

# **GUJARAT ELECTRICITY REGULATORY COMMISSION**



## **Tariff Order**

Truing up for 2016-17

and

Determination of Tariff for FY 2018-19

For

**Gujarat State Electricity Corporation Limited  
(GSECL)**

**Case No. 1693 of 2017**

**31<sup>st</sup> March, 2018**

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**GUJARAT ELECTRICITY REGULATORY COMMISSION  
(GERC)**

**GANDHINAGAR**

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## **ABBREVIATIONS**

ABT	Availability Based Tariff
Act	Electricity Act, 2003
AOH	Annual Overhauling
APR	Annual Performance Review
ARR	Aggregate Revenue Requirement
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
COH	Capital Overhauling
CUF	Capacity Utilization Factor
CV	Calorific Value
DISCOMs	Distribution Companies
ESP	Electro static precipitator
FPPPA	Fuel and Power Purchase Price Adjustment
FY	Financial Year
GCV	Gross Calorific Value
GEB	Gujarat Electricity Board
GERC	Gujarat Electricity Regulatory Commission
GETCO	Gujarat Energy Transmission Corporation Limited
GFA	Gross Fixed Assets
GoG	Government of Gujarat
GSECL	Gujarat State Electricity Corporation Limited
GUVNL	Gujarat Urja Vikas Nigam Limited
HSD	High Speed Diesel
IPP	Independent power producer
K.Cal	Kilo Calorie
KV	Kilo Volt
kWh	Kilo Watt Hour
LSHS	Low Sulphur Heavy Stock
MW	Mega Watt
MYT	Multi-Year Tariff
NCV	Net Calorific Value
O&M	Operations& Maintenance
OEM	Original Equipment Manufacturer
OPEC	Organization of Petroleum Exporting Countries
PAF	Plant Availability Factor
PG test	Performance Guarantee Test
PLF	Plant Load Factor
R & M	Renovation & Modernization
R E	Revised Estimates
ROE	Return on Equity
RSD	Re-start Duration
Scm	Standard cubic meter
SHR	Station Heat Rate
SLDC	State Load Despatch Centre
Wt. Av.	Weighted Average



# **Before the Gujarat Electricity Regulatory Commission at Gandhinagar**

**Case No. 1693 of 2017**

**Date of the Order: 31/03/2018**

## **CORAM**

Shri Anand Kumar, Chairman

Shri K. M Shringarpure, Member

Shri P. J. Thakkar, Member

## **ORDER**

### **1. Background and Brief History**

#### **1.1 Background**

Gujarat State Electricity Corporation Limited (hereinafter referred to as “GSECL” or the “Petitioner”) has filed the present petition on 29<sup>th</sup> November, 2017 under Section 62 of the Electricity Act, 2003, read with Gujarat Electricity Regulatory Commission (Multi-Year Tariff) Regulations, 2016, for the truing up of FY 2016-17 and for determination of tariff for FY 2018-19.

Gujarat Electricity Regulatory Commission notified the GERC (Multi-Year Tariff) Regulations, 2016 on 29<sup>th</sup> March, 2016 which shall be applicable for determination of tariff in all cases covered under the Regulations from 1<sup>st</sup> April, 2016 onwards. Regulations 17.2 (b) of the GERC (Multi-Year Tariff) Regulations, 2016 provides for submission of detailed application comprising of truing up for FY 2016-17 to be



carried out under Gujarat Electricity Regulatory Commission (Multi-Year Tariff) Regulations, 2016, revenue from the sale of power at existing tariffs and charges for the ensuing year (FY 2018-19) and revenue gap or revenue surplus for the third year of the Control Period calculated based on Aggregate Revenue Requirement approved in the MYT Order and truing up for the previous year and determination of tariff for FY 2018-19 .

After technical validation of the petition, it was registered on 11<sup>th</sup> December, 2017 and as provided under Regulation 29.1 of the GERC (MYT) Regulations, 2016, the Commission has proceeded with this tariff order.

## **1.2 Gujarat State Electricity Corporation Limited (GSECL)**

Government of Gujarat unbundled and restructured Gujarat Electricity Board with effect from 1<sup>st</sup> April, 2005. The Generation, Transmission and Distribution businesses of the erstwhile Gujarat Electricity Board were transferred to seven successor companies as listed below:

- **Gujarat State Electricity Corporation Limited (GSECL)** – A Generation Company
- Gujarat Energy Transmission Corporation Limited (GETCO) – A Transmission Company

Four Distribution Companies:

- Dakshin Gujarat Vij Company Limited (DGVCL)
- Madhya Gujarat Vij Company Limited (MGVCL)
- Uttar Gujarat Vij Company Limited (UGVCL)
- Paschim Gujarat Vij Company Limited (PGVCL); and
- Gujarat Urja Vikas Nigam Limited (GUVNL) – A Holding Company of above named 6 subsidiary companies, responsible for bulk purchase of electricity from various sources and supply to Distribution Companies.

Government of Gujarat, vide Notification dated 3<sup>rd</sup> October, 2006 notified the final opening balance sheets of the transferee companies as on 1<sup>st</sup> April, 2005, containing the value of assets and liabilities, which stand transferred from the erstwhile Gujarat Electricity Board to the transferee companies including Gujarat State Electricity Corporation Limited (GSECL). Assets and liabilities (gross block, loans and equity) as on the date mentioned in the Notification have been considered by the



Commission in line with the Financial Restructuring Plan (FRP) as approved by Government of Gujarat.

### **1.3 Commission's orders for tariff of FY 2016-17**

The Commission in its order dated 2<sup>nd</sup> December, 2015, in the Suo Motu Petition No. 1534/2015 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 is 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 8<sup>th</sup> December, 2015. The petition was registered on 17<sup>th</sup> December, 2015. The Commission decided to approve the provisional ARR vide order dated 31<sup>st</sup> March, 2016, and the tariff for FY 2016-17 was determined accordingly.

### **1.4 Commission's order for Approval of final ARR FY 2016-17 and Approval of Multi-Year ARR for FY 2016-17 to FY 2020-21**

The Petitioner filed its petition for Truing up for 2015-16, Approval of Final ARR for 2016-17, Approval of Multi-Year ARR for FY 2016-17 to FY 2020-21 and Determination of tariff for 2017-18 on 30<sup>th</sup> November 2016. The petition was registered on 03<sup>rd</sup> December 2016 (under Case No. 1619 of 2016). The Commission vide order dated 31<sup>st</sup> March 2017 approved the Truing up for 2015-16, Final ARR for 2016-17, Multi-Year ARR for FY 2016-17 to FY 2020-21 and determined the tariff for 2017-18.



## **1.5 Background of the present petition**

The Commission has notified the GERC (MYT) Regulations, 2016 for the control period of FY 2016-17 to FY 2020-21. Regulation 16.2 (iii) of the GERC (MYT) Regulations, 2016 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).

Regulation 16.2 (vi) of the GERC (MYT) Regulations, 2016 provides for annual determination of tariff for the Generating Company, Transmission Licensee, SLDC, Distribution Wire Business and Retail Supply Business, for each financial year, within the Control Period, based on the approved forecast and results of the truing up exercise.

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

The Petitioner submitted the current Petition for Truing-up of FY 2016-17 & Determination of Tariff for FY 2018-19 on 29<sup>th</sup> November, 2017. After technical validation of the petition, it was registered on 11<sup>th</sup> December, 2017 (Case No. 1693 of 2017) and as provided under Regulation 29.1 of the GERC MYT Regulations, 2016, the Commission has proceeded with this tariff order.

In accordance with Section 64 of the Electricity Act, 2003, GSECL was directed to publish its application in the newspapers to ensure public participation.

The Public Notice, inviting objections / suggestions from its stakeholders on the Truing up and tariff determination petition filed by it, was published in the following newspapers:

**Table 1.2.1: List of Newspapers**

<b>Sr. No.</b>	<b>Name of the Newspaper</b>	<b>Language</b>	<b>Date of publication</b>
1	The Indian Express	English	20/12/2017
2	Divya Bhaskar	Gujarati	20/12/2017

The Petitioner also placed the public notice and the petition on its website ([www.gsecl.in](http://www.gsecl.in)) for inviting objections and suggestions. The interested parties / stakeholders were asked to file their objections / suggestions on the petition on or before 19<sup>th</sup> January, 2018.



The Commission also placed the petition and additional details received from the Petitioner on its website ([www.gercin.org](http://www.gercin.org)) for information and study for all the stakeholders.

The Commission received objections / suggestions from various 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 6<sup>th</sup> February, 2018 at the Commission's office at 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 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:

**Table 1.2.2: List of Stakeholders**

Sr. No.	Name of Stakeholders	Written Submission	Oral Submission	Present on 06.02.2018
1.	Gondal Chamber of Commerce & Industry	Yes	No	No
2.	Shri K.K. Bajaj	Yes	No	No
3.	Utility Users' Welfare Association (UUWA)	Yes	Yes	Yes
4.	Federation of Gujarat Industries (FGI)	Yes	Yes	Yes
5.	Laghu Udyog Bharati - Gujarat	Yes	Yes	Yes

A short note on the main issues raised by the objectors in the submission in respect of the petition, along with the response of GSECL and the Commission's views on the response, are given in Chapter 3.

## **1.7 Contents of this Order**

This order is divided into **Six** chapters as under:

1. The **First Chapter** provides a background of the Petitioner, the petition and details of the public hearing process and the approach adopted for this order.
2. The **Second Chapter** outlines the summary of GSECL's petition.



3. The **Third Chapter** provides a brief account of the public hearing process, including the objections raised by various stakeholders, GSECL's response and the Commission's views on the response.
4. The **Fourth Chapter** deals with the 'Truing up' for FY 2016-17.
5. The **Fifth Chapter** deals with the determination of tariff for FY 2018-19.
6. The **Sixth Chapter** deals with the compliance of directives and the new directives issued by the Commission.

## **1.8 Approach of this Order**

The GERC (Multi-Year Tariff) Regulations, 2016 provide for "Truing up" of the previous year and determination of Tariff for ensuing year. The Commission has approved ARR for Five years of the Control Period from FY 2016-17 to FY 2020-21 in the MYT Order dated 31<sup>st</sup> March, 2017.

The Commission in its order dated 2<sup>nd</sup> December, 2015, in the Suo Motu Petition No. 1534/2015 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 on 31<sup>st</sup> March, 2017 passed order for truing up of 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.

GSECL has approached the Commission with the present petition for "Truing up" of the FY 2016-17 and determination of tariff for the FY 2018-19.

The Commission has undertaken "Truing up" for the FY 2016-17, based on the submissions of the Petitioner. The Commission has undertaken the computation of gains and losses for the FY 2016-17, based on the audited annual accounts and final ARR for FY 2016-17 approved vide Order dated 31<sup>st</sup> March, 2017.

While truing up of FY 2016-17, the Commission has been primarily guided by the following principles:

- 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.





- Uncontrollable parameters have been revised based on the actual performance observed.
- The Truing up for the FY 2016-17 has been considered, based on the GERC (MYT) Regulations, 2016.

The Commission has also considered the difference between provisional and final approved ARR for FY 2016-17, since the tariff for FY 2016-17 was determined by the Commission and recovered by GSECL based on provisional ARR.

Determination of Tariff for FY 2018-19 has been considered as per the GERC (Multi-Year Tariff) Regulations, 2016 and amendment thereof as the base.

For new generating Stations namely Sikka (3-4) and Dhuvaran CCPP3, the Commission has considered provisionally approved fixed charges vide Tariff Order dated 31<sup>st</sup> March, 2017.



## 2. Summary of GSECL Tariff Petition

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### 2.1 Summary of GSECL's Petition

This Chapter highlights the summary of the Petition for True-Up for FY 2016-17 and Determination of Tariff for FY 2018-19.

### 2.2 True-Up of FY 2016-17

GSECL has worked out its Aggregate Revenue Requirement (ARR) for FY 2016-17 as a part of the True-Up for FY 2016-17. GSECL has presented the actual cost components based on the audited annual accounts for FY 2016-17.

Tables below summarize the results of the True-up of FY 2016-17 of GSECL Stations. For the purpose of True-Up, GSECL compared the actual cost for FY 2016-17 with the cost approved by the Commission in "Tariff Order dated 31<sup>st</sup> March, 2017 for Truing up of FY 2016-17.

The fixed cost of GSECL as submitted in the petition is as shown in Table below:



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

**Table 2.1: Fixed Cost for GSECL for FY 2016-17**

(Rs. Crore)

S.N	Station	Depreciation	Interest & Finance charges	Return on Equity	Interest on Working Capital	O & M Expenses	Water Charges	MAT	SLDC Fees & Charges	Non-Tariff Income	Net Fixed Charges
		<b>FY 2016-17</b>	<b>FY 2016-17</b>	<b>FY 2016-17</b>	<b>FY 2016-17</b>	<b>FY 2016-17</b>	<b>FY 2016-17</b>	<b>FY 2016-17</b>	<b>FY 2016-17</b>	<b>FY 2016-17</b>	<b>FY 2016-17</b>
		<b>Actuals</b>	<b>Actuals</b>	<b>Actuals</b>	<b>Actuals</b>	<b>Actuals</b>	<b>Actuals</b>	<b>Actuals</b>	<b>Actuals</b>	<b>Actuals</b>	<b>Actuals</b>
1	Ukai (1-5)	75.00	14.90	28.78	52.10	201.79	0.26	14.18	0.38	31.11	356.28
2	Gandhinagar (1-4)	55.10	10.30	29.60	35.13	98.83	10.19	11.01	0.24	9.04	241.36
3	Gandhinagar 5*	1.84	-	28.67	13.93	49.15	18.99	3.50	0.09	13.04	103.14
4	Wanakbori 1-6 TPS	80.11	14.93	66.49	84.65	200.76	23.95	21.02	0.56	18.11	474.36
5	Wanakbori 7*	1.55	0.04	26.10	13.01	18.80	6.84	3.50	0.09	4.98	64.95
6	Sikka TPS	34.64	1.26	23.42	19.60	71.00	1.90	4.00	0.11	1.48	154.45
7	Sikka Extension (3-4)*	171.33	199.74	138.21	37.12	17.18	1.82	8.34	0.22	7.14	566.84
8	KLTPS 1-3	66.60	5.76	48.69	10.54	95.69	0.43	3.59	0.10	3.58	227.80
9	KLTPS 4	35.65	21.14	28.76	3.89	12.96	0.14	1.25	0.03	1.25	102.58
10	Dhruvaran( Gas 1)*	15.05	-	10.36	4.71	29.20	0.02	1.78	0.05	9.53	51.64
11	Dhruvaran (Gas 2)	15.87	9.44	14.03	4.49	29.20	0.05	1.88	0.05	9.53	65.48
12	Dhruvaran CCPP (Gas 3)*	78.72	87.95	65.07	4.27	3.32	-	6.27	0.17	1.51	244.26
13	Utran Gas*	51.05	-	3.32	1.01	8.53	-	2.25	0.06	19.54	46.68
14	Utran Extension*	66.18	54.62	58.31	27.80	45.70	0.94	6.25	0.17	0.03	259.92
15	Ukai 6*	151.96	115.80	100.07	28.79	31.02	-	8.34	0.22	18.30	417.90
16	Ukai Hydro	8.31	2.94	10.41	0.76	15.12	-	5.09	0.13	1.32	41.45
17	Kadana Hydro	15.37	0.17	28.52	1.97	21.03	-	4.04	0.11	0.79	70.41
	<b>Total</b>	<b>924.33</b>	<b>539.00</b>	<b>708.83</b>	<b>343.79</b>	<b>949.27</b>	<b>65.51</b>	<b>106.29</b>	<b>2.78</b>	<b>150.28</b>	<b>3,489.51</b>

\* PPA based stations.



Based on actual operating and fuel related parameters during FY 2016-17, Table below -indicates actual audited energy charges for GSECL's stations for FY 2016-17 along with the approved ones:

**Table 2.2: Energy Charges For GSECL's Plants for FY 2016-17**

<b>Sr. No.</b>	<b>Power Station</b>	<b>Approved (Rs./kWh)</b>	<b>Actual (Rs./kWh)</b>
1	Ukai (1-5)	3.36	3.40
2	Ukai Extn. 6*	2.81	2.86
3	Gandhinagar (1-4)	3.58	3.61
4	Gandhinagar 5*	3.40	3.37
5	Wanakbori 1-6 TPS	3.57	3.64
6	Wanakbori 7 TPS*	3.29	3.29
7	Sikka TPS	4.10	4.85
8	Sikka Extn. (3-4)*	2.85	3.32
9	KLTPS 1-3	2.22	2.33
10	KLTPS 4	2.12	2.33
11	Dhruvaran CCPP 1*	2.10	2.47
12	Dhruvaran CCPP 2	1.87	2.00
13	Dhruvaran CCPP 3*	-	-
14	Utran (Gas )*	-	-
15	Utran Extension*	4.39	4.56

\* PPA based stations

Table below summarizes plant wise gains/ (losses) calculated by GSECL on account of controllable/ uncontrollable factors, which are proposed to be shared with the Consumers as per the mechanism prescribed by the Commission in the GERC (MYT) Regulations, 2016.

**Table 2.3: Gains / (Losses) on Account of Controllable Factors for FY 2016-17**

(Rs. Crore)

<b>Sr. No.</b>	<b>Power Station</b>	<b>O&amp;M expense</b>	<b>Fuel cost</b>	<b>Total gains/(losses) due to controllable factors</b>	<b>Total gains/(losses) to be passed through (1/3<sup>rd</sup> of gains/(losses))</b>
1	Ukai (1-5)	3.56	(7.24)	(3.68)	(1.23)
2	Ukai Extn. 6*	-	-	-	-
3	Gandhinagar (1-4)	3.15	(1.54)	1.60	0.53



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Sr. No.	Power Station	O&M expense	Fuel cost	Total gains/(losses) due to controllable factors	Total gains/(losses) to be passed through (1/3 <sup>rd</sup> of gains/(losses))
4	Gandhinagar 5*	-	-	-	-
5	Wanakbori 1-6 TPS	13.70	(17.66)	(3.96)	(1.32)
6	Wanakbori 7 TPS*	-	-	-	-
7	Sikka TPS	4.76	(5.90)	(1.14)	(0.38)
8	Sikka Extn. (3-4)*	-	-	-	-
9	KLTPS 1-3	7.30	(9.99)	(2.96)	(0.99)
10	KLTPS 4	4.64	(6.19)	(1.55)	(0.52)
11	Dhruvaran CCPP 1*	-	-	-	-
12	Dhruvaran CCPP 2	0.80	(2.57)	(1.77)	(0.59)
13	Dhruvaran CCPP 3*	-	-	-	-
14	Utran (Gas )*	-	-	-	-
15	Utran Extension*	-	-	-	-
16	Ukai Hydro	2.96	-	2.96	0.99
17	Kadana Hydro	0.74	-	0.74	0.25
	<b>Total</b>	<b>41.35</b>	<b>(51.09)</b>	<b>(9.75)</b>	<b>(3.25)</b>

\* PPA based stations



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**Table 2.4: Gains/(Losses) on Account of Uncontrollable Factors for FY 2016-17**

										(Rs. Crore)
Sr. No.	Power Station	Depreciation	Interest & Finance charges	Return on Equity	Water Charges	SLDC charges	Tax	Interest on working capital	Non-Tariff income	Total gains/(losses) to be passed through
1	Ukai (1-5)	6.01	7.39	4.22	(0.13)	0.22	(9.35)	(14.63)	9.00	2.73
2	Ukai Extn. 6*	-	-	-	-	-	-	-	-	-
3	Gandhinagar (1-4)	13.87	7.50	(1.57)	(1.52)	0.26	(8.04)	(7.70)	(10.60)	(7.80)
4	Gandhinagar 5*	-	-	-	-	-	-	-	-	-
5	Wanakbori 1-6 TPS	14.94	3.65	2.24	11.81	0.25	(13.85)	(22.14)	(28.18)	(31.29)
6	Wanakbori 7 TPS*	-	-	-	-	-	-	-	-	-
7	Sikka TPS	(0.81)	0.28	0.13	0.38	0.05	(2.63)	(6.31)	(4.72)	(13.63)
8	Sikka Extn. (3-4)*	-	-	-	-	-	-	-	-	-
9	KLTPS 1-3	(1.13)	(0.58)	(0.52)	0	0.07	(2.37)	(2.11)	(1.26)	(7.88)
10	KLTPS 4	0.05	1.52	0.17	(0.01)	(0.01)	(0.82)	(0.55)	(0.40)	(0.06)
11	Dhruvaran CCPP 1*	-	-	-	-	-	-	-	-	-
12	Dhruvaran CCPP 2	4.01	0.30	0.01	0.71	0	(1.24)	1.03	7.72	12.54
13	Dhruvaran CCPP 3*	-	-	-	-	-	-	-	-	-
14	Utran (Gas )*	-	-	-	-	-	-	-	-	-
15	Utran Extension*	-	-	-	-	-	-	-	-	-
16	Ukai Hydro	0.77	0.09	0	-	0.04	(3.36)	0.01	(2.19)	(4.65)
17	Kadana Hydro	0.17	0.00	(0.01)	-	0.04	(2.66)	(0.74)	(2.27)	(5.45)
	<b>Total</b>	<b>37.87</b>	<b>20.13</b>	<b>4.69</b>	<b>11.25</b>	<b>0.93</b>	<b>(44.31)</b>	<b>(53.16)</b>	<b>(32.90)</b>	<b>(55.49)</b>

\* PPA based stations



The Petitioner submitted that it has recovered the Fixed Charges based on the provisional ARR for FY 2016-17 approved vide Order dated 31<sup>st</sup> March, 2016 in Petition No. 1544 of 2015 pro-rated for the actual availability and the Energy Charges based on the operational parameters approved for FY 2015-16 in the Multi-Year Tariff Order for Second Control Period in Petition No. 1061 of 2011 and actual fuel parameters for FY 2016-17. Subsequently, vide Order dated 31 March, 2017 in Petition No. 1619 of 2016, the Commission approved the final ARR of FY 2016-17 for GSECL including revised Fixed Charges as well as revised operational parameters. On account of this, there has been variation in the approved costs and actual recovery made by GSECL for FY 2016-17. The variation in recovery of fixed charges and fuel cost for FY 2016-17 are shown in the following tables

**Table 2.5: Variation in recovery of Fixed Charges for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Final Fixed Charges approved in MYT Order for FY 2016-17	Fixed charges recovered as per provisional ARR for FY 2016-17	Fixed cost variation due to provisional and final approval of ARR
a	B	c	d	e=d-c
1	Ukai (1-5)	362.57	334.68	(17.39)
2	Gandhinagar (1-4)	236.72	265.31	28.59
3	Gandhinagar 5*	83.00	101.32	18.32
4	Wanakbori 1-6 TPS	456.79	469.57	12.78
5	Wanakbori 7*	65.42	98.62	30.71
6	Sikka TPS	145.58	120.81	(23.97)
7	Sikka Extension (3-4)*	636.79	617.73	(17.11)
8	KLTPS 1-3	226.96	218.77	(8.19)
9	KLTPS 4	107.16	118.94	9.96
10	Dhruvaran CCPP 1*	66.36	52.00	(12.28)
11	Dhruvaran CCPP 2	78.83	63.73	(14.69)
12	Dhruvaran CCPP 3*	311.53	344.71	-
13	Utran Gas*	49.34	54.35	3.62
14	Utran Extension*	250.31	259.89	9.58
15	Ukai 6*	517.69	566.56	48.87
16	Ukai Hydro	39.76	24.93	(14.83)
17	Kadana Hydro	65.72	57.72	(8.00)
	<b>Total</b>	<b>3,700.53</b>	<b>3,769.64</b>	<b>45.98</b>



**Table 2.6: Variation in recovery of Fuel Cost for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Final approval of Fuel Cost for FY 2016-17	Recovery of Fuel Cost based on provisional approval for FY 2016-17	Fuel cost variation due to provisional and final approval of ARR
1	Ukai (1-5)	688.60	690.46	1.86
2	Gandhinagar (1-4)	237.89	251.23	13.34
3	Gandhinagar 5*	432.97	430.59	(2.38)
4	Wanakbori 1-6 TPS	971.36	971.36	-
5	Wanakbori 7*	272.34	270.85	(1.50)
6	Sikka TPS	31.98	32.22	0.24
7	Sikka Extension (3-4)*	526.38	526.38	-
8	KLTPS 1-3	213.38	217.78	4.40
9	KLTPS 4	63.38	63.38	-
10	Dhruvaran CCPP 1*	18.58	18.39	(0.19)
11	Dhruvaran CCPP 2	36.31	36.31	-
12	Dhruvaran CCPP 3*	-	-	-
13	Utran Gas*	-	-	-
14	Utran Extension*	63.86	63.86	-
15	Ukai 6*	799.57	799.57	-
	<b>Total</b>	<b>4,356.61</b>	<b>4,372.38</b>	<b>15.77</b>

Based on the above estimated gains / (losses) on account of controllable and uncontrollable factors, GSECL has worked out gap/surplus of FY 2016-17 as given below:

**Table 2.7: Net Entitlement calculated by GSECL for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Gain/(Losses) due to controllable factor	Gain/(Losses) due to uncontrollable factor	Fixed cost variation due to provisional and final approval of ARR	Fuel Cost variation due to provisional and final approval of ARR	Total Gain/(losses) to be passed through
<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>	<b>F</b>	<b>e = c/3 + d + e + f</b>
1	Ukai (1-5)	(3.68)	2.73	(17.39)	1.86	(14.03)
2	Gandhinagar (1-4)	1.60	(7.80)	28.59	13.34	34.66
3	Gandhinagar 5*	-	-	18.32	(2.38)	15.94
4	Wanakbori 1-6	(3.96)	(31.29)	12.78	-	(19.82)





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	TPS					
5	Wanakbori 7*	-	-	30.71	(1.50)	29.21
6	Sikka TPS	(1.14)	(13.63)	(23.97)	0.24	(37.74)
7	Sikka Extension (3-4)*	-	-	(17.11)	-	(17.11)
8	KLTPS 1-3	(2.96)	(7.88)	(8.19)	4.40	(12.66)
9	KLTPS 4	(1.55)	(0.06)	9.96	-	9.39
10	Dhruvaran CCPP 1*	-	-	(12.28)	(0.19)	(12.47)
11	Dhruvaran CCPP 2	(1.77)	12.54	(14.69)	-	(2.74)
12	Dhruvaran CCPP 3*	-	-	-	-	-
13	Utran Gas*	-	-	3.62	-	3.62
14	Utran Extension*	-	-	9.58	-	9.58
15	Ukai 6*	-	-	48.87	-	48.87
16	Ukai Hydro	2.96	(4.65)	(14.83)	-	(18.50)
17	Kadana Hydro	0.74	(5.45)	(8.00)	-	(13.20)
	<b>Total</b>	<b>(9.75)</b>	<b>(55.49)</b>	<b>45.98</b>	<b>15.77</b>	<b>3.01</b>

\* PPA based stations.

**Table 2.8: Proposed Fixed Cost of GSECL plants for FY 2018-19**

(Rs. Crore)

Sr. No.	Power Station	Fixed Charges for FY 2018-19	Total Gain/(losses) to be passed through	Net Fixed Charges for FY 2018-19
1	Ukai (1-5)	292.45	(14.03)	306.48
2	Gandhinagar (1-4)	191.46	34.66	156.80
3	Gandhinagar 5*	70.04	15.94	54.10
4	Wanakbori 1-6 TPS	519.57	(19.82)	539.39
5	Wanakbori 7*	61.51	29.21	32.30
6	Sikka TPS	-	(37.74)	37.74
7	KLTPS 1-3	235.39	(12.66)	248.05
8	KLTPS 4	103.31	9.39	93.92
9	Dhruvaran CCPP 1*	70.08	(12.47)	82.55
10	Dhruvaran CCPP 2	85.27	(2.74)	88.01
11	Utran Gas*	-	3.62	(3.62)
12	Utran Extension*	243.36	9.58	233.78
13	Ukai Hydro	32.29	(18.50)	50.79
14	Kadana Hydro	68.52	(13.20)	81.72
15	Ukai 6*	511.74	48.87	462.87
16	Dhruvaran CCPP 3*	302.18	-	302.18
17	Sikka 3&4	614.66	(17.11)	631.77
18	Wanakbori 8 TPS	540.20	-	540.20
	<b>Total</b>	<b>3,942.07</b>	<b>3.01</b>	<b>3,939.06</b>



**Table 2.9: Proposed Energy Charges of GSECL plants for FY 2018-19**

<b>Sr. No.</b>	<b>Power Station</b>	<b>2018-19 (Rs./kWh)</b>
1	Ukai (1-5)	2.862
2	Gandhinagar (1-4)	3.308
3	Gandhinagar 5*	3.912
4	Wanakbori 1-6 TPS	3.269
5	Wanakbori 7*	3.093
6	Sikka TPS	-
7	Sikka Extension (3-4)*	2.425
8	KLTPS 1-3	1.496
9	KLTPS 4	1.469
10	Dhruvaran CCPP 1*	3.899
11	Dhruvaran CCPP 2	4.066
12	Dhruvaran CCPP 3*	2.256
13	Utran Gas*	-
14	Utran Extension*	4.345
15	Ukai 6*	2.516
16	Wanakbori 8*	2.941

## **2.3 Request of GSECL**

Petitioner's Prayer:

1. To admit the petition for True-Up of FY 2016-17 and Determination of Tariff for FY 2018-19.
2. To approve the gains/ losses for the True-Up for FY 2016-17 and allow sharing of such gains/ losses as prescribed in the GERC (MYT) Regulations, 2016.
3. To approve the operational and financial parameters of GSECL for FY 2016-17 considering the vintage and constraints of the old machines, and consider the same for recovery of full fixed cost.
4. To approve the Station operating parameters viz. PAF, Auxiliary Consumption, Station Heat Rate, Transit Loss, Specific Oil Consumption and actual fuel rate for each of the stations of GSECL for FY 2016-17 for recovery of variable cost considering the vintage and constraints of the old machines as well as site specific constraints.



5. To approve reimbursement of Tax on Income earned through the sale of power for all power stations including PPA governed stations.
6. To approve fixed cost and Tariff for FY 2018-19.
7. To grant any other relief as the Commission may consider appropriate.
8. To allow further submissions, addition and alteration to this Petition as may be necessary from time to time.
9. Pass any other order as the Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice.



### **3. Brief outline of objections raised, response from GSECL, and Commission's View**

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In response to the public notice inviting objections / suggestions from stakeholders on the Petition filed by GSECL for Truing up of FY 2016-17 and determination of ARR for FY 2018-19 under the 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 consumers / consumers organizations, the response from the Petitioner and the views of the Commission are given below:

#### **3.1 Overall fuel cost remains low, but benefit not passed to consumers**

The Objector has stated that the fuel cost during FY 2016-17 remained on lower side but the Petitioner has not given any concession or not reduced the variable charges.

##### **Response of GSECL**

The main fuel requirement is coal and coal price is not linked to crude/oil prices. In fact, coal prices have not reduced but have effectively increased due revision by Coal India Limited.

##### **Commission's View**

Commission carries out detailed analysis of variation in fuel price on quarterly basis under FPPPA mechanism. The submission of the licensee in this regard is available on its website. The variation in quarterly FPPPA charges is the reflection of fuel price as well as fixed charges and transmission charges related to procurement of power by the Distribution Licensee.

#### **3.2 Scraping of old Units**

The Petitioner's has not planned effectively for scrapping of old units commissioned before 20 years.

##### **Response of GSECL**

The age of units (completed years) is not the only criteria for decommissioning. They have to consider the operating condition of the units/plant keeping in view the consumers' interest.



### **Commission's View**

GSECL has decommissioned Gandhinagar 1 & 2 on 03-09-2016 and Sikka 1 & 2 on 01-04-2017 taking into consideration the directives given by the Commission. The Commission agrees with views of the Petitioner that it has keep the operating condition of the plant and the consumers' interest in the mind before decommissioning any plant.

### **3.3 Poor capacity addition**

The Petitioner has added only 1376 MW during last five years. The Petitioner may be asked to submit updates on new upcoming plants.

#### **Response of GSECL**

The power plants under implementation are as under:

<b>Sr. No</b>	<b>Name of Power Plant</b>	<b>Capacity [MW]</b>	<b>Proposed Date of Commissioning</b>
1	WTPS # 8 (Coal)	800	Dec-18
2	Dhruvaran (Solar)	75	Mar-19

### **Commission's View**

According to the Electricity Act 2003, electricity generation is a de-licensed activity. The Distribution Licensees are now required to explore the option of procurement of power on competitive bidding basis.

### **3.4 Poor Performance of plants**

The objector has stated that performance of power plants is deteriorating every year and they are not able to achieve the targeted parameters as approved by the Commission.

#### **Response of GSECL**

Due to part load operation and frequent start- stop instruction by SLDC as per grid requirement, it could not achieve the performance as approved by the Commission. Any loss due to poor performance is shared or absorbed by the Petitioner in accordance with the PPA and MYT Regulations.



### **Commission's View**

GSECL has to operate its power plant as per merit order dispatch principle as well instructions from SLDC as per grid requirement. All major performance parameters of power plant are considered as controllable in accordance with the MYT Regulations and any loss due to poor performance is absorbed/ shared by GSECL.

### **3.5 Poor PLF of Hydro power plant in spite of good rain**

The objector has stated that the PLF of hydro power plant of GSECL is only 15.66% in-spite of good rain fall in the State of Gujarat.

#### **Response of GSECL**

The generation of hydro plant is dependent upon the irrigation requirement as operation of hydro plant is according to the instructions from irrigation department.

### **Commission's View**

As the purpose and use of storage water in dam is decided by the State Government, GSECL has to follow the instructions from the Irrigation Department for the operation of hydro power plants.

### **3.6 Burden of fixed cost of new Wanakbori-8 plant**

The Objector has submitted that the GSECL's demand for Rs. 540 crore fixed charge for Wanakbori-8 plant without its Commissioning is not reasonable.

#### **Response of GSECL**

The fixed cost of Wanakbori- 8 was approved by the Commission in the MYT Order considering its planned commissioning in December 2018. GSECL will recover the fixed charges of WTPS-8 only after its commissioning and on proportionate basis only.

### **Commission's View**

As per the MYT Regulations, the generating company is allowed to recover fixed charges only after its commissioning and on availability basis only.

### **3.7 GSECL is not conducting its generation business on commercial principles**

The Objector has submitted that the generation plants remain closed and it is wastage of public money.



### **Response of GSECL**

It has filed petition in accordance with the MYT Regulations 2016.

### **Commission's View**

Commission determines tariff for the generation of electricity for GSECL plants and approves the recovery of the charges from beneficiary GUVNL in accordance with the MYT Regulations. Further, GSECL is required to follow dispatch instructions of beneficiary GUVNL and SLDC for operation of its power plant.

## **3.8 Incomplete Tariff Petition**

The Objector has submitted that the Petitioner has not submitted machine wise details and necessary certifications from SLDC for its claim. GSECL has also not submitted other requisite details e.g. cost audit report, CAG audit certificate etc.

### **Response of GSECL**

In MYT Order station-wise tariff is approved by the Commission and hence in this truing up application GSECL has provided station wise details. Further the necessary SLDC certificates and other supporting documents as required are also submitted by GSECL.

### **Commission's View**

The Commission approves the tariff for the clubbed generating units (transferred stations) as well generating units covered under separate PPAs looking to the use of common ancillaries and facilities.

## **3.9 Figures submitted not matching with Audited Accounts**

The Objector has submitted that the various figures submitted by the Petitioner are not matching with the Audited Accounts/ Annual Report.

### **Response of GSECL**

The requisite details and reasons for difference between figures shown in Audited Accounts and claims are submitted.

### **Commission's View**

Mismatching of claims and numbers shown in Audited Accounts is discussed in the analysis chapter of this Order and Commission considered appropriate adjustments in the truing up exercise of ARR.



### **3.10 Redetermination of ARR of FY 2016-17 and truing up of FY 2016-17 as per provisionally approved ARR and GERC (MYT) Regulations, 2011**

The Objector has submitted that there is no provision either in E.A.2003 or MYT or other Regulations to determine the ARR for the same financial year(FY 2016-17) because the sharing of gain/loss of controllable and uncontrollable factors of tariff is the comparison of approved value with the actual received in the truing up. The question is which ARR is to be considered valid which is approved based on the MYT Regulations, 2011 or approved based on the MYT Regulations, 2016. Both the tariff orders for approval of ARR of FY 2016-17 are valid and legal.

#### **Response of GSECL**

The petition for truing up of FY 2016-17 is filed in accordance with the MYT Regulations 2016.

#### **Commission's View**

Tariff Policy provides that it is desirable that requisite tariff changes come into effect from the date of the commencement of each financial year. Accordingly, the Commission adopted ARR approved for FY 2015-16 as provisional ARR for determination of tariff for FY 2016-17. In order to carry out truing up exercise for FY 2016-17, it is required to approve final ARR for FY 2016-17 with targeted/benchmarked controllable parameters. Accordingly, approval of ARR for FY 2016-17 was considered by the Commission in the MYT Order. The deviation between the provisional ARR and final ARR is to be considered as uncontrollable.

### **3.11 Sharing of Gains/ (Losses) arising out of variations in price of fuel and power purchase**

The Objector has submitted that Regulation 10.2 of the MYT Regulations, 2007 and Regulation 24.3 of MYT Regulations, 2011 do not permit GSECL to share any gain or loss arising out of variations in the price of fuel, which shall be dealt with as specified by the Commission from time to time.

It is a fact that the variation in price of fuel is immediately recovered by GSECL under the FPPPA formula determined by the Commission.

It has come to know after careful perusal of the tariff orders of various Government Utilities as well as private, in the truing up, the revenue gap/surplus on account of variation in price of fuel and power purchase is also allowed as pass through





resulting into very heavy revenue gap which is not fair and valid in view of the facts that the same difference is allowed to be recovered under the FPPPA formula approved by the Commission. Even Regulation 10.2 and Regulation 24.3 of MYT Regulations, 2007 and 2011 respectively do not permit the Commission to allow the recovery of variation in price of fuel and power purchase. This tantamount to double recovery of FPPPA amount which is illegal and not valid.

#### **Response of GSECL**

The ARR and revenue gap has been arrived at as per the provisions of the GERC (MYT) Regulations, 2016. The sharing of Gain/(Loss) due to variation are calculated in accordance with the provisions of the GERC (MYT) Regulations, 2016.

#### **Commission's View**

Regulation 23.3 of the GERC (MYT) Regulations, 2016 provides that- Nothing contained in Regulations related to mechanism for pass through of gains or losses on account of uncontrollable factors 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.

The Commission has consistently considered the gain or loss arising out of variation in the fuel and price of power purchase and its recovery during the truing up exercise only and treated the same as uncontrollable.



## 4. Truing up of FY 2016-17

### 4.1 Generating Stations of GSECL

This Chapter deals with the truing up of FY 2016-17.

GSECL owns and operates the following generating stations as on 1<sup>st</sup> April, 2016.

- Coal based thermal generating stations at Ukai, Gandhinagar, Wanakbori and Sikka;
- Lignite fired thermal station at KLTPS;
- Gas fired stations at Utran and Dhruvaran;
- Major hydel stations at Ukai and Kadana and mini hydel stations at Panam, windmills at Layza and solar power plant at Gandhinagar, Sanand canal and Charanka.

The details of the stations existing as on 1<sup>st</sup> April, 2016 along with their capacities and dates of commissioning are given in the Table below:

**Table 4.1: Capacity and COD of GSECL generating stations as on 1<sup>st</sup> April, 2016**

Name of Station	Unit No.	Capacity of the Unit (MW)	Date of Commissioning
Ukai	1	120	19/03/1976
	2	120	23/06/1976
	3	200	21/01/1979
	4	200	11/09/1979
	5	210	30/01/1985
	<b>Sub Total</b>	<b>850</b>	
Gandhinagar	1	120	13/03/1977
	2	120	10/04/1977
	3	210	20/03/1990
	4	210	20/07/1991
	5	210	17/03/1998
	<b>Sub Total</b>	<b>870</b>	
Wanakbori	1	210	23/03/1982
	2	210	15/01/1983
	3	210	15/03/1984
	4	210	09/03/1986
	5	210	23/09/1986
	6	210	18/11/1987
	7	210	31/12/1998
	<b>Sub Total</b>	<b>1470</b>	
Sikka	1	120	26/03/1988
	2	120	31/03/1993
	<b>Sub Total</b>	<b>240</b>	
KLTPS	1	70	29/03/1990



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	2	70	25/03/1991
	3	75	31/03/1997
	4	75	20/12/2009
	<b>Sub Total</b>	<b>290</b>	
Dhruvaran	7 – Gas	106.617	28/01/2004
	8 – Gas	112.45	01/11/2007
	<b>Sub Total</b>	<b>219.067</b>	
Utran	GT – 1	30	17/12/1992
	GT – 2	30	28/12/1992
	GT – 3	30	07/05/1993
	STG	45	17/07/1993
	<b>Sub Total</b>	<b>135</b>	
Utran Extension	GT -1	<b>375</b>	08/11/2009
Sikka TPS 3&4	3	250	14/09/2015
	4	250	28/12/2015
	<b>Sub Total</b>	<b>500</b>	
Ukai TPS	6	500	08/06/2013
Dhruvaran (Gas)	3	<b>376</b>	21/05/2014
<b>SUB TOTAL GSECL (Coal + Lignite)</b>		<b>4720</b>	
<b>SUB TOTAL GSECL (Gas)</b>		<b>1104.74</b>	
<b>TOTAL GSECL (Thermal)</b>		<b>5824.74</b>	
Ukai Hydro	1	75	07/08/1974
	2	75	13/12/1974
	3	75	22/4/1975
	4	75	04/03/1976
	<b>Sub Total</b>	<b>300</b>	
Ukai LBC	1	2.5	08/12/1987
	2	2.5	19/02/1988
	<b>Sub Total</b>	<b>5</b>	
Kadana Hydro	1	60	31/03/1990
	2	60	02/09/1990
	3	60	03/01/1998
	4	60	27/05/1998
	<b>Sub Total</b>	<b>240</b>	
Panam	1	1	24/03/1994
	2	1	31/03/1994
	<b>Sub Total</b>	<b>2</b>	
<b>SUB TOTAL GSECL (Hydro)</b>		<b>547.00</b>	
<b>Wind Mills</b>		<b>10.00</b>	01/04/2009
<b>Solar</b>	Plant at GTPS Yard	<b>1</b>	27/03/2012
	Plant at Sanand Br. Canal	<b>1</b>	29/03/2012
	Charanka	<b>10</b>	23/03/2015
<b>TOTAL GSECL as a Whole</b>		<b>6393.74</b>	

## 4.2 Operating Performance Parameters

The fuel cost of a generation station depends on (i) the performance parameters, such as PLF, Station Heat Rate, Auxiliary Consumption, Specific Fuel Oil Consumption and Transit Loss of coal (in case of coal station), which are controllable



and (ii) cost parameters such as Gross Calorific Value of fuel, type of fuel and price of fuel, which are uncontrollable.

GSECL has submitted the actual operating performance on Plant Availability Factor (PAF), Plant Load Factor (PLF), Station Heat Rate, Coal transit loss, Auxiliary Consumption (AC) and Specific Oil Consumption etc. for FY 2016-17 for the individual stations. The Commission has taken up the truing up of the annual performance parameters for FY 2016-17, which is discussed in the following sections.

#### **4.2.1 Plant Availability Factor (PAF)**

##### **Petitioner's Submission**

GSECL has submitted the actual plant availability of different stations for FY 2016-17. The PAF (i) approved in the MYT Order dated 31<sup>st</sup> March, 2017; and (ii) the actuals as furnished by GSECL in the petition for the period are given in the Table below:

**Table 4.2: Plant Availability Factors for FY 2016-17**

<b>Sr. No.</b>	<b>Power Stations</b>	<b>Approved for 2016-17</b>	<b>Actual for 2016-17</b>
1	Ukai (1-5)*	80.00%	49.88%
2	Gandhinagar (1-4)	84.00%	85.80%
3	Gandhinagar 5	85.00%	98.13%
4	Wanakbori 1-6 TPS	85.00%	89.40%
5	Wanakbori 7*	85.00%	78.63%
6	Sikka TPS*	80.00%	77.41%
7	Sikka Extension (3-4)*	85.00%	76.31%
8	KLTPS 1-3	75.00%	81.47%
9	KLTPS 4*	80.00%	67.67%
10	Dhruvaran (Gas 1)*	85.00%	72.68%
11	Dhruvaran (Gas 2)*	85.00%	82.68%
12	Dhruvaran CCPP (Gas 3)*	85.00%	0.00%
13	Utran Gas*	85.00%	61.44%
14	Utran Extension	85.00%	98.48%
15	Ukai 6	85.00%	86.85%
16	Ukai Hydro	80.00%	94.78%
17	Kadana Hydro	80.00%	94.05%

\* PPA based stations.



It is observed from the above Table that Ukai (1-5), Wanakbori 7, Sikka TPS, Sikka Extn. 3 & 4, KLTPS 4, Dhruvaran CCPP 1, Dhruvaran CCPP 2, Dhruvaran CCPP 3 and Utran Gas stations have achieved lower PAF than approved by the Commission in the respective order for FY 2016-17.

GSECL has submitted the reasons for deviation, in respect of the stations where the actual PAF was low as compared to approved PAF for FY 2016-17, as given below:

- **Ukai (1-5):** Major Outage for Ukai LBC Canal repairing by Irrigation Department from 07.12.2016 to 13.02.2017; major R&M of Unit no. 4 for turbine retrofitting and ESP Refurbishment and Unit no. 5 for ESP Refurbishment.
- **Wanakbori 7:** Major forced outage of the Unit due to turbine vibrations for the period from 07.06.2016 to 10.08.2016.
- **Sikka TPS:** Forced outages of Unit nos. 1 and 2 due to long restoration time.
- **Sikka Extension (3-4):** Stabilization of Unit nos. 3 and 4 (up to October 2016) and forced outage of Unit no. 3 from 09.09.2016 to 10.10.2016 due to CRH hangers problem.
- **KLTPS-4:** Higher forced outages due to boiler tube leakages (8 nos.) - 1506 hrs, load restriction due to FBHE Super heater and Evaporator problem and NMEJ leakages.
- **Dhruvaran CCPP 1:** Forced outage from 26.12.2016 to 26.03.2017 due to rotor earth fault.
- **Dhruvaran CCPP 2:** Planned outage from 12.08.2016 to 15.09.2016.
- **Utran Gas:** Major forced outages of unit due to long restoration time. The Unit is decommissioned with effect from 22.01.2017.

GSECL has requested the Commission to approve plant availability as proposed by GSECL.

### **Commission's Analysis**

The actual PAF is less than the approved one in case of Ukai (1-5), Wanakbori 7, Sikka TPS, Sikka Extn. 3 & 4, KLTPS 4, Dhruvaran CCPP 1, Dhruvaran CCPP 2, Dhruvaran CCPP 3 and Utran Gas. Petitioner has explained the reasons for low PAF of these plants. The submissions have been noted.



However, as the Plant Availability Factor is considered to be controllable, for truing up purpose the PAF as approved in the MYT Order dated 31<sup>st</sup> March, 2017 for FY 2016-17 is considered.

The PAF approved for truing up purpose for FY 2016-17 for each station is given in the Table below:

**Table 4.3: Plant Availability Factors approved for truing up for FY 2016-17**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17	Approved in truing up 2016-17
1	Ukai (1-5)	80.00%	49.88%	80.00%
2	Gandhinagar (1-4)	84.00%	85.80%	84.00%
3	Gandhinagar 5*	85.00%	98.13%	85.00%
4	Wanakbori 1-6 TPS	85.00%	89.40%	85.00%
5	Wanakbori 7*	85.00%	78.63%	85.00%
6	Sikka TPS	80.00%	77.41%	80.00%
7	Sikka Extension (3-4)*	85.00%	76.31%	85.00%
8	KLTPS 1-3	75.00%	81.47%	75.00%
9	KLTPS 4	80.00%	67.67%	80.00%
10	Dhruvaran (Gas 1)*	85.00%	72.68%	85.00%
11	Dhruvaran (Gas 2)	85.00%	82.68%	85.00%
12	Dhruvaran CCPP (Gas 3)*	85.00%	--	--
13	Utran Gas*	85.00%	61.44%	85.00%
14	Utran Extension*	85.00%	98.48%	85.00%
15	Ukai 6*	85.00%	86.85%	85.00%
16	Ukai Hydro	80.00%	94.78%	80.00%
17	Kadana Hydro	80.00%	94.05%	80.00%

\* PPA based stations.

#### 4.2.2 Plant Load Factor (PLF)

##### Petitioner's Submission

GSECL has submitted the actual Plant Load Factor of different stations for FY 2016-17. The PLF (i) approved in the MYT Order dated 31<sup>st</sup> March, 2017 and (ii) the actuals as furnished by GSECL in the petition for the period is given in the Table below:

**Table 4.4: Plant Load Factors for FY 2016-17**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17
1	Ukai (1-5)	39.00%	30.55%
2	Gandhinagar (1-4)	38.00%	16.59%
3	Gandhinagar 5*	70.00%	76.85%
4	Wanakbori 1-6 TPS	42.00%	27.30%
5	Wanakbori 7*	55.00%	49.79%



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Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17
6	Sikka TPS	27.00%	4.59%
7	Sikka Extension (3-4)*	59.00%	46.86%
8	KLTPS 1-3	75.00%	59.01%
9	KLTPS 4	72.00%	56.86%
10	Dhruvaran (Gas 1)*	21.00%	10.62%
11	Dhruvaran (Gas 2)	21.00%	21.20%
12	Dhruvaran CCPP (Gas 3)*	21.00%	0.00%
13	Utran Gas*	21.00%	0.00%
14	Utran Extension*	21.00%	4.79%
15	Ukai 6*	73.00%	68.99%
16	Ukai Hydro	13.00%	15.33%
17	Kadana Hydro	6.00%	16.40%

\* PPA based stations

Petitioner has submitted following reasons for plants that have achieved low PLF:

- Low schedule in the case of Ukai 1-5, Gandhinagar 1-4, Wanakbori 1-6, Wanakbori 7, Sikka TPS, Sikka 3-4, KLTPS 1-3, Dhruvaran CCPP 1, Dhruvaran CCPP 3 and Ukai 6.
- **KLTPS 4:** Higher forced outages due to boiler tube leakages (8 nos.) - 1506 hours, load restriction due to FBHE Super heater and Evaporator problem and NMEJ leakages; backing down.
- **Utran Gas and Utran Extension:** Major forced outages (long restoration time) and reserve shut down.

#### Commission's Analysis

The Commission has analysed the submissions made by the Petitioner in the Table above. It is observed that all the stations except Gandhinagar 5, Ukai Hydro, Kadana Hydro & Dhruvaran CCPP 2 stations achieved more PLF for FY 2016-17 than approved in the respective order. The Commission has taken note of the above submissions made by the Petitioner and approved the PLF for FY 2016-17 for various stations at actuals for truing up purpose being uncontrollable factor, as given in the Table below:

**Table 4.5: PLF Approved for FY 2016-17 for truing up purpose**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17	Approved in truing up 2016-17
1	Ukai (1-5)	39.00%	30.55%	30.55%
2	Gandhinagar (1-4)	38.00%	16.59%	16.59%
3	Gandhinagar 5*	70.00%	76.85%	76.85%
4	Wanakbori 1-6 TPS	42.00%	27.30%	27.30%
5	Wanakbori 7*	55.00%	49.79%	49.79%



Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17	Approved in truing up 2016-17
6	Sikka TPS	27.00%	4.59%	4.59%
7	Sikka Extension (3-4)*	59.00%	46.86%	46.86%
8	KLTPS 1-3	75.00%	59.01%	59.01%
9	KLTPS 4	72.00%	56.86%	56.86%
10	Dhruvaran (Gas 1)*	21.00%	10.62%	10.62%
11	Dhruvaran (Gas 2)	21.00%	21.20%	21.20%
12	Dhruvaran CCPP (Gas 3)*	21.00%	--	--
13	Utran Gas*	21.00%	--	--
14	Utran Extension*	21.00%	4.79%	4.79%
15	Ukai 6*	73.00%	68.99%	68.99%
16	Ukai Hydro	13.00%	15.33%	15.33%
17	Kadana Hydro	6.00%	16.40%	16.40%

\* PPA based stations

#### 4.2.3 Auxiliary Consumption

##### Petitioner's Submission

GSECL has submitted the actual auxiliary consumption of different stations for FY 2016-17. The auxiliary consumption (i) approved in the MYT Order dated 31<sup>st</sup> March, 2017 and (ii) the actuals as furnished by GSECL in the petition for the period are given in the Table below:

**Table 4.6: Auxiliary consumption for FY 2016-17**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17
1	Ukai (1-5)	9.00%	9.92%
2	Gandhinagar (1-4)	9.50%	12.47%
3	Gandhinagar 5*	9.50%	9.83%
4	Wanakbori 1-6 TPS	9.00%	9.75%
5	Wanakbori 7*	9.50%	9.59%
6	Sikka TPS	11.00%	19.14%
7	Sikka Extension (3-4)*	9.00%	9.89%
8	KLTPS 1-3	12.00%	13.55%
9	KLTPS 4	12.00%	20.12%
10	Dhruvaran (Gas 1)*	4.00%	10.80%
11	Dhruvaran (Gas 2)	3.00%	6.90%
12	Dhruvaran CCPP (Gas 3)*	3.00%	0.00%
13	Utran Gas*	2.90%	0.00%
14	Utran Extension*	3.00%	7.45%
15	Ukai 6*	6.00%	5.86%
16	Ukai Hydro	0.60%	0.89%
17	Kadana Hydro	1.00%	0.95%

\* PPA based stations

GSECL stated that the old stations, when operated at part load capacities under the constraints as explained below, consume more auxiliary power, resulting in higher





auxiliary consumption. Following are the reasons for deviation in the auxiliary consumption for the stations where auxiliary consumption is high during FY 2016-17.

- **Ukai 1-5, Gandhinagar 1-4, Gandhinagar 5, Wanakbori 1-6, Wanakbori 7, Sikka TPS, Sikka Extension 3-4, KLTPS 1-3, Dhruvaran CCPP1, Dhruvaran CCPP2, Utran Extension and Ukai Hydro:** Partial operation due to backing down & APC cons. during RSD
- **KLTPS 4:** Partial operation due to load restriction (FBHE Evaporator & Super heater problem)

The Petitioner also submitted that over and above backing down, the units frequently had to undergo reserve shut down and during such time, minimum auxiliaries are required to be run to keep the units available so that the same can be taken on grid as and when required by SLDC / system.

#### **Commission's Analysis**

The Commission has taken note of the submissions made by the petitioner with regard to the actual auxiliary consumption. The Commission observes that with regard to PPA governed stations, the auxiliary consumption is based on the respective PPAs and accordingly, the auxiliary consumption as considered in the MYT Order dated 31<sup>st</sup> March, 2017 for FY 2016-17. The actual auxiliary consumption in all plants is higher than approved in the MYT Order dated 31<sup>st</sup> March, 2017 for FY 2016-17 except Dhruvaran CCPP 3, Utran Gas, Ukai 6 and Kadana hydro stations where the actual auxiliary consumption is less than what was approved in the MYT Order.

For other plants, though GSECL has indicated the reasons in the petition for the higher auxiliary consumption, the Commission is of the opinion that the reasons are not acceptable as the Commission had taken all the factors into consideration while approving the auxiliary consumption in the MYT Order dated 31<sup>st</sup> March, 2017 for FY 2016-17, and the auxiliary consumption is also a controllable parameter as described in the GERC (MYT) Regulations, 2016.

**The Commission approves the auxiliary consumption for various stations as approved in the MYT Order dated 31<sup>st</sup> March, 2017 for FY 2016-17, for truing up purpose as it is a controllable parameter.**



The auxiliary consumption approved for different stations for the purpose of truing up for FY 2016-17 is given in the Table below:

**Table 4.7: Auxiliary consumption (%) approved for FY 2016-17 for truing up**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17	Approved in truing up 2016-17
1	Ukai (1-5)	9.00%	9.92%	9.00%
2	Gandhinagar (1-4)	9.50%	12.47%	9.50%
3	Gandhinagar 5*	9.50%	9.83%	9.50%
4	Wanakbori 1-6 TPS	9.00%	9.75%	9.00%
5	Wanakbori 7*	9.50%	9.59%	9.50%
6	Sikka TPS	11.00%	19.14%	11.00%
7	Sikka Extension (3-4)*	9.00%	9.89%	9.00%
8	KLTPS 1-3	12.00%	13.55%	12.00%
9	KLTPS 4	12.00%	20.12%	12.00%
10	Dhruvaran (Gas 1)*	4.00%	10.80%	4.00%
11	Dhruvaran (Gas 2)	3.00%	6.90%	3.00%
12	Dhruvaran CCPP (Gas 3)*	3.00%	--	--
13	Utran Gas*	2.90%	--	--
14	Utran Extension*	3.00%	7.45%	3.00%
15	Ukai 6*	6.00%	5.86%	6.00%
16	Ukai Hydro	0.60%	0.89%	0.60%
17	Kadana Hydro	1.00%	0.95%	1.00%

\* PPA based stations

#### 4.2.4 Station Heat Rate (SHR)

##### Petitioner's Submission

GSECL has furnished the actual SHR attained for different stations during FY 2016-17.

The station heat rates (i) approved by the Commission in the MYT Order dated 31<sup>st</sup> March, 2017 and (ii) the actuals as furnished by GSECL in the petition are given in the Table below:

**Table 4.8: Station Heat Rate for FY 2016-17**

(Kcal/kWh)			
Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17
1	Ukai (1-5)	2750	2754
2	Gandhinagar (1-4)	2650	2576
3	Gandhinagar 5*	2460	2497
4	Wanakbori 1-6 TPS	2625	2661
5	Wanakbori 7*	2460	2489



Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17
6	Sikka TPS	3008	3084
7	Sikka Extension (3-4)*	2398	2746
8	KLTPS 1-3	3231	3214
9	KLTPS 4	3000	3035
10	Dhruvaran CCPP 1*	1950	2132
11	Dhruvaran CCPP 2	1950	2004
12	Dhruvaran CCPP 3*	1850	0
13	Utran Gas*	2150	0
14	Utran Extension*	1850	1834
15	Ukai 6*	2385	2441

\* PPA based stations

GSECL has stated that for any generation plant, the SHR always deteriorates with the time. Hence, the old stations were not able to achieve the SHR comparable to the norms of the Commission. Further, as and when any unit operates on partial load, SHR increases drastically. GSECL has taken measures to improve SHR due to which some stations have shown considerable improvement.

GSECL has stated following reasons for exceeding the Station Heat Rate during FY 2016-17:

- Partial load operation due to Backing down in case of Ukai (1-5), Gandhinagar 5, Wanakbori 1-6, Wanakbori 7, Sikka TPS, Dhruvaran CCPP1, Dhruvaran CCPP2 and Ukai 6
- **Sikka Extension 3-4:** Unit under stabilisation
- **KLTPS 4:** Partial load operation due to load restriction on account of FBHE Super heater and evaporator problem

### Commission's Analysis

The Commission observes that for PPA governed stations, the SHR is approved as per the respective PPA terms.

Many of the plants have poor heat rate than approved by the Commission. In the case of Sikka Extn. 3 & 4 and Dhruvaran CCPP 1 the SHR is abnormally high for FY 2016-17. The Commission has analysed the reasons submitted by the Petitioner for these stations and is of the view that the reasons put forward are not acceptable because SHR is considered as controllable parameter for Truing up as prescribed in the GERC (MYT) Regulations, 2016.



For the purpose of truing up for FY 2016-17, the Commission approves the SHR as considered in the respective order for FY 2016-17 as given in the Table below:

**Table 4.9: Station Heat Rate approved for FY 2016-17 for truing up**  
**(Kcal/kWh)**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17	Approved for truing up of 2016-17
1	Ukai (1-5)	2750	2754	2750
2	Gandhinagar (1-4)	2650	2576	2650
3	Gandhinagar 5*	2460	2497	2460
4	Wanakbori 1-6 TPS	2625	2661	2625
5	Wanakbori 7*	2460	2489	2460
6	Sikka TPS	3008	3084	3008
7	Sikka Extension (3-4)*	2398	2746	2398
8	KLTPS 1-3	3231	3214	3231
9	KLTPS 4	3000	3035	3000
10	Dhruvaran CCPP 1*	1950	2132	1950
11	Dhruvaran CCPP 2	1950	2004	1950
12	Dhruvaran CCPP 3*	1850	--	--
13	Utran Gas*	2150	--	--
14	Utran Extension*	1850	1834	1850
15	Ukai 6*	2385	2441	2385

\* PPA based stations

## 4.2.5 Secondary Fuel Oil Consumption (Specific Oil Consumption)

### Petitioner's Submission

GSECL has furnished the actual secondary fuel oil consumption for different stations during the FY 2016-17. The secondary fuel oil consumption (i) approved by the Commission in the MYT Order dated 31<sup>st</sup> March, 2017 and (ii) the actuals as furnished by GSECL in the petition for the period are given in the Table below:

**Table 4.10: Secondary Fuel Oil Consumption for FY 2016-17**  
**(ml/kWh)**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17
1	Ukai (1-5)	1.00	1.79
2	Gandhinagar (1-4)	1.25	2.94
3	Gandhinagar 5*	3.50	0.29
4	Wanakbori 1-6 TPS	1.00	2.13
5	Wanakbori 7*	3.50	1.42
6	Sikka TPS	3.00	17.83
7	Sikka Extension (3-4)*	1.00	2.75
8	KLTPS 1-3	3.00	5.88
9	KLTPS 4	3.00	1.78
10	Ukai 6*	1.00	0.32

\* PPA based stations



GSECL has submitted that the Specific Oil Consumption is calculated in terms of percentage of total calorific requirement of the power generating unit and has relation with the size of the generating unit. For the lower size units, the Specific Oil Consumption remains higher in comparison to the larger size units, because certain amount of Specific Oil consumption remains fixed irrespective of the size of the generating unit. As most of the units of GSECL power stations are smaller in size, Specific Oil Consumption of these plants is generally high.

GSECL has stated following reasons for higher specific oil consumption in respective stations for FY 2016-17:

- **Ukai (1-5), Gandhinagar (1-4), Wanakbori (1-6):** Start stop due to RSD
- **KLTPS 1-3:** Start stop due to RSD and higher forced outages (67 Nos.)
- **KLTPS 4:** Higher forced outages (17 Nos.)

#### **Commission's Analysis**

For PPA governed stations, the secondary fuel oil consumption is approved as per the terms of the respective PPAs.

Except in case of Gandhinagar 5, Wanakbori 7, KLTPS 4 and for Ukai 6, all other plants have higher SFO consumption than what is approved.

The Commission has analysed and noted the reasons submitted by GSECL for higher secondary oil consumption for above stations. However, as SFO consumption is a controllable parameter, for all non-PPA stations and for the purpose of truing up for FY 2016-17, the Commission approves the specific oil consumption as considered in the respective order for FY 2016-17.

**Accordingly, the secondary fuel oil consumption approved for FY 2016-17 for various stations is given in the Table below:**

**Table 4.11: Secondary Fuel Oil Consumption approved for FY 2016-17 for Truing up (ml/kWh)**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17	Approved for truing up of 2016-17
1	Ukai (1-5)	1.00	1.79	1.00
2	Gandhinagar (1-4)	1.25	2.94	1.25
3	Gandhinagar 5*	3.50	0.29	3.50
4	Wanakbori 1-6 TPS	1.00	2.13	1.00



Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17	Approved for truing up of 2016-17
5	Wanakbori 7*	3.50	1.42	3.50
6	Sikka TPS	3.00	17.83	3.00
7	Sikka Extension (3-4)*	1.00	2.75	1.00
8	KLTPS 1-3	3.00	5.88	3.00
9	KLTPS 4	3.00	1.78	3.00
10	Ukai 6*	1.00	0.32	1.00

\* PPA based stations

#### 4.2.6 Transit Loss

##### Petitioner's Submission

GSECL has furnished the actual transit loss of coal for different stations for FY 2016-17.

The transit loss (i) approved by the Commission in the MYT Order dated 31<sup>st</sup> March, 2017 and (ii) the actuals as furnished by GSECL in the petition for the period are given in the Table below:

**Table 4.12: Transit Loss for FY 2016-17**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17
1	Ukai (1-5)	0.80%	0.45%
2	Gandhinagar (1-4)	0.80%	0.49%
3	Gandhinagar 5*	0.80%	0.49%
4	Wanakbori 1-6 TPS	0.80%	0.09%
5	Wanakbori 7*	0.80%	0.09%
6	Sikka TPS	0.80%	0.60%
7	Sikka Extension (3-4)*	0.00%	0.00%
8	KLTPS 1-3	0.20%	0.20%
9	KLTPS 4	0.20%	0.20%
10	Ukai 6*	0.80%	0.45%

\* PPA based stations

##### Commission's Analysis

The transit loss as per actuals is less than that approved in the MYT Order dated 31<sup>st</sup> March, 2017 for FY 2016-17. For the PPA governed stations, the transit loss is approved as per PPA terms.

**The Commission approves the transit loss for all stations for truing up purpose for FY 2016-17 as given in the Table below:**



**Table 4.13: Transit Loss approved for FY 2016-17 for truing up**

Sr. No.	Power Stations	Approved for 2016-17	Actuals for 2016-17	Approved for truing up of 2016-17
1	Ukai (1-5)	0.80%	0.45%	0.80%
2	Gandhinagar (1-4)	0.80%	0.49%	0.80%
3	Gandhinagar 5*	0.80%	0.49%	0.80%
4	Wanakbori 1-6 TPS	0.80%	0.09%	0.80%
5	Wanakbori 7*	0.80%	0.09%	0.80%
6	Sikka TPS	0.80%	0.60%	0.80%
7	Sikka Extension (3-4)*	0.00%	0.00%	0.00%
8	KLTPS 1-3	0.20%	0.20%	0.20%
9	KLTPS 4	0.20%	0.20%	0.20%
10	Ukai 6*	0.80%	0.45%	0.80%

\* PPA based stations

The transit loss is considered only for indigenous coal, washed coal and lignite, but not for imported coal as mentioned in the GERC (MYT) Regulations, 2016.

#### 4.2.7 Summary of Performance Parameters Approved for FY 2016-17

The performance parameters, approved for different stations for FY 2016-17 after the analysis in the preceding paras for the purpose of truing up for FY 2016-17, are listed in the Table below:

**Table 4.14: Performance parameters approved for truing up purpose for the FY 2016-17**

Sr. No.	Power Stations	PAF (%)	PLF (%)	Auxiliary consumption (%)	SHR (Kcal/kWh)	SFO consumption (ml/kWh)	Transit Loss (%)
1	Ukai (1-5)	80%	30.55%	9.00%	2750	1.00	0.80%
2	Gandhinagar (1-4)	84%	16.59%	9.50%	2650	1.25	0.80%
3	Gandhinagar 5*	85%	76.85%	9.50%	2460	3.50	0.80%
4	Wanakbori 1-6 TPS	85%	27.30%	9.00%	2625	1.00	0.80%
5	Wanakbori 7*	85%	49.79%	9.50%	2460	3.50	0.80%
6	Sikka TPS	80%	4.59%	11.00%	3008	3.00	0.80%
7	Sikka Extension (3-4)*	85%	46.86%	9.00%	2398	1.00	0.00%
8	KLTPS 1-3	75%	59.01%	12.00%	3231	3.00	0.20%
9	KLTPS 4	80%	56.86%	12.00%	3000	3.00	0.20%
10	Dhruvaran (Gas 1)*	85%	10.62%	4.00%	1950	0.00	
11	Dhruvaran (Gas 2)	85%	21.20%	3.00%	1950	0.00	
12	Dhruvaran CCPP (Gas 3)*	85%	0.00%	3.00%	1850	0.00	
13	Utran Gas*	85%	0.00%	2.90%	2150	0.00	
14	Utran Extension*	85%	4.79%	3.00%	1850	0.00	
15	Ukai 6*	85%	68.99%	6.00%	2385	1.00	0.80%



Sr. No.	Power Stations	PAF (%)	PLF (%)	Auxiliary consumption (%)	SHR (Kcal/kWh)	SFO consumption (ml/kWh)	Transit Loss (%)
16	Ukai Hydro	80%	15.33%	0.60%		0.00	
17	Kadana Hydro	80%	16.40%	1.00%		0.00	

\* PPA based stations

### 4.3 Gross and Net Generation

The gross and net generation of different stations, as per actual, as furnished by GSECL and as approved for truing up purpose for the FY 2016-17, are given in the Table below:





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**Table 4.15: Gross and net generation for FY 2016-17 for truing up purpose**

Sr. No.	Power Stations	As per actuals submitted by GSECL				As Approved by Commission			
		Gross Generation (MU)	Aux. Cons. (%)	Aux. Cons. (MU)	Net Generation (MU)	Gross Generation (MU)	Aux. Cons. (%)	Aux. Cons. (MU)	Net Generation (MU)
1	Ukai (1-5)	2274.56	9.92%	225.65	2048.91	2274.56	9.00%	204.71	2069.85
2	Gandhinagar (1-4)	758.48	12.47%	94.60	663.88	758.48	9.50%	72.06	686.43
3	Gandhinagar 5*	1413.81	9.83%	138.92	1274.88	1413.81	9.50%	134.31	1279.49
4	Wanakbori 1-6 TPS	3013.68	9.75%	293.69	2719.99	3013.68	9.00%	271.23	2742.45
5	Wanakbori 7*	915.92	9.59%	87.84	828.08	915.92	9.50%	87.01	828.91
6	Sikka TPS	96.57	19.14%	18.49	78.09	96.57	11.00%	10.62	85.95
7	Sikka Extension (3-4)*	2052.64	9.89%	202.98	1849.66	2052.64	9.00%	184.74	1867.90
8	KLTPS 1-3	1111.36	13.55%	150.64	960.72	1111.36	12.00%	133.36	978.00
9	KLTPS 4	373.56	20.12%	75.15	298.41	373.56	12.00%	44.83	328.73
10	Dhruvaran (Gas 1)*	99.14	10.80%	10.71	88.43	99.14	4.00%	3.97	95.18
11	Dhruvaran (Gas 2)	208.87	6.90%	14.41	194.46	208.87	3.00%	6.27	202.60
12	Dhruvaran CCPP (Gas 3)*	0.00	0.00%	0.00	0.00	0.00	3.00%	0.00	0.00
13	Utran Gas*	0.00	0.00%	0.00	0.00	0.00	2.90%	0.00	0.00
14	Utran Extension*	157.11	7.45%	11.71	145.41	157.11	3.00%	4.71	152.40
15	Ukai 6*	3021.60	5.86%	177.12	2844.48	3021.60	6.00%	181.30	2840.31
16	Ukai Hydro	409.48	0.89%	3.63	405.85	409.48	0.60%	2.46	407.02
17	Kadana Hydro	347.65	0.95%	3.32	344.33	347.65	1.00%	3.48	344.17
	<b>Total</b>	<b>16254.42</b>		<b>1508.85</b>	<b>14745.57</b>	<b>16254.42</b>		<b>1345.05</b>	<b>14909.37</b>

\* PPA based stations



#### 4.4 Cost Parameters

The cost parameters include GCV of fuel, mix of fuel and price of fuel. GSECL generating stations run on coal, lignite, oil and gas as base fuel. For some coal based stations, a mix of indigenous, washed and imported coal is used.

GSECL has submitted the details of actual weighted average GCV, mix of coal and weighted average price of fuel for different stations as discussed below:

##### 4.4.1 Wt. Av. Gross Calorific Value (GCV) of fuels

GSECL has furnished the actual Wt. Av. Gross Calorific Values of different fuels (as fed into the boiler in the case of usage of mix of coal) for FY 2016-17 as given in the Table below:

**Table 4.16: Wt. Av. Gross Calorific Value (GCV) of fuels for different stations for FY 2016-17**

Sr. No.	Power Stations	Wt. Av. GCV of Coal (kcal/kg)	Wt. Av. GCV of Gas (kcal/SCM)	Wt. Av. GCV of Oil (kcal/kl)
1	Ukai	3867	-	10840
2	Gandhinagar (1-4)	3955	-	10892
3	Gandhinagar 5	3974	-	10892#
4	Wanakbori 1-6 TPS	3890	-	10756
5	Wanakbori 7 TPS	3892	-	10773
6	Sikka TPS	4609	-	10902
7	Sikka Extension (3-4)	5291	-	10871
8	KLTPS 1-3	2782	-	10623
9	KLTPS 4	2756	-	10623
10	Dhruvaran CCPP 1	-	9440	-
11	Dhruvaran CCPP 2	-	9459	-
12	Dhruvaran CCPP 3	-	-	-
13	Utran Gas	-	-	-
14	Utran extension	-	9519	-
15	Ukai 6	3898	-	10849

\* PPA based stations

# on a query from the Commission during the presentation, about the Weighted avg. GCV of Oil (Kcal/Kl) for G'Nagar-5, GSECL has submitted vide letter dated 10.01.2018 that the GCV is 10892 Kcal/Kl.



#### 4.4.2 Mix of Coal

GSECL has furnished the actual percentage of the mix of different types of coal used for the stations during the FY 2016-17 as given in the Table below:

**Table 4.17: The Mix of Different Types of Coal for FY 2016-17**

Sr. No.	Power Stations	Mix of Coal		
		Indigenous	Washed	Imported
1	Ukai	23.65%	75.31%	1.04%
2	Gandhinagar (1-4)	5.66%	88.31%	6.03%
3	Gandhinagar 5	11.20%	83.73%	5.06%
4	Wanakbori 1-6 TPS	1.57%	97.73%	0.69%
5	Wanakbori 7 TPS	45.66%	54.06%	0.28%
6	Sikka TPS	0.00%	80.79%	19.21%
7	Sikka Extension (3-4)	0.00%	0.55%	99.45%
8	KLTPS 1-3			
9	KLTPS 4			
10	Dhruvaran CCPP 1			
11	Dhruvaran CCPP 2			
12	Dhruvaran CCPP 3			
13	Utran Gas			
14	Utran Extension			
15	Ukai 6	12.61%	86.12%	1.26%

\* PPA based stations

#### 4.4.3 Wt. Av. Prices of Fuel

GSECL has furnished the actual Wt. Av. price per unit of different fuels for different stations, for FY 2016-17, as per the Table below:

**Table 4.18: Wt. Av. Price / Unit of Fuels for 2016-17 (Actual)**

Sr. No.	Station	Wt. Av. Cost of Indigenous Coal (Rs./MT)	Wt. Av. Cost of Washed Coal (Rs./MT)	Wt. Av. Cost of Imported Coal (Rs./MT)	Wt. Av. Cost of Lignite Coal (Rs./MT)	Wt. Av. Cost of Gas (Rs./Scm)	Wt. Av. Cost of Oil (Rs./Kl)
1	Ukai	3891	4331	7085	-		20284
2	Gandhinagar (1-4)	4356	4766	5544	-	-	20737
3	Gandhinagar 5*	4398	4832	5139	-	-	22807
4	Wanakbori 1-6 TPS	4356	4754	7106	-	-	22607
5	Wanakbori 7*	4498	4714	7108	-	-	21892
6	Sikka TPS	-	5445	5681	-	-	26011
7	Sikka Extension (3-4)*	-	5150	5681	-	-	27696
8	KLTPS 1-3	-			1621		29013
9	KLTPS 4	-			1651		29313



Sr · N o.	Station	Wt. Av. Cost of Indigenou s Coal (Rs./MT)	Wt. Av. Cost of Washed Coal (Rs./MT)	Wt. Av. Cost of Imported Coal (Rs./MT)	Wt. Av. Cost of Lignite Coal (Rs./MT)	Wt. Av. Cost of Gas (Rs./Sc m)	Wt. Av. Cost of Oil (Rs./ KI)
10	Dhruvaran (Gas 1)*	-				9.77	
11	Dhruvaran (Gas 2)	-				8.79	
12	Dhruvaran CCPP (Gas 3)*	-				23.16	
13	Utran Gas*	-					
14	Utran Extension*	-				21.92	
15	Ukai 6*	3830	4297	7084			19520

\* PPA based stations

The Commission, after due validation, approved the Wt. Av. GCVs of fuels, percentage of mix of coal and prices of fuel (actuals), as furnished by GSECL for truing up purpose for FY 2016-17 as they are uncontrollable items.

#### 4.5 Fuel Costs

Based on the performance and cost parameters, the approved fuel costs for each of the stations for FY 2016-17 for truing up purpose, along with the actuals furnished by GSECL, are given in the Table below:



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**Table 4.19: Fuel cost of different stations for FY 2016-17 Truing Up**

Sr. No.	Power Stations	As per actuals submitted by GSECL				As Approved by The Commission			
		Gross Generation (MU)	Net Generation (MU)	Fuel Cost	Fuel Cost per unit (Rs/Kwh)	Gross Generation (MU)	Net Generation (MU)	Fuel Cost	Fuel Cost per unit (Rs/Kwh)
1	2	3	4	5	6=5/4	7	8	9	10=9/8
1	Ukai (1-5)	2274.56	2048.91	695.84	3.40	2274.56	2069.85	695.64	3.36
2	Gandhinagar (1-4)	758.48	663.88	239.43	3.61	758.48	686.43	245.96	3.58
3	Gandhinagar 5*	1413.81	1274.88	429.19	3.37	1413.81	1279.49	427.98	3.34
4	Wanakbori 1-6 TPS	3013.68	2719.99	989.02	3.64	3013.68	2742.45	979.38	3.57
5	Wanakbori 7*	915.92	828.08	272.15	3.29	915.92	828.91	272.61	3.29
6	Sikka TPS	96.57	78.09	37.89	4.85	96.57	85.95	35.20	4.10
7	Sikka Extension (3-4)*	2052.64	1849.66	613.99	3.32	2052.64	1867.90	531.57	2.85
8	KLTPS 1-3	1111.36	960.72	223.37	2.33	1111.36	978.00	217.22	2.22
9	KLTPS 4	373.56	298.41	69.57	2.33	373.56	328.73	69.82	2.12
10	Dhruvaran (Gas 1)*	99.14	88.43	21.87	2.47	99.14	95.18	20.00	2.10
11	Dhruvaran (Gas 2)	208.87	194.46	38.88	2.00	208.87	202.60	37.83	1.87
12	Dhruvaran CCPP (Gas 3)*	0.00	0.00	0.22		--	--		
13	Utran Gas*					--	--		
14	Utran Extension*	157.11	145.41	66.35	4.56	157.11	152.40	66.94	4.39
15	Ukai 6*	3021.60	2844.48	812.85	2.86	3021.60	2840.31	798.39	2.81
16	Ukai Hydro	409.48	405.85	0.00		409.48	407.02	-	
17	Kadana Hydro	347.65	344.33	0.00		347.65	344.17	-	
	<b>Total</b>	<b>16254.42</b>	<b>14745.57</b>	<b>4510.62</b>	<b>3.06</b>	<b>16254.42</b>	<b>14909.37</b>	<b>4398.55</b>	<b>2.95</b>

\* PPA based stations



The detailed calculations for each station for arriving at the above costs are given in Annexures.

#### **4.5.1 Variation between Actual Costs and Approved Costs**

The comparison between the fuel costs of all stations put together as per audited annual accounts for FY 2016-17 and the cost approved for truing up purpose is given in Table below:

**Table 4.20: Cost of different fuels as per audited annual accounts and as approved for Truing up for FY 2016-17**

(Rs. Crore)		
Item	Cost as per annual accounts	Cost as approved
Total Fuel Cost	4510.62	4398.55

Total fuel cost as per annual accounts is Rs. 4847.17 Crore which includes Rs. 117.62 Crore towards Water Charges and Rs. 218.92 Crore towards provision for penalty on account of lower coal off take. GSECL has excluded these two elements to arrive the total fuel cost of Rs. 4510.62 Crore as Water Charges are being separately dealt with in this Order, accordingly, the Commission has also not considered these two elements in the Truing up exercise.

The station-wise fuel costs are not provided in the audited annual accounts. The Commission has taken note of the submission made by GSECL, but for truing up purpose, the Commission has considered the fuel cost as computed, based on the approved performance parameters.

#### **4.5.2 Gains and Losses in fuel costs due to controllable factors**

##### **Petitioner's Submission**

GSECL has submitted that it has derived fuel expenses, considering performance parameters, such as auxiliary consumption, station heat rate, specific oil consumption and transit loss, as approved in the MYT Order dated 31<sup>st</sup> March, 2017 for truing up for FY 2016-17 and considering the actual fuel-related parameters, such as GCV of fuel and price of fuels, etc.

The fuel expenses so derived have been compared with the fuel expenses actually incurred with actual performance parameters of GSECL for identification of the gain/ (loss) on account of efficiency of these performance parameters. Thus, based on the same, GSECL's gain/ (loss) is Rs. (51.09) Crore in fuel expenses on account of



operational efficiencies during FY 2016-17. The same is to be treated appropriately in line with the provisions of the GERC (MYT) Regulations, 2016.

### Commission's Analysis

The Commission has compared the fuel expenses so derived by GSECL with the fuel expenses arrived at considering the now approved operational performance parameters for identification of gains / (losses) on account of variation in these parameters. The Commission accordingly approves the station-wise gains / losses for non-PPA stations as given in the Table below:

**Table 4.21: Approved Gains / (losses) from Fuel Expenses for FY 2016-17**

(Rs. Crore)				
Sr. No.	Power Station	Actual Fuel cost incurred by GSECL	Fuel cost arrived at with approved parameters for actual net generation	Gain/(Loss) due To Controllable Factors
1	Ukai (1-5)	695.84	688.60	(7.24)
2	Gandhinagar (1-4)	239.43	237.89	(1.54)
3	Wanakbori 1-6 TPS	989.02	971.36	(17.66)
4	Sikka TPS	37.89	31.98	(5.90)
5	KLTPS 1-3	223.37	213.38	(9.99)
6	KLTPS 4	69.57	63.38	(6.19)
7	Dhruvaran (Gas 2)	38.88	36.31	(2.57)
8	Ukai Hydro	0.00	0.00	-
9	Kadana Hydro	0.00	0.00	-
10	Ukai 6*	812.85	799.57	
11	Gandhinagar 5*	429.19	426.44	
12	Wanakbori 7*	272.15	272.34	
13	Sikka Extension (3-4)*	613.99	526.38	
14	Dhruvaran (Gas 1)*	21.87	18.58	
15	Dhruvaran CCPP (Gas 3)*	0.22	--	
16	Utran Gas*	0.00	--	
17	Utran Extension*	66.35	63.86	
	<b>Total</b>	<b>4510.62</b>	<b>4350.07</b>	<b>(51.09)</b>

\* PPA based stations

## 4.6 Fixed Charges

### 4.6.1 Depreciation for FY 2016-17

#### Petitioner's Submission



GSECL has claimed Rs. 924.33 Crore towards depreciation charges in the Truing up for FY 2016-17. The depreciation approved for FY 2016-17 by the Commission in the respective order and now claimed by GSECL are given in the Table below:

**Table 4.22: Depreciation for FY 2016-17**

(Rs. Crore)

Particulars	Approved for 2016-17	Claimed by GSECL for 2016-17
Depreciation	934.74	924.33

GSECL has proposed Rs. 37.88 Crore towards gain attributed to uncontrollable factors because of difference in the actual capitalization during FY 2016-17.

GSECL has mentioned that depreciation has been charged in accordance with the applicable GERC (MYT) Regulations, 2016. Petitioner has further mentioned that for Utran Gas, depreciation is charged higher as Utran Gas Station is decommissioned on 22<sup>nd</sup> January, 2017.

The station-wise depreciation claimed by GSECL as actual and the computation of gains/ (losses) on account of controllable and uncontrollable factors are given in the Table below:

**Table 4.23: Gains / Losses from Depreciation claimed for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Depreciation (Approved)	Depreciation (Actual)	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors
1	Ukai (1-5)	81.01	75.00		6.01
2	Gandhinagar (1-4)	68.97	55.10		13.87
3	Wanakbori 1-6 TPS	95.05	80.11		14.94
4	Sikka TPS	33.83	34.64		(0.81)
5	KLTPS 1-3	65.47	66.60		(1.13)
6	KLTPS 4	35.70	35.65		0.05
7	Dhruvaran (Gas 2)	19.88	15.87		4.01
8	Ukai Hydro	9.08	8.31		0.77
9	Kadana Hydro	15.54	15.37		0.17
10	Ukai 6*	141.13	151.96		
11	Gandhinagar 5*	13.75	1.84		
12	Wanakbori 7*	6.68	1.55		
13	Sikka Extension (3-4)*	172.90	171.33		
14	Dhruvaran (Gas 1)*	21.24	15.05		





Sr. No.	Power Station	Depreciation (Approved)	Depreciation (Actual)	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors
15	Dhruvaran CCPP (Gas 3)*	76.43	78.72		
16	Utran Gas*	11.79	51.05		
17	Utran Extension*	66.29	66.18		
	<b>Total</b>	<b>934.74</b>	<b>924.33</b>	<b>-</b>	<b>37.88</b>

\* PPA based stations

### Commission's Analysis

The Commission has observed that as per audited annual accounts the depreciation for the year is Rs. 1206.98 Crore which includes depreciation of Rs. 282.14 Crore towards Capital spares and Rs. 8.86 Crore towards RE related assets. Thus, net depreciation excluding depreciation for capital spares and RE related assets works out to Rs. 924.33 Crore. It is further observed that GSECL has claimed higher depreciation rate for Utran Gas Station than the average depreciation rate due to decommissioning of the unit.

The Commission has computed the depreciation for all the stations, taking into consideration the closing GFA of FY 2015-16 as the opening GFA for FY 2016-17, and adding the assets capitalized and deduction during FY 2016-17 as given in Table below:

**Table 4.24: Approved Gross Fixed Assets**

(Rs. Crore)					
Sr. No.	Power Stations	Opening GFA	Additions	Deductions	Closing GFA
1	Ukai (1-5)	1454.52	38.06	2.36	1490.22
2	Gandhinagar (1-4)	1596.59	17.47	457.11	1156.95
3	Gandhinagar 5*	657.84	0.00	0.00	657.84
4	Wanakbori 1-6 TPS	1810.91	45.38	1.78	1854.51
5	Wanakbori 7*	635.52	3.45	0.00	638.97
6	Sikka TPS	657.68	21.27	3.18	675.77
7	Sikka Extension (3-4)*	3274.56	32.49	0.00	3307.05
8	KLTPS 1-3	1282.90	30.96	0.00	1313.86
9	KLTPS 4	686.70	0.00	0.00	686.70
10	Dhruvaran (Gas 1)*	402.36	4.32	0.21	406.47
11	Dhruvaran (Gas 2)	417.17	4.56	0.22	421.50
12	Dhruvaran CCPP (Gas 3)*	1556.22	0.00	13.90	1542.32
13	Utran Gas*	398.92	0.00	394.14	4.78



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Sr. No.	Power Stations	Opening GFA	Additions	Deductions	Closing GFA
14	Utran Extension*	1354.32	1.48	0.00	1355.80
15	Ukai 6*	2915.83	12.38	0.44	2927.77
16	Ukai Hydro	174.23	1.22	0.00	175.45
17	Kadana Hydro	324.58	0.67	0.00	325.25
	<b>Total</b>	<b>19600.85</b>	<b>213.71</b>	<b>873.34</b>	<b>18941.22</b>

The Petitioner has submitted the deduction of Rs. 457.11 Crore and Rs. 394.14 Crore in GTPS 1-2 and Utran Gas towards decommissioning of stations as on 03.09.2016 and 22.01.2017 respectively.

It is observed that the depreciation rate claimed by petitioner is inclusive of depreciation on RE assets (in case of Gandhinagar 1-4, Wanakbori 1-6, Sikka TPS and KLTPS 1-3), the Commission has considered the depreciation rate as claimed by the petitioner excluding the depreciation on RE assets, except in case following:

- a. GTPS 5 and Wanakbori 7: since the assets of these two stations have been depreciated up to 90% of its GFA value. No depreciation is allowed on Opening gross fixed assets. However, in case of Wanakbori 7, the Petitioner has claimed the assets addition during the year and the Commission has considered the depreciation on assets addition.
- b. Utran Gas: higher depreciation is not allowed by the Commission on account of retirement of Utran Gas. The Commission has considered the rate of 5.28% on Utran Gas.

The balance depreciation out of 90% of GFA of GTPS 1 & 2 and Utran Gas is to be adjusted against the sale proceeds of retired assets of these two units and to be claimed in true-up of the respective financial years in which these assets are sold.

### **Gains / Losses**

As per the GERC (MYT) Regulations, 2016, depreciation is considered to be a controllable expense. However, the Commission is of the view that the amount of depreciation is dependent on the quantum of capitalization, rate of depreciation, and disposal of existing assets, if any. The Commission is, therefore, of the view that the parameters that impact depreciation should be treated as uncontrollable. The gain calculated for non-PPA plants is Rs. 47.44 Crore.

GSECL has not claimed any gain / (loss) in respect of PPA governed stations.



The Commission, accordingly approves the station-wise depreciation charges and the gain / (loss) on account of depreciation in the Truing up for FY 2016-17 as detailed in the Table below:

**Table 4.25: Approved station-wise depreciation charges and gains/(losses) from Depreciation for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Depreciation (Approved)	Depreciation (Actual)	Depreciation approved in Truing up 2016-17	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	81.01	75.00	74.99		6.02
2	Gandhinagar (1-4)	68.97	55.10	49.11		19.86
3	Wanakbori 1-6 TPS	95.05	80.11	80.11		14.94
4	Sikka TPS	33.83	34.64	34.31		(0.48)
5	KLTPS 1-3	65.47	66.60	63.36		2.11
6	KLTPS 4	35.70	35.65	35.65		0.05
7	Dhruvaran CCPP 2	19.88	15.87	15.87		4.01
8	Ukai Hydro	9.08	8.31	8.31		0.77
9	Kadana Hydro	15.54	15.37	15.37		0.17
	<b>Sub Total A</b>	<b>424.53</b>	<b>386.66</b>	<b>377.09</b>		<b>47.44</b>
10	Ukai Extn. 6*	141.13	151.96	151.94		
11	Gandhinagar 5*	13.75	1.84	0.00		
12	Wanakbori 7* TPS	6.68	1.55	3.45		
13	Sikka Extn.(3-4)*	172.90	171.33	171.33		
14	Dhruvaran CCPP 1*	21.24	15.05	15.05		
15	Dhruvaran CCPP 3*	76.43	78.72	78.72		
16	Utran (Gas )*	11.79	51.05	17.08		
17	Utran Extn.*	66.29	66.18	65.04		
	<b>Sub Total B</b>	<b>510.21</b>	<b>537.67</b>	<b>502.62</b>		
	<b>Total (A+B)</b>	<b>934.74</b>	<b>924.33</b>	<b>879.71</b>		<b>47.44</b>

\* PPA based stations

#### 4.6.2 Interest and Finance charges for FY 2016-17

##### Petitioner's Submission

GSECL has claimed Rs. 539.00 Crore towards interest and finance charges in the Truing up for FY 2016-17. The interest and finance charges, approved for FY 2016-17 by the Commission in the respective order, and now claimed by GSECL as actual, are given in the Table below:



**Table 4.26: Interest and Finance Charges claimed in truing up for FY 2016-17**

(Rs. Crore)

Particulars	Approved for 2016-17	Claimed by GSECL 2016-17
Interest and Finance charges	631.39	539.00

GSECL has claimed Rs.20.13 Crore towards gain attributed to uncontrollable factor due to difference in the actual capitalization. The station-wise interest and finance charges claimed by GSECL in the truing for FY 2016-17 and the gains / losses are given in the Table below:

**Table 4.27: Gains / Losses from Interest & Finance charges claimed for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Interest & Finance charges (Approved)	Interest & Finance charges (Actual)	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	22.29	14.90	-	7.39
2	Gandhinagar (1-4)	17.80	10.30	-	7.50
3	Wanakbori 1-6 TPS	18.58	14.93	-	3.65
4	Sikka TPS	1.54	1.26	-	0.28
5	KLTPS 1-3	5.18	5.76	-	(0.58)
6	KLTPS 4	22.66	21.14	-	1.52
7	Dhruvaran (Gas 2)	9.74	9.44	-	0.30
8	Ukai Hydro	3.03	2.94	-	0.09
9	Kadana Hydro	0.17	0.17	-	0.00
10	Ukai 6*	157.34	115.80	-	-
11	Gandhinagar 5*	-	-	-	-
12	Wanakbori 7*	-	0.04	-	-
13	Sikka Extension (3-4)*	217.49	199.74	-	-
14	Dhruvaran (Gas 1)*	-	-	-	-
15	Dhruvaran CCPP (Gas 3)*	96.59	87.95	-	-
16	Utran Gas*	1.18	-	-	-
17	Utran Extension*	58.10	54.62	-	-
	<b>Total</b>	<b>631.69</b>	<b>539.00</b>	<b>-</b>	<b>20.13</b>

\* PPA based stations



### Commission's Analysis

The Commission has obtained the details of outstanding loans and the rate of interest for different stations. Commission has considered the closing loan of 2015-16 as approved in FY 2015-16 true up order as opening loan for 2016-17 and repayment is considered equal to the depreciation approved by Commission. For the stations for which depreciation allowed is lower than the opening GFA plus addition in GFA during FY 2016-17 and for the stations for which depreciation is higher than the opening GFA plus addition in GFA for FY 2016-17, lower amount of these two is considered as repayment since the depreciation of asset cannot be more than the closing GFA making closing GFA a negative figure as given in the Table below:

**Table 4.28: Detail of Approved Loan for FY 2016-17**

(Rs. Crore)					
Sr. No.	Power Station	Opening	Additions	Repayment	Closing Loan
1	Ukai (1-5)	182.94	24.99	74.99	132.94
2	Gandhinagar (1-4)	211.67	(307.75)	(96.07)	-
3	Gandhinagar 5*	-	-	-	-
4	Wanakbori 1-6 TPS	183.31	30.52	80.11	133.73
5	Wanakbori 7*	-	2.42	2.42	-
6	Sikka TPS	24.03	12.66	34.31	2.39
7	Sikka Extension (3-4)*	2,292.19	22.75	171.33	2,143.61
8	KLTPS 1-3	83.06	21.67	63.36	41.38
9	KLTPS 4	242.77	-	35.65	207.12
10	Dhruvaran (Gas 1)*	-	2.88	2.88	-
11	Dhruvaran (Gas 2)	106.96	3.03	15.87	94.12
12	Dhruvaran CCPP (Gas 3)*	1,020.80	(9.73)	78.72	932.35
13	Utran Gas*	-	(275.90)	(275.90)	-
14	Utran Extension*	622.45	1.04	65.04	558.44
15	Ukai 6*	1,651.93	8.36	151.94	1,508.35
16	Ukai Hydro	34.99	0.85	8.31	27.54
17	Kadana Hydro	3.53	0.47	4.00	-
	<b>Total</b>	<b>6,660.66</b>	<b>(461.74)</b>	<b>416.96</b>	<b>5,781.96</b>

The weighted average rate of interest is considered as 9.01 % as per the additional data provided by GSECL vide e-mail dated 23<sup>rd</sup> February, 2018.

### Gains / Losses

The GERC (MYT) Regulations, 2016 consider variation in the interest rates as an uncontrollable parameter but variation in Interest and Finance charges as



controllable. However, the Commission is of the view that the amount of interest and finance charges are dependent on the quantum of capitalization, and the extent of borrowing considered during the financial year. The Commission is, therefore, of the view that the parameters which impact interest and finance charges should be treated as uncontrollable.

GSECL has not claimed any gain / (loss) in respect of PPA governed stations.

**The Commission, accordingly approves the station-wise interest and finance charges and the gain / (loss) on account of interest and finance charges in the Truing up for FY 2016-17 as detailed in the Table below:**

**Table 4.29: Approved interest and finance charges and gain/ (loss) for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Interest & Finance charges (Approved)	Interest & Finance charges (Actual)	Interest & Finance charges Approved in truing up	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors
1	Ukai (1-5)	22.29	14.90	14.89		7.40
2	Gandhinagar (1-4)	17.80	10.30	10.30		7.50
3	Wanakbori 1-6 TPS	18.58	14.93	14.94		3.64
4	Sikka TPS	1.54	1.26	1.28		0.26
5	KLTPS 1-3	5.18	5.76	5.91		(0.73)
6	KLTPS 4	22.66	21.14	21.14		1.52
7	Dhruvaran CCPP 2	9.74	9.44	9.44		0.30
8	Ukai Hydro	3.03	2.94	2.94		0.09
9	Kadana Hydro	0.17	0.17	0.17		0.00
	<b>Sub Total A</b>	<b>100.99</b>	<b>80.86</b>	<b>81.02</b>		<b>19.97</b>
10	Ukai Extn. 6*	157.34	115.80	142.30		
11	Gandhinagar 5*	-	-	0.00		
12	Wanakbori 7* TPS	-	0.04	0.00		
13	Sikka Extn.(3-4)*	217.49	199.74	199.74		
14	Dhruvaran CCPP 1*	-	-	-		
15	Dhruvaran CCPP 3*	96.59	87.95	87.95		
16	Utran (Gas )*	1.18	-	0.00		
17	Utran Extn.*	58.10	54.62	53.17		
	<b>Sub Total B</b>	<b>530.70</b>	<b>458.15</b>	<b>483.17</b>		
	<b>Total (A+B)</b>	<b>631.69</b>	<b>539.00</b>	<b>564.18</b>		<b>19.97</b>

\* PPA based stations



#### 4.6.3 Return on Equity for FY 2016-17

##### Petitioner's Submission

GSECL has claimed Rs. 708.83 Crore towards RoE in the Truing up for FY 2016-17. The RoE approved for FY 2016-17 by the Commission in the MYT Order dated 31<sup>st</sup> March, 2017, and now claimed by GSECL as actual are given in Table below:

**Table 4.30: Return on Equity for FY 2016-17**

(Rs. Crore)		
Particulars	Approved for 2016-17	Claimed by GSECL for 2016-17
Return on Equity	739.58	708.83

GSECL has submitted that the comparison of actual value for return on equity, computed on the basis of opening equity for FY 2016-17 and addition to equity during the year on account of funding of capital expenditure, against the return on equity approved in the respective order for FY 2016-17 resulted in a gain of Rs.4.69 Crore. This gain of Rs. 4.69 Crore has been attributed to uncontrollable factors. The station-wise RoE claimed by GSECL in the truing for FY 2016-17 and the gains/ (losses) are given in the Table below:

**Table 4.31: Gains / Losses from Return on equity claimed for FY 2016-17**

(Rs. Crore)					
Sr. No.	Power Station	Return on equity (Approved)	Return on equity (Claimed)	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors
1	Ukai (1-5)	33.00	28.78	-	4.22
2	Gandhinagar (1-4)	28.03	29.60	-	(1.57)
3	Wanakbori 1-6 TPS	68.73	66.49	-	2.24
4	Sikka TPS	23.55	23.42	-	0.13
5	KLTPS 1-3	48.17	48.69	-	(0.52)
6	KLTPS 4	28.93	28.76	-	0.17
7	Dhruvaran CCPP 2	14.04	14.03	-	0.01
8	Ukai Hydro	10.41	10.41	-	(0.00)
9	Kadana Hydro	28.53	28.52	-	0.01
10	Ukai Extn. 6*	122.46	100.07	-	-
11	Gandhinagar 5*	30.88	28.67	-	-
12	Wanakbori 7* TPS	28.03	26.10	-	-
13	Sikka Extn.(3-4)*	137.53	138.21	-	-
14	Dhruvaran CCPP 1*	11.07	10.36	-	-
15	Dhruvaran CCPP 3*	65.36	65.07	-	-



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Sr. No.	Power Station	Return on equity (Approved)	Return on equity (Claimed)	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors
16	Utran (Gas )*	3.47	3.32	-	-
17	Utran Extn.*	57.39	58.31	-	-
	<b>Total</b>	<b>739.58</b>	<b>708.83</b>	<b>-</b>	<b>4.69</b>

\* PPA based stations

### Commission's Analysis

The Commission has observed that GSECL has compared the actual RoE of Rs. 708.83 Crore for FY 2016-17 with the RoE of Rs. 739.58 Crore approved in the MYT Order dated 31<sup>st</sup> March, 2017 and arrived at a gain of Rs. 4.69 Crore.

The Commission has taken the closing equity of FY 2015-16 as the opening equity of FY 2016-17, further 30% of net addition has been considered as equity addition during the year is as given in the Table below:

**Table 4.32 Detail of Approved Equity for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Opening Equity	Addition	Closing Equity
1	Ukai (1-5)	200.18	10.71	210.89
2	Gandhinagar (1-4)	277.42	(131.89)	145.53
3	Gandhinagar 5*	220.57	-	220.57
4	Wanakbori 1-6 TPS	468.41	13.08	481.49
5	Wanakbori 7*	200.18	1.04	201.22
6	Sikka TPS	164.60	5.43	170.03
7	Sikka Extension (3-4)*	982.37	9.75	992.12
8	KLTPS 1-3	343.11	9.29	352.39
9	KLTPS 4	205.43	-	205.43
10	Dhruvaran (Gas 1)*	79.08	1.23	80.31
11	Dhruvaran (Gas 2)	99.60	1.30	100.90
12	Dhruvaran CCPP (Gas 3)*	466.87	(4.17)	462.70
13	Utran Gas*	84.64	(84.64)	-
14	Utran Extension*	409.19	0.44	409.63
15	Ukai 6*	874.74	3.58	878.33
16	Ukai Hydro	74.19	0.37	74.56
17	Kadana Hydro	203.59	0.20	203.79
	<b>Total</b>	<b>5,354.16</b>	<b>(164.28)</b>	<b>5,189.87</b>

In case of GTPS 1-2 and Utran Gas, RoE has been considered till the date of decommissioning of the Stations.





### **Gains / (Losses)**

The GERC (MYT) Regulations, 2016 consider the parameters impacting the variance in the return on equity as controllable. However, the Commission is of the view that the return on equity depends on the amount of capitalisation and the debt equity ratio considered during the financial year, and these parameters are uncontrollable in nature. The variance in the amount of return on equity is therefore treated as uncontrollable.

**The Commission, accordingly approves the station-wise return on equity and gain / (loss) on account of return on equity in the truing up for FY 2016-17as detailed in the Table below:**

**Table 4.33: Approved return on equity and gain/ (loss) for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Return on equity (Approved)	Return on equity (Claimed)	RoE approved For Truing Up	Gain/(Loss) due To Uncontrollable Factors
1	Ukai (1-5)	33.00	28.78	28.77	4.23
2	Gandhinagar (1-4)	28.03	29.60	28.16	(0.13)
3	Wanakbori 1-6 TPS	68.73	66.49	66.49	2.24
4	Sikka TPS	23.55	23.42	23.42	0.13
5	KLTPS 1-3	48.17	48.69	48.68	(0.51)
6	KLTPS 4	28.93	28.76	28.76	0.17
7	Dhruvaran CCPP 2	14.04	14.03	14.03	0.01
8	Ukai Hydro	10.41	10.41	10.41	(0.00)
9	Kadana Hydro	28.53	28.52	28.52	0.01
	<b>Sub total A</b>	<b>283.39</b>	<b>278.70</b>	<b>277.26</b>	<b>6.13</b>
10	Ukai Extn. 6*	122.46	100.07	122.71	
11	Gandhinagar 5*	30.88	28.67	28.67	
12	Wanakbori 7* TPS	28.03	26.10	26.09	
13	Sikka Extn.(3-4)*	137.53	138.21	138.21	
14	Dhruvaran CCPP 1*	11.07	10.36	10.36	
15	Dhruvaran CCPP 3*	65.36	65.07	65.07	
16	Utran (Gas )*	3.47	3.32	8.92	
17	Utran Extn.*	57.39	58.31	57.32	
	<b>Sub total B</b>	<b>456.19</b>	<b>430.12</b>	<b>457.36</b>	
	<b>Total (A+B)</b>	<b>739.58</b>	<b>708.83</b>	<b>734.62</b>	<b>6.13</b>

\* PPA based stations



#### 4.6.4 O&M Expenses for FY 2016-17

##### Petitioner's Submission

GSECL has claimed Rs. 949.27 Crore towards actual O&M expenses in the Truing up for FY 2016-17. The O&M charges approved for FY 2016-17 by the Commission in the respective order, and now claimed by GSECL are given in the Table below:

**Table 4.34: O&M expenses for FY 2016-17**

(Rs. Crore)		
Particulars	Approved for 2016-17	Claimed by GSECL (Truing up) 2016-17
O&M Expenses	1159.17	949.27

GSECL has categorized O&M expenses as controllable. GSECL has indicated a net gain of Rs.41.35 Crore. The station-wise O&M expenses claimed by GSECL in the truing for FY 2016-17 and the controllable gains/losses are given in the Table below:

**Table 4.35: Gains / Losses from O&M expenses for FY 2016-17**

(Rs. Crore)					
Sr. No.	Power Station	O&M expenses (Approved)	O&M expenses (Actual)	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors
1	Ukai (1-5)	205.35	201.79	3.56	-
2	Gandhinagar (1-4)	101.98	98.83	3.15	-
3	Wanakbori 1-6 TPS	214.46	200.76	13.70	-
4	Sikka TPS	75.76	71.00	4.76	-
5	KLTPS 1-3	102.72	95.69	7.03	-
6	KLTPS 4	17.60	12.96	4.64	-
7	Dhruvaran CCPP 2	30.00	29.20	0.80	-
8	Ukai Hydro	18.08	15.12	2.96	-
9	Kadana Hydro	21.77	21.03	0.74	-
10	Ukai Extn. 6*	76.84	31.02	-	-
11	Gandhinagar 5*	20.89	49.15	-	-
12	Wanakbori 7* TPS	17.33	18.80	-	-
13	Sikka Extn.(3-4)*	85.88	17.18	-	-
14	Dhruvaran CCPP 1*	29.93	29.20	-	-
15	Dhruvaran CCPP 3*	62.32	3.32	-	-
16	Utran (Gas)*	28.60	8.53	-	-
17	Utran Extn.*	49.66	45.70	-	-
	<b>Total</b>	<b>1,159.17</b>	<b>949.27</b>	<b>41.35</b>	

\* PPA based stations



### **Commission's Analysis**

The Commission has observed that the actual O&M expenses, as per the audited accounts for FY 2016-17, are Rs. 990.12 Crore which include Rs. 34.08 Crore towards O&M Expenses related to SSNNL, Rs. 3.50 Crore towards Rebate, Rs. 0.50 Crore towards provision for diminution in the value of investment in Maha Guj Collieries Ltd., and Rs. 2.78 Crore towards SLDC Charges. GSECL has negated these elements to arrive at the O&M expenses of Rs. 949.27 Crore. Further, vide letter dated 30<sup>th</sup> January, 2018 the Petitioner submitted that the O&M expenses are inclusive of provision towards 7<sup>th</sup> Pay Commission and charity of Rs. 113.96 Crore and Rs. 0.005 Crore respectively. Since the amount of Rs. 113.96 Crore pertaining to 7<sup>th</sup> Pay Commission is not actually paid to the employees by GSECL, the Commission does not consider it as actual expenses for FY 2016-17 which shall be allowed as uncontrollable factor in the true up of that year in which the actual payment is made. GSECL has claimed charity expenses of Rs. 0.005 Crore as O&M expenses which has to be borne by GSECL. Further, GSECL vide e-mail dated 9<sup>th</sup> March, 2017 has submitted that Rs. 18.59 Crores towards Re-measurement of Defined Benefit Plans is not included in the O&M expenses as per Profit & Loss account Note 30. Accordingly, the Commission approves O&M expense at Rs. 849.78 Crore for FY 2016-17 after considering Rs. 18.59 Crore towards re-measurement of the defined benefit plan, negating Rs. 2.18 Crore towards RE related O&M expenses and CSR Expenses of Rs. 1.94 Crore.

### **Gains / (Loss)**

The Commission observed that there is a gain of Rs. 122.56 Crore due to controllable factors by comparing the actual amount with O&M expenses approved by Commission.

**The Commission, approves the station-wise O&M expenses and the gains / (loss) on account of O&M expenses in the truing up for FY 2016-17 as detailed in the Table below:**

**Table 4.36: Approved O&M expenses gains/losses for FY 2016-17**

(Rs. Crore)						
Sr. No.	Power Station	O&M expenses (Approved)	O&M expenses (Actual)	O&M Approved In Truing Up	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors



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Sr. No.	Power Station	O&M expenses (Approved)	O&M expenses (Actual)	O&M Approved In Truing Up	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors
1	Ukai (1-5)	205.35	201.79	180.55	24.80	
2	Gandhinagar (1-4)	101.98	98.83	85.87	16.11	
3	Wanakbori 1-6 TPS	214.46	200.76	180.04	34.42	
4	Sikka TPS	75.76	71.00	62.77	12.99	
5	KLTPS 1-3	102.72	95.69	85.23	17.49	
6	KLTPS 4	17.60	12.96	11.88	5.72	
7	Dhruvaran CCPP 2	30.00	29.20	26.44	3.56	
8	Ukai Hydro	18.08	15.12	13.64	4.44	
9	Kadana Hydro	21.77	21.03	18.74	3.03	
	<b>Sub Total A</b>	<b>787.72</b>	<b>746.37</b>	<b>665.16</b>	<b>122.56</b>	
10	Ukai Extn. 6*	76.84	31.02	28.64		
11	Gandhinagar 5*	20.89	49.15	43.17		
12	Wanakbori 7* TPS	17.33	18.80	17.26		
13	Sikka Extn.(3-4)*	85.88	17.18	15.30		
14	Dhruvaran CCPP 1*	29.93	29.20	26.45		
15	Dhruvaran CCPP 3*	62.32	3.32	3.13		
16	Utran (Gas )*	28.60	8.53	8.08		
17	Utran Extn.*	49.66	45.70	42.59		
	<b>Sub Total B</b>	<b>371.45</b>	<b>202.90</b>	<b>184.62</b>	<b>-</b>	
	<b>Total (A+B)</b>	<b>1,159.17</b>	<b>949.27</b>	<b>849.78</b>	<b>122.56</b>	

\* PPA based stations

#### 4.6.5 Interest on Working Capital for FY 2016-17

##### Petitioner's Submission

GSECL has claimed Rs. 343.79 Crore towards interest on working capital in the Truing up for FY 2016-17. The interest on working capital approved for FY 2015-16 in the respective order and as claimed by GSECL in the Truing up are given in the Table below:

**Table 4.37: Interest on Working Capital Claimed by GSECL in Truing up for FY 2016-17**

(Rs. Crore)

Particulars	Approved for 2016-17	Claimed by GSECL (Truing up) 2016-17
Interest on Working Capital	286.06	343.79

GSECL has submitted that they have taken 11.79% (weighted average SBI Base rate for FY 2016-17 plus 2.50%) as the interest rate for calculating interest on



Working Capital. GSECL has further submitted that the Interest on Working Capital computed in the Truing up for FY 2016-17 indicates a loss of Rs. 53.16 Crore as shown in the Table below:

**Table 4.38: Gains / Losses from Interest on working capital claimed for FY 2016-17**

(Rs. Crore)					
Sr. No.	Power Station	Interest on working capital (Approved)	Interest on working capital (Actual)	Gain/(Loss) due To Controllable Factors	Gain/(Loss) due To Uncontrollable Factors
1	Ukai (1-5)	37.47	52.10	-	(14.63)
2	Gandhinagar (1-4)	27.43	35.13	-	(7.70)
3	Wanakbori 1-6 TPS	62.51	84.65	-	(22.14)
4	Sikka TPS	13.29	19.60	-	(6.31)
5	KLTPS 1-3	8.43	10.54	-	(2.11)
6	KLTPS 4	3.34	3.89	-	(0.55)
7	Dhruvaran CCPP 2	5.52	4.49	-	1.03
8	Ukai Hydro	0.77	0.76	-	0.01
9	Kadana Hydro	1.23	1.97	-	(0.74)
10	Ukai Extn. 6*	29.34	28.79	-	-
11	Gandhinagar 5*	16.29	13.93	-	-
12	Wanakbori 7* TPS	10.71	13.01	-	-
13	Sikka Extn.(3-4)*	28.33	37.12	-	-
14	Dhruvaran CCPP 1*	4.98	4.71	-	-
15	Dhruvaran CCPP 3*	12.83	4.27	-	-
16	Utran (Gas )*	4.94	1.01	-	-
17	Utran Extn.*	18.65	27.80	-	-
	<b>Total</b>	<b>286.06</b>	<b>343.79</b>	-	<b>(53.16)</b>

\* PPA based stations

### Commission's Analysis

The Commission has observed that the working capital and the interest on working capital have been worked out as per the GERC (MYT) Regulations, 2016 including maintenance spares, but since approved O&M costs, fuel costs, ARR and SFO cost in truing up of FY 2016-17 are different than those claimed by GSECL, Commission has calculated working capital based on approved values. Further, the Commission has considered the interest rate on working capital as 11.31% as per the GERC (MYT) Regulations, 2016.

The interest on working capital is calculated at Rs. 247.48 Crore based on the expenses approved in the truing up for FY 2016-17.



### Gain / (Loss)

With regard to GSECL's submission that interest on working capital should be considered as uncontrollable, the Commission is also of the view that interest on working capital, being normative, should be considered as uncontrollable.

**The Commission accordingly approves the station-wise Interest on Working Capital and the gains / (losses) on account of Interest on Working Capital in the truing up for FY 2016-17 as detailed in the Table below:**

**Table 4.39: Approved Gains/ (Losses) from Interest on Working Capital for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Approved for 2016-17	Claimed in truing up of 2016-17	Approved in truing up of 2016-17	Deviation (+/-)	Gain/(Loss) due To Uncontrollable Factors
1	Ukai (1-5)	37.47	52.10	38.76	(1.29)	(1.29)
2	Gandhinagar (1-4)	27.43	35.13	24.57	2.86	2.86
3	Wanakbori 1-6 TPS	62.51	84.65	60.38	2.13	2.13
4	Sikka TPS	13.29	19.60	11.70	1.59	1.59
5	KLTPS 1-3	8.43	10.54	9.05	(0.62)	(0.62)
6	KLTPS 4	3.34	3.89	3.47	(0.13)	(0.13)
7	Dhruvaran CCPP 2	5.52	4.49	2.73	2.79	2.79
8	Ukai Hydro	0.77	0.76	0.33	0.44	0.44
9	Kadana Hydro	1.23	1.97	0.54	0.69	0.69
	<b>Sub Total A</b>	<b>159.99</b>	<b>213.15</b>	<b>151.55</b>	<b>8.44</b>	<b>8.44</b>
10	Ukai Extn. 6*	29.34	28.79	29.58	-	-
11	Gandhinagar 5*	16.29	13.93	12.78	-	-
12	Wanakbori 7* TPS	10.71	13.01	10.70	-	-
13	Sikka Extn.(3-4)*	28.33	37.12	22.58	-	-
14	Dhruvaran CCPP 1*	4.98	4.71	2.60	-	-
15	Dhruvaran CCPP 3*	12.83	4.27	1.79	-	-
16	Utran (Gas)*	4.94	1.01	0.53	-	-
17	Utran Extn.*	18.65	27.80	15.38	-	-
	<b>Sub Total B</b>	<b>126.07</b>	<b>130.64</b>	<b>95.93</b>	<b>-</b>	<b>-</b>
	<b>Total (A+B)</b>	<b>286.06</b>	<b>343.79</b>	<b>247.48</b>	<b>8.44</b>	<b>8.44</b>

\* PPA based stations

### 4.6.6 SLDC Charges for FY 2016-17

#### Petitioner's Submission

GSECL has claimed Rs.2.78 Crore towards SLDC charges in the Truing up for FY 2016-17.



The SLDC charges approved for FY 2016-17 by the Commission in the respective order for FY 2016-17, and now claimed by GSECL as actual are tabulated below:

**Table 4.40: SLDC charges for FY 2016-17**

(Rs. Crore)		
Particulars	Approved for 2016-17	Claimed in Truing up for 2016-17
SLDC charges	4.19	2.78

GSECL has submitted that it has considered the Gains/ (Losses) on account of SLDC charges as “uncontrollable” factors. The station wise SLDC charges claimed by GSECL in the Truing up for FY 2016-17 and the uncontrollable Gains/(Losses) are given in the Table below:

**Table 4.41: Gain/ (loss) for SLDC charges claimed for FY 2016-17**

(Rs. Crore)					
Sr. No.	Power Station	SLDC (Approved)	SLDC (Actual)	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	0.60	0.38		0.22
2	Gandhinagar (1-4)	0.50	0.24		0.26
3	Wanakbori 1-6 TPS	0.81	0.56		0.25
4	Sikka TPS	0.16	0.11		0.05
5	KLTPS 1-3	0.17	0.10		0.07
6	KLTPS 4	0.02	0.03		(0.01)
7	Dhruvaran CCPP 2	0.05	0.05		0.00
8	Ukai Hydro	0.17	0.13		0.04
9	Kadana Hydro	0.15	0.11		0.04
10	Ukai Extn. 6*	0.34	0.22		
11	Gandhinagar 5*	0.05	0.09		
12	Wanakbori 7* TPS	0.05	0.09		
13	Sikka Extn.(3-4)*	0.23	0.22		
14	Dhruvaran CCPP 1*	0.05	0.05		
15	Dhruvaran CCPP 3*	0.17	0.17		
16	Utran (Gas )*	0.53	0.06		
17	Utran Extn.*	0.14	0.17		
	<b>Total</b>	<b>4.19</b>	<b>2.78</b>		<b>0.93</b>

\* PPA based stations



### Commission's Analysis

The SLDC charges are not published separately in the annual accounts but are included in Other Expenses (Note 32). On a query by the Commission, GSECL submitted that SLDC charges of Rs. 2.78 Crore are clubbed with A&G expenses. The Petitioner has therefore reduced this amount from A&G Expenses and claimed SLDC charges separately.

The Commission approves Rs. 2.78 Crore towards SLDC charges in the truing up for FY 2016-17 as claimed by GSECL against Rs. 4.19 Crore approved in the respective order for FY 2016-17.

### Gains / (Losses):

The parameters, which impact SLDC charges, are uncontrollable. The Commission accordingly approves the Gains/(Losses) on account of SLDC charges in the Truing up as detailed in the Table below:

**Table 4.42: Approved SLDC charges gains/ (losses) for FY 2016-17**

(Rs. Crore)							
Sr. No.	Power Station	Approved for 2016-17	Claimed in truing up of 2016-17	Approved in truing up of 2016-17	Deviation +/-	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	0.60	0.38	0.38	0.22		0.22
2	Gandhinagar (1-4)	0.50	0.24	0.24	0.26		0.26
3	Wanakbori 1-6 TPS	0.81	0.56	0.56	0.25		0.25
4	Sikka TPS	0.16	0.11	0.11	0.05		0.05
5	KLTPS 1-3	0.17	0.10	0.10	0.07		0.07
6	KLTPS 4	0.02	0.03	0.03	(0.01)		(0.01)
7	Dhruvaran CCPP 2	0.05	0.05	0.05	-		-
8	Ukai Hydro	0.17	0.13	0.13	0.04		0.04
9	Kadana Hydro	0.15	0.11	0.11	0.04		0.04
	<b>Subtotal A</b>	<b>2.63</b>	<b>1.70</b>	<b>1.70</b>			<b>0.93</b>
10	Ukai Extn. 6*	0.34	0.22	0.22			
11	Gandhinagar 5*	0.05	0.09	0.09			
12	Wanakbori 7* TPS	0.05	0.09	0.09			
13	Sikka Extn.(3-4)*	0.23	0.22	0.22			
14	Dhruvaran CCPP 1*	0.05	0.05	0.05			
15	Dhruvaran CCPP 3*	0.17	0.17	0.17			
16	Utran (Gas )*	0.53	0.06	0.06			
17	Utran Extn.*	0.14	0.17	0.17			
	<b>Subtotal B</b>	<b>1.56</b>	<b>1.07</b>	<b>1.07</b>			
	<b>Total (A+B)</b>	<b>4.19</b>	<b>2.78</b>	<b>2.78</b>	<b>0.93</b>		<b>0.93</b>

\* PPA based stations





#### 4.6.7 Water Charges for FY 2016-17

GSECL has claimed Rs. 65.51 Crore towards water charges in the Truing up for FY 2016-17 against Rs. 73.41 Crore approved in the respective Order as given in the Table below:

**Table 4.43: Water Charges for FY 2016-17**

(Rs. Crore)		
Particulars	Approved for 2016-17	Claimed in Truing up for 2016-17
Water charges	73.41	65.51

#### Petitioner's Submission

GSECL has submitted that it has considered the Gains/(Losses) on account of water charges as “uncontrollable” factors. The station wise water charges claimed by GSECL in the Truing up for FY 2016-17 and the uncontrollable Gains/(Losses) are given in the Table below:

**Table 4.44: Gain/ (loss) for Water charges claimed for FY 2016-17**

(Rs. Crore)					
Sr. No.	Power Station	Water charges (Approved)	Water Charges (Actual)	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	0.13	0.26		(0.13)
2	Gandhinagar (1-4)	8.67	10.19		(1.52)
3	Wanakbori 1-6 TPS	35.76	23.95		11.81
4	Sikka TPS	2.28	1.90		0.38
5	KLTPS 1-3	0.43	0.43		0.00
6	KLTPS 4	0.13	0.14		(0.01)
7	Dhruvaran CCPP 2	0.76	0.05		0.71
8	Ukai Hydro	-	-		-
9	Kadana Hydro	-	-		-
10	Ukai Extn. 6*	0.10	-		
11	Gandhinagar 5*	11.87	18.99		
12	Wanakbori 7* TPS	8.18	6.84		
13	Sikka Extn.(3-4)*	1.19	1.82		
14	Dhruvaran CCPP 1*	0.21	0.02		
15	Dhruvaran CCPP 3*	-	-		
16	Utran (Gas )*	0.06	-		
17	Utran Extn.*	3.64	0.94		
	<b>Total</b>	<b>73.41</b>	<b>65.51</b>		<b>11.25</b>

\* PPA based stations



### Commission's Analysis

The actual water charges station wise are given in the petition. The actual water charges aggregate to Rs. 65.51 Crore for GSECL stations as against Rs. 73.41 Crore approved for FY 2016-17 in the MYT Order dated 31<sup>st</sup> March, 2017. The Water Charges as per audited accounts are Rs. 117.61 Crore which is inclusive of Rs. 52.10 Crore provision towards corporate expenses. Accordingly, the Commission approves Rs. 65.51 Crore towards water charges for GSECL stations.

### Gains / (Losses):

As provided in the GERC (MYT) Regulations, 2016, as well as in the respective Order for FY 2016-17, the Commission is of the opinion that the water charges should be considered as per actuals. Accordingly, the Commission approves the Gains/(Losses) on account of water charges as uncontrollable in the Truing up as detailed in the Table below:

**Table 4.45: Approved Water charges gain/ (loss) for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Approved for 2016-17	Claimed in truing up of 2016-17	Approved in truing up of 2016-17	Deviation +/-	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	0.13	0.26	0.26	(0.13)	(0.13)
2	Gandhinagar (1-4)	8.67	10.19	10.19	(1.52)	(1.52)
3	Wanakbori 1-6 TPS	35.76	23.95	23.95	11.81	11.81
4	Sikka TPS	2.28	1.90	1.90	0.38	0.38
5	KLTPS 1-3	0.43	0.43	0.43	0.00	0.00
6	KLTPS 4	0.13	0.14	0.14	(0.01)	(0.01)
7	Dhruvaran CCPP 2	0.76	0.05	0.05	0.71	0.71
8	Ukai Hydro	-	-	-	-	-
9	Kadana Hydro	-	-	-	-	-
	<b>Subtotal A</b>	<b>48.16</b>	<b>36.91</b>	<b>36.91</b>	<b>11.25</b>	<b>11.25</b>
10	Ukai Extn. 6*	0.10	-	-		
11	Gandhinagar 5*	11.87	18.99	18.99		
12	Wanakbori 7* TPS	8.18	6.84	6.84		
13	Sikka Extn.(3-4)*	1.19	1.82	1.82		
14	Dhruvaran CCPP 1*	0.21	0.02	0.02		
15	Dhruvaran CCPP 3*	-	-	-		
16	Utran (Gas )*	0.06	-	-		
17	Utran Extn.*	3.64	0.94	0.94		
	<b>Subtotal B</b>	<b>25.25</b>	<b>28.60</b>	<b>28.60</b>		
	<b>Total (A+B)</b>	<b>73.41</b>	<b>65.51</b>	<b>65.51</b>	<b>11.25</b>	<b>11.25</b>

\* PPA based stations



#### 4.6.8 Income Tax for FY 2016-17

##### Petitioner's Submission

GSECL has claimed Rs. 106.29 Crore towards income tax in the Truing up for FY 2016-17. The income tax approved for FY 2016-17 by the Commission in the respective order, and now claimed by GSECL as actual are given in the Table below:

**Table 4.46: Income Tax for FY 2016-17**

(Rs. Crore)

Particulars	Approved for 2016-17	Claimed in Truing up for 2016-17
Income Tax	35.30	106.29

GSECL has claimed tax of Rs. 106.29 Crore as against the approved tax of Rs.35.30 Crore in respect of all stations. This has resulted in an uncontrollable loss of Rs. 44.31 Crore in respect of generating stations other than PPA governed stations. The station wise details claimed by GSECL are given in the Table below:

**Table 4.47: Gain/ (loss) for Income Tax claimed for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Tax (Approved)	Tax (Actual)	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	4.83	14.18		(9.35)
2	Gandhinagar (1-4)	2.97	11.01		(8.04)
3	Wanakbori 1-6 TPS	7.17	21.02		(13.85)
4	Sikka TPS	1.37	4.00		(2.63)
5	KLTPS 1-3	1.22	3.59		(2.37)
6	KLTPS 4	0.43	1.25		(0.82)
7	Dhruvaran CCPP 2	0.64	1.88		(1.24)
8	Ukai Hydro	1.73	5.09		(3.36)
9	Kadana Hydro	1.38	4.04		(2.66)
10	Ukai Extn. 6*	2.84	8.34		
11	Gandhinagar 5*	1.19	3.50		
12	Wanakbori 7* TPS	1.19	3.50		
13	Sikka Extn.(3-4)*	2.84	8.34		
14	Dhruvaran CCPP 1*	0.61	1.78		
15	Dhruvaran CCPP 3*	2.14	6.27		
16	Utran (Gas )*	0.62	2.25		
17	Utran Extn.*	2.13	6.25		
	<b>Total</b>	<b>35.30</b>	<b>106.29</b>		<b>(44.31)</b>

\* PPA based stations



### Commission's Analysis

The Commission has observed that the actual income tax as verified from the annual accounts for FY 2016-17 is Rs. 55.59 Crore. GSECL has submitted that in addition to tax for FY 2016-17, Rs. 50.70 Crore has also been claimed as prior period income tax paid in FY 2016-17. As per the queries raised by the Commission, GSECL submitted copies of challans and year wise break up of Rs. 106.29 Crore tax paid in FY 2016-17 vide letter dated 30<sup>th</sup> January, 2018. The details have been verified.

It is observed that the income tax paid by the Petitioner is also on income from SSNNL and RE assets and hence, the Commission has reduced the current year income tax by Rs. 0.42 Crore pertaining to SSNNL and RE assets. The Commission accordingly approves income tax of Rs. 105.87 Crore for FY 2016-17.

The station-wise approved income tax and gains/(losses) are given in the Table below:

**Table 4.48: Approved Income tax and gains/ (losses) for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Approved for 2016-17	Claimed in truing up of 2016-17	Approved in truing up of 2016-17	Deviation +/-	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	4.83	14.18	14.12	(9.29)	(9.29)
2	Gandhinagar (1-4)	2.97	11.01	10.97	(8.00)	(8.00)
3	Wanakbori 1-6 TPS	7.17	21.02	20.94	(13.77)	(13.77)
4	Sikka TPS	1.37	4.00	3.99	(2.62)	(2.62)
5	KLTPS 1-3	1.22	3.59	3.57	(2.35)	(2.35)
6	KLTPS 4	0.43	1.25	1.25	(0.82)	(0.82)
7	Dhruvaran CCPP 2	0.64	1.88	1.87	(1.23)	(1.23)
8	Ukai Hydro	1.73	5.09	5.07	(3.34)	(3.34)
9	Kadana Hydro	1.38	4.04	4.02	(2.64)	(2.64)
	<b>Subtotal A</b>	<b>21.74</b>	<b>66.05</b>	<b>65.79</b>	<b>(44.05)</b>	<b>(44.05)</b>
10	Ukai Extn. 6*	2.84	8.34	8.31		
11	Gandhinagar 5*	1.19	3.50	3.49		
12	Wanakbori 7* TPS	1.19	3.50	3.49		
13	Sikka Extn.(3-4)*	2.84	8.34	8.31		
14	Dhruvaran CCPP 1*	0.61	1.78	1.77		
15	Dhruvaran CCPP 3*	2.14	6.27	6.25		
16	Utran (Gas )*	0.62	2.25	2.24		



Sr. No.	Power Station	Approved for 2016-17	Claimed in truing up of 2016-17	Approved in truing up of 2016-17	Deviation +/-	Gain / (Loss) due to uncontrollable factor
17	Utran Extn.*	2.13	6.25	6.22		
	<b>Subtotal B</b>	<b>13.56</b>	<b>40.24</b>	<b>40.08</b>		
	<b>Total (A+B)</b>	<b>35.30</b>	<b>106.29</b>	<b>105.87</b>	<b>(44.05)</b>	<b>(44.05)</b>

\* PPA based stations

#### 4.6.9 Non-Tariff Income for FY 2016-17

GSECL has claimed Rs. 150.28 Crore towards non-tariff income in the Truing up FY 2016-17 as against Rs. 163.70 Crore approved for the year in the respective Order as given in the Table below:

**Table 4.49: Non-Tariff Income claimed for FY 2016-17**

(Rs. Crore)

Particulars	Approved for 2016-17	Claimed in Truing up for 2016-17
Non-Tariff Income	163.70	150.28

#### Petitioner's Submission

The Petitioner has submitted the station wise non-tariff income approved in the respective tariff Order, claimed in the Truing up for FY 2016-17 and the Gains/(Losses) as given in the Table below:

**Table 4.50: Gain/ (loss) for Non-Tariff Income claimed for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Non-Tariff Income (Approved)	Non-Tariff Income (Actual)	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	22.11	31.11		9.00
2	Gandhinagar (1-4)	19.64	9.04		(10.60)
3	Wanakbori 1-6 TPS	46.29	18.11		(28.18)
4	Sikka TPS	6.20	1.48		(4.72)
5	KLTPS 1-3	4.84	3.58		(1.26)
6	KLTPS 4	1.65	1.25		(0.40)
7	Dhruvaran CCPP 2	1.81	9.53		7.72
8	Ukai Hydro	3.51	1.32		(2.19)
9	Kadana Hydro	3.06	0.79		(2.27)
10	Ukai Extn. 6*	12.71	18.30		



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Sr. No.	Power Station	Non-Tariff Income (Approved)	Non-Tariff Income (Actual)	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
11	Gandhinagar 5*	11.93	13.04		
12	Wanakbori 7* TPS	6.75	4.98		
13	Sikka Extn.(3-4)*	9.60	7.14		
14	Dhruvaran CCPP 1*	1.74	9.53		
15	Dhruvaran CCPP 3*	4.32	1.51		
16	Utran (Gas )*	1.85	19.54		
17	Utran Extn.*	5.69	0.03		
	<b>Total</b>	<b>163.70</b>	<b>150.28</b>		<b>(32.90)</b>

\* PPA based stations

### Commission's Analysis

It is observed that non-tariff income as per annual accounts is Rs. 207.27 Crore which includes SSNNL income of Rs. 40.43 Crore, Delayed payment surcharge of Rs. 16.82 Crore and Interest on Staff Advances of Rs. 8.06 Crore. After excluding these three elements, the net non-tariff income works out to Rs. 141.96 Crore and accordingly, the Commission has considered the non-tariff income of Rs. 141.96 Crore.

### Gains / (Losses):

The parameters, which impact non-tariff income, are considered uncontrollable. The Commission accordingly approves the Gains/(Losses) on account of non-tariff income in the Truing up as detailed in the Table below:

**Table 4.51: Approved Non-Tariff Income and gain/ (loss) for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Approved for 2016-17	Claimed in truing up of 2016-17	Approved in truing up of 2016-17	Deviation +/-	Gain / (Loss) due to uncontrollable factor
1	Ukai (1-5)	22.11	31.11	29.38	7.27	7.27
2	Gandhinagar (1-4)	19.64	9.04	8.54	(11.10)	(11.10)
3	Wanakbori 1-6 TPS	46.29	18.11	1.40	(44.89)	(44.89)
4	Sikka TPS	6.20	1.48	1.18	(5.02)	(5.02)
5	KLTPS 1-3	4.84	3.58	1.25	(3.59)	(3.59)
6	KLTPS 4	1.65	1.25	0.75	(0.90)	(0.90)
7	Dhruvaran CCPP 2	1.81	9.53	12.32	10.51	10.51



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Sr. No.	Power Station	Approved for 2016-17	Claimed in truing up of 2016-17	Approved in truing up of 2016-17	Deviation +/-	Gain / (Loss) due to uncontrollable factor
8	Ukai Hydro	3.51	1.32	18.45	14.94	14.94
9	Kadana Hydro	3.06	0.79	0.03	(3.03)	(3.03)
	<b>Sub Total A</b>	<b>109.11</b>	<b>76.21</b>	<b>73.29</b>	<b>(35.82)</b>	<b>(35.82)</b>
10	Ukai Extn. 6*	12.71	18.30	1.43	-	-
11	Gandhinagar 5*	11.93	13.04	17.11	-	-
12	Wanakbori 7* TPS	6.75	4.98	3.38	-	-
13	Sikka Extn.(3-4)*	9.60	7.14	9.01	-	-
14	Dhruvaran CCPP 1*	1.74	9.53	17.28	-	-
15	Dhruvaran CCPP 3*	4.32	1.51	4.71	-	-
16	Utran (Gas )*	1.85	19.54	6.74	-	-
17	Utran Extn.*	5.69	0.03	9.01	-	-
	<b>Sub Total B</b>	<b>54.59</b>	<b>74.07</b>	<b>68.67</b>	<b>-</b>	<b>-</b>
	<b>Total (A+B)</b>	<b>163.70</b>	<b>150.28</b>	<b>141.96</b>	<b>(35.82)</b>	<b>(35.82)</b>

\* PPA based stations

## 4.7 Approved Fixed Charges

The Commission has reviewed the performance of GSECL under Regulation 21 of the GERC (MYT) Regulations, 2016 with reference to audited annual accounts for FY 2016-17.

The Commission has discussed and approved various components of fixed charges for approval of trued up ARR in above paragraphs.

The fixed charges approved for FY 2016-17 in the respective Order for FY 2016-17, charges now approved by the Commission, and deviation (gain/ (loss)) with reference to approved values are given in the Table below:

**Table 4.52: Fixed Charges Approved in the Truing up for FY 2016-17**

(Rs. Crore)

Sr. No.	Fixed Charges	Approved for 2016-17 in MYT Order	Claimed in truing up of 2016-17	Approved for 2016-17 in Truing Up	Deviation+ (-)
1	2	3	4	5	6=3-5
<b>Non - PPA based Stations (A)</b>					
1	Depreciation	424.53	386.66	377.09	47.44
2	Interest and Finance Charges	100.99	80.86	81.02	19.97



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Sr. No.	Fixed Charges	Approved for 2016-17 in MYT Order	Claimed in truing up of 2016-17	Approved for 2016-17 in Truing Up	Deviation+ (-)
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6=3-5</b>
3	Return on Equity	283.39	278.70	277.26	6.13
4	Interest on Working Capital	159.99	213.15	151.55	8.44
5	O & M Expenses	787.72	746.37	665.16	122.56
6	Water Charges	48.16	36.91	36.91	11.25
7	SLDC Charges	2.63	1.70	1.70	0.93
8	Income Tax	21.74	66.05	65.79	(44.05)
9	<b>Total Fixed Charges</b>	<b>1,829.15</b>	<b>1,810.40</b>	<b>1,656.46</b>	<b>172.96</b>
10	Less: Non- Tariff Income	109.11	76.21	73.29	35.82
11	<b>Net Fixed Charges</b>	<b>1,720.04</b>	<b>1,734.18</b>	<b>1,583.17</b>	<b>136.87</b>
<b>PPA Based Stations (B)</b>					
1	Depreciation	510.21	537.67	502.62	
2	Interest and Finance Charges	530.70	458.15	483.17	
3	Return on Equity	456.19	430.12	457.36	
4	Interest on Working Capital	126.07	130.64	95.93	
5	O & M Expenses	371.45	202.90	184.62	
6	Water Charges	25.25	28.60	28.60	
7	SLDC Charges	1.56	1.07	1.07	
8	Income Tax	13.56	40.24	40.08	
9	<b>Total Fixed Charges</b>	<b>2,034.99</b>	<b>1,829.40</b>	<b>1,793.46</b>	
10	Less: Non- Tariff Income	54.59	74.07	68.67	
11	<b>Net Fixed Charges</b>	<b>1,980.40</b>	<b>1,755.33</b>	<b>1,724.79</b>	
	<b>Total Net Fixed Charges (A+B)</b>	<b>3,700.44</b>	<b>3,489.51</b>	<b>3,307.97</b>	





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The station wise approved fixed charges are given in the Table below:

**Table 4.53: Approved Station-wise Fixed Charges for FY 2016-17**

(Rs. Crore)												
Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest on Working Capital	O&M Expenses	Water Charges	SLDC Charges	Income Tax	Total Fixed Cost	Less Non-tariff Income	Net Fixed Charges
1	Ukai (1-5)	74.99	14.89	28.77	38.76	180.55	0.26	0.38	14.12	352.73	29.38	323.34
2	Gandhinagar (1-4)	49.11	10.30	28.16	24.57	85.87	10.19	0.24	10.97	219.41	8.54	210.87
3	Wanakbori 1-6 TPS	80.11	14.94	66.49	60.38	180.04	23.95	0.56	20.94	447.42	1.40	446.02
4	Sikka TPS	34.31	1.28	23.42	11.70	62.77	1.90	0.11	3.99	139.47	1.18	138.29
5	KLTPS 1-3	63.36	5.91	48.68	9.05	85.23	0.43	0.10	3.57	216.32	1.25	215.07
6	KLTPS 4	35.65	21.14	28.76	3.47	11.88	0.14	0.03	1.25	102.32	0.75	101.57
7	Dhruvaran (Gas 2)	15.87	9.44	14.03	2.73	26.44	0.05	0.05	1.87	70.50	12.32	58.18
8	Ukai Hydro	8.31	2.94	10.41	0.33	13.64	0.00	0.13	5.07	40.83	18.45	22.38
9	Kadana Hydro	15.37	0.17	28.52	0.54	18.74	0.00	0.11	4.02	67.47	0.03	67.44
10	Ukai 6*	151.94	142.30	122.71	29.58	28.64	0.00	0.22	8.31	483.72	1.43	482.29
11	Gandhinagar 5*	0.00	0.00	28.67	12.78	43.17	18.99	0.09	3.49	107.19	17.11	90.08
12	Wanakbori 7*	3.45	0.00	26.09	10.70	17.26	6.84	0.09	3.49	67.93	3.38	64.54
13	Sikka Extension (3-4)*#	-	-	-	-	-	-	-	-	-	-	-
14	Dhruvaran (Gas 1)*	15.05	0.00	10.36	2.60	26.45	0.02	0.05	1.77	56.30	17.28	39.01
15	Dhruvaran CCPP (Gas 3)*#	-	-	-	-	-	-	-	-	-	-	-
16	Utran Gas*	17.08	0.00	8.92	0.53	8.08	0.00	0.06	2.24	36.92	6.74	30.17
17	Utran Extension*	65.04	53.17	57.32	15.38	42.59	0.94	0.17	6.22	240.83	9.01	231.82
	<b>Total</b>	<b>629.65</b>	<b>276.49</b>	<b>531.34</b>	<b>223.11</b>	<b>831.35</b>	<b>63.69</b>	<b>2.39</b>	<b>91.31</b>	<b>2649.34</b>	<b>128.25</b>	<b>2521.09</b>

\* PPA based stations



#The Commission has not approved the fixed charges for Sikka 3&4 and Dhruvaran CCPP 3 in the Truing up of FY 2016-17 , pending approval of the capital costs of these two stations by the Commission.



## **Sharing of Gains or Losses for FY 2016-17**

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

The relevant Regulations of GERC (MYT) Regulations, 2016 are extracted below

### **Regulation 23. Mechanism for pass through of gains or losses on account of uncontrollable factors**

*23.1 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.*

*23.2 The Generating Company or Transmission Licensee or Distribution Licensee shall submit such details of the variation between expenses incurred and 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.*

*23.3 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 24. Mechanism for sharing of gains or losses on account of controllable factors**

*24.1 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:*

- (a) 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 21.6;*
- (b) The balance amount, which will amount to two-thirds of such gain, may be utilized at the discretion of the Generating Company or Transmission Licensee or Distribution Licensee.*



24.2 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:

- (a) 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 21.6; and
- (b) 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 Gains / (Losses) due to controllable factors in respect of O&M charges and fuel charges approved to be passed through to the beneficiaries are given in the Table below:

**Table 4.54: Approved Gains/ (losses) due to controllable factors for FY 2016-17**  
**(Rs. Crore)**

Sr. No.	Power Station	Approved for 2016-17			Total Gains / (Losses) to be passed through (1/3rd of gains/losses)
		O & M Expenses	Fuel Charges	Total Gains / (Losses) to be Controllable factors	
1	Ukai (1-5)	24.80	(7.24)	17.56	5.85
2	Gandhinagar (1-4)	16.11	(1.54)	14.56	4.85
3	Wanakbori 1-6 TPS	34.42	(17.66)	16.76	5.59
4	Sikka TPS	12.99	(5.90)	7.09	2.36
5	KLTPS 1-3	17.49	(9.99)	7.50	2.50
6	KLTPS 4	5.72	(6.19)	(0.47)	(0.16)
7	Dhruvaran CCPP 2	3.56	(2.57)	0.99	0.33
8	Ukai Hydro	4.44	-	4.44	1.48
9	Kadana Hydro	3.03	-	3.03	1.01
	<b>Sub Total A</b>	<b>122.56</b>	<b>(51.09)</b>	<b>71.47</b>	<b>23.82</b>
10	Ukai Extn. 6*				
11	Gandhinagar 5*				
12	Wanakbori 7* TPS				
13	Sikka Extn.(3-4)*				
14	Dhruvaran CCPP 1*				



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Sr. No.	Power Station	Approved for 2016-17			Total Gains / (Losses) to be passed through (1/3rd of gains/losses)
		O & M Expenses	Fuel Charges	Total Gains / (Losses) to be Controllable factors	
15	Dhruvaran CCPP 3*				
16	Utran (Gas )*				
17	Utran Extn.*				
	<b>Sub Total B</b>				
	<b>Total (A+B)</b>	<b>122.56</b>	<b>(51.09)</b>	<b>71.47</b>	<b>23.82</b>

\* PPA BASED STATIONS

The Gains / (Losses) due to uncontrollable factors in respect of depreciation, interest & finance charges, return on equity, interest on working capital, SLDC, water charges, income tax and non-tariff income approved to be passed through to the beneficiaries are given in the Table below:



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**Table 4.55: Approved Gains / (Losses) due to Uncontrollable Factors for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest On Working Capital	SLDC	Water Charges	Income Tax	Non-Tariff Income	Total Gains / (Losses) to be passed through
1	Ukai (1-5)	6.02	7.40	4.23	(1.29)	0.22	(0.13)	(9.29)	7.27	14.42
2	Gandhinagar (1-4)	19.86	7.50	(0.13)	2.86	0.26	(1.52)	(8.00)	(11.10)	9.73
3	Wanakbori 1-6 TPS	14.94	3.64	2.24	2.13	0.25	11.81	(13.77)	(44.89)	(23.66)
4	Sikka TPS	(0.48)	0.26	0.13	1.59	0.05	0.38	(2.62)	(5.02)	(5.70)
5	KLTPS 1-3	2.11	(0.73)	(0.51)	(0.62)	0.07	0.00	(2.35)	(3.59)	(5.61)
6	KLTPS 4	0.05	1.52	0.17	(0.13)	(0.01)	(0.01)	(0.82)	(0.90)	(0.13)
7	Dhruvaran CCPP 2	4.01	0.30	0.01	2.79	0.00	0.71	(1.23)	10.51	17.09
8	Ukai Hydro	0.77	0.09	(0.00)	0.44	0.04	-	(3.34)	14.94	12.94
9	Kadana Hydro	0.17	(0.00)	0.01	0.69	0.04	-	(2.64)	(3.03)	(4.77)
	<b>Sub Total A</b>	<b>47.44</b>	<b>19.97</b>	<b>6.13</b>	<b>8.44</b>	<b>0.93</b>	<b>11.25</b>	<b>(44.05)</b>	<b>(35.82)</b>	<b>14.30</b>
10	Ukai Extn. 6*	-	-	-	-	-	-	-	-	-
11	Gandhinagar 5*	-	-	-	-	-	-	-	-	-
12	Wanakbori 7* TPS	-	-	-	-	-	-	-	-	-
13	Sikka Extn.(3-4)*	-	-	-	-	-	-	-	-	-
14	Dhruvaran CCPP 1*	-	-	-	-	-	-	-	-	-
15	Dhruvaran CCPP 3*	-	-	-	-	-	-	-	-	-
16	Utran (Gas )*	-	-	-	-	-	-	-	-	-
17	Utran Extn.*	-	-	-	-	-	-	-	-	-
	<b>Sub Total B</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
	<b>Total (A+B)</b>	<b>47.44</b>	<b>19.97</b>	<b>6.13</b>	<b>8.44</b>	<b>0.93</b>	<b>11.25</b>	<b>(44.05)</b>	<b>(35.82)</b>	<b>14.30</b>



The Consolidated Gains / (Losses) approved in the Truing up for FY 2016-17 are given in the Table below:

**Table 4.56: Total Consolidated Gains / (Losses) Approved for FY 2016-17**

(Rs. Crore)

Sr. No.	Power Station	Gains / (Losses) of controllable factors	Gains / (Losses) of Uncontrollable factors to be passed through	Total Gains / (Losses)
		(a)	(b)	( c )=a/3+b
<b>A</b>	<b>Non PPA Based Stations</b>			
1	Ukai (1-5)	17.56	14.42	20.28
2	Gandhinagar (1-4)	14.56	9.73	14.59
3	Wanakbori 1-6 TPS	16.76	(23.66)	(18.07)
4	Sikka TPS	7.09	(5.70)	(3.34)
5	KLTPS 1-3	7.50	(5.61)	(3.12)
6	KLTPS 4	(0.47)	(0.13)	(0.29)
7	Dhruvaran CCPP 2	0.99	17.09	17.41
8	Ukai Hydro	4.44	12.94	14.42
9	Kadana Hydro	3.03	(4.77)	(3.76)
	<b>Sub Total A</b>	<b>71.47</b>	<b>14.30</b>	<b>38.13</b>
<b>B</b>	<b>PPA Based Stations</b>			
1	Ukai Extn. 6*			
2	Gandhinagar 5*			
3	Wanakbori 7* TPS			
4	Sikka Extn.(3-4)*			
5	Dhruvaran CCPP 1*			
6	Dhruvaran CCPP 3*			
7	Utran (Gas )*			
8	Utran Extn.*			
	<b>Sub Total B</b>			
	<b>Total (A+B)</b>	<b>71.47</b>	<b>14.30</b>	<b>38.13</b>

\* PPA BASED STATIONS

The presentation of the aforesaid loss and gain under fixed and fuel cost is given in the Table below:



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Sr. No.	Power Station	Gains / (Losses) of controllable factors (a)	Gains / (Losses) of Uncontrollable factors to be passed through (b)	Total Gains / (Losses) c = a/3+b	Gains / (Losses) of controllable factors (d)	Total Gains / (Losses) d/3	Total Gains / (Losses)
		Fixed charges	Fixed charges	Fixed charges	fuel cost	fuel cost	Fixed and fuel cost
<b>A</b>	<b>Non PPA Based Station</b>						
1	Ukai (1-5)	24.80	14.42	22.69	(7.24)	(2.41)	20.28
2	Gandhinagar (1-4)	16.11	9.73	15.10	(1.54)	(0.51)	14.59
3	Wanakbori 1-6 TPS	34.42	(23.66)	(12.19)	(17.66)	(5.89)	(18.07)
4	Sikka TPS	12.99	(5.70)	(1.37)	(5.90)	(1.97)	(3.34)
5	KLTPS 1-3	17.49	(5.61)	0.22	(9.99)	(3.33)	(3.12)
6	KLTPS 4	5.72	(0.13)	1.77	(6.19)	(2.06)	(0.29)
7	Dhruvaran CCPP 2	3.56	17.09	18.27	(2.57)	(0.86)	17.41
8	Ukai Hydro	4.44	12.94	14.42	-	-	14.42
9	Kadana Hydro	3.03	(4.77)	(3.76)	-	-	(3.76)
	<b>Sub Total A</b>	<b>122.56</b>	<b>14.30</b>	<b>55.16</b>	<b>(51.09)</b>	<b>(17.03)</b>	<b>38.13</b>
<b>B</b>	<b>PPA Based Stations</b>						
1	Ukai Extn. 6*						
2	Gandhinagar 5*						
3	Wanakbori 7* TPS						
4	Sikka Extn.(3-4)*						
5	Dhruvaran CCPP 1*						
6	Dhruvaran CCPP 3*						
7	Utran (Gas)*						
8	Utran Extn.*						
	<b>Sub Total B</b>						
	<b>Total (A+B)</b>						

**The Commission thus approves the net gain of Rs. 38.13 Crore in the Truing up for FY 2016-17.**





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During the FY 2016-17, the Petitioner has also claimed the difference between provision and Final ARR order for FY 2016-17. Accordingly, the Commission has worked out the net gain for FY 2016-17 as given in table below:

**Table 4.57: Total Consolidated Gains / (Losses) Approved for FY 2016-17**

(Rs. Crore)

S r. No.	Power Station	Total Gain/(lo sses) for FY 2016-17 true up	Fixed cost variati on due to provisi onal and final appro val of ARR	Total Gain/(l osses) to be passe d throug h	Total Gain/(l osses) to be passe d throug h at actual PAF	Total Gain/(l osses) for FY 2016- 17 true up	fuel cost variati on due to provisi onal and final appro val of ARR	Total Gain/(l osses) to be passe d throug h	Total Gain/(losses) to be passed through
		Fixed charges	Fixed charge s	Fixed charge s		Fuel Cost	Fuel Cost	Fuel Cost	Fixed charges and Fuel Cost
<b>A Non PPA Based Station</b>									
1	Ukai (1-5)	22.69	(27.89)	(5.20)	(3.24)	(2.41)	1.86	(0.55)	(3.80)
2	Gandhinagar (1-4)	15.10	28.59	43.69	43.69	(0.51)	13.34	12.83	56.52
3	Wanakbori 1-6 TPS	(12.19)	12.78	0.59	0.59	(5.89)	-	(5.89)	(5.29)
4	Sikka TPS	(1.37)	(24.77)	(26.14)	(25.29)	(1.97)	0.24	(1.73)	(27.02)
5	KLTPS 1-3	0.22	(8.19)	(7.97)	(7.97)	(3.33)	4.40	1.07	(6.91)
6	KLTPS 4	1.77	11.78	13.55	11.46	(2.06)	-	(2.06)	9.40
7	Dhruvaran CCPP 2	18.27	(15.10)	3.17	3.08	(0.86)	-	(0.86)	2.23
8	Ukai Hydro	14.42	(14.83)	(0.41)	(0.41)	-	-	-	(0.41)
9	Kadana Hydro	(3.76)	(8.00)	(11.76)	(11.76)	-	-	-	(11.76)
	<b>Sub Total A</b>	<b>55.16</b>	<b>(45.63)</b>	<b>9.53</b>	<b>10.16</b>	<b>(17.03)</b>	<b>19.84</b>	<b>2.81</b>	<b>12.97</b>
<b>B PPA Based Stations</b>									
1	Ukai Extn. 6*								
2	Gandhinagar 5*								
3	Wanakbori 7* TPS								
4	Sikka Extn.(3-4)*								
5	Dhruvaran CCPP 1*								
6	Dhruvaran CCPP 3*								
7	Utran (Gas )*								
8	Utran Extn.*								



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S r. N o.	Power Station	Total Gain/(lo sses) for FY 2016-17 true up	Fixed cost variati on due to provisi onal and final appro val of ARR	Total Gain/(l osses) to be passe d throug h	Total Gain/(l osses) to be passe d throug h at actual PAF	Total Gain/(l osses) for FY 2016- 17 true up	fuel cost variati on due to provis ional and final appro val of ARR	Total Gain/(l osses) to be passe d throug h	Total Gain/(losses) to be passed through
	Sub Total B								
	Total (A+B)								

The net gain of Rs. 12.97 Crore approved in the truing up for FY 2016-17 is to be passed on to the DISCOMs in 12 equal monthly instalments through GUVNL.



## 5. Compliance of Directives

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### 5.1 Compliance of Directives issued by the Commission

The Commission in its tariff order 31<sup>st</sup> March, 2017 had issued certain directives to GSECL. The GSECL has submitted the status of compliance of these directives.

The compliance of directives issued by the Commission and issue of new directives are discussed below:

### 5.2 Earlier Directives

#### **Directive 1: Completion report of R&M works of WTPS-1.**

GSECL shall submit the completion report of R&M works of WTPS-1.

#### **Compliance:**

C&I Up-Gradation work of Wanakbori TPS Unit No. 1 is completed on 11.03.2017. Work of Unit No. 1 was carried out during shutdown period from 01.12.2016 to 11.03.2017.

#### **Commission Comments:**

The Commission noted the compliance.

#### **Directive 4: Actual Performance Parameters**

GSECL shall submit month wise, at quarterly intervals, the actual performance parameters like PAF, PLF, SHR, Aux. Consumption, SFC, Transit loss etc. 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.

#### **Compliance:**

Performance Parameters and Coal stock Position month wise are provided along with the petition.

#### **Commission Comments:**

GSECL shall continue to submit the report as per directive.



### **5.3 Directives issued in the MYT Order dated 31<sup>st</sup> March, 2017**

#### **5.3.1 Calculation of Depreciation**

The Commission directs the Petitioner to calculate depreciation for true-up from FY 2017-18 as per Regulation 39 of GERC (MYT) Regulations, 2016.

##### **Compliance:**

GSECL is calculating depreciation from FY 2017-18 as per Regulation 39 of GERC (MYT) Regulations, 2016.

##### **Commission Comments:**

The Commission noted the submission.

#### **5.3.2 Deviation of capital Expenditure**

GSECL is directed to submit a prior intimation to the Commission with proper justification for any variation of more than 10% between approved and actual CAPEX.

##### **Compliance:**

As directed, if there is any deviation in Capital Expenditure, GSECL will intimate to the Commission.

##### **Commission Comments:**

The Commission noted the submission.

#### **5.3.3 Lignite Cost of KLTPS**

It is observed by the Commission that in FY 2016-17 lignite price for KLTPS has exorbitantly increased. GSECL shall take up the matter with appropriate authority to procure the lignite at a rate which is at par or lesser than the equally placed lignite thermal power station in the state.

##### **Compliance:**

GSECL has requested GMDC to reduce Lignite price. However, GMDC has not responded for the same.

##### **Commission Comments:**

GSECL shall follow up with the GMDC and expedite.



#### **5.3.4 Procurement of coal from Western Coal Fields**

GSECL should take up the matter with appropriate authority to maximize coal procurement from Western Coal Fields, so as to reduce the fuel cost by saving on freight charges.

##### **Compliance:**

Ministry of Power and Ministry of Coal have approved rationalization of coal linkage of 12 Lakh MT (5 LMT-GTPS + 7 LMT-WTPS) from SECL to WCL for GSECL Power Stations. WCL was insisting for 50% coal on notified price and 50% on cost plus basis. However in the month of November-2016, WCL agreed to supply coal on Notified price and signed MoU to supply coal at notified price to GSECL.

Further, Coal India has approved supply of 30 Lakh MT from WCL for GSECL power Stations in addition to 12 Lakh MT coal on 28.04.2017 to reduce the cost of power to the consumer of State. Therefore, additional 42 Lakh MT coal would be available from WCL in place of SECL.

MoU is signed between GSECL and WCL on 05.05.17 for supply of coal under Rationalization.

##### **Commission Comments:**

The Commission noted the submission.

#### **5.3.5 Green Cess on Coal Cost**

GSECL 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 fulfillment 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. GSECL is advised to take up the matter with appropriate authority to get the necessary amendment so as to reduce the overall cost of fuel.

##### **Compliance:**

Green Cess is levied by Central Government and it is uniform across India for coal quantity supplied by Coal Company to Power Utilities.

##### **Commission Comments:**

The Commission reiterate that GSECL shall approach the Central Government for levy of Green Cess on the basis of Renewable energy generation in the State.

#### **5.3.6 Fuel Supply Arrangements**



GSECL 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 30th June, 2017.

**Compliance:**

GSECL has initiated the actions for optimization of coal cost and transferred the domestic coal to the own cheaper power Generating station to reduce the cost of Generation as a part of implementation of flexibility as per guideline issued by CEA and Ministry of power.

Further, GSECL has signed the supplementary agreement on 13.04.2017 for implementation of Flexibility in Utilization of Domestic Coal with SECL and WCL, so that the coal ACQ shall be considered company as a whole instead of power station wise. Coal penalty/incentive shall be calculated for GSECL as a whole instead of power station wise.

For supply of imported coal, GSECL has Long Term supply Agreement with M/s APIL.

**Commission Comments:**

The Commission noted the submission.

## **5.4 Fresh Directives**

### **5.4.1 Scrapping of Old Units**

GSECL is directed to expedite the disposal of decommissioned generating units.

### **5.4.2 Tying up gas supply**

GSECL should explore the possibility of tying up gas supply with overseas suppliers at competitive price through global tenders by following prudent practice; as per rules and regulations.



## COMMISSION'S ORDER

GSECL vide letter dated 26.02.2018 submitted that it has carried out R&M activity like turbine retrofitting, boiler second pass modification, C&I upgradation and ESP retrofitting etc. during FY 2016-17 for Ukai Unit No.4 and as a result, GSECL has improved the heat rate from 2715 Kcal/kWh to 2625 kCal/kWh for Ukai (3-5). Accordingly, for FY 2018-19, the Commission has recomputed the Energy Charges at Rs. 2.768 per Unit as against the earlier approved Rs. 2.862 per Unit, thus passing on the benefit to the beneficiaries (Annexure B).

The Commission approves the station-wise fixed charges and energy charges for the FY 2018-19 as outlined in the Table below:

Sr. No.	Power Station	Annual Fixed Charges for 2018-19 (Rs. Crore)	Energy Charges 2018-19 (Rs./kWh)
1	Ukai (3-5)	292.45	2.768
2	Gandhinagar (3-4)	191.46	3.308
3	Wanakbori 1-6 TPS	519.57	3.269
4	KLTPS 1-3	235.38	1.496
5	KLTPS 4	103.31	1.469
6	Dhruvaran CCPP 2	85.27	4.066
7	Ukai Hydro	32.30	-
8	Kadana Hydro	68.51	-
9	Ukai Extn. 6*	511.75	2.516
10	Gandhinagar 5*	70.05	3.912
11	Wanakbori 7 TPS*	61.52	3.093
12	Dhruvaran CCPP 1*	70.09	3.899
13	Dhruvaran CCPP 3*	302.19	2.256
14	Utran Extension*	243.36	4.345
15	Sikka Extn. (3-4)*	614.65	2.425
16	Wanakbori 8 TPS*	540.20	2.941
	<b>Total</b>	<b>3942.07</b>	

The net gain of Rs. 12.97 Crore approved in the truing up for FY 2016-17 is to be passed on to the DISCOMs in 12 equal monthly instalments through GUVNL.

This order shall come into force with effect from 1<sup>st</sup> April, 2018.

**Sd/-**

**P. J. THAKKAR**  
Member

**Sd/-**

**K. M. SHRINGARPURE**  
Member

**Sd/-**

**ANAND KUMAR**  
Chairman

Place: Gandhinagar  
Date: 31/03/2018







**Annexure A**

<b>Ukai 1-5</b>				<b>Approved</b>
<b>Sl. No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	2274.56
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	204.71
4	Net Generation	$Y=A-B$	MUs	2069.85
5	Station Heat Rate	D	Kcal/KWh	2750
6	Sp. Oil Consumption	E	ml/KWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3867
8	Calorific value of oil	G	Kcal/l	10840.23
9	Overall Heat	$H= A \times D$	Gcal	6255029.00
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	24656.72
11	Heat from Coal	$J = H-I$	Gcal	6230372.283
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	23.65%
15	(B) Washed Coal	X2	%	75.31%
16	( c ) Imported Coal	X3	%	1.04%
17	Actual oil consumption	$L= A \times E$	Kl	2274.56
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	1611033.38
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	384104.81
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	1223037.70
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	16748.01
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	3891.36
24	(B) Washed Coal	P2	Rs./MT	4330.95
25	( c ) Imported Coal	P3	Rs./MT	7085.09
26	Price of oil	P4	Rs./Kl	20284.28
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1/10^5$	Rs.Lakh	14946.90
29	(B) Washed Coal	$N2=Q2 \times P2/10^5$	Rs.Lakh	52969.12
30	( c ) Imported Coal	$N3=Q3 \times P3/10^5$	Rs.Lakh	1186.61
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	69102.63
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	461.38
33	Total fuel cost	$O= N4+N5$	Rs.Lakh	69564.01
34	Fuel cost/Unit (Gross)	$P= O/(A*10)$	Rs/KWh	3.06
35	Fuel cost/Unit (Net)	$Q=O/(Y*10)$	Rs/KWh	3.36
36	Cost of fuel/Gcal	$R=(O/H)*10^5$	Rs./Gcal	1112.13
37	Actual net generation	S	MUs	2048.91
38	Normative Fuel Cost for actual Net Generation	$T=S^*Q/10$	Rs. Crore	688.60



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

Ukai Extn. 6*				Approved
Sl. No.	Item	Derivation	Unit	FY 2016-17
1	Gross Generation	A	MUs	3021.60
2	Auxiliary Consumption	C	%	6.00%
3	Auxiliary Consumption	B	MUs	181.30
4	Net Generation	$Y=A-B$	MUs	2840.31
5	Station Heat Rate	D	Kcal/KWh	2385
6	Sp. Oil Consumption	E	ml/KWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3898
8	Calorific value of oil	G	Kcal/l	10849.00
9	Overall Heat	$H= A \times D$	Gcal	7206520.77
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	32781.36
11	Heat from Coal	$J = H-I$	Gcal	7173739.41
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	12.61%
15	(B) Washed Coal	X2	%	86.12%
16	( c ) Imported Coal	X3	%	1.26%
17	Actual oil consumption	$L= A \times E$	Kl	3021.60
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	1840148.49
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	233993.39
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	1597587.52
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	23220.23
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	3829.90
24	(B) Washed Coal	P2	Rs./MT	4296.66
25	( c ) Imported Coal	P3	Rs./MT	7084.17
26	Price of oil	P4	Rs./Kl	19519.71
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1/10^5$	Rs.Lakh	8961.71
29	(B) Washed Coal	$N2=Q2 \times P2/10^5$	Rs.Lakh	68642.85
30	( c ) Imported Coal	$N3=Q3 \times P3/10^5$	Rs.Lakh	1644.96
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	79249.53
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	589.81
33	Total fuel cost	$O= N4+N5$	Rs.Lakh	79839.33
34	Fuel cost/Unit (Gross)	$P= O/(A*10)$	Rs/KWh	2.64
35	Fuel cost/Unit (Net)	$Q=O/(Y*10)$	Rs/KWh	2.81
36	Cost of fuel/Gcal	$R=(O/H)*10^5$	Rs./Gcal	1107.88
37	Actual net generation	S	MUs	2844.48
38	Normative Fuel Cost for actual Net Generation	$T=S*Q/10$	Rs. Crore	799.57



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

<b>Gandhinagar (1-4)</b>				<b>Approved</b>
<b>Sl.No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	758.48
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	72.06
4	Net Generation	$Y=A-B$	MUs	686.43
5	Station Heat Rate	D	Kcal/KWh	2650
6	Sp. Oil Consumption	E	ml/KWh	1.25
7	Gross calorific value of coal	F	Kcal/Kg	3955
8	Calorific value of oil	G	Kcal/l	10892.47
9	Overall Heat	$H= A \times D$	Gcal	2009974.65
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	10327.16
11	Heat from Coal	$J = H-I$	Gcal	1999647.49
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	5.66%
15	(B) Washed Coal	X2	%	88.31%
16	( c ) Imported Coal	X3	%	6.03%
17	Actual oil consumption	$L= A \times E$	Kl	948.10
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	505596.15
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	28841.75
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	450091.78
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	30494.09
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4356.15
24	(B) Washed Coal	P2	Rs./MT	4766.34
25	( c ) Imported Coal	P3	Rs./MT	5543.72
26	Price of oil	P4	Rs./Kl	20737.36
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1$	Rs.Lakh	1256.39
29	(B) Washed Coal	$N2=Q2 \times P2$	Rs.Lakh	21452.92
30	( c ) Imported Coal	$N3=Q3 \times P3$	Rs.Lakh	1690.51
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	24399.81
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	196.61
33	Total fuel cost	$O= N4+N5$	Rs.Lakh	24596.42
34	Fuel cost/Unit (Gross)	$P= O/(A*10)$	Rs/KWh	3.24
35	Fuel cost/Unit (Net)	$Q=O/(Y*10)$	Rs/KWh	3.58
36	Cost of fuel/Gcal	$R=(O/H)*10^5$	Rs./Gcal	1223.72
37	Actual net generation	S	MUs	663.88
38	Normative Fuel Cost for actual Net Generation	$T=S*Q/10$	Rs. Crore	237.89



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

<b>Gandhinagar 5*</b>				<b>Approved</b>
<b>Sl. No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	1413.81
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	134.31
4	Net Generation	$Y=A-B$	MUs	1279.49
5	Station Heat Rate	D	Kcal/KWh	2460
6	Sp. Oil Consumption	E	ml/KWh	3.50
7	Gross calorific value of coal	F	Kcal/Kg	3974
8	Calorific value of oil	G	Kcal/l	10892
9	Overall Heat	$H= A \times D$	Gcal	3477960.30
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	53897.07
11	Heat from Coal	$J = H-I$	Gcal	3424063.23
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	11.20%
15	(B) Washed Coal	X2	%	83.73%
16	( c ) Imported Coal	X3	%	5.06%
17	Actual oil consumption	$L= A \times E$	Kl	4948.32
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	861709.94
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	97322.25
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	727358.27
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	43626.86
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4398
24	(B) Washed Coal	P2	Rs./MT	4832
25	( c ) Imported Coal	P3	Rs./MT	5139
26	Price of oil	P4	Rs./Kl	22807
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1$	Rs.Lakh	4280.01
29	(B) Washed Coal	$N2=Q2 \times P2$	Rs.Lakh	35147.47
30	( c ) Imported Coal	$N3=Q3 \times P3$	Rs.Lakh	2241.79
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	41669.26
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	1128.58
33	Total fuel cost	$O= N4+N5$	Rs.Lakh	42797.84
34	Fuel cost/Unit (Gross)	$P= O/(A^*10)$	Rs/KWh	3.03
35	Fuel cost/Unit (Net)	$Q=O/(Y^*10)$	Rs/KWh	3.34
36	Cost of fuel/Gcal	$R=(O/H)^*10^5$	Rs./Gcal	1230.54
37	Actual net generation	S	MUs	1274.88
38	Normative Fuel Cost for actual Net Generation	$T=S^*Q/10$	Rs. Crore	426.44



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

<b>Wanakbori 1-6 TPS</b>				<b>Approved</b>
<b>Sl.No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	3013.68
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	271.23
4	Net Generation	$Y=A-B$	MUs	2742.45
5	Station Heat Rate	D	Kcal/KWh	2625
6	Sp. Oil Consumption	E	ml/KWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3890
8	Calorific value of oil	G	Kcal/l	10756
9	Overall Heat	$H= A \times D$	Gcal	7910912.63
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	32415.67
11	Heat from Coal	$J = H-I$	Gcal	7878496.96
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	1.57%
15	(B) Washed Coal	X2	%	97.73%
16	( c ) Imported Coal	X3	%	0.69%
17	Actual oil consumption	$L= A \times E$	Kl	3013.68
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	2025545.89
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	32158.53
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	1995624.93
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	13984.71
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4356
24	(B) Washed Coal	P2	Rs./MT	4754
25	( c ) Imported Coal	P3	Rs./MT	7106
26	Price of oil	P4	Rs./Kl	22607
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1$	Rs.Lakh	1400.71
29	(B) Washed Coal	$N2=Q2 \times P2$	Rs.Lakh	94862.67
30	( c ) Imported Coal	$N3=Q3 \times P3$	Rs.Lakh	993.76
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	97257.14
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	681.31
33	Total fuel cost	$O= N4+N5$	Rs.Lakh	97938.45
34	Fuel cost/Unit (Gross)	$P= O/(A^*10)$	Rs/KWh	3.25
35	Fuel cost/Unit (Net)	$Q=O/(Y^*10)$	Rs/KWh	3.57
36	Cost of fuel/Gcal	$R=(O/H)^*10^5$	Rs./Gcal	1238.02
37	Actual net generation	S	MUs	2719.99
38	Normative Fuel Cost for actual Net Generation	$T=S^*Q/10$	Rs. Crore	971.36



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

<b>Wanakbori 7 TPS*</b>				<b>Approved</b>
<b>Sl.No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	915.92
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	87.01
4	Net Generation	$Y=A-B$	MUs	828.91
5	Station Heat Rate	D	Kcal/KWh	2460
6	Sp. Oil Consumption	E	ml/KWh	3.50
7	Gross calorific value of coal	F	Kcal/Kg	3892
8	Calorific value of oil	G	Kcal/l	10773
9	Overall Heat	$H= A \times D$	Gcal	2253160.74
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	34535.03
11	Heat from Coal	$J = H-I$	Gcal	2218625.71
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	45.66%
15	(B) Washed Coal	X2	%	54.06%
16	( c ) Imported Coal	X3	%	0.28%
17	Actual oil consumption	$L= A \times E$	Kl	3205.72
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	570034.18
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	262351.62
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	310663.44
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	1603.24
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4498
24	(B) Washed Coal	P2	Rs./MT	4714
25	( c ) Imported Coal	P3	Rs./MT	7108
26	Price of oil	P4	Rs./Kl	21892
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1$	Rs.Lakh	11800.51
29	(B) Washed Coal	$N2=Q2 \times P2$	Rs.Lakh	14645.12
30	( c ) Imported Coal	$N3=Q3 \times P3$	Rs.Lakh	113.95
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	26559.59
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	701.80
33	Total fuel cost	$O= N4+N5$	Rs.Lakh	27261.39
34	Fuel cost/Unit (Gross)	$P= O/(A^*10)$	Rs/KWh	2.98
35	Fuel cost/Unit (Net)	$Q=O/(Y^*10)$	Rs/KWh	3.29
36	Cost of fuel/Gcal	$R=(O/H)^*10^5$	Rs./Gcal	1209.92
37	Actual net generation	S	MUs	828.08
38	Normative Fuel Cost for actual Net Generation	$T=S^*Q/10$	Rs. Crore	272.34



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

Sikka TPS				Approved
Sl.No.	Item	Derivation	Unit	FY 2016-17
1	Gross Generation	A	MUs	96.57
2	Auxiliary Consumption	C	%	11.00%
3	Auxiliary Consumption	B	MUs	10.62
4	Net Generation	$Y=A-B$	MUs	85.95
5	Station Heat Rate	D	Kcal/KWh	3008
6	Sp. Oil Consumption	E	ml/KWh	3.00
7	Gross calorific value of coal	F	Kcal/Kg	4609
8	Calorific value of oil	G	Kcal/l	10902
9	Overall Heat	$H= A \times D$	Gcal	290491.58
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	3158.56
11	Heat from Coal	$J = H-I$	Gcal	287333.03
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	0.00%
15	(B) Washed Coal	X2	%	80.79%
16	( c ) Imported Coal	X3	%	19.21%
17	Actual oil consumption	$L= A \times E$	Kl	289.719
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	62341.16
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	0
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	50769.70
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	11977.61
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	0
24	(B) Washed Coal	P2	Rs./MT	5445
25	( c ) Imported Coal	P3	Rs./MT	5681
26	Price of oil	P4	Rs./Kl	26011
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1$	Rs.Lakh	0
29	(B) Washed Coal	$N2=Q2 \times P2$	Rs.Lakh	2764.474731
30	( c ) Imported Coal	$N3=Q3 \times P3$	Rs.Lakh	680.4823014
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	3444.96
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	75.36
33	Total fuel cost	$O= N4+N5$	Rs.Lakh	3520.31
34	Fuel cost/Unit (Gross)	$P= O/(A \times 10)$	Rs/KWh	3.65
35	Fuel cost/Unit (Net)	$Q=O/(Y \times 10)$	Rs/KWh	4.10
36	Cost of fuel/Gcal	$R=(O/H) \times 10^5$	Rs./Gcal	1211.85
37	Actual net generation	S	MUs	78.09
38	Normative Fuel Cost for actual Net Generation	$T=S \times Q/10$	Rs. Crore	31.98



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

KLTPS 1-3				Approved
Sl.No.	Item	Derivation	Unit	FY 2016-17
1	Gross Generation	A	MUs	1111.36
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	133.36
4	Net Generation	$Y=A-B$	MUs	978.00
5	Station Heat Rate	D	Kcal/KWh	3231
6	Sp. Oil Consumption	E	ml/KWh	3.00
7	Gross calorific value of coal	F	Kcal/Kg	2782.030071
8	Calorific value of oil	G	Kcal/l	10623
9	Overall Heat	$H= A \times D$	Gcal	3590797.70
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	35418.75
11	Heat from Coal	$J = H-I$	Gcal	3555378.95
12	Transit losses	K	%	0.20%
17	Actual oil consumption	$L= A \times E$	Kl	3334.074
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	1277980.06
19	Coal consumption incl. transit losses	$N=M/(1-K)$	MT	1280541.14
20	Price of lignite	P1	Rs./MT	1621
21	Price of oil	P2	Rs./Kl	29013
22	Cost of lignite	$N1= M \times P1$	Rs. Lakh	20754.34
23	Oil cost	$N2=P2 \times L/10^5$	Rs. Lakh	967.32
24	Total fuel cost	$O= N1 + N2$	Rs. Lakh	21721.66
25	Fuel cost/Unit (Gross)	$P=O/(A*10)$	Rs/KWh	1.95
26	Fuel cost/Unit (Net)	$Q=O/(Y*10)$	Rs/KWh	2.22
27	Cost of fuel/Gcal	$R=(O/H)*10^5$	Rs./Gcal	604.93
28	Actual net generation	S	MUs	960.72
29	Normative Fuel Cost for actual Net Generation	$T=S*Q/10$	Rs. Crore	213.38





**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

<b>KLTPS 4</b>				<b>Approved</b>
<b>Sl.No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	373.56
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	44.83
4	Net Generation	$Y=A-B$	MUs	328.73
5	Station Heat Rate	D	Kcal/KWh	3000
6	Sp. Oil Consumption	E	ml/KWh	3.00
7	Gross calorific value of coal	F	Kcal/Kg	2756.290775
8	Calorific value of oil	G	Kcal/l	10623
9	Overall Heat	$H= A \times D$	Gcal	1120680.00
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	11904.65
11	Heat from Coal	$J = H-I$	Gcal	1108775.35
12	Transit losses	K	%	0.20%
13	Actual oil consumption	$L= A \times E$	Kl	1120.68
14	Actual Coal consumption	$M= (J \times 1000)/F$	MT	402270.82
15	Coal consumption incl. transit losses	$N=M/(1-K)$	MT	403076.98
16	Price of lignite	P1	Rs./MT	1651
17	Price of oil	P2	Rs./Kl	29313
18	Cost of lignite	$N1= M \times P1$	Rs. Lakh	6653.78
19	Oil cost	$N2=P2 \times L/10^5$	Rs. Lakh	328.51
20	Total fuel cost	$O= N1 + N2$	Rs. Lakh	6982.29
21	Fuel cost/Unit (Gross)	$P=O/(A*10)$	Rs/KWh	1.87
22	Fuel cost/Unit (Net)	$Q=O/(Y*10)$	Rs/KWh	2.12
23	Cost of fuel/Gcal	$R=(O/H)*10^5$	Rs./Gcal	623.04
24	Actual net generation	S	MUs	298.41
25	Normative Fuel Cost for actual Net Generation	$T=S*Q/10$	Rs. Crore	63.38



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

<b>Utran Extension*</b>				<b>Approved</b>
<b>Sl.No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	157.11
2	Auxiliary Consumption	C	%	3.00%
3	Auxiliary Consumption	B	MUs	4.71
4	Net Generation	$Y=A-B$	MUs	152.40
5	Station Heat Rate	D	Kcal/KWh	1850
6	Calorific value of gas	F	Kcal/Scm	9519
7	Overall heat from gas	$H= A \times D$	Gcal	290659.05
8	Actual gas consumption	$M= (H \times 1000)/F$	M. scm	30.53
9	Price of gas	P1	Rs/scm	21.92
10	Cost of gas	$N5=P1 \times M$	Rs.M	669.36
11	Total fuel cost	N5	Rs.M	669.36
12	Fuel cost/unit (Gross)	$P=N5/(A*10)$	Rs/KWh	4.26
13	Fuel cost/unit (Net)	$Q=N5/(Y*10)$	Rs/KWh	4.39
14	Cost of fuel/Gcal	$R=(N5/H)*10^5$	Rs/Gcal	2302.91
15	Actual net generation	S	Mus	145.41
16	Normative Fuel Cost for actual Net Generation	$T=S*Q/10$	Rs. Crore	63.86

<b>Dhruvaran CCPP 1*</b>				<b>Approved</b>
<b>Sl.No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	99.14
2	Auxiliary Consumption	C	%	4.00%
3	Auxiliary Consumption	B	MUs	3.97
4	Net Generation	$Y=A-B$	MUs	95.18
5	Station Heat Rate	D	Kcal/KWh	1950
6	Calorific value of gas	F	Kcal/Scm	9440
7	Overall heat from gas	$H= A \times D$	Gcal	193324.95
8	Actual gas consumption	$M= (H \times 1000)/F$	M. scm	20.48
9	Price of gas	P1	Rs/scm	9.77
10	Cost of gas	$N5=P1 \times M/10^5$	Rs.M	199.99
11	Total fuel cost	N5	Rs.M	199.99
12	Fuel cost/unit (Gross)	$P=N5/(A*10)$	Rs/KWh	2.02
13	Fuel cost/unit (Net)	$Q=N5/(Y*10)$	Rs/KWh	2.10
14	Cost of fuel/Gcal	$R=(N5/H)*10^6$	Rs/Gcal	1034.47
15	Actual net generation	S	Mus	88.43
16	Normative Fuel Cost for actual Net Generation	$T=S*Q/10$	Rs. Crore	18.58



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

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<b>Dhruvaran CCPP 2</b>				<b>Approved</b>
<b>Sl.No.</b>	<b>Item</b>	<b>Derivation</b>	<b>Unit</b>	<b>FY 2016-17</b>
1	Gross Generation	A	MUs	208.87
2	Auxiliary Consumption	C	%	3.00%
3	Auxiliary Consumption	B	MUs	6.27
4	Net Generation	$Y=A-B$	MUs	202.60
5	Station Heat Rate	D	Kcal/KWh	1950
6	Calorific value of gas	F	Kcal/Scm	9459
7	Overall heat from gas	$H= A \times D$	Gcal	407288.7
8	Actual gas consumption	$M= (H \times 1000)/F$	M. scm	43.06
9	Price of gas	P1	Rs/scm	8.79
10	Cost of gas	$N5=P1 \times M/10^5$	Rs.M	378.30
11	Total fuel cost	N5	Rs.M	378.30
12	Fuel cost/unit (Gross)	$P=N5/(A*10)$	Rs/KWh	1.81
13	Fuel cost/unit (Net)	$Q=N5/(Y*10)$	Rs/KWh	1.87
14	Cost of fuel/Gcal	$R=(N5/H)*10^5$	Rs/Gcal	928.82
15	Actual net generation	S	Mus	194.46
16	Normative Fuel Cost for actual Net Generation	$T=S*Q/10$	Rs. Crore	36.31



**Gujarat State Electricity Corporation Limited**  
**Truing Up for FY 2016-17 and Determination of Tariff for FY 2018-19**

Sikka Extn. (3-4)*				Approved
Sl.No.	Item	Derivation	Unit	FY 2016-17
1	Gross Generation	A	MUs	2052.64
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	184.74
4	Net Generation	$Y=A-B$	MUs	1867.90
5	Station Heat Rate	D	Kcal/KWh	2398
6	Sp. Oil Consumption	E	ml/KWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	5291
8	Calorific value of oil	G	Kcal/l	10871
9	Overall Heat	$H= A \times D$	Gcal	4922225.92
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	22313.70
11	Heat from Coal	$J = H-I$	Gcal	4899912.23
12	Transit losses	K	%	0.00000%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	0.00%
15	(B) Washed Coal	X2	%	0.5496%
16	( c ) Imported Coal	X3	%	99.45%
17	Actual oil consumption	$L= A \times E$	Kl	2052.638
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	926127.39
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	0
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	5090.12
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	921037.27
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	0
24	(B) Washed Coal	P2	Rs./MT	5150.21
25	( c ) Imported Coal	P3	Rs./MT	5681.21
26	Price of oil	P4	Rs./Kl	27696
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1$	Rs.Lakh	0
29	(B) Washed Coal	$N2=Q2 \times P2$	Rs.Lakh	262.1518382
30	( c ) Imported Coal	$N3=Q3 \times P3$	Rs.Lakh	52326.08373
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	52588.24
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	568.50
33	Total fuel cost	$O= N4+N5$	Rs.Lakh	53156.74
34	Fuel cost/Unit (Gross)	$P= O/(A^*10)$	Rs/KWh	2.59
35	Fuel cost/Unit (Net)	$Q=O/(Y^*10)$	Rs/KWh	2.8458
36	Cost of fuel/Gcal	$R=(O/H)^*10^5$	Rs./Gcal	1079.93
37	Actual net generation	S	MUs	1849.66
38	Normative Fuel Cost for actual Net Generation	$T=S^*Q/10$	Rs. Crore	526.38



## Annexure B

Sl.No.	Ukai 3-5	Deviation	Unit	FY 2018-19
1	Gross Generation	A	MUs	3206.16
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	289.00
4	Net Generation	$Y=A-B$	MUs	2918.00
5	Station Heat Rate	D	Kcal/KWh	2625.00
6	Sp. Oil Consumption	E	ml/KWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3835.00
8	Calorific value of oil	G	Kcal/l	10441.00
9	Overall Heat	$H= A \times D$	Gcal	8416171.31
10	Heat from Oil	$I= (A \times E \times G)/1000$	Gcal	33475.52
11	Heat from Coal	$J = H-I$	Gcal	8382695.79
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	22.00%
15	(B) Washed Coal	X2	%	78.00%
16	( c ) Imported Coal	X3	%	0%
17	Actual oil consumption	$L= A \times E$	Kl	3206.16
18	Actual Coal consumption	$M= (J \times 1000)/F$	MT	2185839.84
19	(A) Indigenous coal	$Q1=M^* \times X1/(1-K)$	MT	484762.87
20	(B) Washed Coal	$Q2=M^* \times X2 / (1-K)$	MT	1718704.71
21	( c ) Imported Coal	$Q3=M^* \times X3$	MT	0.00
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	3396.00
24	(B) Washed Coal	P2	Rs./MT	3679.00
25	( c ) Imported Coal	P3	Rs./MT	6227.00
26	Price of oil	P4	Rs./Kl	33170.00
27	Coal Cost			
28	(A) Indigenous coal	$N1=Q1 \times P1$	Rs.Lakh	16462.55
29	(B) Washed Coal	$N2=Q2 \times P2$	Rs.Lakh	63231.15
30	( c ) Imported Coal	$N3=Q3 \times P3$	Rs.Lakh	0.00
31	Total coal cost	$N4= N1+N2+N3$	Rs.Lakh	79693.69
32	Oil Cost	$N5=P4 \times L/10^5$	Rs.Lakh	1063.48
33	Total Fuel Cost	$O=N4+N5$	Rs.Lakh	80757.18
34	Fuel cost/Unit (Gross)	$P=O/(A*10)$	Rs/kWh	<b>2.519</b>
35	Fuel cost/Unit (Net)	$Q=O/(Y*10)$	Rs/kWh	<b>2.768</b>
36	Cost of Fuel/Gcal	$R=(O/H)*10^5$	Rs/Gcal	959.55

