is shown in the table below.

**Table 4.31: Interest Claimed in the truing up for FY 2015-16**

**(Rs. Crore)**

| Particulars | Actual |
|---|---|
| Capitalization During the Year | 11.65 |

| Particulars | Actual |
|---|---|
| Normative Debt @ 70% | 8,16 |
| Opening Balance | 156.31 |
| New Borrowings | 8.16 |
| Repayments | 48.96 |
| Closing Balance | 115.51 |
| **Interest Expense @ 11.74%** | **15.96** |
| Other Borrowing Cost | 1.43 |
| **Total Interest Expenditure** | **17.39** |

### Commission's Analysis

TPL has considered opening loan balance as on 01.04.2015 equal to closing loan balance of FY 2014-15 as shown in the tariff order dated 31st March, 2016. The additional loan considered by the Commission is 70% of the value of assets addition after deduction the quantum of asset withdrawn.

The Commission has obtained the details of actual loan portfolio as on 01.04.2015 from TPL and the weighted average rate of interest is worked out to 11.74%. The other borrowing cost is Rs. 1.43 Crore as per annual accounts.

Accordingly, the Commission has computed the allowable interest charges, adopting the weighted average rate of 11.74% for FY 2015-16, in accordance with the provisions of GERC (MYT) Regulations, 2011, as detailed in the Table below:

**Table 4.32: Interest Approved by the Commission in the truing up for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Approved in truing up for 2015-16 |
|---|---|---|
| 1 | Opening Loan | 156.31 |
| 2 | New loan During the Year | 8.16 |
| 3 | Repayment During the Year | 48.96 |
| 4 | Closing Loan | 115.51 |
| 5 | Average Loan | 135.91 |

| | | |
|---|---|---|
| 6 | Rate of Interest | 11.74% |
| 7 | **Interest** | **15.96** |
| 8 | Other Borrowing Costs | 1.43 |
| **9** | **Total Interest and Finance Charges** | **17.39** |

**The Commission, accordingly, approves the interest and finance charges of Rs. 17.39 Crore in the truing up for FY 2015-16.**

With regard to the computation of gains / losses, Regulation 23.2 considers variation in capitalisation, on account of time and/or cost overruns/efficiencies in the implementation of capital expenditure project, not attributable to an approved change in scope of such project, change in statutory levies or force majeure events, as a controllable factor. If the gain is on account of lesser capital expenditure and capitalisation, it cannot be attributed to the efficiency of the utility to allow 2/3rd of the gain to the utility. Similarly, if the loss is on account of more capital expenditure and capitalisation due to bonafide reasons, the utility cannot be penalised by allowing only 1/3rd of the loss in the ARR. Accordingly, the Commission has decided to consider variation in capitalisation as uncontrollable. Hence, the components of ARR related to capitalisation, like interest and finance charges, depreciation and return on equity are also considered as uncontrollable.

**The Commission, accordingly, approves the gains / losses on account of interest and finance charges as uncontrollable, in the truing up for FY 2015-16, as detailed in the Table below:**

**Table 4.33: Gains / (Losses) Approved in the truing up for FY 2015-16**

**(Rs. Crore)**

| Particulars | Approved for 2015-16 in MTR Order | Actual claimed in truing up for 2015-16 | Approved in truing up for 2015-16 | Deviation +/(-) | Gains / (Losses) due to uncontrollable factor |
|---|---|---|---|---|---|
| Interest and Finance Charges | 0.00 | 17.39 | 17.39 | (17.39) | (17.39) |

### 4.9.2 Interest on working capital

The interest on working capital is arrived at by applying interest rate of 14.75% on the working capital requirement computed as per the GERC (MYT) Regulations, 2011.

The working capital requirement is marginally lower than the approved, mainly due to decrease in actual fuel costs compared to the approved base cost, which is uncontrollable in nature. Thus, the interest on working capital has decreased on account of variation in the working capital requirement and the interest rate.

**Petitioner's Submission**

TPL has claimed a sum of Rs. 16.63 Crore towards interest on working capital in the truing up of FY 2015-16, as against Rs. 17.96 Crore approved in the MTR Order dated 29.04.2014 for FY 2015-16, as detailed in the Table below:

**Table 4.34: Interest on Working Capital of TPL-G (APP) Claimed for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Approved for 2015-16 in MTR Order | Actual claimed in truing up for 2015-16 |
|---|---|---|---|
| 1 | Coal for 1.5 Month | 98.47 | 90.62 |
| 2 | Secondary Fuel for 2 months | 2.26 | 0.56 |
| 3 | Gas for 1 Month | 0.00 | 0.00 |
| 4 | O&M Expenses for 1 Month | 11.82 | 10.28 |
| 5 | 1% of GFA for Maintenance Spares | 11.73 | 11.26 |
| 6 | Receivables for 1 Months | 0.00 | 0.00 |
| 7 | Normative Working Capital | 124.28 | 112.72 |
| 8 | Interest Rate | 14.45% | 14.75% |
| **9** | **Interest on Working Capital** | **17.96** | **16.63** |

TPL has submitted that the variation in working capital requirement and the variation in interest rate are uncontrollable and therefore, the variation in interest on working capital requirement compared to the approved expenses is to be treated as uncontrollable.

### Commission's Analysis

The Commission has examined the interest on working capital claimed by TPL for FY 2015-16. The Commission has observed that TPL has worked out the interest on working capital, considering SBAR of 14.75% as on 01.04.2015.

Regulation 41.1 (d) specifies that interest shall be allowed at a rate equal to the State Bank Advance Rate (SBAR) as on 1st April of the financial year in which the petition is filed. While approving the interest on working capital in the truing up for FY 2011-12, the Commission decided to consider the rate (SBAR) prevailing as on 1st April of the financial year for which truing up is being done. The SBAR as on 1st April, 2015 was 14.75%. The Commission, accordingly, takes into consideration the SBAR of 14.75% in computation of Interest in Working Capital for FY 2015-16.

The Commission has computed the Working Capital and interest thereon, as detailed in the Table below:

**Table 4.35: Interest on Working Capital Approved in the truing up for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Actual claimed in truing up for 2015-16 | Approved in truing up for 2015-16 |
|---|---|---|---|
| 1 | Coal cost 1.5 Month | 90.62 | 87.63 |
| 2 | Secondary fuel for 2 Months | 0.56 | 1.71 |
| 3 | Gas for 1 Month | 0.00 | 0.00 |
| 4 | O&M expenses for 1 Month | 10.28 | 10.28 |
| 5 | 1% of GFA for Maintenance Spares | 11.26 | 11.26 |
| 6 | Receivables for 1 Month | 0.00 | 0.00 |
| 7 | Normative Working Capital | 112.72 | 110.90 |
| 8 | Interest Rate | 14.75% | 14.75% |
| 9 | **Interest on Working Capital** | **16.63** | **16.36** |

**The Commission, accordingly, approves the interest on working capital at Rs. 16.36 Crore in the truing up for FY 2015-16.**

As indicated above, the Commission has analysed various components – controllable and uncontrollable to arrive at the approved figure of working capital, based on which, the interest on working capital has been calculated. After working out the interest on working capital, the Commission has treated the interest as an uncontrollable cost, for the purpose of estimating Gains / (Losses).

**The Commission, accordingly, approves the Gains / (Losses) on account of interest on working capital in the truing up for FY 2015-16, as detailed in the Table below:**

**Table 4.36: Gains / (Losses) in Interest on Working Capital Approved in the truing up for FY 2015-16**

**(Rs. Crore)**

| Particulars | Approved for 2015-16 in MTR Order | Approved in truing up for 2015-16 | Deviation +/(-) | Gains /(Losses) due to Controllable Factors | Gains /(Losses) due to Uncontrollable Factors |
|---|---|---|---|---|---|
| Interest on Working Capital | 17.96 | 16.36 | 1.60 | | 1.60 |

### 4.9.3 Depreciation

TPL has claimed a sum of Rs. 48.96 Crore towards depreciation in the truing up for FY 2015-16, as against Rs. 44.70 Crore approved in the MTR Order dated 29.04.2014, as detailed in the Table below:

**Table 4.37: Depreciation of TPL-G (APP) Claimed for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Approved for 2015-16 in the MTR Order | Actual claimed in truing up for 2015-16 |
|---|---|---|---|
| 1 | Depreciation | 44.70 | 48.96 |

**Petitioner's Submission**

TPL has submitted that the depreciation rates, as per CERC (Terms and Conditions of Tariff) Regulations, 2004, are applied on the opening GFA of FY 2009-10 and for addition of assets from 1st April, 2009 onwards, the depreciation has been computed at the depreciation rates specified in the Appendix III to the CERC (Terms & Conditions of Tariff) Regulations, 2009 as approved by the Commission.

**Commission's Analysis**

The details of opening balance of assets as on 1st April, 2015, and addition and deduction to the Gross Block during FY 2015-16 and the depreciation on the assets, classification wise, are given in Form 12, Part 1 of the petition. The opening and closing balances of assets are as per the annual accounts for FY 2015-16.

**The Commission, accordingly, approves the depreciation at Rs. 48.96 Crore in the truing up for FY 2015-16.**

As noted in Para 4.9.1 above, the Commission is of the view that the depreciation should be treated as uncontrollable.

**The Commission, accordingly, approves the Gains / (Losses) on account of depreciation in the truing up for FY 2015-16, as detailed in the Table below:**

**Table 4.38: Gains / (Losses) due to Depreciation Approved in the truing up for FY 2015-16**

**(Rs. Crore)**

| Particulars | Approved for 2015-16 in MTR Order | Approved in truing up for 2015-16 | Deviation +/(-) | Gains / (Losses) due to Uncontrollable Factors |
|---|---|---|---|---|
| Depreciation | 44.70 | 48.96 | (4.26) | (4.26) |

### 4.9.4 Return on equity

TPL has claimed a sum of Rs. 59.73 Crore towards return on equity in the truing up for FY 2015-16, as against Rs. 44.95 Crore approved in the MTR Order dated 29.04.2014, as detailed in the Table below:

**Table 4.39: Return on Equity of TPL-G (APP) Claimed for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Approved for 2015-16 in the MTR Order | Actual claimed in truing up for 2015-16 |
|---|---|---|---|
| 1 | Opening Equity | 319.98 | 424.88 |
| 2 | Equity Addition | 2.24 | 3.50 |
| 3 | Closing Equity | 322.22 | 428.38 |
| 4 | Average Equity | 321.10 | 426.63 |
| **5** | **Return on Equity** | **44.95** | **59.73** |

**Petitioner's Submission**

TPL has submitted that the return on equity has been computed at 14% on the average of the opening and closing balance of equity for FY 2015-16.

**Commission's Analysis**

TPL has considered opening equity as on 01.04.2015 equal to closing equity of FY 2014-15 as shown in the tariff order dated 31st March, 2016. TPL has decapitalised assets of Rs 6.06 crore during the year and has accordingly reduced the value of capitalisation during the year by the value of such decapitalisation. The additional equity considered by the Commission is 30% of the value of net asset addition.

**The Commission, accordingly, approves the return on equity of Rs. 59.73 Crore in the truing up for FY 2015-16, as detailed in the Table below:**

**Table 4.40: Return on Equity approved in the truing up for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Claimed in truing up for 2015-16 | Approved in truing up for 2015-16 |
|---|---|---|---|
| 1 | Opening Equity | 424.88 | 424.88 |
| 2 | Equity Addition | 3.50 | 3.50 |
| 3 | Closing Equity | 428.38 | 428.38 |
| 4 | Average Equity | 426.63 | 426.63 |
| **5** | **Return on Equity** | **59.73** | **59.73** |

As noted in para 4.9.1 above, the Commission is of the view that the return on equity should be treated as uncontrollable.

**The Commission, accordingly, approves the Gains / Losses on account of return on equity in the truing up for FY 2015-16, as detailed below:**

**Table 4.41: Return on Equity and Gains / (Losses) Approved in the truing up for FY 2015-16**

**(Rs. Crore)**

| Particulars | Approved for 2015-16 in MTR Order | Approved in truing up for 2015-16 | Deviation +/(-) | Gains / (Losses) due to uncontrollable factors |
|---|---|---|---|---|
| Return on Equity | 44.95 | 59.73 | (14.77) | (14.77) |

### 4.9.5 Income Tax

TPL has claimed a sum of Rs. 15.77 Crore towards income tax in the truing up for FY 2015-16, as against Rs. 18.51 Crore approved in the MTR Order for FY 2015-16, as detailed in the Table below:

**Table 4.42: Income Tax Claimed for TPL-G (APP) for FY 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | Approved for 2015-16 in the MTR Order | Actual claimed in truing up for 2015-16 |
|---|---|---|---|
| 1 | Income Tax | 18.51 | 15.77 |

### Petitioner's Submission

TPL has submitted that it has claimed the income tax of Rs. 15.77 Crore for FY 2015-16 considering the total tax paid for TPL as a whole and the ratio of PBT of TPL-(G) and PBT of the company as a whole as per the annual accounts.

### Commission's Analysis

The Commission had directed TPL to furnish the details of segregation of income tax paid by TPL in respect of TPL Generation along with copies of challans of income tax paid. In its reply, TPL submitted that being a single corporate entity, income tax is paid for the company as a whole. TPL has also submitted that it has computed the income tax, by applying the prevailing MAT rate on the PBT, as per the annual accounts and submitted the copy of challans of income tax paid.

The Commission verified the PBT figures with the annual accounts for FY 2015-16 and has found that the petitioner has shown a PBT of Rs. 72.09 Crore. The PBT as per standalone financial statement of TPL is Rs. 1163.82 crore and the total current tax paid is Rs 247.60 crore. The Commission has computed the income tax for the Petitioner, based on the proportion of PBT. The income tax apportioned to TPL Generation is Rs. 15.34 Crore for FY 2015-16.

**The Commission, accordingly, approves the income tax at Rs. 15.34 Crore in the truing up for FY 2015-16.**

The Commission has treated the income tax as an uncontrollable expense. The Commission, accordingly, approves the gains / losses on account of income tax in the truing up for FY 2015-16, as detailed in the Table below:

**Table 4.43: Income Tax and Gains / (Losses) due to Income Tax Approved in the truing up for FY 2015-16**

**(Rs. Crore)**

| Particulars | Approved for 2015-16 in the MTR Order | Approved in truing up for 2015-16 | Deviation +/(-) | Gains / (Losses) due to controllable factors | Gains / (Losses) due to uncontrollable factors |
|---|---|---|---|---|---|
| Income Tax | 18.51 | 15.34 | 3.17 | | 3.17 |

### 4.9.6 Non-Tariff income

**Petitioner's submission**

TPL has submitted that the actual Non-Tariff income was Rs. 17.43 Crore in the truing up for FY 2015-16, as against Rs. 25.25 Crore approved in the MTR Order for FY 2015-16, as detailed in the Table below:

**Table 4.44: Non-tariff income for TPL-G (APP) claimed for FY 2015-16**

**(Rs. crore)**

| Sl. No. | Particulars | Approved for 2015-16 in the MTR Order | Actual claimed in truing up for 2015-16 |
|---|---|---|---|
| 1 | Non-Tariff Income | 25.25 | 17.43 |

**Commission's Analysis**

The non-tariff income of TPL is Rs.17.43 crore as per the annual accounts which excludes the Insurance Claim Receipt of Rs. 3.63 Crore.

**The Commission, accordingly, approves the non-tariff income at Rs.17.43 crore in the truing up for FY 2015-16.**

The deviation in non-tariff income is at Rs. 7.82 crore, which is a gain considered as uncontrollable factor.

**The Commission, accordingly, approves the gains / losses on account of non-tariff income in the truing up for FY 2015-16 as detailed below.**

**Table 4.45: Non-tariff income and gains / losses approved in the truing up for FY 2015-16**

**(Rs. crore)**

| Particulars | As per MTR Order 2015-16 | Approved in truing up for 2015-16 | Deviation +/(-) | Gain / (loss) due to uncontrollable factor |
|---|---|---|---|---|
| Non-tariff income | 25.25 | 17.43 | 7.82 | 7.82 |

### 4.9.7 Incentive

TPL has claimed a sum of Rs. 34.61 Crore towards incentive in the truing up for FY 2015-16, as detailed in the Table below:

**Table 4.46: Incentive claimed for TPL-G (APP) in FY 2015-16**

| Particulars | Actual |
|---|---|
| Total Fixed Charges (in Rs. Crore) | 276.73 |
| Actual Annual PAF (in %) | 95.63% |
| Normative Annual PAF (NAPAF) (in %) | 85.00% |
| Allowable Fixed Charges incl. Incentive (in Rs. Crore) | 311.35 |
| Incentive / Disincentive (in Rs. Crore) | 34.61 |

**Petitioner's Submission**

TPL has submitted that, as per GERC (MYT) Regulations, 2011, the incentive payable to a thermal generating station shall be calculated in accordance with the Plant Availability Factor achieved against the normative Plant Availability Factor of 85%.

**Commission's Analysis**

The Annual fixed charges are recoverable, as specified in Regulations 59 of the GERC (MYT) Regulations, 2011.

Incentive due to better PAF is dealt with in Para 4.10 of this order.

### 4.9.8 Revised ARR for FY 2015-16

The Commission has reviewed the performance of TPL-G (APP) under Regulation 23 of GERC (MYT) Regulations, 2011, with reference to the annual accounts for FY 2015-16.

Accordingly, the Commission has computed the sharing of gains and losses for FY 2015-16, based on the truing up for each of the components discussed in the above paragraphs. The ARR approved in the MTR Order dated 29th April, 2014, as claimed by TPL in truing up for FY 2015-16, along with sharing of gains / losses computed in accordance with GERC (MYT) Regulations, 2011, as given in the Table below:

**Table 4.47: ARR Approved in truing up for FY 2015-16**

**(Rs Crore)**

| Sl. No. | Annual Revenue | Approved for 2015-16 in MTR Order | Claimed in truing up for 2015-16 | Approved in truing up for 2015-16 | Deviation +/(-) | Gains/ (Losses) due to controllable factors | Gains/ (Losses) due to uncontrollable factors |
|---|---|---|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **5** | **6=(3-5)** | **7** | **8** |
| 1 | Variable Cost | 801.31 | 728.28 | 721.30 | 80.01 | (6.98) | 86.99 |
| 2 | O&M Expenses | 141.86 | 123.41 | 123.41 | 18.45 | 18.45 | |
| 3 | Water Charges | 8.37 | 12.28 | 12.28 | (3.91) | | (3.91) |
| 4 | Depreciation | 44.7 | 48.96 | 48.96 | (4.26) | | (4.26) |
| 5 | Interest on Loan | 0.00 | 17.39 | 17.39 | (17.39) | | (17.39) |
| 6 | Interest on Working Capital Loans | 17.96 | 16.63 | 16.36 | 1.60 | | 1.60 |
| 7 | Return on Equity | 44.95 | 59.73 | 59.73 | (14.78) | | (14.78) |
| 8 | Income Tax | 18.51 | 15.77 | 15.34 | 3.17 | | 3.17 |
| 9 | Incentive | 0.00 | 34.61 | - | - | - | - |
| **10** | **Total expenditure** | **1077.66** | **1057.06** | **1014.76** | **62.90** | **11.47** | **51.43** |
| 11 | Less: Non-Tariff Income | 25.25 | 17.43 | 17.43 | 7.82 | - | 7.82 |
| **12** | **Aggregate Revenue Requirement** | **1052.41** | **1039.63** | **997.33** | **55.08** | **11.47** | **43.61** |

### 4.9.9 Sharing of Gains / Losses for FY 2015-16

The Commission has analysed the gains / losses on account of controllable and uncontrollable factors.

The relevant Regulations are extracted below:

***Regulation 24. Mechanism for pass-through of gains or losses, on account of uncontrollable factors***

*24.1 The approved aggregate gain or loss to the Generating Company or Transmission Licensee or Distribution Licensee on account of uncontrollable factors shall be passed through as an adjustment in the Tariff of the Generating Company or Transmission Licensee or Distribution Licensee over such period as may be specified in the Order of the Commission passed under these Regulations.*

*24.2 The Generating Company, or Transmission Licensee or Distribution Licensee shall submit such details of the variation between expenses incurred, revenue earned, and figures approved by the Commission, in the prescribed format to the Commission, along with detailed computations and supporting documents as may be required for verification by the Commission.*

*24.3 Nothing contained in this Regulation 24 shall apply in respect of any gain or loss arising out of variations in the price of fuel and power purchase which shall be dealt with as specified by the Commission from time to time.*

***Regulation 25. Mechanism for sharing of gains or losses on account of controllable factors***

*25.1 The approved aggregate gain to the Generating Company or Transmission Licensee or Distribution Licensee on account of controllable factors shall be dealt with in the following manner:*

*One-third of the amount of such gain shall be passed on as a rebate in Tariffs over such* *period as may be specified in the Order of the Commission under Regulation 22.6;*

*The balance amount, which will amount to two-thirds of such gain, may be utilised at the discretion of the Generating Company or Transmission Licensee or Distribution Licensee.*

*25.2 The approved aggregate loss to the Generating Company or Transmission Licensee or Distribution Licensee on account of controllable factors shall be dealt with in the following manner:*

*One-third of the amount of such loss may be passed on as an additional charge in Tariffs over such period as may be specified in the Order of the Commission under Regulation 22.6; and*

*The balance amount, which will amount to two-thirds of such loss, shall be absorbed by the Generating Company or Transmission Licensee or Distribution Licensee."*

The trued up ARR claimed by TPL-G (APP) for FY 2015-16 is given in the Table.

**Table 4.48: Revised ARR projected by TPL-G (APP) for FY 2015-16**

**(Rs. Crore)**

| Particulars | | 2015-16 |
|---|---|---|
| ARR as per MTR | (a) | 1052.41 |
| Gains / (Losses) due to Uncontrollable Factors | (b) | (7.23) |
| Gains / (Losses) due to Controllable Factors | (c) | 20.02 |
| Pass through as tariff | d=-(c/3+b) | 0.56 |
| **ARR True-up** | **e=a+d** | **1052.97** |

The ARR approved for TPL-G (APP) in the truing up for FY 2015-16 is given in the Table below:

**Table 4.49: Revised ARR approved for TPL-G (APP) for 2015-16**

**(Rs. Crore)**

| Sl. No. | Particulars | 2015-16 |
|---|---|---|
| 1 | ARR approved in the MTR for FY 2015-16 (dated 29th April, 2014) | 1052.41 |
| 2 | Less: Gain on account of controllable factor to be passed on to the consumers (1/3rd) | 3.82 |
| 3 | Less: Gain on account of uncontrollable factor to be passed on to consumers | 43.61 |
| 4 | **Revised ARR approved for FY 2015-16 in the Truing up** | **1004.98** |

## 4.10 Additional capacity charges due to better PAF

The GERC (MYT) Regulations, 2011, provide the formula for the capacity charges payable to generating stations in accordance with the PAF achieved against the normative PAF of 85%. TPL, on enquiry from the Commission submitted copies of communication sent to SLDC every month depicting the details of station wise unit generation, service hours, plant outage hours, forced outage hours, reserve shutdown hours, percentage PAF and percentage PLF vide letter dated 16th January,2017. The Commission sent copies of these communications to SLDC for confirmation and endorsement of the details narrated in each of the letter vide email dated 6th March,2017. In response, SLDC vide email dated 14th March,2017 confirmed that these details are matching with SLDC records and there is no disparity.

In view of the above, confirmation from SLDC, the Commission computed the additional capacity charges due to better PAF as detailed in the Table below:

**Table 4.50: Additional capacity charges for TPL-G (APP) for FY 2015-16**

**(Rs Crore)**

| Particulars | Approved for truing up for 2015-16 |
|---|---|
| Total Capacity charges (in Rs. Crore) | 276.03 |
| Actual Wt. Avg. Annual PAF of TPL-G (APP) (in %) | 95.63% |
| Normative Annual PAF (NAPAF) (in %) | 85.00% |
| Allowable Capacity charges (in Rs. Crore)including incentive | 310.56 |
| Incentive/Disincentive | 34.52 |

The Commission approves the total ARR of Rs. 1039.50 Crore (1004.98+34.52) of TPL-G (APP) for FY 2015-16. The same is considered as actual power purchase cost of power purchased from TPL-G (APP) for FY 2015-16 in ARR of TPL Distribution.

## Annexure 4.1: Approved fuel costs for FY 2015-16 for True up C- Station

| Sl. No. | Item | Derivation | Unit | 2015-16 |
|---|---|---|---|---|
| 1 | Gross Generation | A=A1 x A2 x 8760 or 8784 (leap year)/1000 | MUs | 51.82 |
| 2 | Auxiliary Consumption | C | % | 9.50% |
| 3 | Auxiliary Consumption | B | MUs | 4.92 |
| 4 | Net Generation | Y=A - B | MUs | 46.90 |
| 5 | Station Heat Rate | D | Kcal/KWh | 3,150 |
| 6 | Sp. Oil Consumption | E | ml/kWh | 2.00 |
| 7 | Gross Calorific Value of Coal | F | kcal/kg | 3,931 |
| 8 | Calorific value of Oil | G | kcal/l | 9,996 |
| 9 | Overall Heat | H=A x D | G Cal | 163,233 |
| 10 | Heat from Oil | I=(A x E x G)/1000 | G Cal | 1,036 |
| 11 | Heat from Coal | J=H-I | G Cal | 162,197 |
| 12 | Transit losses | K | % | 0.80% |
| 13 | Coal Blend | | | |
| 14 | A) Indigenous Coal | X1 | % | 100% |
| 15 | C) Imported Coal | X3 | % | 0% |
| 16 | Actual Oil Consumption | L=A x E | kl | 103.64 |
| 17 | Actual Coal Consumption | M=(J X 1000)/F | MT | 41,260 |
| 18 | A) Indigenous Coal | Q1=M* x X1/(1-K) | MT | 41,593 |
| 19 | C) Imported Coal | Q3=M* X X3 | MT | - |
| 20 | Price of Coal | | | |
| 21 | A) Indigenous Coal | P1 | Rs/MT | 4,639.82 |
| 22 | C) Imported Coal | P3 | Rs/MT | - |
| 23 | Price of Oil | P4 | Rs/kl | 43,800 |
| 24 | Coal cost | | | |
| 25 | A) Indigenous Coal | N1=Q1 X P1/10^5 | Rs Lakh | 1,930 |
| 26 | C) Imported Coal | N3=Q3 X P3/10^5 | Rs Lakh | - |
| 27 | Total Coal Cost | N4=N1+N2+N3 | Rs Lakh | 1,930 |
| 28 | Oil Cost | N5=P4 x L/10^5 | Rs Lakh | 45 |
| 29 | Other Charges (Please specify details) | N6 | Rs Lakh | 6 |
| 30 | Total Fuel Cost | O=N4+N5+N6+N7 | Rs Lakh | 1,981 |
| 31 | Fuel Cost/Unit Gross | P=O/(A*10) | Rs/kWh | 3.82 |
| 32 | Fuel Cost/Unit Net | Q=O/(Y*10) | Rs/kWh | 4.22 |
| 33 | Cost of fuel/G.Cal | R=(O/H)*10^5 | Rs/Gcal | 1,214 |
| 34 | Actual Auxiliary Consumption | C1 | % | 11.71 |
| 35 | Actual Auxiliary Consumption | B1=A*C1 | MU | 6.07 |
| 36 | Actual Net Generation | S=A-B1 | MU | 46 |
| 37 | Normative fuel cost for actual net generation | T=Q*S | Rs Crore | 19.33 |

## Annexure 4.2 : Approved fuel costs for FY 2015-16 for True up D Station

| Sl. No. | Item | Derivation | Unit | 2015-16 |
|---|---|---|---|---|
| 1 | Gross Generation | A=A1 x A2 x 8760 or 8784 (leap year)/1000 | MUs | 774.52 |
| 2 | Auxiliary Consumption | C | % | 9.00% |
| 3 | Auxiliary Consumption | B | MUs | 69.71 |
| 4 | Net Generation | Y=A - B | MUs | 704.81 |
| 5 | Station Heat Rate | D | Kcal/KWh | 2,450 |
| 6 | Sp. Oil Consumption | E | ml/kWh | 1.00 |
| 7 | Gross Calorific Value of Coal | F | kcal/kg | 4,374 |
| 8 | Calorific value of Oil | G | kcal/l | 9,977 |
| 9 | Overall Heat | H=A x D | G Cal | 1,897,578 |
| 10 | Heat from Oil | I=(A x E x G)/1000 | G Cal | 7,727 |
| 11 | Heat from Coal | J=H-I | G Cal | 1,889,851 |
| 12 | Transit losses | K | % | 0.80% |
| 13 | Coal Blend | | | |
| 14 | A) Indigenous Coal | X1 | % | 60% |
| 15 | C) Imported Coal | X3 | % | 40% |
| 16 | Actual Oil Consumption | L=A x E | kl | 774.52 |
| 17 | Actual Coal Consumption | M=(J X 1000)/F | MT | 432,108 |
| 18 | A) Indigenous Coal | Q1=M* x X1/(1-K) | MT | 260,727 |
| 19 | C) Imported Coal | Q3=M* X X3 | MT | 173,467 |
| 20 | Price of Coal | | | |
| 21 | A) Indigenous Coal | P1 | Rs/MT | 4,761.37 |
| 22 | C) Imported Coal | P3 | Rs/MT | 5,780.30 |
| 23 | Price of Oil | P4 | Rs/kl | 41,978 |
| 24 | Coal cost | | | |
| 25 | A) Indigenous Coal | N1=Q1 X P1/10^5 | Rs Lakh | 12,414 |
| 26 | C) Imported Coal | N3=Q3 X P3/10^5 | Rs Lakh | 10,027 |
| 27 | Total Coal Cost | N4=N1+N2+N3 | Rs Lakh | 22,441 |
| 28 | Oil Cost | N5=P4 x L/10^5 | Rs Lakh | 325 |
| 29 | Other Charges (Please specify details) | N6 | Rs Lakh | 319 |
| 30 | Total Fuel Cost | O=N4+N5+N6+N7 | Rs Lakh | 23,085 |
| 31 | Fuel Cost/Unit Gross | P=O/(A*10) | Rs/kWh | 2.98 |
| 32 | Fuel Cost/Unit Net | Q=O/(Y*10) | Rs/kWh | 3.28 |
| 33 | Cost of fuel/G.Cal | R=(O/H)*10^5 | Rs/Gcal | 1,217 |
| 34 | Actual Auxiliary Consumption | C1 | % | 9.30 |
| 35 | Actual Auxiliary Consumption | B1=A*C1 | MU | 72.00 |
| 36 | Actual Net Generation | S=A-B1 | MU | 703 |
| 37 | Normative fuel cost for actual net generation | T=Q*S | Rs Crore | 230.10 |

## Annexure 4.3: Approved fuel costs for FY 2015-16 for True up – E Station

| Sl. No. | Item | Derivation | Unit | 2015-16 |
|---|---|---|---|---|
| 1 | Gross Generation | A=A1 x A2 x 8760 or 8784 (leap year)/1000 | MUs | 773.99 |
| 2 | Auxiliary Consumption | C | % | 9.00% |
| 3 | Auxiliary Consumption | B | MUs | 69.66 |
| 4 | Net Generation | Y=A - B | MUs | 704.33 |
| 5 | Station Heat Rate | D | Kcal/KWh | 2,455 |
| 6 | Sp. Oil Consumption | E | ml/kWh | 1.00 |
| 7 | Gross Calorific Value of Coal | F | kcal/kg | 4,371 |
| 8 | Calorific value of Oil | G | kcal/l | 9,965 |
| 9 | Overall Heat | H=A x D | G Cal | 1,900,146 |
| 10 | Heat from Oil | I=(A x E x G)/1000 | G Cal | 7,712 |
| 11 | Heat from Coal | J=H-I | G Cal | 1,892,433 |
| 12 | Transit losses | K | % | 0.80% |
| 13 | Coal Blend | | | |
| 14 | A) Indigenous Coal | X1 | % | 59% |
| 15 | C) Imported Coal | X3 | % | 41% |
| 16 | Actual Oil Consumption | L=A x E | kl | 773.99 |
| 17 | Actual Coal Consumption | M=(J X 1000)/F | MT | 432,942 |
| 18 | A) Indigenous Coal | Q1=M* x X1/(1-K) | MT | 258,133 |
| 19 | C) Imported Coal | Q3=M* X X3 | MT | 176,874 |
| 20 | Price of Coal | | | |
| 21 | A) Indigenous Coal | P1 | Rs/MT | 4,742.27 |
| 22 | C) Imported Coal | P3 | Rs/MT | 5,778.93 |
| 23 | Price of Oil | P4 | Rs/kl | 40,659 |
| 24 | Coal cost | | | |
| 25 | A) Indigenous Coal | N1=Q1 X P1/10^5 | Rs Lakh | 12,241 |
| 26 | C) Imported Coal | N3=Q3 X P3/10^5 | Rs Lakh | 10,221 |
| 27 | Total Coal Cost | N4=N1+N2+N3 | Rs Lakh | 22,463 |
| 28 | Oil Cost | N5=P4 x L/10^5 | Rs Lakh | 315 |
| 29 | Other Charges (Please specify details) | N6 | Rs Lakh | 285 |
| 30 | Total Fuel Cost | O=N4+N5+N6+N7 | Rs Lakh | 23,063 |
| 31 | Fuel Cost/Unit Gross | P=O/(A*10) | Rs/kWh | 2.98 |
| 32 | Fuel Cost/Uit Net | Q=O/(Y*10) | Rs/kWh | 3.27 |
| 33 | Cost of fuel/G.Cal | R=(O/H)*10^5 | Rs/Gcal | 1,214 |
| 34 | Actual Auxiliary Consumption | C1 | % | 8.92 |
| 35 | Actual Auxiliary Consumption | B1=A*C1 | MU | 69.06 |
| 36 | Actual Net Generation | S=A-B1 | MU | 705 |
| 37 | Normative fuel cost for actual net generation | T=Q*S | Rs Crore | 230.82 |

## Annexure 4.4: Approved fuel costs for FY 2015-16 for True up – F Station

| Sl. No. | Item | Derivation | Unit | 2015-16 |
|---|---|---|---|---|
| 1 | Gross Generation | A=A1 x A2 x 8760 or 8784 (leap year)/1000 | MUs | 810.97 |
| 2 | Auxiliary Consumption | C | % | 9.00% |
| 3 | Auxiliary Consumption | B | MUs | 72.99 |
| 4 | Net Generation | Y=A - B | MUs | 737.98 |
| 5 | Station Heat Rate | D | Kcal/KWh | 2,455 |
| 6 | Sp. Oil Consumption | E | ml/kWh | 1.00 |
| 7 | Gross Calorific Value of Coal | F | kcal/kg | 4,375 |
| 8 | Calorific value of Oil | G | kcal/l | 9,968 |
| 9 | Overall Heat | H=A x D | G Cal | 1,990,921 |
| 10 | Heat from Oil | I=(A x E x G)/1000 | G Cal | 8,083 |
| 11 | Heat from Coal | J=H-I | G Cal | 1,982,837 |
| 12 | Transit losses | K | % | 0.80% |
| 13 | Coal Blend | | | |
| 14 | A) Indigenous Coal | X1 | % | 59% |
| 15 | C) Imported Coal | X3 | % | 41% |
| 16 | Actual Oil Consumption | L=A x E | kl | 810.97 |
| 17 | Actual Coal Consumption | M=(J X 1000)/F | MT | 453,241 |
| 18 | A) Indigenous Coal | Q1=M* x X1/(1-K) | MT | 271,764 |
| 19 | C) Imported Coal | Q3=M* X X3 | MT | 183,651 |
| 20 | Price of Coal | | | |
| 21 | A) Indigenous Coal | P1 | Rs/MT | 4,762.20 |
| 22 | C) Imported Coal | P3 | Rs/MT | 5,775.35 |
| 23 | Price of Oil | P4 | Rs/kl | 42,281 |
| 24 | Coal cost | | | |
| 25 | A) Indigenous Coal | N1=Q1 X P1/10^5 | Rs Lakh | 12,942 |
| 26 | C) Imported Coal | N3=Q3 X P3/10^5 | Rs Lakh | 10,606 |
| 27 | Total Coal Cost | N4=N1+N2+N3 | Rs Lakh | 23,548 |
| 28 | Oil Cost | N5=P4 x L/10^5 | Rs Lakh | 343 |
| 29 | Other Charges (Please specify details) | N6 | Rs Lakh | 285 |
| 30 | Total Fuel Cost | O=N4+N5+N6+N7 | Rs Lakh | 24,176 |
| 31 | Fuel Cost/Unit Gross | P=O/(A*10) | Rs/kWh | 2.98 |
| 32 | Fuel Cost/Unit Net | Q=O/(Y*10) | Rs/kWh | 3.28 |
| 33 | Cost of fuel/G.Cal | R=(O/H)*10^5 | Rs/Gcal | 1,214 |
| 34 | Actual Auxiliary Consumption | C1 | % | 9.27 |
| 35 | Actual Auxiliary Consumption | B1=A*C1 | MU | 75.15 |
| 36 | Actual Net Generation | S=A-B1 | MU | 736 |
| 37 | Normative fuel cost for actual net generation | T=Q*S | Rs Crore | 241.05 |

# 5 Aggregate Revenue Requirement (ARR) for the control period FY 2016-17 to FY 2020-21 and determination of tariff for FY 2017-18

## 5.1 TPL-Generation (APP)

### 5.1.1 Generating Stations of TPL-G (APP) and their performance

The details of generating stations of TPL-G (APP) as on 1st April, 2016 along with their capacities are as given in the table below:

**Table 5.1: Capacity, COD and age of TPL-G (APR) Generating Stations as on 1st April, 2016**

| Name of the station | Capacity in MW | Year of COD | Age/ Years |
|---|---|---|---|
| **Sabarmati Thermal Power Plant (Coal based)** | | | |
| C Station | 2X30MW | 1961/1997*<br>*(Year of turbine retrofitting) | 57 |
| D Station | 1X120MW | 1978/2004*<br>*(Uprating capacity) | 39 |
| E Station | 1X110MW | 1984 | 33 |
| F Station | 1X110MW | 1988 | 29 |

### 5.1.2 Performance of generating stations

**Introduction**

TPL-G (APP) has prepared the MYT petition for TPL – G (APP) in accordance with the GERC (Multi Year Tariff) Regulations, 2016 for the next Control Period of five financial years from FY 2016-17 to FY 2020-21.

**Operational Performance Parameters**

TPL-G (APP) has submitted that the estimates of operational parameters & cost of generation is developed based on the GERC MYT Regulations, 2016. TPL-G (APP) further submitted that the operational parameters will get affected due to the Merit Order Despatch principles as well as the aging of the plant.

TPL submitted that the generation units are designed for base load operation and high variation in loading pattern would induce thermal stresses leading to deterioration of life of the equipment and operating performance. The Petitioner further submitted that it will endeavor to comply with the MoD principles by running the stations at minimum load for stable operations. It is submitted that there will be an impact on the performance of the operating parameters of the generating station due to lower and varying load conditions as has been witnessed during the MYT 2$^{nd}$ Control Period.

Despite lower and varying load conditions, the auxiliary equipment operate near to its full capacity though, the stations are operating at partial loadings, leading to higher auxiliary consumption in percentage (%) terms. The secondary fuel consumption may also increase due to increase in number of ramping up/down operations, and to maintain the stable operation during low load condition.

TPL-G (APP) submitted that, for estimation of the variable cost, it has considered the current trend of FY 2016-17 and thereafter considered the normative operational parameters i.e. SHR, auxiliary consumption, secondary fuel consumption. However, TPL-G (APP) has requested the Commission for allowance of necessary adjustments in operating norms (SHR, Auxiliary Consumption, Secondary Fuel Consumption, etc.) during the MYT 3$^{rd}$ Control Period on account of lower PLF due to factors discussed in earlier sections. Accordingly, TPL-G (APP) would approach the Commission to seek these adjustments at the time of true up exercise or any other period as may be required.

It is further submitted that while C station has been considered as available for the MYT 3$^{rd}$ control period, it is proposed to operate the station on wet preservation mode due to higher heat rate. In case of implementation of the new norms by Government of India, TPL-G (APP) shall retire the station during the control period. TPL-G (APP) requested the Commission to consider the above facts while approving the operational and cost parameters for each of the stations. The details for each of the parameters are described in the following section.

### 5.1.3 Plant Availability Factor (PAF)

**Petitioner's submission**

TPL submitted that plant availability factor has been computed after considering annual shut down of the unit without factoring the forced outage factor and shut down of the unit due to low system demand. Accordingly, the planned maintenance days for each unit have been tabulated in the Table below:

**Table 5.2: Annual Planned Maintenance of TPL-G (APP) for MYT Control Period**

**(No. of days)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | 10 | 5 | 5 | 5 | 5 |
| 2 | D Station | 20 | 20 | 10 | 10 | 50 |
| 3 | E Station | 10 | 10 | 30 | 10 | 10 |
| 4 | F Station | 10 | 30 | 10 | 50 | 10 |

TPL-G (APP) submitted that above planned maintenance is scheduled normally during November to February in order to carry out the maintenance works at a time when there is lower demand.

Based on the above details, TPL-G (APP) has projected the PAF as shown in the Table below.

**Table 5.3: Projected Plant Availability Factor for the control period FY 2016-17 to FY 2020-21**

**(%)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | 97.26% | 98.63% | 98.63% | 98.63% | 98.63% |
| 2 | D Station | 91.84% | 92.16% | 94.83% | 94.84% | 84.14% |
| 3 | E Station | 95.28% | 94.83% | 89.49% | 94.84% | 94.83% |
| 4 | F Station | 95.71% | 89.49% | 94.83% | 84.18% | 94.83% |

**Commission's Analysis**

The Commission has analysed the submission made by the petitioner with regard to the vintage of the machines, past performance etc. On a query from the Commission, TPL submitted the detail calculation of projected PAF during the MYT control period vide email dated 22nd March,2017. It reveals from these calculations that TPL has, considered forced outage hours as mentioned in Table 5.2 above which includes of forced outages, reserve shutdown and planned maintenance, though in the table only planned maintenance is mentioned to arrive at projected PAF, which is accepted by the Commission.

Further, as submitted by TPL that C Station is to be considered available during the third MYT control period as it is required to be kept on wet preservation mode. While considering the plea of TPL, the Commission hereby, directs the Petitioner to explore the possibility of decommissioning the C station from FY 2018-19 and accordingly do not approve PAF from FY 2018-19 onwards for C station.

The Commission approves the PAF of each station except C station, as projected by TPL as given in the Table below:

**Table 5.4: Approved Plant Availability Factor for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(%)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | 97.26% | 98.63% | - | - | - |
| 2 | D Station | 91.84% | 92.16% | 94.83% | 94.84% | 84.14% |
| 3 | E Station | 95.28% | 94.83% | 89.49% | 94.84% | 94.83% |
| 4 | F Station | 95.71% | 89.49% | 94.83% | 84.18% | 94.83% |

## 5.1.4 Plant Load Factor (PLF)

**Petitioner's submission**

TPL has projected the plant load factor for all the stations for the control period as given in the table below:

**Table 5.5: Projected Plant Load Factor for the control period FY 2016-17 to FY 2020-21**

**(%)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | - | - | - | - | - |
| 2 | D Station | 82.58% | 79.32% | 81.21% | 82.76% | 75.08% |
| 3 | E Station | 86.44% | 86.53% | 80.85% | 87.12% | 88.83% |
| 4 | F Station | 87.76% | 82.95% | 86.73% | 78.74% | 90.13% |

TPL has submitted that the PLF is proposed considering the factors like Merit Order Despatch (MOD), aging and minimum technical load etc. The same may undergo change depending upon the variation in demand.

**Commission's Analysis**

The Commission has analysed the submission made by TPL with regard to projecting the PLF taking into account the aging of the equipments and planned maintenance schedules. The Commission noted that TPL has not projected PLF for C station during the control period. The Commission accordingly approved PLF for different stations as projected by TPL in the Table below:

**Table 5.6: Approved Plant Load Factor for TPL-G (APP) for control period FY 2016-17 to FY 2020-21**

**(%)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | - | - | - | - | - |
| 2 | D Station | 82.58% | 79.32% | 81.21% | 82.76% | 75.08% |
| 3 | E Station | 86.44% | 86.53% | 80.85% | 87.12% | 88.83% |
| 4 | F Station | 87.76% | 82.95% | 86.73% | 78.74% | 90.13% |

It is to clarify here that for the purpose of incentive calculation during truing up, the PLF shall be considered for each station of TPL-G(APP) as per Regulation 53.2 of the MYT Regulations, 2016. TPL-G(APP) shall submit a certificate from SLDC certifying annual PLF for each station separately while truing up.

### 5.1.5 Auxiliary consumption

**Petitioner's submission**

TPL has projected the auxiliary consumption for all the stations for the control period, as given in the Table below:

**Table 5.7: Projected Auxiliary consumption for the control period FY 2016-17 to FY 2020-21**

**(%)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | - | - | - | - | - |
| 2 | D Station | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| 3 | E Station | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| 4 | F Station | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |

The auxiliary consumption depends on the configuration, age and related technical parameters of the stations. The auxiliary consumption occurs due to the electrical equipment, such as, the boiler feed pumps, cooling water pumps, air fans, coal grinding mills, ash-handling equipment etc. of the generating station.

TPL-G (APP) submitted that lower PLF has major impact on the performance parameters of the stations. It further submitted that even though the stations are operating at partial load, the auxiliary equipment has to be operated near to its full capacity leading to higher auxiliary consumption in % terms. Therefore, the auxiliary consumption in MUs is likely to remain same, even though the gross generation may reduce on account of lower PLFs. This will result in higher auxiliary consumption in % terms for the MYT 3rd Control Period.

However, in the current petition, TPL-G (APP) has considered the auxiliary consumption norms as approved by the Commission in the GERC (Multi Year Tariff) Regulations, 2016 for 3rd Control Period.

**Commission's Analysis**

The Commission has analysed the submission made by the petitioner on vintage of the machines, past performance etc. The Commission noted that TPL has not projected auxiliary consumption for C station during the control period and accordingly approved auxiliary consumption norms for different stations on the basis of the GERC (MYT) Regulations, 2016 as given in the Table below:

**Table 5.8: Approved Auxiliary consumption for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(%)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | - | - | - | - | - |
| 2 | D Station | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| 3 | E Station | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| 4 | F Station | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |

The Commission may revise the norms for the auxiliary energy consumption for the above, mentioned generating stations in case of Renovation and Modernization of the generating stations as envisaged in Regulation 53.7 (b) of the GERC (MYT) Regulations, 2016.

### 5.1.6 Station Heat Rate (SHR)

**Petitioner's submission**

TPL has projected the SHR of different stations for the control period of FY 2016-17 to FY 2020-21, as given in the table below:

**Table 5.9: Projected Station Heat Rate for the control period FY 2016-17 to FY 2020-21**

**(Kcal/kWh)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | 3,136 | 3,136 | 3,136 | 3,136 | 3,136 |
| 2 | D Station | 2,450 | 2,450 | 2,450 | 2,450 | 2,450 |
| 3 | E Station | 2,455 | 2,455 | 2,455 | 2,455 | 2,455 |
| 4 | F Station | 2,455 | 2,455 | 2,455 | 2,455 | 2,455 |

TPL-G (APP) has claimed that it has historically maintained the Station Heat Rate (SHR), which is efficient in comparison to the other plants having similar category, age and size of generating units. This has been possible due to its efforts for maintaining higher level of efficiency in operation and following better maintenance practices.

However, TPL submitted that during the MYT 2nd Control Period, SHR has been severely impacted on account of part load operation due to higher backing down and varying load conditions including the need for operating the plants at technical minimum. The units of TPL-G (APP) have been designed for base load operations. Frequent variations in loading pattern would also induce thermal stresses which in turn deteriorates life of the plant.

TPL-G (APP) submitted that for the MYT 3rd Control Period, the normative parameters defined by the Commission for TPL-G (APP) are very stringent as compared to the similarly situated plants of M/s GSECL.

It is stated that GERC and Hon'ble CERC Regulations provide for 6.5% design margin in SHR. Accordingly, the SHR of new generating station having supercritical technology is also in the range of 2350 kCal/kWh. However, in the current petition, TPL-G (APP) has proposed SHR for all the stations at the levels approved by the Commission in the GERC (Multi Year Tariff) Regulations, 2016.

**Commission's Analysis**

The Commission has analysed the submission made by the TPL.

As submitted by TPL, C Station is to be considered available during the third MYT control period as it is required to be kept on wet preservation mode. While considering the plea of TPL, the Commission hereby, directs the Petitioner to explore the possibility of decommissioning the C station from FY 2018-19 and accordingly do not approve the SHR from FY 2018-19 onwards for C station.

The SHR proposed for the stations are in accordance with those permitted levels, as per Regulation 53.3 (b) of the GERC (MYT) Regulations, 2016.

In view of the above, the Commission approves the SHR for different stations for the control period for FY 2016-17 to FY 2020-21 as given in the Table below:

**Table 5.10: Approved Station Heat Rate for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Kcal/kWh)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | 3,136 | 3,136 | - | - | - |
| 2 | D Station | 2,450 | 2,450 | 2,450 | 2,450 | 2,450 |
| 3 | E Station | 2,455 | 2,455 | 2,455 | 2,455 | 2,455 |
| 4 | F Station | 2,455 | 2,455 | 2,455 | 2,455 | 2,455 |

### 5.1.7 Secondary Fuel Oil Consumption (SFC)

**Petitioner's submission**

For the MYT 3rd Control Period, TPL-G (APP) has proposed SFC at the levels specified by the Commission in the GERC MYT Regulations, 2016 as shown in the Table below for each station:

**Table 5.11: Projected Secondary Fuel Oil Consumption for the control period FY 2016-17 to FY 2020-21**

**(gm/kWh)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| 2 | D Station | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 3 | E Station | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 4 | F Station | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

TPL –G (APP) further submitted that at times oil support is required at low load conditions. The oil consumption depends upon oil support required and number of start/ stop operations. TPL-G (APP) submitted that it would approach the Commission for appropriate adjustments in SFC based on the impact of varying load conditions on their respective SFC.

**Commission's Analysis**

As submitted by TPL, C Station is to be considered available during the third MYT control period as it is required to be kept on wet preservation mode. While considering the plea of TPL, the Commission hereby, directs the Petitioner to explore the possibility of decommissioning the C station from FY 2018-19 and accordingly do not approve SFO consumption from FY 2018-19 onwards for C station.

The Commission has analysed the submission made by TPL with regard to oil support required at low load operations and number of start/stop operations and approves secondary fuel oil consumption for different stations taking into account the GERC (MYT) Regulations, 2016 as given in the Table below:

**Table 5.12: Approved secondary fuel oil consumption for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(ml/kWh)**

| Sl. No. | Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | C Station | 2.00 | 2.00 | - | - | - |
| 2 | D Station | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 3 | E Station | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 4 | F Station | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

The Commission may consider to revise the norms for the secondary fuel consumption for the above mentioned generating stations, in case of Renovation and Modernization undertaken by the generating stations as envisaged in Regulation 53.5 (C) of the GERC (MYT) Regulations, 2016.

### 5.1.8 Transit loss of coal

**Petitioner's submission**

TPL has projected transit loss of coal for the control period for FY 2016-17 to FY 2020-21- as given in the Table below:

**Table 5.13: Projected Transit loss of coal for the control period FY 2016-17 to FY 2020-21**

**(%)**

| Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| All stations | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

TPL-G (APP) submitted that it is currently incurring higher transit loss on account of various uncontrollable factors i.e.

i. Transit loss on account of natural factors such as evaporation, wind and seepage of fine coal through wagon, is directly related to the distance travelled. This is evident from the difference in the transit loss norms specified for pit head stations and non-pit head stations.

ii. Theft and pilferage during transportation are the other contributory factors towards higher transit loss.

Presently TPL-G (APP) has proposed transit loss for all the stations at the levels approved by the Commission in the GERC (Multi Year Tariff) Regulations, 2016.

**Commission's Analysis**

The Commission has analysed the submissions made by the TPL and is of the opinion that there is no justification for such high incidence of transit loss. Accordingly, the Commission approves the transit loss in accordance with the GERC (MYT) Regulations, 2016 as given in the Table below:

**Table 5.14: Approved Transit loss of coal for the control period FY 2016-17 to FY 2020-21**

**(%)**

| Station | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| All stations | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

### 5.1.9 Performance parameters approved

Based on the decisions in the earlier paragraphs the performance parameters approved by the Commission for the control period FY 2016-17 to FY 2020-21 for different stations are summarized as in the table below:

**Table 5.15: Approved parameters of PAF, PLF, Auxiliary consumption, station heat rate, specific oil consumption and coal transit loss for FY 2016-17 to FY 2020-21**

| Stn | PAF (%) | | | | | PLF (%) | | | | | Auxiliary consumption (%) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 |
| C | 97.26 | 98.63 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| D | 91.84 | 92.16 | 94.83 | 94.84 | 84.14 | 82.58 | 79.32 | 81.21 | 82.76 | 75.08 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| E | 95.28 | 94.83 | 89.49 | 94.84 | 94.83 | 86.44 | 86.53 | 80.85 | 87.12 | 88.83 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| F | 95.71 | 89.49 | 94.83 | 84.18 | 94.83 | 87.76 | 82.95 | 86.73 | 78.74 | 90.13 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| Stn | SHR | | | | | SFO consumption | | | | | Transit Loss (%) | | | | |
| | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 |
| C | 3,136 | 3,136 | - | - | - | 2.00 | 2.00 | - | - | - | 0.8 | 0.8 | - | - | - |
| D | 2450 | 2450 | 2450 | 2450 | 2450 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| E | 2455 | 2455 | 2455 | 2455 | 2455 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| F | 2455 | 2455 | 2455 | 2455 | 2455 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |

## 5.2 Projected Gross and Net generation

### Petitioner's submission

TPL has projected the gross and net generation of different stations with the projected PLF and auxiliary consumption for the control period FY 2016-17 to FY 2020-21 as given in the table below:

**Table 5.16: Projected gross and net generation for the control period FY 2016-17 to FY 2020-21**

**(MUs)**

| Sl. No. | Station | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net |
| 1. | C Station | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2. | D Station | 868.07 | 789.94 | 833.80 | 758.76 | 853.67 | 776.84 | 873.34 | 793.83 | 789.23 | 718.20 |
| 3. | E Station | 916.25 | 833.79 | 917.16 | 834.62 | 857.01 | 779.88 | 926.02 | 842.67 | 941.59 | 856.85 |
| 4. | F Station | 930.19 | 846.47 | 879.21 | 800.08 | 919.29 | 836.55 | 836.95 | 761.62 | 955.36 | 869.38 |
| | **Total** | **2714.51** | **2470.20** | **2630.17** | **2393.46** | **2629.97** | **2393.27** | **2635.31** | **2398.13** | **2686.18** | **2444.43** |

## 5.2.1 Approved Gross and Net Generation

The gross and net generation for different stations in the TPL as approved by the Commission based on the permissible parameters of PLF and auxiliary consumption as discussed in the earlier paragraphs are as given in the table below:

**Table 5.17: Approved gross and net generation for the control period FY 2016-17 to FY 2020-21**

**(MUs)**

| Sl. No. | Station | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net |
| 1 | C Station | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | D Station | 868.07 | 789.94 | 833.80 | 758.76 | 853.67 | 776.84 | 872.34 | 793.83 | 789.23 | 718.20 |
| 3 | E Station | 916.25 | 833.79 | 917.16 | 834.62 | 857.01 | 779.88 | 926.02 | 842.67 | 941.59 | 856.85 |
| 4 | F Station | 930.19 | 846.47 | 879.21 | 800.08 | 919.29 | 836.55 | 836.95 | 761.62 | 955.36 | 869.38 |
| | **Total** | **2714.51** | **2470.20** | **2630.17** | **2393.46** | **2629.97** | **2393.27** | **2635.31** | **2398.13** | **2686.21** | **2444.43** |

## 5.3 Generation costs – Variable (Energy) and Capacity (Fixed) charges

### 5.3.1 Variable costs (Energy charges)

The performance parameters for different stations are as discussed in the earlier paragraphs and approved for the control period from FY 2016-17 to FY 2020-21. The variable cost (mostly fuel cost) depends on the cost parameters such as GCV of fuel used, blending ratio of coal and price of fuel. TPL-G (APP) stations run on coal. For coal stations, a mix of indigenous and imported coal is used.

TPL projections and Commission's analysis on the mix of coal, Wt. Av GCV of fuels to be consumed and Wt Av Price of fuel for different stations are discussed below:

### 5.3.2 Blending ratio of coal

**Petitioner's Submission**

TPL has considered blending of indigenous and imported coal in the ratio of 70:30.

**Commission's Analysis**

The Commission has analysed the trend of blending of coal for the last five years. The Commission for the purpose of computation has considered the actual quantity of indigenous and imported coal used from FY 2011-12 until FY 2015-16. Accordingly, the final blending of coal has been computed as presented in the Table below.

**Table 5.18: Approved blending ratio of coal for different stations for the control Period FY 2011-12 to FY 2015-16**

**(Indigenous: imported)**

| Year | Indigenous Coal | Imported Coal |
|---|---|---|
| FY 15-16 | 61% | 39% |
| FY 14-15 | 67% | 33% |
| FY 13-14 | 79% | 21% |
| FY 12-13 | 69% | 31% |
| FY 11-12 | 73% | 27% |
| **Average** | **70%** | **30%** |

For the 3rd control period, the Commission has considered the blending ratio of 70:30 for indigenous and imported coal respectively.

### 5.3.3 Weighted Average Gross Calorific Value of fuel

**Petitioner's Submission**

TPL-G (APP) has arrived at the variable cost based on the proposed operational parameters for the MYT 3rd Control Period as described in the previous section. The price of fuel & calorific value is taken as per the estimates for the MYT 3rd Control Period.

The calorific value of primary & secondary fuel is shown in the Table below for the approval of the Commission.

**Table 5.19: Projected Wt. Av GCV of fuel of TPL-G (APP) for the control Period FY 2016-17 to FY 2020-21**

| Stations C,D,E & F | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Indigenous coal (Kcal/Kg) | 4053 | 4053 | 4053 | 4053 | 4053 |
| Imported coal (Kcal/Kg) | 4888 | 4888 | 4888 | 4888 | 4888 |
| Secondary fuel oil (Kcal/L) | 9969 | 9969 | 9969 | 9969 | 9969 |

TPL submitted that the calorific vale of fuel proposed is based on their estimates for 3rd control period.

**Commission's Analysis**

The Commission has analysed the submission of TPL in respect to GCV of indigenous coal, imported coal and oil. It is found that the value of the calorific value of various fuel is as per actuals of FY 2015-16.

The actual values are bound to change from the approved level in accordance with the quality of fuels actually supplied. Any difference in fuel costs due to the variation in the approved values is to be passed on to the consumers based on the approved FPPPA formula.

The Wt. Av calorific value of different fuels approved for the control period FY 2016-17 to FY 2020-21 are as given in the table below:

**Table 5.20: Approved Wt Av GCVs of fuels of TPL-G (APP) for the control Period FY 2016-17 to FY 2020-21**

| Sl. No. | Station | Wt Av GCV of mix of coal as per the approved blending ratio* (Kcal/Kg) | | | | | Wt Av GCV of secondary fuel (oil) (Kcal/L) |
|---|---|---|---|---|---|---|---|
| | | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | |
| 1 | C | - | - | - | - | - | - |
| 2 | D | 4305 | 4305 | 4306 | 4306 | 4305 | 9969 |
| 3 | E | 4305 | 4305 | 4306 | 4306 | 4305 | 9969 |
| 4 | F | 4305 | 4305 | 4306 | 4306 | 4305 | 9969 |

** The Wt Av GCV of the mix of coal is arrived at based on the proposed mix of indigenous and imported coal for different years and Wt Av GCV of the respective coal.*

### 5.3.4 Weighted Average price of fuel

TPL has projected the Wt Av prices of different fuels for the control period as given in the table below:

**Table 5.21: Projected Wt Av price of different fuels of TPL-G (APP) for the control Period FY 2016-17 to FY 2020-21**

| Type of fuel | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Wt Av cost of indigenous coal (Rs/MT) | 5125.62 | 5125.62 | 5125.62 | 5125.62 | 5125.62 |
| Wt Av cost of Imported coal (Rs/MT) | 5330.98 | 5330.98 | 5330.98 | 5330.98 | 5330.98 |
| Wt Av cost of Secondary fuel oil (Rs/kL) | 31613 | 31613 | 31613 | 31613 | 31613 |

**Commission's Analysis**

The Commission has decided to approve the prices of indigenous coal, imported coal and secondary fuel oil as projected by the Petitioner for the control period of FY 2016-17 to FY 2020-21.

Accordingly, the prices of different fuels approved for the control period for FY 2016-17 to FY 2020-21, are as given in the Table below:

**Table 5.22: Approved Wt. Av prices of different fuels of TPL-G (APP) for the control Period FY 2016-17 to FY 2020-21**

| Type of fuel | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Wt Av cost of indigenous coal (Rs/MT) | 5125.62 | 5125.62 | 5125.62 | 5125.62 | 5125.62 |
| Wt Av cost of Imported coal (Rs/MT) | 5330.98 | 5330.98 | 5330.98 | 5330.98 | 5330.98 |
| Wt Av cost of Secondary fuel oil (Rs/Kl) | 31613 | 31613 | 31613 | 31613 | 31613 |

The Commission has decided to arrive at the fuel cost for the control period based on the cost parameters approved in the Tables 5.15 and 5.22. Any difference in the fuel cost due to variation in cost parameters is to be passed on to the consumers as per approved FPPPA formula.

## 5.4 Fuel costs

The station-wise approved fuel costs for the control period based on the decisions of the Commission in the earlier paragraphs are as given in the table below:

**Table 5.23: Approved Fuel cost of different stations of TPL-G (APP) for the control Period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Sl. No. | Station | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Proj** | **App.** | **Proj** | **App.** | **Proj** | **App.** | **Proj** | **App.** | **Proj** | **App.** |
| 1 | C Station | - | - | - | - | - | - | - | - | - | - |
| 2 | D Station | 259.38 | 259.38 | 249.14 | 249.14 | 255.07 | 255.07 | 260.65 | 260.65 | 235.83 | 235.83 |
| 3 | E Station | 274.33 | 274.33 | 274.60 | 274.60 | 256.59 | 256.59 | 277.25 | 277.25 | 281.93 | 281.93 |
| 4 | F Station | 278.50 | 278.50 | 263.24 | 263.24 | 275.24 | 275.24 | 250.58 | 250.58 | 286.05 | 286.05 |
| | **Total** | **812.21** | **812.21** | **786.98** | **786.98** | **786.90** | **786.90** | **788.48** | **788.48** | **803.81** | **803.81** |

*Proj: Projected* *App: Approved*

### 5.4.1 Fuel cost per unit (kWh)

The fuel costs of different stations per unit of gross and net generation as approved by Commission are as given in the table below:

**Table 5.24: Approved Fuel cost per unit of different stations of TPL-G (APP) for the control Period FY 2016-17 to FY 2020-21**

**(Rs/kWh)**

| Sl. No. | Station | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Gross | Net | Gross | Net | Gross | Net | Gross | Net | Gross | Net |
| 1 | C Station | - | - | - | - | - | - | - | - | - | - |
| 2 | D Station | 2.988 | 3.284 | 2.988 | 3.284 | 2.988 | 3.283 | 2.988 | 3.283 | 2.988 | 3.284 |
| 3 | E Station | 2.994 | 3.290 | 2.994 | 3.290 | 2.994 | 3.290 | 2.994 | 3.290 | 2.994 | 3.290 |
| 4 | F Station | 2.994 | 3.290 | 2.994 | 3.290 | 2.994 | 3.290 | 2.994 | 3.290 | 2.994 | 3.290 |
| | **TPL-G (APP)** | **2.992** | **3.288** | **2.992** | **3.288** | **2.992** | **3.288** | **2.992** | **3.288** | **2.992** | **3.288** |

The details of the computation are given in Annexure 5.1 to 5.3.

# 5.5 Fixed charges

## 5.5.1 Operation and Maintenance (O&M) expenses

TPL has projected the O&M expenses for the control period FY 2016-17 to FY 2020-21 as detailed in the Table below:

**Table 5.25: O&M expenses projected by TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| O&M expenses | 157.77 | 166.80 | 176.34 | 186.43 | 197.09 |

The O&M expenses consist of Employee expenses, Repairs & Maintenance (R&M) expenses and Administration & General (A&G) expenses.

**Petitioner's submission**

As per the GERC MYT Regulations, 2016, the O&M expenses for MYT 3$^{rd}$ Control Period shall be derived on the basis of the average of actual O&M expenses for three years ending on March 31, 2015. The average of such O&M expenses shall be considered as O&M expenses for the financial year ended March 31, 2014 and shall be escalated @5.72% to arrive at the O&M expenses for the subsequent years.

TPL has submitted that it has projected the O&M expenses as arrived at as per the methodology stated in the above paragraph.

TPL has further submitted that the O&M expenses does not take into account the uncontrollable expenses such as wage revision, change in law, change in levies/ duties/ taxes and charges, etc. Therefore, the Petitioner has requested Commission to treat these components as uncontrollable and any such expenses are to be allowed over and above the normal allowable components.

**Commission's Analysis**

The Commission has examined the O&M expenses for the control period submitted by TPL and noted that the average actual O&M expenses for the three years ending 31st March, 2015 are considered as base for the FY 2013-14 and that these charges are escalated @ 5.72% p.a. thereon to arrive at the O&M expenses for the control period.

Since the C Station is proposed to be decommissioned from FY 2018-19, the Commission has considered the O&M cost pertaining to C Station in the base years (FY 2012-13 to FY 2014-15) to arrive at the O&M cost for the FY 2016-17 & FY 2017-18 and reduced the O&M cost pertaining to C Station in the base years (FY 2012-13 to FY 2014-15) O&M cost to arrive at the O&M cost for the FYs 2018-19 to 2020-21. For the purpose of this calculation, the Commission sought details of O&M cost of C Station for FYs 2012-13 to 2014-15 from TPL. The details submitted by TPL vide email dated 18th March, 2017 is as under:

**Table 5.26: O&M expenses of C Station of TPL-G (APP) for the FY 2012-13 to FY 2014-15 as submitted by TPL**

**(Rs Crore)**

| Sr. No. | Particulars | Approved O&M Expenses | | |
|---|---|---|---|---|
| | | FY 2012-13 | FY 2013-14 | FY 2014-15 |
| | | (a) | (b) | (c) |
| 1 | Employee Expenses | 0.00 | 0.00 | 0.00 |

| | | | | |
|---|---|---|---|---|
| 2 | A&G Expenses (including insurance and excluding Water Charges) | 0.43 | 0.21 | 0.28 |
| 3 | R & M Expenses | 3.55 | 5.81 | 4.24 |
| **4** | **Total O&M Expenses** | **3.98** | **6.02** | **4.52** |

The actual O&M expenses excluding O&M expenses for Vatva Station approved by the Commission in the truing up of FY 2012-13 and FY 2013-14 and O&M expenses approved by the Commission for FY 2014-15 are as given in the table below:

**Table 5.27: O&M expenses of TPL-G (APP) for the FY 2012-13 to FY 2014-15 and three years average**

**(Rs Crore)**

| Sr. No. | Particulars | Approved O&M Expenses | | | 3-Year Average |
|---|---|---|---|---|---|
| | | FY 2012-13 | FY 2013-14 | FY 2014-15 | |
| | | (a) | (b) | (c) | (d)=[(a)+(b) +(c)]/3 |
| 1 | Employee Expenses | 52.82 | 52.46 | 73.60 | 59.63 |
| 2 | A&G Expenses (including insurance and excluding Water Charges) | 16.43 | 19.59 | 20.73 | 18.92 |
| 3 | R & M Expenses | 44.73 | 53.12 | 67.10 | 54.98 |
| **4** | **Total O&M Expenses** | **113.98** | **125.17** | **161.43** | **133.53** |

The three-year average O&M charges have been considered as O&M expenses for FY 2013-14. These O&M expenses are increased at an escalation factor of 5.72% per annum to arrive at the O&M expenses for FY 2015-16. Considering these O&M expenses as determined for FY 2015-16 the permissible O&M expenses for the years FY 2016-17 to FY 2020-21 are arrived at by escalating the O&M expenses of FY 2015-16 at 5.72% per annum for each year of the control period. As mentioned above, C Station O&M expenses escalated at 5.72% as per methodology specified in the GERC(MYT) Regulations,2016 are negated to arrive at projected O&M expenses for FY 2018-19 to FY 2020-21.

**Accordingly, the O&M expenses approved for the control period FY 2016-17 to FY 2020-21 are given in the table below:**

**Table 5.28: O&M expenses approved for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs Crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Employee Expenses | 70.46 | 74.49 | 78.75 | 83.25 | 88.01 |
| A&G Expenses (including insurance and excluding Water Charges) | 22.35 | 23.63 | 24.58 | 25.98 | 27.47 |
| R & M Expenses | 64.97 | 68.68 | 66.62 | 70.43 | 74.46 |
| **Total O&M Expenses** | **157.78** | **166.80** | **169.95** | **179.66** | **189.94** |

**Accordingly, the Commission has approved the O&M expenses for the control period FY 2016-17 to FY 2020-21 as given in the table below.**

**Table 5.29: Approved O&M expenses for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| O&M expenses | 157.78 | 166.80 | 169.95 | 179.66 | 189.94 |

## 5.5.2 Capital expenditure

TPL has projected year wise capital expenditure totalling to Rs. 214.14 crore over the control period FY 2016-17 to FY 2020-21. The year wise CAPEX proposed and the details of schemes covered are given in the Table below:

**Table 5.30: Capital expenditure projected for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Project Title | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | Rs Cr |
|---|---|---|---|---|---|---|
| **Major CAPEX Expenditure** | | | | | | |

| **Project Title** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** | **Rs Cr** |
|---|---|---|---|---|---|---|
| Shifting of services from C station | 3.00 | - | - | - | - | 3.00 |
| Refurbishment of D, E & F station Boiler System | 0.52 | 1.00 | - | - | 30.00 | 31.52 |
| **Sub Total (I)** | **3.52** | **1.00** | **-** | **-** | **30.00** | 34.52 |
| **Normal Capital Expenditure Schemes** | | | | | | - |
| Boiler Works | 14.85 | 2.00 | 0.30 | 16.80 | 15.40 | 49.35 |
| Turbine Works | 8.47 | 4.00 | 4.00 | 10.50 | 11.00 | 37.97 |
| Electrical Works | 9.00 | 1.40 | 10.00 | 11.00 | 4.00 | 35.40 |
| C&I Works | 4.54 | - | - | 4.00 | 16.00 | 24.54 |
| CHP Works | 2.13 | - | - | 6.50 | - | 8.63 |
| Civil Works | 6.31 | 1.00 | 2.50 | 2.50 | 5.00 | 17.31 |
| Others | 5.19 | - | - | - | - | 5.19 |
| **Sub Total (II)** | **50.49** | **8.40** | **16.80** | **51.30** | **51.40** | 178.39 |
| **Miscellaneous Capital Expenditure** | **1.22** | **-** | **-** | **-** | **-** | 1.22 |
| **TOTAL** | **55.24** | **9.40** | **16.80** | **51.30** | **81.40** | **214.14** |

### Petitioner's submission

The details of the major capital expenditure items to be incurred during the MYT 3rd control period as projected by TPL are given here under:

i. **Refurbishment of D, E and F station boiler system**: The Petitioner claimed that the renovation and modernization work of D, E and F station have been completed in recent past. Considering the operational wear & tear and aging effect, TPL has proposed to carry out the refurbishment work of D, E and F station boiler system and auxiliaries such as fans, milling plant, flue gas system, etc. This also includes expenses towards the refurbishment of gutter and pedestals of the stations, civil works, etc.

ii. **Shifting of services**: Some of the common utility services are installed and operated from C station. TPL submitted that since C station is being operated on wet preservation mode, it is proposed to shift some of the critical services from the C station for reliable operations of other units.

iii. **Routine Capital Expenditure**: TPL has submitted that the proposed capital expenditure is towards replacement of important parts/ system in light of the aging effect on the equipment and wear and tear during the normal operations.

- *Boiler Works*: It is proposed to incur capex towards pressure part replacement for D station, renovation of dry ash handling equipment and vessels along with auxiliaries and refurbishment of dry and wet ash handling system piping, ESP overhauling and replacement of boiler component and heat exchanger.
- *Turbine Works*: Capital expenditure is proposed to be incurred towards Turbine overhauling of D, E and F station as per the OEM guidelines, cooling tower refurbishment and refurbishment of generating valve motor, tools & tackles and important pumps.
- *Electrical Works*: Due to non-availability of major components from OEMs, it is required to replace mills/ fan motors along with ducts of D station. It is also proposed to incur capex towards upgradation of SBI electrical system and various electrical test equipment, numeric relays, VFD, spare breakers, motors, cables, etc. During FY 2019-20, it is proposed to incur expenditure towards re-insulation of Generator-Transformer (GT) & Unit Auxiliary Transformer (UAT) of D and F station.
- *Control & Instrumentation Works*: D station DCS was procured and installed in the year FY 2003-04. However, the same is obsolete now. Therefore, it is needed to replace the same during FY 2016-17. The entire hardware and field instrument is nearing the completion of its useful life. Hence it is proposed to replace the same with new system in FY 2019-20 and FY 2020-21.
- *CHP Woks*: The coal handling plant experiences high wear and tear. To maintain the operational performance of the Coal Handling Plant (CHP) system, periodic replacement of equipment and essential system components is required. Hence, TPL-G (APP) has proposed to incur the expenditure for coal handling plant components and procurement of one new dozer.
- Capital Expenditure has also been proposed towards civil works for plant structure, chimney & silo refurbishment, maintenance of building & roads; new bore well/ French well pump sets, miscellaneous equipment and IMS/Emission monitoring system related activities.

- Miscellaneous: Other major items include expenditure towards office equipment & vehicles, facility works, and safety & security.

TPL-G (APP) submitted that the capital expenditure described hereinabove is necessary for ensuring the smooth operations of the generating station and requested the Commission to approve the same.

The Petitioner also submitted that the Ministry of Environment & Forests (MoEF) has revised the environmental norms for thermal power plants vide its notification dated 07.12.2015. In order to comply with these revised norms, all the existing generating stations are required to incur the huge capex for providing FGD. At present, the representations are being made before the MoEF to grant relief under these norms. Since the matter is yet to be decided by the MoEF, the Petitioner has not considered any capex towards modifications required for complying with the MoEF notification in the present petition. As per the estimates, all the generators are required to incur the capex of about Rs. 1.15 Cr/MW to comply with the new norms. As same translates to huge capex, the Petitioner finds it more appropriate to set up new plant on cost plus basis having supercritical technology and transfer all existing linkages including power sale arrangements to new plant in the interest of all stakeholders. In this regard, the Petitioner submitted that it will approach the Commission at appropriate stage.

The Petitioner has projected a net capitalization of Rs. 206.12 crore over the control period. The scheme wise details of capitalization as projected by the Petitioner is shown in the table below.

**Table 5.31: Projected capitalization for the control period FY 2016-17 to 2020-21**

**(Rs. crore)**

| **Project Title** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** | **Rs Cr** |
|---|---|---|---|---|---|---|
| **Major CAPEX Expenditure** | | | | | | |
| Shifting of services from C station | 0.02 | 3.00 | - | - | - | 3.02 |
| Refurbishment of D, E & F station Boiler System | 1.17 | 1.00 | - | - | 20.00 | 22.17 |

| Project Title | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | Rs Cr |
|---|---|---|---|---|---|---|
| **Sub Total (I)** | **1.19** | **4.00** | **-** | **-** | **20.00** | 25.19 |
| **Normal Capital Expenditure Schemes** | | | | | | - |
| Boiler Works | 5.82 | 13.56 | - | 13.50 | 18.00 | 50.88 |
| Turbine Works | 4.54 | 7.00 | 3.00 | 10.00 | 11.00 | 35.54 |
| Electrical Works | 9.42 | 1.83 | 10.00 | 10.00 | 5.00 | 36.25 |
| C&I Works | 3.98 | 0.82 | - | - | 20.00 | 24.80 |
| CHP Works | 2.01 | 0.50 | - | 6.50 | - | 9.01 |
| Civil Works | 4.76 | 1.68 | 1.00 | 5.00 | 5.00 | 17.44 |
| Others | 5.79 | - | - | - | - | 5.79 |
| **Sub Total (II)** | **36.33** | **25.38** | **14.00** | **45.00** | **59.00** | 179.71 |
| **Miscellaneous Capital Expenditure** | **1.22** | **-** | **-** | **-** | **-** | 1.22 |
| **TOTAL** | **38.74** | **29.38** | **14.00** | **45.00** | **79.00** | **206.12** |

## Commission's Analysis

The Commission reiterates its earlier observation that utilities normally incur significantly lower CAPEX than what is approved during the determination of the tariff. While capital investment is required for efficient operation of the generating plants, any such capital investment increases the fixed asset base, resulting in higher debt servicing, and higher return on equity and higher depreciation on the same generation plants, which are already in operation. In fact the capital cost of a plant needs to be capped at a particular stage. In the case of TPL-G (APP) the TPL has been projecting every year normal capital expenditure for the existing stations. The Commission feels that it is necessary for TPL to ensure that capital investment schemes being proposed are necessary and justified and do not impose avoidable burden on the consumers at a later date by way of increase in Tariff.

In reference to the Commission's query regarding details of scheme wise capital work in progress and projection of capex, TPL has furnished the following details as given in the Table below:

**Table 5.32: Projected CWIP control period FY 2016-17 to 2020-21**

**(Rs. crore)**

| Project Code | Cumulative Expenditure Incurred | Expenditure Capitalized | Opening CWIP | Investment during the year | Capital Work in Progress | Closing CWIP |
|---|---|---|---|---|---|---|
| | | | | | Total Capitalization | |
| **2016-17** | | | | | | |
| Refurbishment of D,E, & F station | 1.17 | 1.17 | 0.64 | 0.52 | 1.17 | - |
| Shifting of services from C station | 3.02 | 0.02 | 0.02 | 3.00 | 0.02 | 3.00 |
| Boiler Works | 17.45 | 5.82 | 2.60 | 14.85 | 5.82 | 11.63 |
| Turbine Works | 8.54 | 4.54 | 0.06 | 8.47 | 4.54 | 4.00 |
| Electrical Works | 9.85 | 9.42 | 0.85 | 9.00 | 9.42 | 0.43 |
| C&I Works | 4.80 | 3.98 | 0.27 | 4.54 | 3.98 | 0.82 |
| CHP Works | 2.51 | 2.01 | 0.38 | 2.13 | 2.01 | 0.50 |
| Civil Works | 6.44 | 4.76 | 0.14 | 6.31 | 4.76 | 1.68 |
| Others | 5.79 | 5.79 | 0.60 | 5.19 | 5.79 | - |
| Misc | 1.22 | 1.22 | - | 1.22 | 1.22 | - |
| **Total** | **60.79** | **38.74** | **5.56** | **55.24** | **38.74** | **22.05** |
| **2017-18** | | | | | | |
| Shifting of services from C station | 3.00 | 3.00 | 3.00 | - | 3.00 | - |
| Boiler Works | 13.63 | 13.56 | 11.63 | 2.00 | 13.56 | 0.07 |
| Turbine Works | 8.00 | 7.00 | 4.00 | 4.00 | 7.00 | 1.00 |
| Electrical Works | 1.83 | 1.83 | 0.43 | 1.40 | 1.83 | - |
| C&I Works | 0.82 | 0.82 | 0.82 | - | 0.82 | 0.00 |
| CHP Works | 0.50 | 0.50 | 0.50 | - | 0.50 | - |
| Civil Works | 2.68 | 1.68 | 1.68 | 1.00 | 1.68 | 1.00 |
| Refurbishment of D, E & F station Boiler System | 1.00 | 1.00 | - | 1.00 | 1.00 | - |
| **Total** | **31.45** | **29.38** | **22.05** | **9.40** | **29.38** | **2.07** |

| Project Code | Cumulative Expenditure Incurred | Expenditure Capitalized | Opening CWIP | Investment during the year | Capital Work in Progress | Closing CWIP |
|---|---|---|---|---|---|---|
| | | | | | Total Capitalization | |
| **2018-19** | | | | | | |
| Boiler Works | 0.37 | - | 0.07 | 0.30 | - | 0.37 |
| Turbine Works | 5.00 | 3.00 | 1.00 | 4.00 | 3.00 | 2.00 |
| Electrical Works | 10.00 | 10.00 | - | 10.00 | 10.00 | - |
| Civil Works | 3.50 | 1.00 | 1.00 | 2.50 | 1.00 | 2.50 |
| **Total** | **18.87** | **14.00** | **2.07** | **16.80** | **14.00** | **4.87** |
| **2019-20** | | | | | | |
| Boiler Works | 17.17 | 13.50 | 0.37 | 16.80 | 13.50 | 3.67 |
| Turbine Works | 12.50 | 10.00 | 2.00 | 10.50 | 10.00 | 2.50 |
| Electrical Works | 11.00 | 10.00 | - | 11.00 | 10.00 | 1.00 |
| C&I Works | 4.00 | - | 0.00 | 4.00 | - | 4.00 |
| CHP Works | 6.50 | 6.50 | - | 6.50 | 6.50 | - |
| Civil Works | 5.00 | 5.00 | 2.50 | 2.50 | 5.00 | - |
| **Total** | **56.17** | **45.00** | **4.87** | **51.30** | **45.00** | **11.17** |
| **2020-21** | | | | | | |
| Boiler Works | 19.07 | 18.00 | 3.67 | 15.40 | 18.00 | 1.07 |
| Turbine Works | 13.50 | 11.00 | 2.50 | 11.00 | 11.00 | 2.50 |
| Electrical Works | 5.00 | 5.00 | 1.00 | 4.00 | 5.00 | - |
| C&I Works | 20.00 | 20.00 | 4.00 | 16.00 | 20.00 | - |
| Civil Works | 5.00 | 5.00 | - | 5.00 | 5.00 | - |
| Refurbishment of D, E & F station Boiler System | 30.00 | 20.00 | - | 30.00 | 20.00 | 10.00 |
| **Total** | **92.57** | **79.00** | **11.17** | **81.40** | **79.00** | **13.57** |

However, the Commission observes that such hefty capitalization as projected by TPL might load the generation tariff completely on notional basis. Hence, the Commission approves the planned capitalization based on past trend of capitalization against the capex proposed.

It is observed that around 75% of the capex proposed during the $2^{nd}$ MYT control period has been capitalised till the end of the control period. Hence, Commission approves the capitalization during each year of the third control period in the ratio of capitalization vs capex proposed during the second control period.

Further, since the C Station is proposed to be decommissioned from FY 2018-19, the Commission has decided to reduce the opening GFA amount to the extent of GFA pertaining to C Station from FY 2018-19 onwards. For the purpose of reduction in GFA on account of C Station retirement, the Commission sought details of GFA of C Station as on 1st April,2016 from TPL. These details are submitted by TPL vide email dated 31st January, 2017. As per these details, GFA pertaining to C Station is Rs. 78.79 Crore as on 1st April, 2016.

Accordingly, the Commission has approved the capex, opening GFA, addition in GFA, closing balance of GFA, capitalisation and funding of capitalisation for each year of the control period as shown in the Table below:

**Table 5.33: Approved capitalisation and funding for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Capex of the year | 55.24 | 9.40 | 16.80 | 51.30 | 81.40 |
| Opening GFA | 1137.92 | 1,179.22 | 1,107.46 | 1,120.02 | 1,158.38 |
| Capitalization during the year | 41.30 | 7.03 | 12.56 | 38.36 | 60.86 |
| Closing GFA | 1,179.22 | 1,186.25 | 1,120.02 | 1,158.38 | 1,219.24 |
| Debt (70%) | 28.91 | 4.92 | 8.79 | 26.85 | 42.60 |
| Equity (30%) | 12.39 | 2.11 | 3.77 | 11.51 | 18.26 |

### 5.5.3 Interest expenses

TPL has projected year wise interest and finance charges totalling to Rs. 25.90 crore for the control period FY 2016-17 to FY 2020-21 as detailed in the table below:

**Table 5.34: Interest on loans projected for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Sl. No. | Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | Opening Balance of Loan | 115.51 | 92.83 | 61.08 | 17.57 | - |
| 2 | Less: Reduction of Loans due to retirement or replacement of assets | - | - | - | - | - |
| 3 | Addition of Loans due to capitalisation during the year | 27.12 | 20.57 | 9.80 | 31.50 | 55.30 |
| 4 | Repayment of loans during the year | 49.79 | 52.32 | 53.31 | 54.74 | 57.96 |
| 5 | Closing Balance of Loans | 92.83 | 61.08 | 17.57 | - | - |
| 6 | Average Balance of Loans | 104.17 | 76.96 | 39.32 | 8.79 | - |
| 7 | Weighted average Rate of Interest on actual Loans (%) | 11.30% | 11.30% | 11.30% | 11.30% | 11.30% |
| 8 | Interest Expenses | 11.77 | 8.70 | 4.44 | 0.99 | - |
| 9 | Finance Charges | - | - | - | - | - |
| **10** | **Total Interest & Finance Charges** | **11.77** | **8.70** | **4.44** | **0.99** | **-** |

### Petitioner's submission

The Petitioner has submitted that the GERC MYT Regulations, 2016 provide for the calculation of interest expenses on normative basis considering the amount of depreciation of assets as the amount of repayment. The Petitioner has considered the interest expenses as per the GERC (MYT) Regulations, 2016 on normative loans.

The Petitioner has calculated the interest expenses by applying the estimated opening Weighted Average Rate of interest of the loan portfolio of the Petitioner at the beginning of the year while repayment has been considered equal to the depreciation of the assets for the year.

The interest expense thus proposed for TPL-G (APP)'s generation facilities is shown in the table below for approval of the Commission:

**Table 5.35: Summary of various loan portfolios as projected by TPL**

**(Rs Crore)**

| Sl. No. | Source of Loan | Legend | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|
| **1** | **Source 1 : SBI** | | | | | | |
| 1.1 | Opening Balance of Loan | A1 | 123.52 | 118.89 | 113.64 | 108.70 | 103.45 |
| 1.2 | Addition of Loan during the year | B1 | | | | | |
| 1.3 | Loan Repayment during the year | C1 | 4.63 | 5.25 | 4.94 | 5.25 | 6.18 |
| 1.4 | Closing Balance of Loan | D1=A1+B1 -C1 | 118.89 | 113.64 | 108.70 | 103.45 | 97.27 |
| 1.5 | Average Loan Balance | E1=(A1+D 1)/2 | | | | | |
| 1.6 | Applicable Rate of Interest as on 1st April of the Financial Year | F1 | 11.30% | 11.30% | 11.30% | 11.30% | 11.30% |
| 1.7 | Interest Amount Paid in Rs. Crore | G1 | 13.89 | 13.19 | 12.61 | 12.04 | 11.40 |
| **2** | **Source 2 : IDFC** | | | | | | |
| 2.1 | Opening Balance of Loan | A2 | 7.67 | 7.38 | 7.05 | 6.75 | 6.42 |
| 2.2 | Addition of Loan during the year | B2 | | | | | |
| 2.3 | Loan Repayment during the year | C2 | 0.29 | 0.33 | 0.31 | 0.33 | 0.38 |
| 2.4 | Closing Balance of Loan | D2=A2+B2 -C2 | 7.38 | 7.05 | 6.75 | 6.42 | 6.04 |
| 2.5 | Average Loan Balance | E2=(A2+D 2)/2 | | | | | |
| 2.6 | Applicable Rate of Interest as on 1st April of the Financial Year | F2 | 11.30% | 11.30% | 11.30% | 11.30% | 11.30% |
| 2.7 | Interest Amount Paid in Rs. Crore | G2 | 0.86 | 0.82 | 0.78 | 0.75 | 0.71 |
| **3** | **Source 3 : BOB** | | | | | | |
| 3.1 | Opening Balance of Loan | | 153.89 | 148.11 | 141.57 | 135.42 | 128.88 |
| 3.2 | Addition of Loan during the year | | | | | | |
| 3.3 | Loan Repayment during the year | | 5.77 | 6.54 | 6.16 | 6.54 | 7.69 |

| Sl. No. | Source of Loan | Legend | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|
| 3.4 | Closing Balance of Loan | | 148.11 | 141.57 | 135.42 | 128.88 | 121.18 |
| 3.5 | Average Loan Balance | | | | | | |
| 3.6 | Applicable Rate of Interest as on 1st April of the Financial Year | | 11.30% | 11.30% | 11.30% | 11.30% | 11.30% |
| 3.7 | Interest Amount Paid in Rs. Crore | | 17.31 | 16.43 | 15.71 | 14.99 | 14.20 |
| 4 | **Source 4 : SBI -2** | | | | | | |
| 4.1 | Opening Balance of Loan | | 14.36 | 13.82 | 13.21 | 12.64 | 12.02 |
| 4.2 | Addition of Loan during the year | | | | | | |
| 4.3 | Loan Repayment during the year | | 0.54 | 0.61 | 0.57 | 0.61 | 0.72 |
| 4.4 | Closing Balance of Loan | | 13.82 | 13.21 | 12.64 | 12.02 | 11.31 |
| 4.5 | Average Loan Balance | | | | | | |
| 4.6 | Applicable Rate of Interest as on 1st April of the Financial Year | | 11.30% | 11.30% | 11.30% | 11.30% | 11.30% |
| 4.7 | Interest Amount Paid in Rs. Crore | | 1.61 | 1.53 | 1.47 | 1.40 | 1.33 |
| **6** | **Total** | | | | | | |
| 6.1 | Opening Balance of Loan = A1+A2+….. | A | 299.43 | 288.20 | 275.47 | 263.50 | 250.77 |
| 6.2 | Addition of Loan during the year = B1+B2+…. | B | - | - | - | - | - |
| 6.3 | Loan Repayment during the year = C1+C2+….. | C | 11.23 | 12.73 | 11.98 | 12.73 | 14.97 |
| 6.4 | Closing Balance of Loan | D=A+B-C | 288.20 | 275.47 | 263.50 | 250.77 | 235.80 |
| 6.5 | Average Loan Balance | E=(A+D)/2 | - | - | - | - | - |
| 6.6 | Total Interest Amount Paid in Rs. Crore (for all the sources) = G1+G2+…. | G | 33.68 | 31.97 | 30.56 | 29.18 | 27.63 |

## Commission's Analysis

The Commission has considered the opening balance of normative loan for FY 2016-17 from the closing balance of normative loan of FY 2015-16 of true up order passed by the Commission in this Petition. Thereafter, the normative loan has been determined based on the capitalization approved for FY 2016-17 to FY 2020-21 in the earlier paragraphs of this order. For applicable rate of interest, the Commission has determined the weighted average rate of interest as on 1.04.2016 for FY 2016-17.

The Petitioner has submitted additional submissions in which it was agreed by the Petitioner that the interest on loan shall be renegotiated with the financial institutions from whom the loan has been availed. The Petitioner has in support of the same has submitted the letters from State Bank of India (SBI) agreeing 'in principle' for the reduction in the rate of interest to 9.50% p.a.

The interest on loan is, therefore, considered at the rate of 9.50% for the period FY 2017-18 to FY 2020-21, whereas for FY 2016-17 the rate of interest is considered as 11.30% as submitted by TPL.

Further, in accordance with the Regulation 38.3 of GERC (MYT) Regulations, 2016 the repayment for the year during the tariff period from FY 2016-17 to FY 2020-21 shall be deemed to be equal to the depreciation allowed for that year.

The interest and finance charges for the control period are arrived at in accordance with the Regulation 38 of GERC (MYT) Regulations, 2016 as detailed in the Table below:

**Table 5.36: Approved interest and finance charges for the control period FY 2016-17 to 2020-21**

**(Rs. crore)**

| Sl. No. | Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|
| 1 | Opening Balance of Loans | 115.51 | 97.08 | 54.29 | 18.05 | - |
| 2 | Less: Reduction of Loans due to retirement or replacement of assets | - | - | - | - | - |
| 3 | Addition of Loans due to capitalization during the year | 28.91 | 4.92 | 8.79 | 26.85 | 42.60 |
| 4 | Repayment of loans during the year | 47.34 | 47.71 | 45.03 | 46.44 | 48.83 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | Closing Balance of Loans | 97.08 | 54.29 | 18.05 | - | - |
| 6 | Average Balance of Loans | 106.30 | 75.69 | 36.17 | 9.02 | - |
| 7 | Weighted average Rate of Interest on actual Loans (%) | 11.30% | 9.50% | 9.50% | 9.50% | 9.50% |
| 8 | Interest Expenses | 12.01 | 7.19 | 3.44 | 0.86 | - |
| 9 | Finance Charges | - | - | - | - | - |
| 10 | **Total Interest & Finance Charges** | **12.01** | **7.19** | **3.44** | **0.86** | **-** |

Since, depreciation (repayment of loan) approved by the Commission is higher than normative loan addition during FY 2020-21, there is no requirement of loan capital for FY 2020-21. Hence, interest and finance charges approved by the Commission nil for FY 2020-21. The Commission, accordingly, approves the interest and finance charges as detailed in the above table for the control period FY 2016-17 to FY 2020-21.

### 5.5.4 Interest on working capital

TPL has projected year wise interest on working capital totalling to Rs. 74.67 crore for the control period of FY 2016-17 to FY 2020-21 as detailed in the Table below:

**Table 5.37: Projected Interest on working capital for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Sl. No. | Particulars | Norm | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|
| 1 | Cost of Coal/Lignite | 1.5 months | 100.45 | 97.33 | 97.32 | 97.52 | 99.41 |
| 2 | Cost of Secondary Fuel Oil | 2 months | 1.43 | 1.39 | 1.39 | 1.39 | 1.42 |
| 3 | O&M expenses | 1 month | 13.15 | 13.90 | 14.69 | 15.54 | 16.42 |
| 4 | Maintenance Spares | 1% of GFA | 11.38 | 11.77 | 12.06 | 12.20 | 12.65 |
| 5 | Receivables | | - | - | - | - | - |
| 6 | **Total Working Capital Requirement** | | **126.41** | **124.39** | **125.46** | **126.64** | **129.90** |

| Sl. No. | Particulars | Norm | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|
| 7 | Interest Rate (%) | | 11.80% | 11.80% | 11.80% | 11.80% | 11.80% |
| 8 | **Interest on Working Capital** | | **14.92** | **14.68** | **14.80** | **14.94** | **15.33** |

### Petitioner's submission

The interest on working capital is computed as per the GERC MYT Regulations, 2016. The interest rate being the SBBR (State Bank Base Rate) rate on 1st April, 2016 plus 250 basis points of 11.80% is applied on the working capital requirement arrived at in accordance with the Regulations.

### Commission's Analysis

The Commission has computed the working capital and the interest on working capital for the control period FY 2016-17 to FY 2020-21 in accordance with Regulation 40 of MYT Regulations, 2016 read with 1st Amendment Notification No. 70 of 2016 of GERC (MYT) Regulations, 2016 as detailed in the Table below:

The Commission has also taken into account the approved coal cost in this order which is reflected in the working capital computation. Interest is worked out by considering the 1 year MCLR of SBI prevailing as on 1st April, 2016 with a spread of 250 Basis Points there on.

**Table 5.38: Interest on working capital approved for TPL-G (APP) for the control period FY 2016-17 to 2020-21**

**(Rs. crore)**

| Sl. No. | Particulars | Norm | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|
| 1 | Cost of Coal | 1.5 months | 99.08 | 96.00 | 95.99 | 95.92 | 98.05 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | Cost of Oil | | - | - | - | - | - |
| 3 | Cost of Secondary Fuel Oil | 2 months | 1.43 | 1.39 | 1.39 | 1.39 | 1.42 |
| 4 | O&M expenses | 1 month | 13.15 | 13.90 | 14.16 | 14.97 | 15.83 |
| 5 | Maintenance Spares | 1% of GFA | 11.38 | 11.79 | 11.07 | 11.20 | 11.58 |
| 6 | Receivables | | - | - | - | - | - |
| **7** | **Total Working Capital Requirement** | | **125.04** | **123.08** | **122.61** | **123.48** | **126.88** |
| 8 | Interest Rate (%) | | 11.70% | 11.70% | 11.70% | 11.70% | 11.70% |
| **9** | **Interest on Working Capital** | | **14.63** | **14.40** | **14.35** | **14.45** | **14.84** |

As the entire generation from APP is for TPL's own distribution i.e. Retail Supply Business, the receivables are not considered for the purpose of working capital.

**The Commission, accordingly, approves the interest on working capital, as detailed in the above Table for the control period of FY 2016-17 to FY 2020-21.**

### 5.5.5 Depreciation

TPL has projected year wise depreciation charges totalling to Rs. 268.12 crore for the control period FY 2016-17 to FY 2020-21, which are as detailed in the table below:

**Table 5.39: Depreciation projected for TPL-G (APP) for the control period FY 2016-17 to 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Depreciation | 49.79 | 52.32 | 53.31 | 54.74 | 57.96 |

**Petitioner's submission**

The depreciation has been worked out applying the rate as per the CERC (Terms & Conditions of Tariff) Regulation, 2004 on the opening GFA of FY 2009-10 and for addition of assets from 1st April 2009 onwards depreciation has been computed at the rates specified in the GERC Regulations.

**Commission's Analysis**

The petitioner has computed the depreciation for the control period FY 2016-17 to 2020-21 at CERC depreciation rates in accordance with asset classification wise on the opening GFA of FY 2009-10 and on year wise addition of assets from 1st April, 2009 onwards as per the approved capitalization, TPL has computed depreciation as per relevant GERC Regulations.

Further, since the C Station is proposed to be decommissioned from FY 2018-19, the Commission decided to reduce the depreciation amount pertaining to C Station from FY 2018-19 onwards. For the purpose of reduction in depreciation on account of C Station retirement, the Commission sought details of depreciation of C Station for FY 2015-16 from TPL. As per the details submitted by TPL vide email dated 31st January,2017, depreciation pertaining to C Station is Rs 2.95 Crore for FY 2015-16. The Commission, therefore, reduced the depreciation of TPL-G(APP) from FY 2018-19 by Rs 2.95 Crore.

The Commission has computed the depreciation with the above mentioned approach with approved capitalization projections.

Accordingly, the Commission approves the depreciation for the control period FY 2016-17 to FY 2020-21 as detailed in the table below:

**Table 5.40: Approved Depreciation for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Depreciation | 47.34 | 47.71 | 45.03 | 46.44 | 48.83 |

## 5.5.6 Return on equity

TPL has claimed year wise amount totalling to Rs. 317.48 crore towards return on equity for the control period FY 2016-17 to FY 2020-21 as detailed in the table below:

**Table 5.41: Return on equity projected for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Opening equity | 428.38 | 440.00 | 448.81 | 453.01 | 466.51 |
| Equity addition | 11.62 | 8.81 | 4.20 | 13.50 | 23.70 |
| Equity withdrawn | - | - | - | - | - |
| Closing equity | 440.00 | 448.81 | 453.01 | 466.51 | 490.21 |
| Average equity | 434.19 | 444.40 | 450.91 | 459.76 | 478.36 |
| **Return on equity** | **60.79** | **62.22** | **63.13** | **64.37** | **66.97** |

**Petitioner's submission**

TPL has submitted that the return on equity has been arrived at on the basis of the opening and closing balance of equity considering the estimated capitalization in FY of the control period. The return on equity is claimed at 14% on the average of opening and closing balance of equity.

**Commission's Analysis**

The Commission has examined the submission made by TPL. The opening balance of equity as on 01/04/2016 is the same as closing balance of equity as on 31/03/2015 considered in the Truing up for FY 2015-16. The Commission has considered the normative equity addition based on the capitalization approved for FY 2016-17 to FY 2020-21 in the earlier paragraphs of this order.

Further, since the C Station is proposed to be decommissioned from FY 2018-19, the Commission decided to reduce the equity amount pertaining to C Station from FY 2018-19 onwards. For the purpose of reduction in equity on account of C Station retirement, the Commission sought details of C Station for FY 2015-16 from TPL. As per the details submitted by TPL vide email dated 31st January,2017, GFA value pertaining to C Station is Rs 78.79 Crore. For approving the return on equity for the control period, the Commission has reduced the opening equity for FY 2018-19 by Rs. 23.64 Crore (78.79*30%).

The Commission has worked out the return on equity as detailed in the table below:

**Table 5.42: Return on equity approved for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Opening equity | 428.38 | 440.77 | 419.24 | 423.01 | 434.52 |
| Equity addition | 12.39 | 2.11 | 3.77 | 11.51 | 18.26 |
| Closing equity | 440.77 | 442.88 | 423.01 | 434.52 | 452.78 |
| Average equity | 434.58 | 441.82 | 421.13 | 428.76 | 443.65 |
| **Return on equity** | **60.84** | **61.86** | **58.96** | **60.03** | **62.11** |

**The Commission, accordingly, approves the return on equity as detailed in the above table for the control period FY 2016-17 to FY 2020-21.**

### 5.5.7 Income Tax

TPL has estimated the income tax at Rs. 15.77 crore for each year of the for the control period FY 2016-17 to FY 2020-21 as detailed in the table below:

**Table 5.43: Income Tax projected for TPL-G (APP) for the control period FY 2011-12 to FY 2015-16**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Income Tax | 15.77 | 15.77 | 15.77 | 15.77 | 15.77 |

**Petitioner's submission**

For the purpose of estimation of income tax for the MYT control period, TPL-G (APP) has considered the Income Tax of Rs. 15.77 Crores considering the total tax paid and the ratio of PBT of TPL-G (APP) and PBT of the company as a whole as per audited accounts of FY 2015-16.

**Commission's Analysis**

The Commission considers the provision for income tax for the control period for FY 2016-

17 to FY 2020-21 as approved in the Truing Up for FY 2015-16 i.e. Rs. 15.34 Crore. Any variation in income tax actually paid and approved shall be considered based on the documentary evidence at the time of Truing Up for each year of the control period in accordance with Regulation 41.2 of the GERC (MYT) Regulations, 2016.

**The Commission, accordingly, approves the income tax for the control period for FY 2016-17 to FY 2020-21, which are as detailed in the table below:**

**Table 5.44: Approved Income tax for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| **Particulars** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** |
|---|---|---|---|---|---|
| Income Tax | 15.34 | 15.34 | 15.34 | 15.34 | 15.34 |

### 5.5.8 Non-Tariff income

TPL has estimated year wise non-tariff income totalling to Rs. 56.97 crore for the control period FY 2016-17 to FY 2020-21 as detailed in the table below:

**Table 5.45: Non-Tariff income projected for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| **Particulars** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** |
|---|---|---|---|---|---|
| Non-Tariff income | 13.29 | 10.92 | 10.92 | 10.92 | 10.92 |

TPL-G (APP) has projected the non-tariff income for Control Period based on existing trend of revenue earned mainly through sale of fly ash. For FY 2016-17, revenue of Rs. 1.04 Crores from sale of scrap has also been considered.

**Commission's Analysis**

The Commission has observed that the actual non-tariff income approved in truing up of FY 2015-16 was Rs. 17.43 crore. The Commission has considered non-tariff income as per actuals of FY 2015-16 for the third control period FY 2016-17 to FY 2020-21 as shown in the Table below:

**Table 5.46: Non-Tariff income approved for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Non-Tariff income | 17.43 | 17.43 | 17.43 | 17.43 | 17.43 |

### 5.5.9 Water Charges

**Petitioner's Submission**

The Petitioner has projected water charges for the control period for FY 2016-17 to FY 2020-21 as given in the Table below.

**Table 5.47: Water charges projected for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Water Charges | 13.50 | 14.85 | 16.34 | 17.97 | 19.77 |

**Commission's Analysis**

The Commission has considered water charge for the control period FY 2016-17 to FY 2020-21 considering the average of actuals for FY 2012-13 to FY 2014-15 as base for FY 2013-14 and escalating the same at 5.72%.

Accordingly, water charges approved by the Commission for the control period is as shown in the Table below:

**Table 5.48: Water charges approved for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|
| Water Charges | 10.96 | 11.59 | 12.25 | 12.96 | 13.70 |

## 5.6 Projected and Approved ARR

Based on the Commission's analysis and decisions the fixed and variable charges for the control period FY 2016-17 to FY 2020-21 are determined.

The ARR as projected by TPL and ARR as approved by the Commission in respect of TPL-G (APP) for the control period FY 2016-17 to FY 2020-21 are as given in Tables below:

**Table 5.49: Proposed ARR for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| **Particulars** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** |
|---|---|---|---|---|---|
| Variable cost | 812.21 | 786.98 | 786.90 | 788.48 | 803.81 |
| O&M expenses | 157.77 | 166.80 | 176.34 | 186.43 | 197.09 |
| Water Charges | 13.50 | 14.85 | 16.34 | 17.97 | 19.77 |
| Depreciation | 49.79 | 52.32 | 53.31 | 54.74 | 57.96 |
| Interest on loan | 11.77 | 8.70 | 4.44 | 0.99 | - |
| Interest on working capital | 14.92 | 14.68 | 14.80 | 14.94 | 15.33 |
| Return on equity | 60.79 | 62.22 | 63.13 | 64.37 | 66.97 |
| Income Tax | 15.77 | 15.77 | 15.77 | 15.77 | 15.77 |
| Less: Non-tariff income | 13.29 | 10.92 | 10.92 | 10.92 | 10.92 |
| **Net ARR** | **1,123.23** | **1,111.40** | **1,120.11** | **1,132.77** | **1,165.78** |

**Table 5.50: Approved ARR for TPL-G (APP) for the control period FY 2016-17 to FY 2020-21**

**(Rs. crore)**

| **Particulars** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** |
|---|---|---|---|---|---|
| Variable cost | 812.21 | 786.98 | 786.90 | 788.48 | 803.81 |
| O&M expenses | 157.78 | 166.80 | 169.95 | 179.66 | 189.94 |
| Water Charges | 10.96 | 11.59 | 12.25 | 12.96 | 13.70 |
| Depreciation | 47.34 | 47.71 | 45.03 | 46.44 | 48.83 |
| Interest & Finance Charges | 12.01 | 7.19 | 3.44 | 0.86 | - |
| Interest on working capital | 14.63 | 14.40 | 14.35 | 14.45 | 14.84 |
| Return on equity | 60.84 | 61.86 | 58.96 | 60.03 | 62.11 |
| Income Tax | 15.34 | 15.34 | 15.34 | 15.34 | 15.34 |
| Less: Non-tariff income | 17.43 | 17.43 | 17.43 | 17.43 | 17.43 |
| **Net ARR** | **1,113.68** | **1,094.44** | **1,088.78** | **1,100.78** | **1,131.14** |

# 6 Compliance of Directives

## 6.1 Earlier Directives

### 6.1.1 Actual Performance Parameter

**Directive**: TPL-Generation shall submit month wise, at quarterly intervals, the actual performance parameters like PAF, PLF, SHR, Aux. Consumption, SFC, Transit loss, actual gross generation, actual net generation and coal stock position (both imported and indigenous) for each station to the Commission and also place the said information on its website.

**TPL's Response**: The month-wise details of actual performance parameters for each station of TPLG (APP) for Q1 and Q2 FY 2016-17 have been submitted to the Commission. TPL-G (APP) also makes available the details of the previous quarter performance parameters the website.

**Commission's Comments:** The response of the Petitioner is noted. The Petitioner has subsequently submitted the actual performance parameters for each station of TPLG (APP) for Q3 and Q4 FY 2016-17.

### 6.1.2 Interest Cost Reduction

**Directive**: TPL-G (APP) is directed to negotiate with the lenders for reduction in the rate of interest on the borrowings failing which they should replace high cost debt with low cost debt so that the net benefit of interest cost reduction is available to the consumers.

**TPL's Response:** TPL submits that it has always received support from its consortium of lenders to have term loans at most competitive terms. However, in compliance to the directive of the Hon'ble GERC, TPL has discussed the same with Lead Banker. TPL has requested Lead Banker to consider suitable reduction in interest rate for long term loans. Upon confirmation of the Lead Banker, TPL will have to approach other lenders in the consortium for similar reduction. As it is a consortium lending for long term loans, the decision for reduction in interest rate will be by consensus amongst all lenders. TPL shall make all efforts to reduce the interest rate.

**Commission's Comments:** The Commission has noted the Petitioner's response. Since TPL has submitted a letter from SBI, the lead bank, agreeing in principle for reduction in the rate of interest, the Commission has allowed interest at the reduced rate during FY 2017-18 and onwards. However, TPL should ensure the sanction from other consortium members at the earliest.

## 6.2 Fresh Directive

### 6.2.1 Calculation of Depreciation

Petitioner is directed to calculate depreciation for true up from FY 2017-18 as per Regulation 39 of GERC MYT Regulations,2016.

### 6.2.2 Scheduling of TPL-G(APP) to SLDC

TPL is directed to schedule station wise generation through SLDC from FY 2017-18 in accordance with the ABT Order of the Commission and amendments thereof from time to time.

TPL-G shall obtain certificate of annual PLF for each station from SLDC and submit the same to the Commission along with truing up Petition.

### 6.2.3 Reduction in fuel cost

TPL-G is directed to explore the possibility of reduction in fuel cost including possibilities of utilisation of washed coal.

### 6.2.4 Fuel Supply Arrangements

TPL-G is directed to initiate efforts for optimizing fuel supply arrangements and submit the detailed report related to existing FSA with details related to take or pay liabilities, practice for procuring imported fuel, and present arrangement and action required for optimization of fuel supply arrangement by 31st August, 2017.

### 6.2.5 Green Cess on Coal Cost

TPL-G is advised to take up the matter with appropriate authority to rationalize the Green Cess imposed on procurement of coal for charging the Green Cess in the ratio of RPO fulfilment by the state/entity.

It is also observed by the Commission that Green Cess is imposed by the Government of India uniformly across the coal quality. TPL-G is advised to take up the matter with appropriate authority to get the necessary amendment so as to reduce the overall cost of fuel.

## Annexure 6.1 : D – Station: Fuel cost during Control Period FY 2016-17 to FY 2020-21

| Sr. No. | Item | Derivation | Unit | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|---|
| 1 | Total Capacity | A1 | MW | 120 | 120 | 120 | 120 | 120 |
| 2 | Gross Generation | A=A1 x A2 x 8760 or 8784 (leap year)/1000 | MUs | 868.07 | 833.80 | 853.67 | 872.34 | 789.23 |
| 3 | Auxiliary Consumption | C | % | 9.00% | 9.00% | 9.00% | 9.00% | 9.00% |
| 4 | Auxiliary Consumption | B | MUs | 78.13 | 75.04 | 76.83 | 78.51 | 71.03 |
| 5 | Net Generation | Y=A - B | MUs | 789.94 | 758.76 | 776.84 | 793.83 | 718.20 |
| 6 | Station Heat Rate | D | Kcal/KWh | 2450 | 2450 | 2450 | 2450 | 2450 |
| 7 | Sp. Oil Consumption | E | ml/kWh | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 8 | Gross Calorific Value of Coal | F | kcal/kg | 4305 | 4305 | 4305 | 4305 | 4305 |
| 9 | Calorific value of Oil | G | kcal/l | 9968 | 9968 | 9968 | 9968 | 9968 |
| 10 | Overall Heat | H=A x D | G Cal | 2126761 | 2042811 | 2091497 | 2137244 | 1933614 |
| 11 | Heat from Oil | I=(A x E x G)/1000 | G Cal | 8653 | 8312 | 8510 | 8696 | 7868 |
| 12 | Heat from Coal | J=H-I | G Cal | 2118108 | 2034499 | 2082987 | 2128548 | 1925746 |
| 13 | Transit losses | K | % | 0.80% | 0.80% | 0.80% | 0.80% | 0.80% |
| 14 | Coal Blend | | | 0 | 0 | 0 | 0 | 0 |
| 15 | A) Indigenous Coal | X1 | % | 70% | 70% | 70% | 70% | 70% |
| 16 | B) Washed Coal | X2 | % | - | - | - | - | - |
| 17 | C) Imported Coal | X3 | % | 30% | 30% | 30% | 30% | 30% |
| 18 | Actual Oil Consumption | L=A x E | kl | 868 | 834 | 854 | 872 | 789 |
| 19 | Actual Coal Consumption | M=(J X 1000)/F | MT | 491,961 | 472,542 | 483,797 | 494,374 | 447,303 |
| 20 | A) Indigenous Coal | Q1=M* x X1/(1-K) | MT | 345,999 | 332,341 | 340,220 | 347,633 | 314,697 |
| 21 | C) Imported Coal | Q3=M* X X3 | MT | 148,730 | 142,859 | 146,299 | 149,522 | 135,123 |
| 22 | Price of Coal | | | | | | | |
| 23 | A) Indigenous Coal | P1 | Rs/MT | 5,126 | 5,126 | 5,126 | 5,126 | 5,126 |
| 24 | C) Imported Coal | P3 | Rs/MT | 5,331 | 5,331 | 5,331 | 5,331 | 5,331 |
| 25 | Price of Oil | P4 | Rs/kl | 31,613 | 31,613 | 31,613 | 31,613 | 31,613 |
| 26 | Coal cost | | | | | | | |
| 27 | A) Indigenous Coal | N1=Q1 X P1/10^5 | Rs Lakh | 17735 | 17035 | 17438 | 17818 | 16130 |
| 28 | C) Imported Coal | N3=Q3 X P3/10^5 | Rs Lakh | 7,929 | 7,616 | 7,799 | 7,971 | 7,203 |
| 29 | Total Coal Cost | N4=N1+N2+ N3 | Rs Lakh | 25663 | 24650 | 25238 | 25789 | 23334 |

| Sr. No. | Item | Derivation | Unit | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|---|
| 30 | Oil Cost | N5=P4 x L/10^5 | Rs Lakh | 274 | 264 | 270 | 276 | 250 |
| 31 | Total Fuel Cost | O=N4+N5+N6+N7 | Rs Lakh | 25,938 | 24,914 | 25,507 | 26,065 | 23,583 |
| 32 | Fuel Cost/Unit Gross | P=O/(A*10) | Rs/kWh | 2.99 | 2.99 | 2.99 | 2.99 | 2.99 |
| 33 | Fuel Cost/Unit Net | Q=O/(Y*10) | Rs/kWh | 3.28 | 3.28 | 3.28 | 3.28 | 3.28 |
| 34 | Cost of fuel/G.Cal | R=(O/H)*10^5 | Rs/Gcal | 1,219.59 | 1,219.59 | 1,219.58 | 1,219.57 | 1,219.64 |

### Annexure 6.2: E – Station: Fuel cost during Control Period FY 2016-17 to FY 2020-21

| Sr. No. | Item | Derivation | Unit | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|---|
| 1 | **Capacity** | A1 | MW | **121** | **121** | **121** | **121** | **121** |
| 2 | Gross Generation | A=A1 x A2 x 8760 or 8784 (leap year)/1000 | MUs | 916.25 | 917.16 | 857.01 | 926.02 | 941.59 |
| 3 | Auxiliary Consumption | C | % | 9.00% | 9.00% | 9.00% | 9.00% | 9.00% |
| 4 | Auxiliary Consumption | B | MUs | 82.46 | 82.54 | 77.13 | 83.34 | 84.74 |
| 5 | Net Generation | Y=A - B | MUs | 833.79 | 834.62 | 779.88 | 842.67 | 856.85 |
| 6 | Station Heat Rate | D | Kcal/KWh | 2455 | 2455 | 2455 | 2455 | 2455 |
| 7 | Sp. Oil Consumption | E | ml/kWh | 1 | 1 | 1 | 1 | 1 |
| 8 | Gross Calorific Value of Coal | F | kcal/kg | 4305 | 4305 | 4306 | 4306 | 4305 |
| 9 | Calorific value of Oil | G | kcal/l | 9969 | 9969 | 9969 | 9969 | 9969 |
| 10 | Overall Heat | H=A x D | G Cal | 2249399 | 2251634 | 2103955 | 2273369 | 2311614 |
| 11 | Heat from Oil | I=(A x E x G)/1000 | G Cal | 9134 | 9143 | 8543 | 9231 | 9386 |
| 12 | Heat from Coal | J=H-I | G Cal | 2240265 | 2242491 | 2095412 | 2264138 | 2302228 |
| 13 | Transit losses | K | % | 0.80% | 0.80% | 0.80% | 0.80% | 0.80% |
| 14 | Coal Blend | | | | | | | |
| 15 | A) Indigenous Coal | X1 | % | 70% | 70% | 70% | 70% | 70% |
| 16 | C) Imported Coal | X3 | % | 30% | 30% | 30% | 30% | 30% |
| 17 | Actual Oil Consumption | L=A x E | kl | 916 | 917 | 857 | 926 | 942 |
| 18 | Actual Coal Consumption | M=(J X 1000)/F | MT | 520,334 | 520,851 | 486,682 | 525,866 | 534,750 |
| 19 | A) Indigenous Coal | Q1=M* x X1/(1-K) | MT | 365,954 | 366,317 | 342,249 | 369,777 | 376,220 |
| 20 | C) Imported Coal | Q3=M* X X3 | MT | 157,308 | 157,464 | 147,171 | 159,047 | 161,540 |
| 21 | Price of Coal | | | | | | | |
| 22 | A) Indigenous Coal | P1 | Rs/MT | 5,126 | 5,126 | 5,126 | 5,126 | 5,126 |
| 23 | C) Imported Coal | P3 | Rs/MT | 5331 | 5331 | 5331 | 5331 | 5331 |
| 24 | Price of Oil | P4 | Rs/kl | 31,613 | 31,613 | 31,613 | 31,613 | 31,613 |
| 25 | Coal cost | | | | | | | |
| 26 | A) Indigenous Coal | N1=Q1 X P1/10^5 | Rs Lakh | 18,757.40 | 18,776.03 | 17,542.40 | 18,953.38 | 19,283.62 |
| 28 | C) Imported Coal | N3=Q3 X P3/10^5 | Rs Lakh | 8,386.06 | 8,394.39 | 7,845.68 | 8,478.76 | 8,611.66 |
| 29 | Total Coal Cost | N4=N1+N2+ N3 | Rs Lakh | 27,143.46 | 27,170.42 | 25,388.08 | 27,432.14 | 27,895.28 |
| 30 | Oil Cost | N5=P4 x L/10^5 | Rs Lakh | 290 | 290 | 271 | 293 | 298 |

| Sr. No. | Item | Derivation | Unit | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|---|
| 31 | Total Fuel Cost | O=N4+N5+N6+N7 | Rs Lakh | 27,433 | 27,460 | 25,659 | 27,725 | 28,193 |
| 32 | Fuel Cost/Unit Gross | P=O/(A*10) | Rs/kWh | 2.99 | 2.99 | 2.99 | 2.99 | 2.99 |
| 33 | Fuel Cost/Unit Net | Q=O/(Y*10) | Rs/kWh | 3.29 | 3.29 | 3.29 | 3.29 | 3.29 |
| 34 | Cost of fuel/G.Cal | R=(O/H)*10^5 | Rs/Gcal | 1,219.58 | 1,219.58 | 1,219.56 | 1,219.55 | 1,219.62 |

### Annexure 6.3: F – Station: Fuel cost during Control Period FY 2016-17 to FY 2020-21

| Sr. No. | Item | Derivation | Unit | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|---|
| 1 | Total Capacity | A1 | MW | 121 | 121 | 121 | 121 | 121 |
| 2 | Gross Generation | A=A1 x A2 x 8760 or 8784 (leap year)/1000 | MUs | 930.19 | 879.21 | 919.29 | 836.95 | 955.36 |
| 3 | Auxiliary Consumption | C | % | 9% | 9% | 9% | 9% | 9% |
| 4 | Auxiliary Consumption | B | MUs | 83.72 | 79.13 | 82.74 | 75.33 | 85.98 |
| 5 | Net Generation | Y=A - B | MUs | 846.47 | 800.08 | 836.55 | 761.62 | 869.38 |
| 6 | Station Heat Rate | D | Kcal/KWh | 2455 | 2455 | 2455 | 2455 | 2455 |
| 7 | Sp. Oil Consumption | E | ml/kWh | 1 | 1 | 1 | 1 | 1 |
| 8 | Gross Calorific Value of Coal | F | kcal/kg | 4305 | 4305 | 4306 | 4306 | 4305 |
| 9 | Calorific value of Oil | G | kcal/l | 9969 | 9969 | 9969 | 9969 | 9969 |
| 10 | Overall Heat | H=A x D | G Cal | 2283619 | 2158465 | 2256852 | 2054705 | 2345408 |
| 11 | Heat from Oil | I=(A x E x G)/1000 | G Cal | 9273 | 8765 | 9164 | 8343 | 9524 |
| 12 | Heat from Coal | J=H-I | G Cal | 2274346 | 2149700 | 2247688 | 2046362 | 2335885 |
| 13 | Transit losses | K | % | 0.80% | 0.80% | 0.80% | 0.80% | 0.80% |
| 14 | Coal Blend | | | | | | | |
| 15 | A) Indigenous Coal | X1 | % | 70% | 70% | 70% | 70% | 70% |
| 16 | C) Imported Coal | X3 | % | 30% | 30% | 30% | 30% | 30% |
| 17 | Actual Oil Consumption | L=A x E | kl | 930 | 879 | 919 | 837 | 955 |
| 18 | Actual Coal Consumption | M=(J X 1000)/F | MT | 528,250 | 499,299 | 522,050 | 475,285 | 542,568 |
| 19 | A) Indigenous Coal | Q1=M* x X1/(1-K) | MT | 371,521 | 351,160 | 367,121 | 334,210 | 381,720 |
| 20 | C) Imported Coal | Q3=M* X X3 | MT | 159,701 | 150,949 | 157,866 | 143,749 | 163,901 |
| 21 | Price of Coal | | | | | | | |
| 22 | A) Indigenous Coal | P1 | Rs/MT | 5,126 | 5,126 | 5,126 | 5,126 | 5,126 |
| 23 | C) Imported Coal | P3 | Rs/MT | 5331 | 5331 | 5331 | 5331 | 5331 |
| 24 | Price of Oil | P4 | Rs/kl | 31,613 | 31,613 | 31,613 | 31,613 | 31,613 |
| 25 | Coal cost | | | | | | | |
| 26 | A) Indigenous Coal | N1=Q1 X P1/10^5 | Rs Lakh | 19,042.75 | 17,999.11 | 18,817.23 | 17,130.35 | 19,565.53 |
| 27 | C) Imported Coal | N3=Q3 X P3/10^5 | Rs Lakh | 8,513.64 | 8,047.05 | 8,415.83 | 7,663.23 | 8,737.55 |
| 29 | Total Coal Cost | N4=N1+N2+N3 | Rs Lakh | 27,556.39 | 26,046.16 | 27,233.06 | 24,793.58 | 28,303.09 |
| 30 | Oil Cost | N5=P4 x L/10^5 | Rs Lakh | 294 | 278 | 291 | 265 | 302 |

| Sr. No. | Item | Derivation | Unit | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|---|
| 31 | Total Fuel Cost | O=N4+N5+N6 +N7 | Rs Lakh | 27,850 | 26,324 | 27,524 | 25,058 | 28,605 |
| 32 | Fuel Cost/Unit Gross | P=O/(A*10) | Rs/kWh | 2.99 | 2.99 | 2.99 | 2.99 | 2.99 |
| 33 | Fuel Cost/Unit Net | Q=O/(Y*10) | Rs/kWh | 3.29 | 3.29 | 3.29 | 3.29 | 3.29 |
| 34 | Cost of fuel/G.Cal | R=(O/H)*10^5 | Rs/Gcal | 1,219.58 | 1,219.58 | 1,219.56 | 1,219.55 | 1,219.62 |

# COMMISSION'S ORDER

The Commission approves the Aggregate Revenue Requirement for TPL-G (APP) for FY 2017-18, as shown in the Table below:

**Approved ARR for TPL-G (APP) for FY 2017-18**

**(Rs. Crore)**

| **Particulars** | **2017-18** |
|---|---|
| Variable cost | 786.98 |
| O&M expenses | 166.80 |
| Water Charges | 11.59 |
| Depreciation | 47.71 |
| Interest on loan | 7.19 |
| Interest on working capital | 14.40 |
| Return on equity | 61.86 |
| Income Tax | 15.34 |
| Less: Non-tariff income | 17.43 |
| **Net ARR** | **1,094.44** |

This order shall come into force with effect from the 10th June 2017.

| Sd/- | Sd/- | Sd/- |
|---|---|---|
| **P. J. THAKKAR** | **K. M. SHRINGARPURE** | **ANAND KUMAR** |
| Member | Member | Chairman |

Place: Gandhinagar
Date: 09.06.2017.