GUJARAT ELECTRICITY REGULATORY COMMISSION

Tariff Order

Truing up for FY 2020-21

and

Determination of ARR and Tariff for FY 2022-23

For

Gujarat State Electricity Corporation Limited (GSECL)

Case No. 2025 of 2021

30th March, 2022

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सत्यमेव जयते

GUJARAT ELECTRICITY REGULATORY COMMISSION (GERC)

GANDHINAGAR

Tariff Order

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ABBREVIATIONS

ABT	Availability Based Tariff
AOH	Annual Overhauling
ARR	Aggregate Revenue Requirement
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CoD	Commercial Operation Date
COH	Capital Overhauling
DISCOMs	Distribution Companies
EA 2003	Electricity Act, 2003
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
GoI	Government of India
GSECL	Gujarat State Electricity Corporation Limited
GUVNL	Gujarat Urja Vikas Nigam Limited
kcal	kilo calorie
kV	kilo Volt
kWh	kilo Watt hour
MW	Mega Watt
MYT	Multi-Year Tariff
NCV	Net Calorific Value
O&M	Operations & Maintenance
OEM	Original Equipment Manufacturer
PAF	Plant Availability Factor
PLF	Plant Load Factor
PPA	Power Purchase Agreement
R&M	Repairs & Maintenance

RE	Renewable Energy
ROE	Return on Equity
RSD	Reserve Shut Down
SCM	Standard Cubic Meter
SHR	Station Heat Rate
SLDC	State Load Despatch Centre
Wt. Avg.	Weighted Average

Before the Gujarat Electricity Regulatory Commission at Gandhinagar

Case No. 2025 of 2021

Date of the Order: 30th March, 2022

CORAM

Shri Anil Mukim, Chairman

Shri Mehul M. Gandhi, Member

Shri S.R. Pandey, Member

ORDER

1 Background and Brief History

1.1 Gujarat State Electricity Corporation Limited (GSECL)

Government of Gujarat unbundled and restructured Gujarat Electricity Board with effect from 1st 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 (4) Distribution Companies:
    - Dakshin Gujarat Vij Company Limited (DGVCL)
    - Madhya Gujarat Vij Company Limited (MGVCL)
    - Paschim Gujarat Vij Company Limited (PGVCL)
    - Uttar Gujarat Vij Company Limited (UGVCL); and
- Gujarat Urja Vikas Nigam Limited (GUVNL) – A Holding Company and also responsible for purchase of electricity from various sources and Bulk supply to Distribution Companies.

The Government of Gujarat vide Notification dated 3rd October, 2006 notified the final opening balance sheets of the transferee Companies as on 1st 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.

1.2 Commission's Order for approval of True up of FY 2018-19 and Determination of Tariff for FY 2020-21

The Petitioner filed its Petition for Truing up for FY 2018-19 and determination of tariff for FY 2020-21 on 29th November, 2019. The Petition was registered on 4th December, 2019 (Case No. 1836 of 2019). The Commission vide Order dated 26th March, 2020 approved the Truing up for FY 2018-19 and determined the Tariff for FY 2020-21.

1.3 Commission's Order for approval of True up of FY 2019-20 and Determination of Tariff for FY 2021-22

The Petitioner filed its Petition for Truing up for FY 2019-20 and determination of tariff for FY 2021-22 on 27th November, 2020. The Petition was registered on 9th December, 2020 (Case No. 1908 of 2020). The Commission vide Order dated 30th March, 2021 approved the Truing up for FY 2019-20 and determined the Tariff for FY 2021-22.

1.4 Background of the present Petition

Gujarat State Electricity Corporation Limited (hereinafter referred to as "GSECL" or the "Petitioner") has filed the present Petition on 29th November, 2021 for the truing up for FY 2020-21 and determination of tariff for FY 2022-23 under Section 62 of the Electricity Act, 2003, (hereinafter referred to as "EA 2003") read with Gujarat Electricity Regulatory Commission (Multi-Year Tariff) Regulations, 2016 (hereinafter referred to as "GERC (MYT) Regulations, 2016").

Gujarat Electricity Regulatory Commission (hereinafter referred to as 'GERC' or the 'Commission') notified the GERC (MYT) Regulations, 2016 on 29th March, 2016, which is applicable for determination of tariff in all cases covered under the Regulations from 1st April, 2016 until 31st March, 2021. Subsequently, the Commission vide its Suo-Motu Order No. 7 of 2020 dated 22nd December, 2020 deferred the notification of the Regulations by one year and directed the Licensees / utilities to file the tariff application for the FY 2021-22 based on the principles and methodologies as provided in the GERC (MYT) Regulations, 2016. Similarly, the Commission vide its Order in Suo Motu Petition No. 1995 of 2021 dated 24th September, 2021 directed generating companies, licensees and utilities to file their tariff applications for approval of true-up for FY 2020- 21 and for determination of ARR and Tariff for FY 2022-23 on or before 30th November, 2021 based on the principles and methodologies as provided in the GERC (MYT) Regulations, 2016.

Thus, Regulation 17.2 (b) of the GERC (MYT) Regulations, 2016 provides for submission of Petition comprising of Truing up for FY 2020-21, Aggregate Revenue Requirement (ARR) for FY 2022-23, revenue from the sale of power at existing tariffs and charges for FY 2022-23, and Revenue Gap or Revenue Surplus for FY 2022-23.

1.5 Registration of the Current Petition and Public Hearing Process

GSECL has filed the present petition for Truing up for FY 2020-21 and Determination of ARR and Tariff for FY 2022-23 on 29th November, 2021. After technical validation of the Petition, it was registered on 3rd December, 2021 as Case No. 2025 of 2021. 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 an abridged form in the newspapers to ensure due public participation.

The Public Notice, inviting objections / suggestions from the stakeholders on the Truing up and Tariff Determination Petition filed by GSECL, was published in the following newspapers:

Table 1.1: List of Newspapers in which Public Notice was published by the Petitioner

Sr. No.	Name of the Newspaper	Language	Date of publication
1.	The Indian Express	English	07/12/2021
2.	Sandesh	Gujarati	07/12/2021

The Petitioner also placed the Public Notice and the Petition on its website (www.gsecl.in) for inviting objections and suggestions on the Petition. The interested parties/stakeholders were asked to file their objections/suggestions on the Petition on or before 6th January, 2022.

The Commission also placed the Petition and additional details received subsequently from the Petitioner on its website (www.gercin.org) for information and study of all the stakeholders.

The Commission also issued a notice for Public Hearing in the following newspapers in order to solicit wider participation by the stakeholders:

Table 1.2: List of Newspapers in which Public Notice was published by the Commission

Sr. No.	Name of the Newspaper	Language	Date of publication
1.	The Times of India	English	06/02/2022
2.	Gujarat Samachar	Gujarati	06/02/2022
3.	Sandesh	Gujarati	06/02/2022

The Commission received objections/suggestions from the consumers/consumer organizations as shown in the Table below. The Commission examined the objections / suggestions received from the stakeholders and fixed the date for e-Public Hearing through video conferencing for the Petition on 16th February, 2022 at 11.30 AM.

The status of stakeholders who submitted their written suggestion / objections, those who participated in the Public Hearings, and those who made oral submissions are given in the Table below:

Table 1.3: List of Stakeholders

Sr. No.	Name of Stakeholders	Written Submission	Oral Submission	Present on the day of Public Hearing
1.	Federation of Kutch Industries Association (FOKIA)	Yes	Yes	Yes
2.	Shri. K. K. Bajaj	Yes	Yes	Yes
3.	Utility Users Welfare Association (UUWA)	Yes	Yes	Yes
4.	Shri Rajeshbhai Patel	No	No	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 briefly given in Chapter 3 of this Order.

1.6 Contents of this Order

This Order is divided into **Seven 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** deals with 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 2020-21;

(5) The **Fifth Chapter** deals with the Aggregate Revenue Requirement (ARR) for FY 2022-23;

(6) The **Sixth Chapter** deals with Tariff Determination for FY 2022-23;

(7) The **Seventh Chapter** deals with the Compliance of directives.

1.7 Approach of this Order

The GERC (MYT) Regulations, 2016 provides 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 31st March, 2017.

The Commission subsequently issued Tariff Order for Determination of Tariff for FY 2020-21 vide Order dated 26th March, 2020. The Commission has considered this Tariff Order for Truing-up of FY 2020-21.

The Commission vide its Suo-Motu Order No. 7 of 2020 dated 22nd December, 2020 deferred the notification of the Regulations by one year and directed the Licensees / utilities to file the tariff application for the FY 2021-22 based on the principles and methodologies as provided in the GERC (MYT) Regulations, 2016. Similarly, the Commission vide its Order in Suo Motu Petition No. 1995 of 2021 dated 24th September, 2021 directed generating companies, licensees and utilities to file their tariff applications for approval of true-up for FY 2020- 21 and for determination of ARR and Tariff for FY 2022-23 on or before 30th November, 2021 based on the principles and methodologies as provided in the GERC (MYT) Regulations, 2016. GSECL has approached the Commission with the present Petition for Truing up of FY 2020-21 and determination of ARR and tariff for FY 2022-23.

The Commission has undertaken Truing up for FY 2020-21, based on the submissions of the Petitioner and based on the values approved in Tariff Order dated 26th March, 2020. The Commission has undertaken the computation of Gains and Losses for FY 2020-21, based on the audited annual accounts and prudence check.

While truing up of FY 2020-21, the Commission has been primarily guided by the following principles:

- Controllable parameters have been considered at the level approved under the Tariff Order dated 26th March, 2020, 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 FY 2020-21 has been considered based on the GERC (MYT) Regulations, 2016.

The Commission has undertaken Determination of ARR and Tariff for FY 2022-23 as per the GERC (MYT) Regulations, 2016 and its amendment thereof as the base. Truing up of FY 2022-23 shall be carried out based on the principles and methodology adopted in GERC (MYT) Regulations, 2016.

2 Summary of GSECL's Petition

2.1 Summary of GSECL's Petition

This Chapter highlights the summary of the Petition for True-Up for FY 2020-21 and Determination of ARR Tariff for FY 2022-23.

2.2 True-Up of FY 2020-21

GSECL submitted the present Petition on 29th November, 2021 seeking approval of Truing up of ARR for FY 2020-21. GSECL has worked out its Aggregate Revenue Requirement (ARR) for FY 2020-21 as a part of the True-Up for FY 2020-21. GSECL has presented the actual cost components based on the audited annual accounts for FY 2020-21.

Tables below summarize the results of the True-up of FY 2020-21 of GSECL Stations. For the purpose of True-Up, GSECL has compared the actual cost for FY 2020-21 with the cost approved by the Commission in the Tariff Order dated 26th March, 2020.

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

Table 2.1: Actual Fixed Cost for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest & Finance Charges	Return on Equity	O&M Expenses	Water Charges	SLDC Charges	Income Tax	Interest on Working Capital	Total Fixed Cost	Less: Non-Tariff Income	Net Fixed Charges
1	Ukai (3-5)	44.88	-	23.14	191.49	-	0.40	17.51	32.30	309.72	3.78	305.94
2	Gandhinagar (3-4)	35.30	-	24.27	106.28	45.02	0.28	12.05	24.25	247.46	9.99	237.47
3	Gandhinagar 5*	2.16	-	28.67	53.00	22.51	0.14	6.03	11.56	124.07	8.34	115.73
4	Wanakbori 1-6 TPS	99.28	25.89	91.91	202.96	32.09	0.83	36.16	74.50	563.63	19.37	544.26
5	Wanakbori 7*	2.15	-	26.16	14.72	6.71	0.14	6.03	11.47	67.36	19.80	47.57
6	Sikka Extension (3-4)*	175.03	149.65	137.28	129.34	5.28	0.33	14.35	27.77	639.02	5.03	633.99
7	KLTPS 1-3	29.51	0.77	54.15	77.28	0.43	0.11	2.15	4.22	168.64	1.84	166.80
8	KLTPS 4	36.35	9.87	29.65	24.14	-	0.05	2.15	3.53	105.74	0.14	105.60
9	BLTPS*	238.71	165.31	152.19	86.70	13.72	0.33	14.35	22.77	694.08	2.51	691.57
10	Dhuvaran CCPP 1*	9.73	-	10.48	44.44	-	0.07	3.06	4.11	71.89	0.59	71.30
11	Dhuvaran CCPP 2	13.08	3.76	14.53	35.68	2.05	0.07	3.23	4.67	77.08	0.60	76.48
12	Dhuvaran CCPP 3*	78.77	73.64	67.02	35.04	-	0.25	10.79	14.35	279.86	0.31	279.55
13	Utran Extension*	68.21	33.44	57.51	48.71	6.95	0.25	10.75	13.71	239.54	0.78	238.76
14	Ukai 6*	155.59	105.23	125.79	39.25	-	0.33	14.35	25.94	466.48	4.63	461.84
15	Wanakbori 8 TPS*	219.06	287.40	180.24	40.86	33.69	0.34	22.96	40.71	825.26	1.00	824.26
16	Ukai Hydro	2.31	2.38	10.64	20.44	-	0.20	8.75	0.61	45.33	0.25	45.08
17	Kadana Hydro	5.49	-	28.87	21.00	-	0.16	6.95	1.06	63.53	0.45	63.08
	Total	**1,215.59**	**857.34**	**1,062.51**	**1,171.34**	**168.46**	**4.28**	**191.63**	**317.53#**	**4,988.67**	**79.40**	**4,909.28#**

** PPA based stations*

 # - Error in calculation and post rectification, the claim from GSECL for IoWC is revised to Rs.352.67 Crore and Net Fixed Charges is revised to Rs. 4,944.42 Crore

Based on actual operating and fuel related parameters during FY 2020-21, the Table below indicates actual audited energy charges for GSECL's stations for FY 2020-21 along with the approved energy charges:

Table 2.2: Energy Charges for GSECL's Plants for FY 2020-21

Sr. No.	Power Station	Approved in Tariff Order (Rs./kWh)	Actual claimed (Rs./kWh)
1	Ukai (3-5)	3.84	3.80
2	Gandhinagar (3-4)	4.08	4.01
3	Gandhinagar 5*	3.74	3.81
4	Wanakbori 1-6 TPS	4.19	4.18
5	Wanakbori 7*	3.85	3.82
6	Sikka Extension (3-4)*	3.40	3.52
7	KLTPS 1-3	3.05	3.08
8	KLTPS 4	2.80	3.40
9	BLTPS*	2.79	3.67
10	Dhuvaran CCPP 1*	2.66	2.91
11	Dhuvaran CCPP 2	2.94	3.27
12	Dhuvaran CCPP 3*	2.90	2.82
13	Utran Extension*	2.83	2.67
14	Ukai 6*	3.21	3.25
15	Wanakbori 8 TPS*	3.27	3.14

***** *PPA based stations*

The Table below summarizes the 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: Gain/Loss on account of Controllable factors for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Gain/(Loss) due to Controllable Factors		Total Gains/ (Losses) due to Controllable factors	Total Gains/ (Losses) to be passed through (1/3rd of gains/ losses)
		O&M Expenses	Fuel Cost		
1	Ukai (3-5)	(7.40)	7.13	(0.27)	(0.09)
2	Gandhinagar (3-4)	(3.89)	4.15	0.25	0.08
3	Gandhinagar 5*	-	-	-	-
4	Wanakbori 1-6 TPS	64.95	2.12	67.07	22.36
5	Wanakbori 7*	-	-	-	-
6	Sikka Extension (3-4)*	-	-	-	-
7	KLTPS 1-3	(32.52)	(1.32)	(33.84)	(11.28)
8	KLTPS 4	(2.16)	(15.33)	(17.49)	(5.83)
9	BLTPS*	-	-	-	-
10	Dhuvaran CCPP 1*	-	-	-	-
11	Dhuvaran CCPP 2	1.80	(10.78)	(8.98)	(2.99)
12	Dhuvaran CCPP 3*	-	-	-	-
13	Utran Extension*	-	-	-	-
14	Ukai 6*	-	-	-	-
15	Wanakbori 8 TPS*	-	-	-	-
16	Ukai Hydro	2.15	-	2.15	0.72
17	Kadana Hydro	6.20	-	6.20	2.07
	Total	**29.13**	**(14.03)**	**15.09**	**5.03**

** PPA based stations*

Further, GSECL submitted the Gain/(Loss) on account of uncontrollable factors as shown in the following Table:

Table 2.4: Gains/(Losses) on account of Uncontrollable Factors for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Gain/(Loss) due to Uncontrollable Factors								Total Gains/ (Losses) to be passed through
		Depreciation	Interest & Finance Charges	ROE	Water Charges	SLDC Charges	MAT	Interest on working Capital	Non-Tariff Income	
1	Ukai (3-5)	35.95	36.94	9.72	0.10	0.20	(14.04)	(2.00)	(7.61)	59.26
2	Gandhinagar (3-4)	20.97	0.08	(6.60)	(38.01)	0.22	(9.66)	(1.73)	(2.51)	(37.25)
3	Gandhinagar 5*	-	-	-	-	-	-	-	-	-
4	Wanakbori 1-6 TPS	28.08	(7.77)	3.74	3.67	(0.02)	(28.99)	(7.51)	(26.92)	(35.73)
5	Wanakbori 7*	-	-	-	-	-	-	-	-	-
6	Sikka Extension (3-4)*	-	-	-	-	-	-	-	-	-
7	KLTPS 1-3	(6.21)	(0.77)	(36.97)	(0.28)	(0.05)	(1.73)	(1.10)	0.15	(46.96)
8	KLTPS 4	0.09	(0.74)	(0.12)	0.13	(0.03)	(1.72)	(0.18)	(1.51)	(4.08)
9	BLTPS*	-	-	-	-	-	-	-	-	-
10	Dhuvaran CCPP 1*	-	-	-	-	-	-	-	-	-
11	Dhuvaran CCPP 2	11.84	4.35	3.96	(1.29)	(0.02)	(2.59)	1.33	(1.21)	16.36
12	Dhuvaran CCPP 3*	-	-	-	-	-	-	-	-	-
13	Utran Extension*	-	-	-	-	-	-	-	-	-
14	Ukai 6*	-	-	-	-	-	-	-	-	-
15	Wanakbori 8 TPS*	-	-	-	-	-	-	-	-	-
16	Ukai Hydro	(2.31)	0.15	(0.22)	-	(0.03)	(7.02)	0.15	(3.26)	(12.54)
17	Kadana Hydro	10.41	-	(0.03)	-	(0.01)	(5.57)	0.29	(2.61)	2.48
	Total	**98.82**	**32.24**	**(26.51)**	**(35.69)**	**0.26**	**(71.33)**	**(10.76)**	**(45.49)**	**(58.46)**

** PPA based stations*

Based on the above estimated gains/(losses) on account of controllable and uncontrollable factors, GSECL has worked out the gains/(losses) of FY 2020-21 to be passed through in FY 2022-23, as given below:

Table 2.5: Net Entitlement calculated by GSECL for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Gains/(losses) due to controllable factors (Fixed Charges)	Gains/(losses) due to uncontrollable factors (Fixed Charges)	Total gains/(losses) to be passed through (Fixed Charges)	Total gains/(losses) to be passed through at actual PAF (Fixed Charges)	Gains/(losses) due to controllable factors (Fuel Cost)	Total gains/(losses) to be passed through (Fuel Cost)	Total gains/(losses) to be passed through
a	B	c	d	e= c/3 + d	f	g	h= g/3	i = f + h
1	Ukai (3-5)	(7.40)	59.26	56.79	56.79	7.13	2.38	59.17
2	Gandhinagar (3-4)	(3.89)	(37.25)	(38.55)	(38.55)	4.15	1.38	(37.16)
3	Gandhinagar 5*	-	-	-	-	-	-	-
4	Wanakbori 1-6 TPS	64.95	(35.73)	(14.08)	(14.08)	2.12	0.71	(13.37)
5	Wanakbori 7 TPS*	-	-	-	-	-	-	-
6	Sikka Extn. (3-4)*	-	-	-	-	-	-	-
7	KLTPS 3	(32.52)	(46.96)	(57.80)	(57.80)	(1.32)	(0.44)	(58.24)
8	KLTPS 4	(2.16)	(4.08)	(4.80)	(2.77)	(15.33)	(5.11)	(7.88)
9	BLTPS*	-	-	-	-	-	-	-
10	Dhuvaran CCPP 1*	-	-	-	-	-	-	-
11	Dhuvaran CCPP 2	1.80	16.36	16.96	15.72	(10.78)	(3.59)	12.13
12	Dhuvaran CCPP 3*	-	-	-	-	-	-	-
13	Utran Extension*	-	-	-	-	-	-	-
14	Ukai 6*	-	-	-	-	-	-	-
15	Wanakbori 8 TPS*	-	-	-	-	-	-	-
16	Ukai Hydro	2.15	(12.54)	(11.83)	(11.42)	-	-	(11.42)
17	Kadana Hydro	6.20	2.48	4.55	4.55	-	-	4.55
	Total	**29.13**	**(58.46)**	**(48.75)**	**(47.55)**	**(14.03)**	**(4.68)**	**(52.23)**

** PPA based stations*

GSECL has proposed Fixed Cost for its Generating Stations for FY 2022-23 as shown in the following Table:

Table 2.6: Proposed Fixed Cost of GSECL plants for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Fixed Charges for FY 2022-23	Total Gains/(Losses) to be passed through	Net Fixed Charges for FY 2022-23
1	Ukai (3-5)	385.14	59.17	444.31
2	Gandhinagar (3-4)	279.47	(37.16)	242.31
3	Gandhinagar 5*	120.25	-	120.25
4	Wanakbori 1-6 TPS	680.38	(13.37)	667.02
5	Wanakbori 7*	59.59	-	59.59
6	Sikka Extn. (3-4)*	624.81	-	624.81
7	KLTPS 3	142.81	(58.24)	84.57
8	KLTPS 4	95.59	(7.88)	87.71
9	BLTPS*	718.39	-	718.39
10	Dhuvaran CCPP 1*	79.27	-	79.27
11	Dhuvaran CCPP 2	89.14	12.13	101.27
12	Dhuvaran CCPP 3*	235.79	-	235.79
13	Utran Extension*	228.65	-	228.65
14	Ukai 6*	455.99	-	455.99
15	Wanakbori 8 TPS*	937.41	-	937.41
16	Ukai Hydro	40.65	(11.42)	29.24
17	Kadana Hydro	73.83	4.55	78.37
	Total	**5,247.16**	**(52.23)**	**5,194.93**

*** *PPA based stations***

GSECL has proposed Energy Charges for FY 2022-23 as shown in the following Table:

Table 2.7: Proposed Energy Charges of GSECL plants for FY 2022-23

Sr. No.	Power Station	Energy Charges (Rs/kWh)
1	Ukai (3-5)	4.00
2	Gandhinagar (3-4)	4.35
3	Gandhinagar 5*	3.93
4	Wanakbori 1-6 TPS	4.22
5	Wanakbori 7*	4.13
6	Sikka Extension (3-4)*	4.42
7	KLTPS 3	3.05

Sr. No.	Power Station	Energy Charges (Rs/kWh)
8	KLTPS 4	2.86
9	BLTPS*	2.79
10	Dhuvaran CCPP 1*	2.66
11	Dhuvaran CCPP 2	2.94
12	Dhuvaran CCPP 3*	2.90
13	Utran Extension*	2.83
14	Ukai 6*	3.23
15	Wanakbori 8 TPS*	3.41

** PPA based stations*

2.3 Request of GSECL

Petitioner's Prayer:

1. To admit this Petition seeking True up of FY 2020-21, Aggregate Revenue Requirement for FY 2022-23 & Tariff Proposal for FY 2022-23.
2. To approve the True up for FY 2020-21 and allow sharing of gains/ (losses) with the Consumers as per sharing mechanism prescribed in the GERC (MYT) Regulations, 2016.
3. To allow recovery of Revenue (Gap) / Surplus of FY 2020-21 from four DISCOMs through GUVNL in Twelve (12) equal monthly instalments during FY 2022-23.
4. To approve Aggregate Revenue Requirement for FY 2022-23 as submitted by the Petitioner.
5. Pass suitable orders for implementation of Tariff Proposal for FY 2022-23 for making it applicable from 1st April, 2022 onwards.

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

In response to the public notice inviting objections / suggestions on the Petition filed by GSECL for Truing up of FY 2020-21 and determination of ARR for FY 2022-23 under the GERC (MYT) Regulations, 2016 from the stakeholders, some consumers/consumer organizations filed their objections/suggestions in writing. Some of these objectors participated in the Public Hearing also. The Commission has considered objections connected with this Petition in this Chapter. The objections/suggestions by the consumers/consumer organizations, the response from the Petitioner and the views of the Commission are given below:

3.1 Objections related to Performance of the Plants

3.1.1. Retirement of Old Coal Based Plants

The Objectors submitted that the Petitioner has number of old plants which needs to be scrapped to reduce burden on consumers. They have nearly 13 (to be read as "11") old plants viz., Ukai 3 to 5, Gandhinagar 3-4 and Wanakbori 1 to 6, commissioned during 1979 to 1991, which are due for retirement, and put heavy burden on consumers as they remain under Reserve Shut Down (RSD) most of the time during the year. There is heavy expenditure when these plants are kept under RSD as Petitioner has to maintain the parameters like Pressure and Temperature for restarting the plant as early as possible by involving huge manpower. If these 11 old plants with capacity of 2430 MW are scrapped it will discontinue payment of fixed cost amounting to Rs. 1192 Crore per year. The Objector also requested the Commission to direct GSECL to submit the Action Plan to scrap these plants in a phased manner without affecting supply of power to consumers. On the contrary, it will be in the interest of consumers as cheaper power can be purchased from Indian Energy Exchange at Rs. 2.50 to Rs. 3.50 per unit without any obligation of payment of fixed cost.

The Objectors further submitted that there are many old units whose useful life is over long back but these units are not being de-commissioned by GSECL. This led to burden of additional fixed cost on the consumers without commensurate advantage. The Commission is requested to direct the Petitioner to furnish the schedule of activities for de-commissioning and disposal of all units through disposal process, tendering process, ordering for disposal and receiving payments by GSECL.

Further, the Objectors submitted that GSECL has not explained cost benefit and justification for life extension beyond 40+ years in a situation where cost recovery for huge additional capital expenditure is not foreseeable. The Commission is requested to ensure that no additional capital expenditure towards R&M and life extension is permitted for capitalisation after useful life is over.

It was also observed that the approval of new capacity addition is being justified based on de-commissioning of old units. However, such old units are being continued causing over capacity and burden on additional fixed cost.

Response of GSECL

The Petitioner submitted that with regard to contention for preparation of action plan to scrap the old plants in phased manner, it has retired 11 generating plants in last 10 years in phased manner accumulating to 1215 MW. Moreover, despite of being older plants, Ukai Units-3 to 5, Gandhinagar Units-3 to 5 and Wanakbori Units 1 to 6 run at rated load whenever scheduled by SLDC as per system demand. It is also submitted that in Ukai Unit-4 Wanakbori Unit-3, major R&M work for efficiency improvement has been implemented in recent past. The gains achieved on account of efficiency improvement has also been passed to the consumers of State. After perusing the plant availability factors of these units, it is noted that the PAF of all units is above the normative level. However, lower scheduling of these units may be due to aggressive RE capacity addition in the State and must run status given to RE units. GSECL is also planning for major R&M and life extension program for old units of WTPS and Ukai TPS. Hence, the contention of the respondent to scrap these old units of GSECL may not be accepted.

Commission’s View

The Commission in previous Tariff Order had directed GSECL to submit an Action Plan on Capacity retirement/Addition/Utilisation for next ten (10) years for the Control Period commencing from 1st April, 2021, along with details of retirement of existing Unit/stations, generation capacity availability, capacity addition from Conventional Generating station and Renewable Energy, plan for optimum utilisation of existing generating stations and plan for achieving operational efficiency in economical manner.

The Commission observed that though the recommendations in brief are submitted by GSECL, however the detailed report was not submitted

Further, no details were provided for existing non-performing power stations (excluding the ones proposed to be retired) on how it plans to achieve optimum utilisation and the road map for attaining operational and economic efficiency.

In view of the above, the Commission is not satisfied with the information submitted by GSECL in this regard. The Commission therefore, directs GSECL to submit Action Plan on Capacity retirement/Addition/Utilisation for next ten (10) years for the Control Period commencing from 1st April, 2022, along with details of retirement of existing Units/stations, generation capacity availability, capacity addition from Conventional Generating station and Renewable Energy, plan for optimum utilisation of existing generating stations and plan for achieving operational efficiency in economical manner, as directed in previous Tariff Order, in the form of a report within 45 days of the issuance of this Tariff Order. The Commission has also issued a fresh directive in this regard to GSECL to undertake a comprehensive assessment of the rate of its existing power plants with respect to the power purchase rate prevailing in the State and overall power supply scenario before proposing additional capital expenditure for its existing plants.

3.1.2. Poor Performance of Petitioner's New Power Plants

The Objector observed that performance of Petitioner's power plants has been deteriorating year after year and Plant Load Factor (PLF) has reduced to less than 40 % during major part of this financial year.

The stakeholder submitted that a 30/35-year-old plant may have poor performance but deteriorating performance of new plants such as Ukai 6 TPS (500 MW) and Wanakbori 8 TPS (800 MW) is not acceptable.

PLF of new plants remained as low as 27.4% for BLTPS and other new plants below 50 % PLF. GSECL has failed to function on commercial and economical principles and has no right to put unwarranted burden on electricity consumers of Gujarat. It can be accepted that Petitioner cannot operate its old plants at more than 50 % PLF but consumers will not accept if it fails to operate new plants at more than 70% PLF giving reasons of teething trouble.

The Petitioner should be directed to operate its new power plants at more than 75% capacity to reduce cost of generation by keeping few old power plants in standby conditions. The Commission should demand an explanation from the Petitioner for its poor performance and low PLF of new plants.

Response of GSECL

The Petitioner submitted that from performance parameters of Ukai 6 and Wanakbori 8 during FY 2020-21, it is observed that units were available during most of the period. These units have also achieved lower SHR than the approved SHR. The lower PLF of these units were on account of lower schedule due to reduced demand owing to lockdown on account of the first wave of COVID-19 pandemic. The demand of power was drastically reduced in the state. Therefore, though our units were available, they were not scheduled much resulted into low PLF.

However, during the period from Apr-Dec 21, Wanakbori Unit 8 has achieved PLF of 67%. Further, GSECL submitted detailed justification for lower PLF of these units which is due to lower demand due to COVID-19 and forced outages, whereby due to forced outages, the availability is reduced resulting in lower recovery of fixed cost and hence no excess burden on Consumers of the State.

- GTPS Unit 5 and WTPS Unit 7 – Due to drastic reduction in demand in the State due to COVID-19, these units were not scheduled in the first half of FY 2020-21.
- KLTPS Unit 4 – The unit faced forced outages due to BTL, drag link feeder, NMEJ below replacement etc. Partial operation due to problems of FBHE Evaporator and Super heater, Tubular APH leakages /Chock up, Cyclone outlet duct temp (23.61%). This has resulted into lower availability and PLF.
- BLTPS Unit 1 & 2 – The plant observed Partial operation due to transfer feeder flight link feeder & Fuel feeding problems (41.31%), Frequent forced outages due to boiler tube leakages, Cyclone Chock up and Stator earth fault (29.71%). This has resulted into lower availability and PLF.

Commission's View

The Commission has taken note of the detailed reasons provided by the Petitioner for lower PLF of the new plants. The Merit Order Despatch (MOD) principle is being followed in the State for scheduling of power. Therefore, the suggestion of stakeholder to give directions to GSECL to run newer power plants at more than 75% capacity is not practical and the scheduling of power plant is strictly on the basis of Merit Order principle.

The Commission also notes that though the PLF was lower for many plants due to lower demand owing to lockdown on account of the first wave of COVID-19 pandemic, the availability of the plant viz., Wanakbori Unit 8 TPS and Ukai Unit 6 was above normative level.

The Commission notes that the performance of KLTPS and BLTPS units and availability of these units are not up to the standards. Hence, GSECL should improve the O&M practices of these plants to achieve higher availability and performance.

The Commission has been allowing performance parameters on normative basis and it has been undertaking sharing of gain/(losses) on account of any deviation with the norms and therefore passing the benefit to the consumer. However, the Commission has been closely monitoring the performance of power plants of GSECL and issuing appropriate directive in this regard.

3.1.3. Effect of RSD on Plants and Burden on Consumers

The Objector submitted that the consumers are concerned about poor performance of power plants. Lower PLF of coal-based power plants led to burden consumers with collection of fixed cost by GUVNL. The Petitioner must not keep large number of power plants under RSD as it is not a good practice and it puts heavy burden on consumers. The Petitioner must run these plants frequently to maintain steam parameters like Boiler pressure and Temperature so that these plants can be loaded as early as possible. It has been observed that the Petitioner has been keeping large number of plants under RSD, which is not required but limit this to 50% of existing plants, which are more efficient and can be loaded at the earliest. It has submitted that due to frequent Start and Shut down for RSD during FY 2020-21, there was an increase in Secondary Fuel Oil consumption.

This inefficient practice of keeping plants under RSD reduces the life of Plant and its auxiliaries apart from putting heavy burden on consumer. The stakeholder requested the Commission to direct the Petitioner to keep minimum number of plants under RSD to avoid unnecessary start/shutdown of plants, which will reduce life of power plants. The burden on consumers can be reduced by efficient planning by Petitioner and minimum use of old power plants.

Response of GSECL

The Petitioner submitted that the Plant Load factor (PLF) depends on the actual schedules given by SLDC to generate the power. SLDC issues the dispatch instruction on Merit Order Dispatch principles as per the system requirement, GSECL has to keep all the units available to generate the power as and when directed to generate.

Moreover, GSECL is claiming energy charges as per the normative efficiency parameters approved by Commission. Energy charges also depend on the landed cost of fuel. There is a long distance between source of coal and GSECL stations. Therefore, huge railway freights contribute around 40 to 50% cost in the landed cost of coal. Accordingly, the energy charges are worked out at normative efficiency parameters considering actual fuel cost. Under such circumstances, if any station does not get schedule to generate the power. the units remain under Reserve Shutdown (RSD). The RSD may be due to lower schedules received by GSECL plants which may be due to aggressive RE capacity addition in the state and must run status given to RE generators.

It is also to submitted that during FY 2020-21, there was a first wave of COVID-19 pandemic and the demand of power drastically reduced in the State. Keeping the units under RSD is purely system dependent & as per instruction of system operator. Due to higher penetration of RE generation (which enjoys must run status). the GSECL power stations may be advised RSD however the unit generate power as & when required by SLDC.

Commission's View

The Commission has noted the response of the Petitioner that lower scheduling mainly is a result of backing down instructions from SLDC to inject RE power into the grid or due to lower demand. The coal-based plants have also been used for balancing power to absorb drastic fluctuation in RE Generation.

3.1.4. Poor Performance of Lignite based power plants

The Objector submitted that the Petitioner has miserably failed to operate its lignite-based power plants KLTPS - 4 and BLTPS - 1 & 2. These plants generate cheaper electricity and must run above PLF of 75% however, justification provided by Petitioner is that quality of lignite available is inadequate and of inferior quality, which causes frequent shutdown of lignite plants affecting its life cycle. The similar plants at Surat owned by GIPCL are operated at more than 80% capacity therefore this proves that superior quality of lignite is valuable in Gujarat.

The Objector compared the performance of lignite-based plants for last two years which proves that performance of these plants is not acceptable. The Petitioner has not made any efforts to improve performance in last one year and put heavy burden of Rs. 1.35 Crore in the form of FPPPA on consumers. The Petitioner has not procured better quality of lignite from any other alternative sources. The above plants most have been operated in inefficiently and uneconomically violating mandate of Electricity Act which states that no burden of inefficient operation should be on to consumers. Also, interest of consumers has also not been protected by approving data submitted by Petitioner. This has resulted in unwarranted burden on consumers of Gujarat via FPPPA Charges which are highest in Gujarat at Rs. 2.50 per unit.

The Objector has also provided the comparison of actual vis-à-vis approved performance parameter of Lignite based power plants of GSECL.

The Objector further added that the number of forced shutdowns is also very high due to inadequate and poor quality of lignite and frequent Boiler Tube Leakages. KLTPS 1-2-3 had highest number of forced shutdowns at 58, followed by BLTPS - 1 and 2 at 24, and lastly 17 shutdowns at KLTPS - 4. The consumers of Gujarat are concerned about failure of the Petitioner to generate minimum power from lignite-based plants, which generate electricity at cheapest rate.

The Respondent requests the Commission to appoint an Investigating Authority under Section 128 of the Electricity Act to monitor the performance of Petitioner's power plants, mainly lignite based. The Electricity Act mandates that Generating Companies cannot transfer their inefficiencies to consumers and therefore, the Commission has to play an important role to protect interest of consumers of Gujarat.

Response of GSECL

The reasons for lower generation from Lignite based Power Plants of GSECL are as under:

KLTPS Unit No. 1- 4

From last few years, the source of lignite had been shifted from Panandhro to Mata-na-madh mines from August, 2016 due to unavailability of lignite from Panandhro mines. The lignite available from Mata-na-madh mines is very poor in quality and pyrite laden. The poor quality of lignite had led to increased breakdown of lignite mills and reduction in operating life of the mill internals. All these have resulted into poor performance and partial operation of Units resulting into higher SHR and APC. Necessary steps are being taken by GSECL to carry out major repairing during overhauling of this units.

Bhavnagar Lignite TPS Unit No. 1 - 2

The lower PLF at BLTPS for FY 2020-21 was mainly attributable to Lignite feeding problems on account of various conveyer systems of the Lignite feeding plant and frequent break down observed in Lignite feeder chains, However, after vigorous efforts to rectify the design deficiency (convective pass boiler tube leakages) and Lignite feeder issues. BLTPS units are operated at 175-200 MVU load and further stabilization of units at 250 MW is under progress.

The PG test of boiler at 100% BMCR is completed during last week.

During the period from Apr - Dec 21 the generation of 1201 MU is achieved (against 921 MU during Apr - Dec 20) i.e. 30% higher as compared to previous year.

Further, GSECL submitted that there is vast difference in the actual performance parameters of Lignite based plants and submission made by the Objector. It is humbly submitted that since GSECL claims fixed charges based on the availability and variable charges at the rate approved by Commission for actual scheduled energy only, the contention of the respondent regarding transferring in efficiency of GSECL on to consumers is not correct.

Commission's View

The Commission has noted detailed reasons provided by the Petitioner for poor performance of KLTPS (1-4) and BLTPS. The response of the Petitioner is self-explanatory. The Commission notes that the performance of KLTPS and BLTPS units and availability of these units is not up to the standards. Hence, GSECL should improve the O&M practices of these plants to achieve higher availability and performance.

3.1.5. Lower Plant Load Factor (PLF) of the generating Units

The Objector submitted that actual PLF of almost all overlived plants are very low and commercially unviable particularly considering huge surplus capacity and other alternative sources being available. With lower PLF, the generator claims higher cost/rate at the cost of consumers. The Plants such as Gandhinagar (Unit 3 & 4), Wanakbori (Units 1 to 6) and Ukai (Unit 3 to 5), with lower PLF needs to be decommissioned as it doesn't serve any purpose and fetch huge fixed cost. The actual rate of power from these units for FY 2020-21 is in the range of Rs. 6 to Rs. 8.48 per unit which is higher and power from alternative sources like IEX and other generator could have been easily procured averting undue over payment to GSECL for discarded units whereby consumers are punished. The main reason for lower PLF is not only backing down but inordinate delay in decommissioning of the units / plants which have completed their normative / useful life.

Further, the Objector submitted that after substantial generation capacity addition in the system, de-commissioning of outlived inefficient units is not being done deliberately, which leads to lower PLF. Also, it is adding up unbearable financial losses to consumers and undue benefit to GSECL. Further, reference taken for one-time IEX price by GSECL is not correct as average rates are the correct comparison and during night time, IEX rates are much lower than costlier GSECL generation. Hence, there is no logic for not buying power from IEX during such time. The Commission may direct utilities suitably keeping in view overall interest of consumers.

Response of GSECL

The Petitioner submitted that the PLF of Ukai Unit no. 3 to 5 (39.31%), Gandhinagar TPS Unit no 3 & 4 (20.20%) and Wanakbori TPS unit no 1 to 6 (22,10%) during the FY 2020-21 was lower on account of low scheduling due to substantially reduced demand owing to lockdown due to COVID - 19.

The details of current year PLF (Apr to Dec 2021) for above units are as under:

- GTPS Unit No. 3 & 4 - The PLF of GTPS Unit No. 3 & 4 is 52.73% & is expected to exceed 55% during the FY 2021-22.
- WTPS Unit No. 1 to 6 - The PLF of Unit No. 1 to 6 (unit no 6 which was under major outage for ESP retrofitting) is 50% & is expected to exceed 57% during the FY 2021-22.
- Ukai Unit No. 3 to 5 - The PLF of Unit No. 4 & 5 is 57.76% (except unit no 3 which was under major outage for AOH & LP Turbine problem) & is expected to exceed 58% during the FY 2021-22.

The PLF of Ukai TPS Unit No. 4 & Wanakbori TPS Unit no 3 during the period Apr - Dec 21 is 75% and 78% respectively

Moreover, it is also respectfully submitted that GSECL claims the energy charges at approved performance parameters considering the actual landed cost of fuel incurred. In case of any deviations in the performance parameters then approved, GSECL absorbs the same and are not passed on to the consumers of the State. The fixed cost is claimed as per the availability and at the rates approved by Commission. It is also to submit that the procurement of power from IEX / other generators is not in purview of GSECL. (However, the IEX prices were touched Rs. 20 per unit during August, 2020).

Commission's View

The Commission has taken note of the detailed reasons provided by the Petitioner for lower PLF of the new plants. The Merit Order Despatch (MOD) principle is being followed in the State for scheduling of power.

The Commission also notes that though the PLF was lower for many plants due to lower demand owing to lockdown on account of the first wave of COVID-19 pandemic, the availability of the plant viz., Wanakbori Unit 8 TPS and Ukai Unit 6 was above normative level. Also, the PLF of many plants in the corresponding year i.e. FY 2021-22 (April to Dec) as submitted by GSECL has been improved due to the improvement in demand level as compared to the demand during COVID-19 pandemic.

The Commission has been allowing performance parameters on normative basis and it has been undertaking sharing of gain/(losses) on account of any deviation with the norms and therefore passing the benefit to the consumer. However, the Commission has been closely monitoring the performance of power plants of GSECL and issuing appropriate directive in this regard.

3.1.6. Station Heat Rate for FY 2022-23

The Objector submitted that, from the comparison of Station Heat Rate for old units and new units, it is observed that GSECL is using 13% of higher quantum of coal by continuing old units resulting into higher fuel cost and environment degradation.

Further, it is also noted that O&M expenses for these old units is also higher and PLF is lower. It is clearly shown that all the old machines/units operating beyond 25 to 35/40+ years since commissioning were not contributing materially to power generation but kept in operation to recover undue fixed cost. There is no justification for allowing such cost of this units as part of fixed cost. Even the cost of generation in Rs./Unit work out to be more than annual average power cost of power available through IEX/PX. Also, such capacity shall not be considered as stranded capacity for determination of additional surcharge. The Commission is requested to direct the Petitioner to furnish detailed cost-benefit analysis for each unit beyond 25 years of operation to exercise due diligence.

Further, the Objector submitted that GSECL has not explained cost benefit and justification for life extension beyond 40+ years in a situation where cost recovery for huge additional capital expenditure is not foreseeable. Fixed cost recovery for these units is comparatively higher than other units (e.g. NTPC Vindhyachal 6 x 210 MW).

Response of GSECL

The Petitioner submitted that, with respect to the comparison of the Station Heat Rate (SHR) has been submitted for GSECL's 200/210 MW units of Ukai (3-5), Gandhinagar (3-4), Wanakbori (1-6) with SHR of 500 MW Unit-6 of Ukai TPS and 800 MW unit-8 of Wanakbori TPS provided by the Objector, the age, rating, design and performance parameters of 200/210 MW units & 500/800 MW units are different depending upon technological developments at relevant point of time. The Ukai TPS Unit no 5 and Wanakbori TPS Unit no 8 are relatively newer high-capacity units as compared to 200/210 MW. Moreover, except Wanakbori TPS Unit No. 8, all the units are sub critical units. The supercritical technology units are relatively more efficient as compared to sub critical units. Hence the comparison of station heat rate submitted is not much relevant.

However, the SHR of 200/210 MW units achieved after major R&M in 2 units (Ukai TPS Unit No. 4 and Wanakbori TPS Unit No. 3) is in the range of 2250-2260 kcal/kWh, which is comparable with Ukai TPS Unit no 6 and Wanakbori TPS Unit No. 8. GSECL is planning similar R&M in its remaining 4 units at Ukai TPS & Gandhinagar TPS which will help in substantial reduction of SHR of these units. Moreover, SHR of all units considered by GSECL for projections of FY 2022-23 are as per the SHR approved by the Commission for FY 2021-22.

As regards to the submission of higher O&M expenses, it is humbly submitted that the O&M expenses are claimed as per the norms approved by the Commission only. Lower PLF of the plants may also be increase penetration of RE capacity in the State, lower demand and other factors as attributable to the plants.

Since the procurement of power is not in purview of GSECL, the cost benefit analysis for GSECL's units with respect to the cost of procurement of power from other sources is not available.

Commission's View

The Commission has taken note of the submission of GSECL. GSECL should closely monitor and improve O&M practices so as to maintain / achieve performance parameters as approved by the Commission.

3.2 Objections on Fuel and energy charges

3.2.1. High Energy Charges due to inefficient operation by Petitioner

The Objector submitted that thermal plants are operated at low PLF by the Petitioner. Thus, the cost of generation increases due to sharp increase in SHR, Auxiliary Consumption and SFOC. The Petitioner has operated its old and new plants at less than 50% PLF thus, increasing generation cost, which ultimately puts heavy burden on its consumers, which is recovered under the disguise of FPPPA Charges. The FPPPA charges are almost 65% of lowest energy slab rate of Rs. 3.05 per unit. The Objector requested the Commission not to approve these high Energy Charges, which is due to inefficient operation of the Petitioner. The Electricity Act mandates that any burden due to inefficient and uneconomical operation of Petitioner should not be transferred to consumers of Gujarat.

Response of GSECL

The energy charges are based on actual landed fuel cost. Since GSECL power plants are being non-pit heads plants, the power stations are at a very long distance from their coal source, which results in high transportation charges and higher landed cost of fuel. The Company receives the energy charges based on actual landed cost considering normative parameters, i.e., SHR, Auxiliary Consumption and SFOC approved by the Commission. So, if SHR or Auxiliary Consumption or SFOC is higher than the normative parameters approved by the Commission, the cost of such inefficiency is absorbed by GSECL and is not passed on to the consumers of the State

Commission's View

The Commission has taken note of the submission of GSECL. The energy charges approved for each power station is a function of plant performance parameters and fuel cost. Plant parameters being controllable in nature, are allowed on normative basis, while fuel cost parameters being uncontrollable in nature are allowed on actual basis subject to check. Inefficiency of plant parameter is not being passed through to the consumers through energy charges or FPPPA Charges. However, GSECL should achieve the plant parameters and use fuel in most efficient manner.

3.2.2. Abrupt Increase in Proposed Energy Charge for FY 2021-22

The Objector submitted that the Petitioner has been operating its power plants at less than 50% PLF, which is most uneconomical operation, as it increases cost of generation per unit due to increase in SHR, Auxiliary Consumption, and SFOC, which puts unwarranted burden on the consumers of Gujarat. Therefore, the Commission should look at the performance of Petitioner before approving any increase in Energy Charges as proposed by Petitioner for FY 2021-22 (The Objector has provided the reference of FY 2021-22). The energy charges have increased substantially due to poor performance of plants and therefore any burden of such inefficiency should not be passed on to consumers as per mandate of Electricity Act. Therefore, Objector requests the Commission to reject any increase in energy charges demanded by Petitioner and should be asked to improve its performance by reducing energy charges.

Response of GSECL

The Petitioner submitted that energy charges are claimed only when energy is generated as per schedule given by SLDC and hence claimed for energy scheduled and not based on availability.

The Objector in its submission regarding comparison of energy charges approved for FY 2020-21 and FY 2021-22 has shown the energy charges for FY 2020-21 as approved by Commission vide the MYT Order dated 31st March, 2017. In the said Order, the energy charges were projected considering the landed cost of fuel for FY 2015-16. However, actual energy charges for FY 2020-21 as submitted in present petition are based on the actual landed cost of fuel, blending, GCV etc. Also, the plant performance parameters are considered as approved by Commission.

Similarly, energy charges projected by petitioner for FY 2021-22 were based on the actual energy charges of FY 2020-21 considering the actual landed cost of fuel and normative parameters approved by the Commission for FY 2020-21.

Hence the submission stating that there is abrupt increase in energy charges proposed for FY 2021-22 with energy charges as approved in MYT Order dated 31st March, 2017 is not relevant.

Energy charges proposed by the Petitioner for FY 2022-23 are based on actual energy charges of FY 2020-21, considering the actual landed cost of fuel and normative parameters approved by the Commission for FY 2020-21.

Commission's View

The Commission noted the response of the Petitioner. The energy charges approved for FY 2022-23 are based on the normative performance parameters and actual fuel cost submitted in FY 2020-21.

3.3 Objections related to other topics

3.3.1. Details of PPA

The Objector submitted that GSECL has not mentioned the details of the PPA governed stations as to when and by which order and date the PPA has been approved by the Commission to verify the facts that it is really PPA governed. This information is important as GSECL and GUVNL entered into PPA in 2010 for their Wanakbori thermal power Station for 800 MW and the PPA till today is pending before the Commission for approval and therefore the Commission is requested to review the basis under which the fixed and variable cost is availed by GUVNL and GSECL for Wanakbori 800 MW power plant without approval of PPA.

Response of GSECL

The details of the PPA showing the approval of the PPA of GSECL is highlighted as under:

Sr. No	Name of PPA Governed Station	Capacity (MW)	Petition No.	PPA approval order date
1.	Dhuvaran CCPP – 1	106.617	259/2003	27-07-2007

Sr. No	Name of PPA Governed Station	Capacity (MW)	Petition No.	PPA approval order date
2.	Utran Gas Extension	374.571	1038/2010	23-11-2010
3.	Ukai Unit No. 6	500	1085/2011	27-06-2011
4.	Sikka Unit No. 3 & 4 (2 x 250 MW)	500	1084/2011	27-06-2011
5.	Dhuvaran CCPP - III	376.1	1083/2011	27-06-2011
6.	BLTPS - 1 & 2 (PPA with BECL)	500	1074/2011	27-06-2011
7.	Wanakbori Unit No. 8	800	1971/2021	Approval yet to receive

Also, GUVNL has entered into PPA with GSECL for purchase of power from 800 MW Wanakbori TPS Unit-8 and Petition No. 1971/2021 for approval of PPA filed by GUVNL is pending with the Commission.

Commission's View

The Commission noted the submission made by the Petitioner with respect to the approval of the PPA.

3.3.2. Lower generation from plants and disincentive

The Objector submitted that GSECL has not given any reasons towards lower actual generation of 19,007 MU as against the projected generation of 29,622 MU. The tariff which was determined for FY 2020-21 was calculated based on projected generation of 29,622 MU. The fixed cost and variable cost are also calculated on projected generation of 29,622 MU. When the actual generation is 35.83% less than the projected generation under MYT and Mid-Term re-projection, the Fixed cost and Variable cost should be reduced on prorate basis in context with projected and actual generation as per Section 61. GSECL is doing its generation business in violation of Section 61(b),(c),(d), (e),(i) and preamble of Electricity Act, 2003 which promotes competition and protects the interest of the Consumers.

The Objector further added that actual generation is 19,007 MU which translates that the plants are operated at 32% PLF. The Commission is requested to study the generation of GSECL from 2000 to 2020. The provision of Act envisages the efficiency and MYT principle envisage the incentives on achievement of projected trajectory and disincentives on non-achievement of projected trajectory. The Commission is requested to impose disincentives on non-achievement of approved generation trajectory.

Response of GSECL

The Petitioner submitted that the projection of the generation from GSECL plants was made considering normative performance parameters with projected plant load factor. The actual generation from Power Stations depends upon energy scheduled by SLDC as per the requirement of grid under Merit Order Dispatch system during real time operation. Hence the actual generation differs from the projected generation. During the first half of FY 2020-21, there was a first wave of the COVID-19 pandemic. During this period, the demand of power in the system fell down drastically due to nationwide lock down. Therefore, most of the stations of GSECL remained under Reserved Shut down (RSD). In view of this, although the stations were available to generate the power, the actual generation differed than the projected generation.

The projected generation of 29,622 MU for FY 2020-21 is the gross generation. However, the actual generation of 19007 MU for FY 2020-21 is net generation (i.e. net of auxiliary consumption). The actual gross generation is 20759 MU for FY 2020-21 as against approved 29,622 MU.

Further, GSECL submitted that, as per the MYT Regulations, 2016, the fixed cost is determined on the basis of Plant Availability declaration by respective station. If the actual availability is less than tie normative availability, then claim of fixed cost is also reduced accordingly. Moreover, the variable cost is claimed as per actual energy scheduled from the respective station. Hence, fixed cost and variable cost are not claimed on the basis of projected generation and contention made by the Objector for disallowance of such cost is not correct.

Further, GSECL submitted that Section 61 of the Act is regarding Tariff Regulations. GSECL, as power generation company functions under framework of regulations and claims tariff as per terms and conditions of tariff specified by the Commission. Hence, there is no violation of Section 61 of the Act.

As regards the past trend of actual generation, GSECL submitted actual generation for past five years. The actual generation is dependent upon the requirement of power in grid as per merit order and as per direction of generation schedules received from SLDC. The lower generation in FY 2020-21 is because of lower demand as impact of COVID-19 lockdown. From generation data for FY 2021-22, it is seen that generation is showing rising trend and this is also on account of higher generation schedules given by SLDC.

Further, GSECL has claimed tariff based on actual generation only and not as per projected generation. Hence, the imposition disincentive for deviation in generation is not correct. The Commission is requested not to accept such contention of the Objector.

Commission's View

The Commission noted the response of the Petitioner. The Commission has also observed that there is lower generation from the plants of the GSECL due to low PLF attributed to the reasons outlined above. At the same time efficiency improvement measures needs to be taken in plants where there is lower performance.

3.3.3. Recovery of fixed cost based on PLF

The Objector submitted that GERC (MYT) Regulations, 2016 provides that the recovery of fixed cost is on Plant Availability Factor instead of Plant Load Factor. The Commission has in GERC (Terms & Conditions of Tariff) Regulations, 2005 considered the fixed cost recovery on PLF which was in consistent with provision of Act. The recovery of Fixed Cost on PAF is not at all consistent with any provision of Act. The Commission is requested to rectify the Regulations accordingly and protect the interest of the consumers. This inconsistent provision has brought inefficiency amongst the generation and has increased the tariff. If recovery of fixed cost is made on PLF, the power procurement cost can be reduced to the tune of 30%, ultimately reduction in consumers' tariff.

Response of GSECL

The Petitioner submitted that GERC (Terms & Conditions of Tariff) Regulations, 2005 provides that the recovery of fixed charges shall be on Plant Availability Factor.

However, the fixed cost is linked with PLF only in case where there is specific provision in the PPA. It is humbly submitted that in the PPA signed between GSECL and GUVNL, the fixed charges recovery is on the Plant Availability Factor (PAF) and no such provision of claiming fixed cost on PLF exist. Hence, the contention of the respondent to link the fixed charges with PLF is not in accordance with the MYT Regulations, 2016 and is not acceptable.

Commission's View

The Commission notes the response of the Petitioner. It is noted that, in past Regulations, the recovery of fixed cost is linked to Plant Availability Factor. This tariff framework is followed in accordance with the provisions of Tariff Policy and Central Commission guidelines and Regulations. Further, PLF is largely depends on the merit order dispatch resulting in backdown of the units as per the direction of the SLDC though the unit is available for generation. This may be due to lower demand or injection of RE Power which are must run in nature. Hence, linked the fixed cost to PLF would not be an appropriate approach.

3.3.4. Testing of Unit for updated capacity and De-rating

The Objector submitted that Power Purchase Agreements provide for testing for demonstration of capacity every year and adjust fixed cost accordingly. The Commission is requested to direct the Petitioner to furnish year wise unit wise details of such tests conducted and consequent adjustment of fixed cost in past five years.

Further, the Objector submitted that it has noted the information furnished by GSECL. However, even PPA based units, information on performance guarantee tests is carried out from time to time to ascertain actual capacity of unit, based on which fixed charges are recovered. The same information needs to be furnished by GSECL.

Response of GSECL

The Petitioner submitted that, in the PPA of the transferred stations, i.e., older units of erstwhile GEB transferred to GSECL w.e.f. 01.04.2005, no such provision for Capacity demonstration exist. Moreover, as per the provision in PPA of new units of GSECL, such capacity demonstration tests are required to be carried out only if the available capacity has not been of 95% of the installed capacity for one continuous period of at least three hours during three continuous months (excluding planned outage period). As per the details provided of the capacity declaration by GSECL, the stations have been available as per the requirement laid down under the respective provision of PPA. Accordingly, the Commission is kindly requested not to accept the contention of the respondent to de-rate the units of GSECL and adjustment of fixed cost accordingly.

Commission's View

Regulations 61 of GERC (MYT) Regulations, 2016 clearly provides that the Generating Company may be required to demonstrate the declared capacity of its generating station as and when asked by the Gujarat State Load Despatch Centre and hence in case of any doubt on the performance of the plant with respect to the installed capacity, the availability of the plant and the actual generation, SLDC has inherent power to test the same. Hence, the Commission doesn't accept the suggestion of the Objector for conducting such test year wise.

3.3.5. Capital expenses towards R&D and life extension

The Objector submitted that Ministry of Power stipulate the Guideline for Renovation and Modernisation / life extension works of coal/lignite based thermal power station, which covers all aspects of R&M and life extension works. Further, no capital works are proposed and got approved without ensuring the financial unviability doubts. Cost benefit analysis shall be undertaken through third party to validate the claim of the works. Accordingly, it is requested to Commission to ensure that no wasteful Capital expenses towards R&M and Life extension on outlived units is approved / admitted without guaranteed Cost recoveries and cost benefit analysis.

Further, the Objector submitted that payback calculated on PAF is incorrect unless it is calculated on PLF. The payback does not consider the fact that end cost including fixed cost and variable cost is far more than the average market price of power.

Response of GSECL

The Petitioner submitted that R&M projects implemented / being implemented in GSECL's old coal-based plants are recognized as cost effective options to achieve additional generation from existing units at lower cost. Moreover, as per the new environment norms notified by the MoEF & CC in December, 2015, the R&M projects for achievement of the same by Retrofitting work of ESP of old units & installation of FGD system has become mandatory.

GSECL has implemented such efficiency improvement R&M projects and ESP retrofitting works projects in some of the units. Also same is being implemented in other older units. GSECL has already completed the energy efficiency improvement R&M projects in 210 MW Ukai Unit 4 and 210 MW Wanakbori Unit No. 3. As a result of these projects there has been substantial improvement in overall efficiency. A saving of about Rs. 0.45 / kWh to Rs. 0.50 / kWh in the energy charges along with life extension of about 10-15 years has been achieved. It is also submitted that the payback period of these expenses is about 2.5 to 3.0 years. Moreover, the new emission norms have also been achieved out of the R&M projects of ESP retrofitting implemented in older units of GSECL such as Wanakbori TPS-Unit-1 to 3 and Ukai Units 3 to 5. Accordingly, GSECL has planned to undergo similar R&M projects with required flexibility (for RE Integration and to minimize damage to units due to cyclic operation) in other older units also.

Commission's View

The Commission notes the response of the Petitioner. The detailed analysis and ruling of the Commission regarding R&M / life extension works is elaborated in respective Chapter of this

Order. The capital expenditure on FGD of GSECL units is allowed in order to meet the new environmental norms and should be adhered to.

3.3.6. Regulatory provision for units completed normative life span

The Objector submitted that Tariff Regulations by CERC specified that extension of life of the projects beyond the completion of their useful life shall be decided by the Commission on case-to-case basis. Further, it states that any renovation and modernisation expenses shall not be allowed as part of additional capitalisation beyond original scope. The Commission is requested to ensure that GSECL should comply these provisions of regulations.

Also, it is submitted that the Generating Company is given only market price i.e. Fixed Costs and Variable Costs through bidding process or may be allowed to closed down and decommissioned.

Further, the Objector submitted that these techno-commercial norms are decided after due process of law. There is no reason for overlooking them without valid reason at least till similar norms are decided by the Commission.

Response of GSECL

The Petitioner submitted that, Tariff Regulations by CERC are applicable to the generating companies whose tariff is determined by CERC, under Section 62 read with Section 79 of the Act. GSECL has not submitted any comment on the same.

Commission's View

The Commission is of view that Tariff Regulations specified by CERC are not applicable to GSECL. However, GERC (MYT) Regulations, 2016 specified by the Commission are applicable. Further, the Commission has undertaken prudence check on renovation and modernisation works submitted by GSECL. The detailed analysis and ruling of the Commission regarding R&M/Life extension works is elaborated in the respective Chapter of this Order.

3.3.7. Non submission of Audited Accounts

The Objector submitted that GSECL has not submitted the Accounting Statement as mandated in MYT Regulations, 2016 along with the petition. The Commission is requested to direct GSECL to provide the copy of duly audited Accounting Statement so that further comprehensive suggestions can be made in the petition.

Response of GSECL

The Petitioner submitted that it has already submitted copy of Audited annual accounts for FY 2020-21 to the Commission along with the Petition No. 2025 of 2021. Also, the annual accounts are up-loaded by GSECL along with the tariff petition no. 2025 of 2021 on company's web site.

Commission's View

The Commission noted the response of the Petitioner. The Commission observed that necessary compliance has been made by the Petitioner to the specific query of the Objector.

3.3.8. Power procurement from other sources

The Objector submitted that GSECL should provide the details and data of power procurement by GUVNL with variable charge and fixed charge from other sources and the Variable Charge of GSECL with real time data.

Response of GSECL

The Petitioner submitted that the matter of power procurement of power by GUVNL from other sources than GSECL is not in purview of GSECL.

Commission's View

The Commission notes that since the power procurement for Discoms is with GUVNL, GSECL has to generate power from its power station and supply to Distribution Licensee as per PPA and hence, the data related to power procurement by GUVNL from other sources is not within the purview of GSECL. However, these details are made available in the Orders of the Distribution Licensees.

4 Truing up of FY 2020-21

4.1 Generating Stations of GSECL

This Chapter deals with the truing up of FY 2020-21.

GSECL owned and operated the following generating stations as on 1st April, 2020:

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

The details of the stations existing as on 1st April, 2020 along with their capacities and date of commissioning are given in the Table below:

Table 4.1: Capacity and COD of GSECL generating stations as on 1st April, 2020

Name of Station	Unit No.	Capacity of the Unit (MW)	Date of Commissioning
Ukai	3	200	21/01/1979
	4	200	11/09/1979
	5	210	30/01/1985
	Sub Total	**610**	
Gandhinagar	3	210	20/03/1990
	4	210	20/07/1991
	5	210	17/03/1998
	Sub Total	**630**	
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
	Sub Total	**1,470**	
KLTPS	1	70	29/03/1990
	2	70	25/03/1991
	3	75	31/03/1997
	4	75	20/12/2009
	Sub Total	**290**	
Dhuvaran	7 – Gas	106.617	28/01/2004

Name of Station	Unit No.	Capacity of the Unit (MW)	Date of Commissioning
	8 – Gas	112.45	01/11/2007
	Sub Total	**219.067**	
Utran Extension	GT -1	375	08/11/2009
Sikka TPS 3&4	3	250	14/09/2015
	4	250	28/12/2015
	Sub Total	**500**	
Ukai TPS	6	500	08/06/2013
Dhuvaran (Gas)	3	376	21/05/2014
BLTPS	1	250	16/05/2016
	2	250	27/03/2017
	Sub Total	**500**	
Wanakbori 8 TPS	1	800	13/10/2019
SUB TOTAL GSECL (Coal + Lignite)		**5,300**	
SUB TOTAL GSECL (Gas)		**970**	
TOTAL GSECL (Thermal)		**6270**	
Ukai Hydro	1	75	08/07/1974
	2	75	13/12/1974
	3	75	22/04/1975
	4	75	04/03/1976
	Sub Total	**300**	
Ukai LBC	1	2.5	08/12/1987
	2	2.5	19/02/1988
	Sub Total	**5.0**	
Kadana Hydro	1	60	31/03/1990
	2	60	02/09/1990
	3	60	03/01/1998
	4	60	27/05/1998
	Sub Total	**240**	
Panam	1	1	24/03/1994
	2	1	31/03/1994
	Sub Total	**2**	
SUB TOTAL GSECL (Hydro)		**547**	
Wind Mills		10	04/01/2009
Solar	Plant at GTPS Yard	1	27/03/2012
	Plant at Sanand Br. Canal	1	29/03/2012
	Charanka	10	23/03/2015
	KLTPS	1	02/05/2016
	Sikka TPS	1	02/05/2016
	Dhuvaran	75	05/02/2019
TOTAL GSECL as a Whole		**6,916**	

4.2 Operating Performance Parameters

The fuel cost of a generation station depends on:

(i) the performance parameters, such as Plant Availability Factor (PAF), Plant Load Factor

(PLF), Station Heat Rate, Auxiliary Consumption, Specific Fuel Oil Consumption, and Transit Loss of Coal (in case of Coal stations), 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 these parameters for FY 2020-21 for individual stations. GSECL submitted that operating parameters are dependent on various technical factors like design, level of operation (low/partial load operation), ageing, water chemistry, number of starts or stops, etc.

The Commission has taken up the truing up of the annual performance parameters for FY 2020-21, 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 2020-21. The comparison of PAF as approved in the Tariff Order dated 26th March, 2020; and the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.2: Plant Availability Factor for FY 2020-21

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	80.00%	90.74%
2.	Gandhinagar (3-4)	84.00%	99.07%
3.	Gandhinagar 5*	85.00%	100.02%
4.	Wanakbori 1-6 TPS	85.00%	94.72%
5.	Wanakbori 7*	85.00%	95.86%
6.	Sikka Extension (3-4)*	85.00%	78.50%
7.	KLTPS 1-3	75.00%	77.08%
8.	KLTPS 4	80.00%	46.14%
9.	BLTPS*	80.00%	27.65%
10.	Dhuvaran CCPP 1*	85.00%	76.21%
11.	Dhuvaran CCPP 2	85.00%	78.78%
12.	Dhuvaran CCPP 3*	85.00%	61.11%
13.	Utran Extension*	85.00%	87.84%
14.	Ukai 6*	85.00%	85.81%
15.	Wanakbori 8 TPS*	85.00%	91.10%
16.	Ukai Hydro	80.00%	77.22%
17.	Kadana Hydro	80.00%	90.70%

** PPA based stations*

It is observed from the above Table, that Sikka Extension, KLTPS 4, BLTPS, Dhuvaran CCPP 1, 2 & 3 and Ukai Hydro have achieved lower PAF than that approved by the Commission for FY 2020-21 in the Tariff Order.

GSECL has submitted the reasons for deviation, in respect of the stations where the actual PAF was lower as compared to approved PAF for FY 2020-21, as given below:

- Sikka 3 & 4: Forced Outages due to BTL in Platen SH coil and Condenser water box Plate leakages (9.12%)
- KLTPS 4: Forced outages due to BTL, Drag link feeder, NMEJ below replacement etc. (25.98%). Partial Operation due to problems of FBHE Evaporator and Superheater, Tubular APH leakages/chock up, Cyclone outlet duct temp. (23.61%)
- BLTPS 1-2: Partial Operation due to Transfer feeder flight link feeder & fuel feeding problems (41.31%), Frequent forced outages due to boiler tube leakages, Cyclone Chock up and stator earth fault (29.71%)
- Dhuvaran 1: Partial operation and Unit constrain (8.73%) and forced outages (2.21%).
- Dhuvaran 2: Partial operation and Unit constrain (11.19%) and forced outages (3.10%).
- Dhuvaran 3: Unforeseen forced outage due to massive Fire in GT Slip ring positive side (31.23 %)
- Ukai – Hydro: Forced outage due to Generator differential protection operated.

GSECL has requested the Commission to approve PAF as submitted in the Petition.

Commission’s Analysis

The Commission has verified the PAF as submitted in the Petition with the SLDC certificate for Station-wise actual availability as submitted by GSECL in reply to data gaps. The Commission observed that there were marginal variations in the PAF as per SLDC certificate and PAF as submitted by GSECL in the Petition for Dhuvaran CCPP 3 and Ukai Hydro. The Commission has considered the actual PAF as per SLDC certificate for True-up of FY 2020-21.

The Commission has noted that the submissions made by the Petitioner for the actual PAF being lower than the approved PAF in case of Sikka Extension, KLTPS 4, BLTPS, Dhuvaran CCPP 1, 2 & 3 and Ukai Hydro. However, as the PAF is controllable, for truing up purpose, the PAF approved for FY 2020-21 in the Tariff Order dated 26th March, 2020 has been considered.

The station-wise PAF approved for truing up purpose for FY 2020-21 is given in the Table below:

Table 4.3: Plant Availability Factors approved for truing up for FY 2020-21

Sr. No.	Particulars	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	80.00%	90.74%	80.00%
2.	Gandhinagar (3-4)	84.00%	99.07%	84.00%
3.	Gandhinagar 5*	85.00%	100.02%	85.00%
4.	Wanakbori 1-6 TPS	85.00%	94.72%	85.00%
5.	Wanakbori 7*	85.00%	95.86%	85.00%
6.	Sikka Extension (3-4)*	85.00%	78.50%	85.00%
7.	KLTPS 1-3	75.00%	77.08%	75.00%
8.	KLTPS 4	80.00%	46.14%	80.00%
9.	BLTPS*	80.00%	27.65%	80.00%
10.	Dhuvaran CCPP 1*	85.00%	76.21%	85.00%
11.	Dhuvaran CCPP 2	85.00%	78.78%	85.00%
12.	Dhuvaran CCPP 3*	85.00%	61.13%	85.00%
13.	Utran Extension*	85.00%	87.84%	85.00%
14.	Ukai 6*	85.00%	85.81%	85.00%
15.	Wanakbori 8 TPS*	85.00%	91.10%	85.00%
16.	Ukai Hydro	80.00%	75.83%	80.00%
17.	Kadana Hydro	80.00%	90.70%	80.00%

** PPA based stations*

4.2.2 Plant Load Factor (PLF)

Petitioner's Submission

GSECL has submitted the actual Plant Load Factor (PLF) of different stations for FY 2020-21. The comparison of PLF as approved in the Tariff Order dated 26th March, 2020 and the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.4: Plant Load Factor for FY 2020-21

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	58.00%	39.31%
2.	Gandhinagar (3-4)	45.00%	20.20%
3.	Gandhinagar 5*	77.00%	39.20%
4.	Wanakbori 1-6 TPS	50.00%	22.13%

Sr. No.	Power Station	Approved as per Tariff Order	Actual
5.	Wanakbori 7*	70.00%	31.14%
6.	Sikka Extension (3-4)*	70.00%	41.92%
7.	KLTPS 1-3	75.00%	72.79%
8.	KLTPS 4	75.00%	50.41%
9.	BLTPS*	80.00%	27.42%
10.	Dhuvaran CCPP 1*	25.00%	36.55%
11.	Dhuvaran CCPP 2	25.00%	34.43%
12.	Dhuvaran CCPP 3*	25.00%	29.26%
13.	Utran Extension*	25.00%	53.77%
14.	Ukai 6*	77.00%	57.10%
15.	Wanakbori 8 TPS*	85.00%	48.41%
16.	Ukai Hydro	13.00%	25.79%
17.	Kadana Hydro	6.00%	16.03%

** PPA based stations*

GSECL submitted that the actual PLF is lower due to reduction in gross generation for FY 2020-21.

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 Dhuvaran CCPP 1 to 3, Utran extension and Ukai & Kadana Hydro stations, have achieved lower PLF for FY 2020-21 than that approved in the Tariff Order.

Further, the Commission observed that the PAF (46.14%) of KLTPS-4 is lower than PLF of 50.41%. In this regard, GSECL clarified that, PAF is based on DC (net generation) on normative auxiliary consumption and the reasons for lower PAF are high auxiliary consumption considered for DC against normative auxiliary consumption of the station/unit as well as constraints in achieving rated load, whereas the PLF is based on actual generation irrespective of auxiliary consumption (actual or normative). The reason for lower PLF is reduction in gross generation only.

Further, the Commission observed that though energy charges of certain plants are higher, the PLF (%) is higher than plant with lower energy charges. In this regard, GSECL clarified that Energy charges shown for Gas based units are of APM (GAIL) gas in combine cycle. The monthly Avg. of Allocation of GAIL APM gas is @ 65052 SCM; with this much of quantity only one unit can run for 5.4 hours only at full load. Hence, PLF of gas machine remains low.

Further, Plant availability of WTPS Unit no.8, Ukai Unit no. 6 and Sikka Unit (3-4) was 91.10%, 85.81% and 78.50% (one Planned outage having 13.22%) respectively. However, during FY 2020-21, on account of first wave of COVID-19 pandemic there was a nationwide lock down during first half of year. The demand of power was drastically reduced in the state. Therefore, though our units were available, they were not scheduled much resulted into low PLF.

The Commission has taken note of the submissions made by the Petitioner and approved the PLF for FY 2020-21 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 2020-21 for truing up purpose

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	58.00%	39.31%	39.31%
2.	Gandhinagar (3-4)	45.00%	20.20%	20.20%
3.	Gandhinagar 5*	77.00%	39.20%	39.20%
4.	Wanakbori 1-6 TPS	50.00%	22.13%	22.13%
5.	Wanakbori 7*	70.00%	31.14%	31.14%
6.	Sikka Extension (3-4)*	70.00%	41.92%	41.92%
7.	KLTPS 1-3	75.00%	72.79%	72.79%
8.	KLTPS 4	75.00%	50.41%	50.41%
9.	BLTPS*	80.00%	27.42%	27.42%
10.	Dhuvaran CCPP 1*	25.00%	36.55%	36.55%
11.	Dhuvaran CCPP 2	25.00%	34.43%	34.43%
12.	Dhuvaran CCPP 3*	25.00%	29.26%	29.26%
13.	Utran Extension*	25.00%	53.77%	53.77%
14.	Ukai 6*	77.00%	57.10%	57.10%
15.	Wanakbori 8 TPS*	85.00%	48.41%	48.41%
16.	Ukai Hydro	13.00%	25.79%	25.79%
17.	Kadana Hydro	6.00%	16.03%	16.03%

** PPA based stations*

4.2.3 Auxiliary Consumption

Petitioner's Submission

GSECL has submitted the actual auxiliary consumption of different stations for FY 2020-21. The auxiliary consumption as approved in the Tariff Order dated 26th March, 2020 and the actuals as furnished by GSECL in the Petition, are given in the Table below:

Table 4.6: Auxiliary consumption for FY 2020-21

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	9.00%	10.30%
2.	Gandhinagar (3-4)	9.00%	11.27%
3.	Gandhinagar 5*	9.50%	11.05%
4.	Wanakbori 1-6 TPS	9.00%	10.24%
5.	Wanakbori 7*	9.50%	10.06%
6.	Sikka Extension (3-4)*	9.00%	9.99%
7.	KLTPS 1-3	12.00%	12.44%
8.	KLTPS 4	12.00%	23.39%
9.	BLTPS*	11.00%	22.78%
10.	Dhuvaran CCPP 1*	4.00%	5.53%
11.	Dhuvaran CCPP 2	3.00%	5.54%
12.	Dhuvaran CCPP 3*	3.00%	2.88%
13.	Utran Extension*	3.00%	2.42%
14.	Ukai 6*	6.00%	6.68%
15.	Wanakbori 8 TPS*	5.25%	5.53%
16.	Ukai Hydro	0.60%	0.75%
17.	Kadana Hydro	1.00%	0.67%

** 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:

- Ukai 3-5: Partial Operation due to backing down (Partial Operation - 48.30 %) & APC consumption during RSD - 0.44%
- Ukai 6: Partial Operation due to backing down (Partial Operation - 50.86 %) & APC consumption during RSD - 0.27%
- Gandhinagar 3-4: Partial Operation due to backing down (Partial Operation - 58.67 %) & APC consumption during RSD - 1.65%
- Gandhinagar 5: Partial Operation due to backing down (Partial Operation - 62.97 %) & APC consumption during RSD - 1.10%
- Wanakbori 1-6: Partial Operation due to backing down (Partial Operation - 56.71 %) & APC consumption during RSD - 1.26%

- Wanakbori 7: Partial Operation due to backing down (Partial Operation - 59.54%) & APC consumption during RSD - 1.14%
- Wanakbori 8: Partial Operation due to backing down (Partial Operation - 67.66%) & APC consumption during RSD - 1.08%
- Sikka 3 & 4: Partial Operation due to backing down (Partial Operation - 60.96%) & APC consumption during RSD - 0.41%
- KLTPS 3: Partial Operation due to Unit constraints (Partial Operation)
- KLTPS 4: Partial Operation due to Unit constraints (Partial Operation)
- BLTPS 1-2: Partial Operation due to unit constraints (Partial Operation - 100%), Forced outages
- Dhuvaran 1: Partial Operation due to backing down (Partial Operation - 56.34%) APC consumption during RSD - 0.67%
- Dhuvaran 2: Partial Operation due to backing down (Partial Operation - 55.66%) APC consumption during RSD - 0.94%
- Dhuvaran 3: Partial Operation due to backing down (Partial Operation - 71.72%) APC consumption during RSD - 0.15%
- Ukai Hydro: Irrigation Dependent - low reservoir level

The Petitioner also submitted that over and above backing down, the Units had to frequently undergo Reserve Shut Down (RSD) 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 regarding the actual auxiliary consumption. The Commission observed that in respect of PPA governed stations, the auxiliary consumption is based on the respective PPAs and accordingly, the auxiliary consumption is considered in the Tariff Order dated 26th March, 2020 for FY 2020-21. The actual auxiliary consumption in all plants is higher than approved in the Tariff Order dated 26th March, 2020 for FY 2020-21 except Dhuvaran CCPP3, Utran extension and Kadana hydro station, where the actual auxiliary consumption is less than that approved in the Tariff Order.

In response to the query of the Commission regarding higher auxiliary consumption for KLTPS4 and BLTPS, GSECL clarified as follows:

- KLTPS 4 has over-rated Auxiliaries with Design of 16.0% as given by BHEL. The increase in auxiliary consumption is due to unit run on partial load because of FBHE super heater and evaporator being partially in service as primary air flow not sufficient to fluidize the said chamber which results into restriction in heat transfer and load restriction.
- The increase in auxiliary consumption of BLTPS is due to part load operation due to unit constraints (Only One stream of Feeding system is available since commissioning) and outages.

GSECL has submitted the reason for higher Auxiliary consumption for almost all plants, as partial operation due to backing down and reserve shutdown of plants. Though GSECL has indicated the reasons for higher auxiliary consumption, the Commission is of the view that the reasons are not acceptable as the Commission had taken all the factors into consideration while approving the auxiliary consumption in the Tariff Order dated 26th March, 2020 for FY 2020-21, 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 Tariff Order dated 26th March, 2020 for FY 2020-21, for truing up purposes, as it is a controllable parameter.

The auxiliary consumption approved for different stations for the purpose of truing up for FY 2020-21 is given in the Table below:

Table 4.7: Auxiliary consumption (%) approved for FY 2020-21 for truing up

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	9.00%	10.30%	9.00%
2.	Gandhinagar (3-4)	9.00%	11.27%	9.00%
3.	Gandhinagar 5*	9.50%	11.05%	9.50%
4.	Wanakbori 1-6 TPS	9.00%	10.24%	9.00%
5.	Wanakbori 7*	9.50%	10.06%	9.50%
6.	Sikka Extension (3-4)*	9.00%	9.99%	9.00%
7.	KLTPS 1-3	12.00%	12.44%	12.00%
8.	KLTPS 4	12.00%	23.39%	12.00%
9.	BLTPS*	11.00%	22.78%	11.00%
10.	Dhuvaran CCPP 1*	4.00%	5.53%	4.00%

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
11.	Dhuvaran CCPP 2	3.00%	5.54%	3.00%
12.	Dhuvaran CCPP 3*	3.00%	2.88%	3.00%
13.	Utran Extension*	3.00%	2.42%	3.00%
14.	Ukai 6*	6.00%	6.68%	6.00%
15.	Wanakbori 8 TPS*	5.25%	5.53%	5.25%
16.	Ukai Hydro	0.60%	0.75%	0.60%
17.	Kadana Hydro	1.00%	0.67%	1.00%

** PPA based stations*

4.2.4 Station Heat Rate (SHR)

Petitioner's Submission

GSECL has furnished the actual SHR achieved for different stations during FY 2020-21. The comparison of SHR as approved by the Commission in the Tariff Order dated 26th March, 2020 and the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.8: Station Heat Rate for FY 2020-21

(kcal/kWh)

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	2625	2529
2.	Gandhinagar (3-4)	2625	2529
3.	Gandhinagar 5*	2460	2516
4.	Wanakbori 1-6 TPS	2575	2543
5.	Wanakbori 7*	2460	2466
6.	Sikka Extension (3-4)*	2398	2434
7.	KLTPS 1-3	3231	3212
8.	KLTPS 4	3000	3128
9.	BLTPS*	2623	3196
10.	Dhuvaran CCPP 1*	1950	2097
11.	Dhuvaran CCPP 2	1950	2117
12.	Dhuvaran CCPP 3*	1850	1799
13.	Utran Extension*	1850	1753
14.	Ukai 6*	2385	2359
15.	Wanakbori 8 TPS*	2248	2153

** PPA based stations*

GSECL has stated that for any generation plant, the SHR always deteriorates with time. Hence, the old stations were not able to achieve the SHR norms approved by 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 higher SHR during FY 2020-21:

- Gandhinagar 5: Partial Operation due to backing down & start stop due to RSD (06 Nos)
- Wanakbori 7: Partial Operation due to backing down
- Sikka Extn 3-4: Partial Operation due to backing down & start stop due to RSD (10 Nos)
- KLPTS 4: Partial Operation due to problems of FBHE Evaporator, Superheater & TAPH chock up, and Frequent start stop due to Forced outages (29 Nos)
- BLTPS 1-2: Partial Operation due to unit constraints and Frequent start stop due to forced outages (58 Nos)
- Dhuvaran gas 1: Partial Operation due to backing down and frequent start stop due to RSD (78 Nos)
- Dhuvaran gas 2: Partial Operation due to backing down and frequent start stop due to RSD (108 Nos)

Commission's Analysis

For PPA governed stations, the SHR is approved as per the respective PPA terms. However, the Generation Stations of Gandhinagar 5, Wanakbori 7, Sikka Extn 3-4, KLTPS 4, BLTPS 1-2, Dhuvaran CCPP 1 and Dhuvaran CCPP 2 have SHR higher than normative SHR for FY 2020-21. 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 as the Commission had taken all the factors into consideration while approving the SHR in the Tariff Order dated 26th March, 2020 for FY 2020-21 and also SHR is considered as a controllable parameter for Truing up as prescribed in the GERC (MYT) Regulations, 2016.

For the purpose of truing up for FY 2020-21, the Commission approves the SHR as considered in the Tariff Order for FY 2020-21, as given in the Table below:

Table 4.9: Station Heat Rate approved for FY 2020-21 for truing up

(kcal/kWh)

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	2625	2529	2625
2.	Gandhinagar (3-4)	2625	2529	2625
3.	Gandhinagar 5*	2460	2516	2460
4.	Wanakbori 1-6 TPS	2575	2543	2575
5.	Wanakbori 7*	2460	2466	2460
6.	Sikka Extension (3-4)*	2398	2434	2398
7.	KLTPS 1-3	3231	3212	3231
8.	KLTPS 4	3000	3128	3000
9.	BLTPS*	2623	3196	2623
10.	Dhuvaran CCPP 1*	1950	2097	1950
11.	Dhuvaran CCPP 2	1950	2117	1950
12.	Dhuvaran CCPP 3*	1850	1799	1850
13.	Utran Extension*	1850	1753	1850
14.	Ukai 6*	2385	2359	2385
15.	Wanakbori 8 TPS*	2248	2153	2248

** PPA based stations*

4.2.5 Secondary Fuel Oil Consumption (SFOC)

Petitioner's Submission

GSECL has furnished the actual secondary fuel oil consumption (SFOC) for different stations during FY 2020-21. The comparison of SFOC as approved by the Commission in the Tariff Order dated 26th March, 2020 and the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.10: Secondary Fuel Oil Consumption for FY 2020-21

(ml/kWh)

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	1.00	3.51
2.	Gandhinagar (3-4)	1.00	1.23
3.	Gandhinagar 5*	3.50	0.69
4.	Wanakbori 1-6 TPS	1.00	1.24
5.	Wanakbori 7*	3.50	0.58
6.	Sikka Extension (3-4)*	1.00	2.08
7.	KLTPS 1-3	3.00	4.09

Sr. No.	Power Station	Approved as per Tariff Order	Actual
8.	KLTPS 4	3.00	4.51
9.	BLTPS*	1.00	6.24
10.	Ukai 6*	1.00	3.26
11.	Wanakbori 8 TPS*	0.50	0.99

** PPA based stations*

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

GSECL has submitted the following reasons for higher SFOC in respective stations for FY 2020-21:

- Ukai 3-5: Start stop due to RSD (24 nos.; 0.43 ml/kWh) and Partial Operation due to coal feeding issue
- Ukai 6: Partial Operation due to coal feeding issue
- Gandhinagar 3-4: Start stop due to RSD (12 nos.; 1.04 ml/kWh)
- Wanakbori 1-6: Start stop due to RSD (40 nos.; 0.58 ml/kWh)
- Wanakbori 8: Start stop due to RSD (9 nos. and 0.47 ml/kWh)
- Sikka 3-4: Start stop due to RSD (10 nos. and 0.34 ml/kWh) and forced Outages (16 nos.; 0.63 ml/kWh)
- KLTPS 3: higher forced outages (19 Nos and1.51 ml/kWh)
- KLTPS 4: higher forced outages (29 Nos and 3.63 ml/kWh)
- BLTPS 1-2: higher forced outages (58 Nos. and 2.48 ml/kWh) and Partial Operation due to unit constrains

Commission's Analysis

For PPA governed stations, the SFOC is approved as per the terms of the respective PPAs. The Commission has analysed and noted the reasons submitted by GSECL for higher SFOC for such stations. However, as SFOC is a controllable parameter, for the purpose of truing up for FY 2020-21 for all non-PPA stations, the Commission approves SFOC as considered in the Tariff Order for FY 2020-21.

Accordingly, the SFOC approved for FY 2020-21 for various stations is given in the Table below:

Table 4.11: Secondary Fuel Oil Consumption approved for FY 2020-21 for Truing up

(ml/kWh)

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	1.00	3.51	1.00
2.	Gandhinagar (3-4)	1.00	1.23	1.00
3.	Gandhinagar 5*	3.50	0.69	3.50
4.	Wanakbori 1-6 TPS	1.00	1.24	1.00
5.	Wanakbori 7*	3.50	0.58	3.50
6.	Sikka Extension (3-4)*	1.00	2.08	1.00
7.	KLTPS 1-3	3.00	4.09	3.00
8.	KLTPS 4	3.00	4.51	3.00
9.	BLTPS*	1.00	6.24	1.00
10.	Ukai 6*	1.00	3.26	1.00
11.	Wanakbori 8 TPS*	0.50	0.99	0.50

** 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 2020-21. The transit loss as approved by the Commission in the Tariff Order dated 26th March, 2020 and the actuals as furnished by GSECL in the Petition, are given in the Table below:

Table 4.12: Transit Loss for FY 2020-21

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	0.80%	0.32%
2.	Gandhinagar (3-4)	0.80%	0.30%
3.	Gandhinagar 5*	0.80%	0.30%
4.	Wanakbori 1-6 TPS	0.80%	0.34%
5.	Wanakbori 7*	0.80%	0.34%
6.	Sikka Extension (3-4)*	0.00%	0.00%
7.	KLTPS 1-3	0.20%	0.20%

Sr. No.	Power Station	Approved as per Tariff Order	Actual
8.	KLTPS 4	0.20%	0.20%
9.	BLTPS*	0.80%	0.00%
10.	Ukai 6*	0.80%	0.32%
11.	Wanakbori 8 TPS*	0.80%	0.34%

* PPA based stations

Commission's Analysis

The actual transit loss is lower than that approved in the Tariff Order dated 26th March, 2020 for FY 2020-21. 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 2020-21 as given in the Table below:

Table 4.13: Transit Loss approved for FY 2020-21 for truing up (%)

Sr. No.	Power Stations	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	0.80%	0.32%	0.80%
2.	Gandhinagar (3-4)	0.80%	0.30%	0.80%
3.	Gandhinagar 5*	0.80%	0.30%	0.80%
4.	Wanakbori 1-6 TPS	0.80%	0.34%	0.80%
5.	Wanakbori 7*	0.80%	0.34%	0.80%
6.	Sikka Extension (3-4)*	0.00%	0.00%	0.00%
7.	KLTPS 1-3	0.20%	0.20%	0.20%
8.	KLTPS 4	0.20%	0.20%	0.20%
9.	BLTPS*	0.80%	0.00%	0.80%
10.	Ukai 6*	0.80%	0.32%	0.80%
11.	Wanakbori 8 TPS*	0.80%	0.34%	0.80%

** PPA based stations*

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

4.2.7 Summary of Performance Parameters Approved for FY 2020-21

The performance parameters, approved for different stations for FY 2020-21 after the analysis in the preceding paras for the purpose of truing up of FY 2020-21, are listed in the Table below:

Table 4.14: Performance parameters approved for truing up purpose for FY 2020-21

Sr. No.	Power Stations	PAF (%)	PLF (%)	Auxiliary consumption (%)	SHR (kcal / kWh)	SFO consumption (ml / kWh)	Transit Loss (%)
1.	Ukai (3-5)	80.00%	39.31%	9.00%	2625	1.00	0.80%
2.	Gandhinagar (3-4)	84.00%	20.20%	9.00%	2625	1.00	0.80%
3.	Gandhinagar 5*	85.00%	39.20%	9.50%	2460	3.50	0.80%
4.	Wanakbori 1-6 TPS	85.00%	22.13%	9.00%	2575	1.00	0.80%
5.	Wanakbori 7*	85.00%	31.14%	9.50%	2460	3.50	0.80%
6.	Sikka Extension (3-4)*	85.00%	41.92%	9.00%	2398	1.00	0.00%
7.	KLTPS 1-3	75.00%	72.79%	12.00%	3231	3.00	0.20%
8.	KLTPS 4	80.00%	50.41%	12.00%	3000	3.00	0.20%
9.	BLTPS*	80.00%	27.42%	11.00%	2623	1.00	0.80%
10.	Dhuvaran CCPP 1*	85.00%	36.55%	4.00%	1950	-	-
11.	Dhuvaran CCPP 2	85.00%	34.43%	3.00%	1950	-	-
12.	Dhuvaran CCPP 3*	85.00%	29.26%	3.00%	1850	-	-
13.	Utran Extension*	85.00%	53.77%	3.00%	1850	-	-
14.	Ukai 6*	85.00%	57.10%	6.00%	2385	1.00	0.80%
15.	Wanakbori 8 TPS*	85.00%	48.41%	5.25%	2248	0.50	0.80%
16.	Ukai Hydro	80.00%	25.79%	0.60%	-	-	-
17.	Kadana Hydro	80.00%	16.03%	1.00%	-	-	-

** PPA based stations*

4.3 Gross and Net Generation

The gross and net generation of different stations, as per actuals furnished by GSECL, and as approved for truing up purpose for FY 2020-21, are given in the Table below:

Table 4.15: Gross and net generation for FY 2020-21 for truing up purpose

Sr. No.	Power Stations	As per actuals submitted by GSECL				As approved by the 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 (3-5)	2100.79	10.30%	216.40	1884.39	2100.79	10.30%	216.40	1884.39
2.	Gandhinagar (3-4)	743.35	11.27%	83.79	659.56	743.35	11.27%	83.79	659.56
3.	Gandhinagar 5*	721.11	11.05%	79.70	641.41	721.11	11.05%	79.70	641.41
4.	Wanakbori 1-6 TPS	2443.12	10.24%	250.26	2192.85	2443.12	10.24%	250.26	2192.85
5.	Wanakbori 7*	572.90	10.06%	57.62	515.28	572.90	10.06%	57.62	515.28
6.	Sikka Extension (3-4)*	1836.21	9.99%	183.52	1652.69	1836.21	9.99%	183.52	1652.69
7.	KLTPS 1-3	478.26	12.44%	59.51	418.75	478.26	12.44%	59.51	418.75
8.	KLTPS 4	331.18	23.39%	77.45	253.73	331.18	23.39%	77.45	253.73
9.	BLTPS*	1201.03	22.78%	273.63	927.40	1201.03	22.78%	273.63	927.40
10.	Dhuvaran CCPP 1*	341.36	5.53%	18.89	322.47	341.36	5.53%	18.89	322.47
11.	Dhuvaran CCPP 2	339.18	5.54%	18.78	320.41	339.18	5.54%	18.78	320.41
12.	Dhuvaran CCPP 3*	963.91	2.88%	27.76	936.15	963.91	2.88%	27.76	936.15
13.	Utran Extension*	1764.45	2.42%	42.77	1721.68	1764.45	2.42%	42.77	1721.68
14.	Ukai 6*	2501.16	6.68%	167.16	2334.00	2501.16	6.68%	167.16	2334.00
15.	Wanakbori 8 TPS*	3392.67	5.53%	187.64	3205.03	3392.67	5.53%	187.64	3205.03
16.	Ukai Hydro	688.98	0.75%	5.17	683.82	688.98	0.75%	5.17	683.82
17.	Kadana Hydro	339.75	0.67%	2.26	337.49	339.75	0.67%	2.26	337.49
	Total	**20759.42**		**1752.31**	**19007.11**	**20,759.42**		**1,752.31**	**19,007.11**

** PPA based stations*

4.4 Cost Parameters

The cost parameters include GCV of fuel, mix of fuel and price of fuel. GSECL's generating stations operate 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. Avg. Gross Calorific Value (GCV) of fuels

GSECL has furnished the actual Wt. Avg. Gross Calorific Value of different fuels (as fed into the boiler in the case of usage of mix of coal) for FY 2020-21 as given in the Table below:

Table 4.16: Wt. Avg. Gross Calorific Value (GCV) of fuels for different stations for FY 2020-21

Sr. No.	Power Stations	Wt. Avg. GCV of Coal (kcal/kg)	Wt. Avg. GCV of Lignite (kcal/kg)	Wt. Avg. GCV of Gas (kcal/SCM)	Wt. Avg. GCV of Oil (kcal/kl)
1.	Ukai (3-5)	3,528			10,418
2.	Gandhinagar (3-4)	3,631			10,420
3.	Gandhinagar 5*	3,641			10,497
4.	Wanakbori 1-6 TPS	3,375			10,266
5.	Wanakbori 7 TPS*	3,427			10,254
6.	Sikka Extension (3-4)*	4,881			10,304
7.	KLTPS 1-3		2,346		10,479
8.	KLTPS 4		2,346		10,642
9.	BLTPS*		2,712		10,594
10.	Dhuvaran CCPP 1*			9,407	-
11.	Dhuvaran CCPP 2			9,299	-
12.	Dhuvaran CCPP 3*			9,269	-
13.	Utran Extension*			9,329	-
14.	Ukai 6*	3,577			10,397
15.	Wanakbori 8 TPS*	3,590			10,322

** PPA based stations*

Mix of Coal

GSECL has furnished the actual percentage of the mix of different types of coal used for the stations during FY 2020-21 as given in the Table below:

Table 4.17: The Mix of Different Types of Coal for FY 2020-21

Sr. No.	Power Station	Mix of coal (%)		
		Indigenous	Washed	Imported
1.	Ukai (3-5)	91.17%	8.83%	0.00%
2.	Gandhinagar (3-4)	94.31%	5.69%	0.00%
3.	Gandhinagar 5*	75.37%	24.63%	0.00%
4.	Wanakbori 1-6 TPS	93.31%	6.60%	0.09%
5.	Wanakbori 7*	91.65%	8.35%	0.00%
6.	Sikka Extension (3-4)*	0.00%	0.00%	100.00%
7.	Ukai 6*	80.91%	19.09%	0.00%
8.	Wanakbori 8 TPS*	67.17%	32.83%	0.00%

** PPA based stations*

4.4.2 Wt. Avg. Prices of Fuel

GSECL has furnished the actual Wt. Avg. price per unit of different fuels for different stations for FY 2020-21, as given in the Table below:

Table 4.18: Wt. Avg. Price / Unit of Fuels for FY 2020-21 (Actual)

Sr. No.	Station	Wt. Avg. Cost of Indigenous Coal (Rs./MT)	Wt. Avg. Cost of Washed Coal (Rs./MT)	Wt. Avg. Cost of Imported Coal (Rs./MT)	Wt. Avg. Cost of Coal (Rs./MT)	Wt. Avg. Cost of Lignite (Rs./MT)	Wt. Avg. Cost of Gas (Rs./SCM)	Wt. Avg. Cost of Oil (Rs./Kl)
1.	Ukai (3-5)	4,597	4,979	-	4,630	-	-	37,223
2.	Gandhinagar (3-4)	5,032	5,655	-	5,067	-	-	32,333
3.	Gandhinagar 5*	4,688	5,428	-	4,870	-	-	33,728
4.	Wanakbori 1-6 TPS	4,928	4,994	5,095	4,932	-	-	31,748
5.	Wanakbori 7*	4,684	5,350	-	4,739	-	-	30,952
6.	Sikka Extension (3-4)*	-	-	6,252	6,252	-	-	38,400
7.	KLTPS 1-3	-	-	-	-	1,886	-	35,312
8.	KLTPS 4	-	-	-	-	1,853	-	36,971
9.	BLTPS*	-	-	-	-	2,237	-	39,383
10.	Dhuvaran CCPP 1*	-	-	-	-	-	12.32	-
11.	Dhuvaran CCPP 2	-	-	-	-	-	13.58	-
12.	Dhuvaran CCPP 3*	-	-	-	-	-	14.12	-
13.	Utran Extension*	-	-	-	-	-	13.85	-
14.	Ukai 6*	4,438	4,514	-	4,453	-	-	39,056
15.	Wanakbori 8 TPS*	4,653	5,402	-	4,899	-	-	32,847

** PPA based stations*

Commission's Analysis

The Commission sought the details of month-wise fuel stock position along with landed price and GCV of fuel. In reply, GESECL submitted the requisite month-wise details for Coal, Lignite, Gas and Oil.

In response of query for methodology adopted for allocation of fuel amongst different stations, GSECL submitted that coal requirements to SECL & WCL is as per Fuel Supply Agreements. Based on availability of coal & production matrix, coal companies sanction the coal supply program. According to the coal availability and empty racks made available by Railways, SECL & WCL supply the RoM coal by Rail mode and based on the coal availability with power stations, coal is being used by respective power station for Generation.

Further, it is having gas-based power plants at Dhuvaran and Utran. For these plants, GSECL has tied up for gas supply with GAIL and GSPC. Generally, APM gas is not available and hence, spot gas is procured on as & when required basis. GSECL declares availability and gas is made available when scheduled by SLDC.

As regards to allocation of FO & LDO, GSECL has agreement with IOCL for supply of FO & LDO. Respective station procures FO & LDO directly from IOCL as and when required as per the agreement.

As regards the change in coal mix vis-à-vis approved coal mix, GSECL clarified that actual coal mix utilized for generation depends on the coal rakes received from SECL & WCL during real time operation of station. The receipt of coal is keep changing and hence, impact could not be ascertained.

Further, it is submitted that the payment of coal quantity made to CIL is based on analysis of M/s CIMFR and debit/credit is adjusted accordingly.

GSECL also submitted that it has not paid any Penalty amount towards lower off-take of coal during FY 2020-21. However, numbers of credits have been received from SECL on account of grade slippage on the basis of claims made by different Power Stations. Total credit received are of Rs. 28.97 Crore, which has been accounted in Fuel Cost. Moreover, it is to confirm that the effect of such credits is given to the consumption rates (Landed cost) during respective month by individual power station.

Further, the Commission observed that GCV of washed coal has been decreased from Sept-2020. In this regard, GSECL clarified that post September-2020, no washed coal was procured and the washed coal procured during the period of April-2020 to September-2020, have remained in RSD due to low demand in the State on account of nationwide lock down. Receipt of washed coal is almost zero in Gandhinagar, 2.30% of the opening stock of wash coal in Wanakbori and 24% in Ukai TPS. Hence the consumption of washed coal from October-2020 by all TPS is mostly from the opening stock which was lying in the stacking yards of respective TPS. Hence, the GCV has been deteriorated up to some extent. Further it is submitted that, in the earlier agreement of wash coal supply, the penalty provisions for moisture content and ash content for more than permissible limit was incorporated. However, in the new agreements with washeries, a specific provision for penalty for less GCV has also been incorporated. Further, for wash coal supply, the raw coal is being lifted by washeries from CIL. The CIL issues DO letter to washeries as per the program given by GSECL, which has a validity of 45 days. Thereafter, the wash coal is being supplied through road & rail mode to GSECL stations. In wash coal supply contracts, there is a penalty provision for any lapse in DO quantity in the wash coal supply contracts with washeries. Also, washery contractors have to supply 80% of the G-11 grade raw coal lifted from SECL and balance 20% is the reject coal which is being sold to M/s ACB India limited. The provision for coal reject sale is also stated in the wash coal contracts.

Further, as regards Fuel supply agreement for BLTPS, GSECL submitted that finalization of Fuel Supply Agreement between GSECL and GPCL is under progress. Moreover, Invoices were raised by GPCL on the basis of actual expenditure incurred by M/s GPCL. The same has been accounted in fuel cost.

The Commission note the above submission of GSECL and validated the GCV of coal as submitted by GSECL after due prudence check.

From the analysis of the data, it has been observed that per unit price of fuel is different from the submission made in the Petition. This leads to difference in fuel cost. Also, the Commission observed the difference between the prices of coal as per the petition and submission of FPPPA as prepared on quarterly basis. As per GSECL, the price of coal as specified in the petition is as per the annual audited accounts. Moreover, during the year, certain credits/ debits are received on account of various reasons from coal suppliers/ railways. Therefore, FPPPA may not have the impact of such debits/ credits, but annual accounts are prepared considering all such effects. Hence there could be a difference in the prices.

As regards to the difference in price of oil in the petition and in FPPPA, GSECL submitted that that the oil consumption consists of FO & LDO whereby the unit of measurement (UoM) for FO is MT and LDO is KL. However, the difference in petition and FPPPA submission is due to rates in different units of measurement whereby the rates in petition are in Rs. / KL, whereas the rates in FPPPA are in Rs. /MT.

Further, GSECL clarified that fuel cost and fuel prices submitted in the Petition are based on audited accounts. The difference in petition and audited accounts is on account of cost of Station Supply, Lubricants and Chemicals of Rs. 15.60 Crore, which is included in the Balance Sheet Note No. 34. However, the same has not been included in the monthly coal rate given in FPPPA submission.

Table 4.19: Reconciliation of Fuel cost with audited accounts

(Rs. Crore)

Sr. No	Cost Component	Audited Accounts	Petition
1	Cost of Coal	5,082.78	5,098.37
2	Cost of Gas	921.88	921.87
3	Cost of Oil	142.18	142.17
4	Other Fuel Cost	4.32	-
5	Lubricants and Consumables	11.27	-
6	**Total**	**6,162.41***	**6,162.41**

* - Water Charges of Rs. 168.46 Crores considered separately

Further, other fuel cost mentioned in Note 34 of accounts include Rs. 3.84 Crore towards coal handling charges, 0.46 Crore towards consumption of lime and Rs. 0.02 Crore towards settlement with Railways for coal claim.

The Commission has verified the reconciliation of Fuel cost submitted in the Petition vis-à-vis audited accounts. The Commission finds the submission of GSECL as appropriate.

The Commission, after due verification, approves the Wt. Avg. GCVs of fuels, percentage of mix of coal and prices of fuel (actuals), as furnished by GSECL for truing up purpose for FY 2020-21, 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 2020-21 for truing up purpose, along with the actuals furnished by GSECL, are given in the Table below:

Table 4.20: Fuel Cost of different stations for Truing up for FY 2020-21

Sr. No.	Power Stations	As per actuals submitted by GSECL				As approved by the Commission			
		Gross Generation (MU)	Net Generation (MU)	Fuel Cost (Rs. Crore)	Fuel Cost per unit (Rs./kWh)	Gross Generation (MU)	Net Generation (MU)	Fuel Cost (Rs. Crore)	Fuel Cost per unit (Rs./kWh)
1	**2**	**3**	**4**	**5**	**6=5/4**	**7**	**8**	**9**	**10=9/8**
1.	Ukai (3-5)	2,100.79	1,884.39	716.91	3.80	2,100.79	1,911.72	734.54	3.84
2.	Gandhinagar (3-4)	743.35	659.56	264.81	4.01	743.35	676.45	275.85	4.08
3.	Gandhinagar 5*	721.11	641.41	244.34	3.81	721.11	652.61	244.12	3.74
4.	Wanakbori 1-6 TPS	2,443.12	2,192.85	915.92	4.18	2,443.12	2,223.24	930.74	4.19
5.	Wanakbori 7*	572.90	515.28	196.60	3.82	572.90	518.47	199.83	3.85
6.	Sikka Extension (3-4)*	1,836.21	1,652.69	582.19	3.52	1,836.21	1,670.95	568.65	3.40
7.	KLTPS 1-3	478.26	418.75	128.98	3.08	478.26	420.87	128.31	3.05
8.	KLTPS 4	331.18	253.73	86.26	3.40	331.18	291.44	81.46	2.80
9.	BLTPS*	1,201.03	927.40	340.13	3.67	1,201.03	1,068.92	299.86	2.81
10.	Dhuvaran CCPP 1*	341.36	322.47	93.71	2.91	341.36	327.70	87.14	2.66
11.	Dhuvaran CCPP 2	339.18	320.41	104.87	3.27	339.18	329.01	96.62	2.94
12.	Dhuvaran CCPP 3*	963.91	936.15	264.07	2.82	963.91	935.00	271.57	2.90
13.	Utran Extension*	1,764.45	1,721.68	459.22	2.67	1,764.45	1,711.52	484.62	2.83
14.	Ukai 6*	2,501.16	2,334.00	757.99	3.25	2,501.16	2,351.09	755.06	3.21
15.	Wanakbori 8 TPS*	3,392.67	3,205.03	1,006.40	3.14	3,392.67	3,214.56	1,052.57	3.27
16.	**Grand Total**	**19,730.68**	**17,985.81**	**6,162.41**	**3.43**	**19,730.68**	**18,303.53**	**6,210.95**	**3.39**

** PPA based stations*

The detailed calculations for each station for arriving at the above costs, considering the approved parameters are given in **Annexure A-1 to A-15**.

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 2020-21 and the cost approved for truing up purpose is given in the Table below:

Table 4.21: Cost of different fuels as per audited annual accounts and as approved for Truing up for FY 2020-21

(Rs. Crore)

Sr. No.	Particulars	Cost as per Annual Accounts	Cost as approved
1.	Fuel Cost	6,162.41	**6,109.01***
2.	Water Charges	168.47	
3.	**Total Fuel Cost as per Accounts**	**6,330.88**	

* - Cost computed based on actual generation with approved fuel cost per unit specified in Table 4.21

Total fuel cost as per annual accounts is Rs. 6,330.88 Crore, whereby the Commission has dealt with the Water Charges separately.

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 the fuel expenses for truing up of FY 2020-21 considering the performance parameters such as auxiliary consumption, SHR, SFOC and transit loss, as approved in the Tariff Order dated 26th March, 2020 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.

GSECL submitted a net loss of Rs. 14.03 Crore due to controllable factors on account of operational efficiencies during FY 2020-21. 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 actual fuel expenses and the normative fuel expenses considering the normative performance parameters such as auxiliary consumption, SHR, SFOC and transit loss and considering the actual GCV of fuel and price of fuels, 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 4.22: Approved Gains / (losses) from Fuel Expenses for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Fuel cost arrived with approved parameters for Actual Net generation for FY 2020-21	Actual Fuel cost incurred by GSECL	Gain /(Loss) due to Controllable Factors
1.	Ukai (3-5)	724.04	716.92	7.12
2.	Gandhinagar (3-4)	268.96	264.81	4.15
3.	Wanakbori 1-6 TPS	918.02	915.92	2.10
4.	KLTPS 1-3	127.66	128.98	(1.32)
5.	KLTPS 4	70.92	86.25	(15.33)
6.	Dhuvaran CCPP 2	94.09	104.87	(10.78)
7.	Ukai Hydro	-	-	-
8.	Kadana Hydro	-	-	-
	Sub Total A	**2,203.70**	**2,217.25**	**(14.05)**
9.	Gandhinagar 5*	239.93	244.34	
10.	Wanakbori 7* TPS	198.60	196.60	
11.	Sikka Extn. (3-4)*	562.44	582.19	
12.	BLTPS*	260.16	340.14	
13.	Dhuvaran CCPP 1*	85.75	93.71	
14.	Dhuvaran CCPP 3*	271.90	264.07	
15.	Utran Extension*	487.50	459.22	
16.	Ukai 6*	749.57	757.99	
17.	Wanakbori 8 TPS*	1,049.45	1,006.40	
18.	**Sub Total B**	**3,905.31**	**3,944.66**	
	Total (A+B)	**6,109.01**	**6,162.41**	**(14.05)**

** PPA based stations*

4.6 Capital Expenditure and Capitalisation

Petitioner's Submission

GSECL submitted the actual Capitalisation of Rs. 246.03 Crore for FY 2020-21. The funding of capitalisation has been considered as per normative debt:equity ratio of 70:30. The actual capitalisation submitted by GSECL is shown in the following Table:

Table 4.23: Actual Capitalisation for FY 2020-21 as submitted by GSECL

(Rs. Crore)

Sr. No.	Power Station	Actual Capitalisation	Funding of Capitalisation	
			Debt amount	Equity amount
1.	Ukai (3-5)	22.47	15.73	6.74
2.	Gandhinagar (3-4)	18.77	13.14	5.63
3.	Gandhinagar 5*	0.00	-	-
4.	Wanakbori 1-6 TPS	91.59	64.11	27.48
5.	Wanakbori 7*	0.00	-	-
6.	Sikka Extension (3-4)*	38.20	26.74	11.46
7.	KLTPS 1-3	11.21	7.85	3.36
8.	KLTPS 4	0.00	-	-
9.	BLTPS*	3.33	2.33	1.00
10.	Dhuvaran CCPP 1*	1.53	1.07	0.46
11.	Dhuvaran CCPP 2	0.29	0.20	0.09
12.	Dhuvaran CCPP 3*	0.51	0.36	0.15
13.	Utran Extension*	0.63	0.44	0.19
14.	Ukai 6*	12.78	8.95	3.83
15.	Wanakbori 8 TPS*	44.50	31.15	13.35
16.	Ukai Hydro	0.05	0.04	0.02
17.	Kadana Hydro	0.17	0.12	0.05
	Total	**246.03**	**172.22**	**73.81**

** PPA based stations*

Commission's Analysis

The Commission notes that GSECL has submitted the actual capitalisation of Rs. 246.03 Crore for power stations as against the capitalisation of Rs. 186.45 Crore approved for these plants in the MYT Tariff Order dated 31st March, 2017. The Commission has analysed the details of works completed by GSECL during FY 2020-21.

In response to the specific query of the Commission, GSECL submitted the station wise breakup of the actual capitalisation for FY 2020-21. This includes the capitalisation of Rs.

137.68 Crore towards the capital spares. The other works include raising of existing ash dyke for Wanakbori TPS, complete HP turbine module for Wanakbori TPS, providing service bay, building works, cooling tower works, etc. The Commission notes that majority of expenditure has been made towards spares. Further, GSECL clarified that these spares are critical spares and mostly related to main equipment of the plant. Moreover, it submitted that individual description of every capital spare may not be available. With further analysis, the Commission notes that majority of the works claimed for power plants other than Wanakbori 1-6 & 8 TPS are with respect to capital spares. Hence, the Commission has allowed the capitalisation towards spares.

Also, the Commission notes that capitalisation of Rs. 0.27 Crore for corporate office was allocated to the plants covered in the Petition. However, the Commission has considered the allocation of these capitalisation towards other plants also, which are not covered in this Petition in proportion to the respective capitalisation of each plant.

For the purpose of Truing up, the Commission approves the Capitalisation of Rs. 245.92 Crore for FY 2020-21.

4.7 Fixed Charges

As per GERC (MYT) Regulations, 2016, the Annual Fixed Charges of Generating Stations include the Depreciation, Interest and Finance Charges, Return on Equity, Operation and Maintenance Expenses, Interest on Working Capital, Water Charges, SLDC Charges, Income Tax and Non-Tariff Income. The analysis of each component of Annual Fixed Charges is discussed in subsequent Sections of this Order.

As regards the allocation of HO expenses, it has been observed that GSECL has considered allocation of such expenses towards stations, which are included in the Petition and not to other stations viz. SSNL, SPS, RE, etc. The Commission notes that HO is responsible for overall monitoring, control and review of operations of all stations of GSECL. Hence, the support/review from HO is required irrespective of location of station or PPA arrangement. Hence, for the purpose of truing up, the Commission has allocated the HO Expenses amongst Generating Stations, including SSNNL & SPS and RE and then excluded the expenses corresponding to these three stations. This approach has been adopted for allocation of capital expenditure, revenue expenditure as well as other income for the purpose of truing up.

4.7.1 Depreciation for FY 2020-21

Petitioner's Submission

GSECL has claimed Rs. 1,215.59 Crore towards depreciation charges in the Truing up for FY 2020-21. The depreciation approved for FY 2020-21 by the Commission in the Tariff Order dated 26th March, 2020 and now claimed by GSECL are as given in the Table below:

Table 4.24: Depreciation for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Depreciation	1,269.88	1,215.59

The closing GFA for all generating stations during FY 2020-21 has been computing by adding the assets capitalized during FY 2020-21 and deducting the assets retired or transferred from the opening balance of GFA.

GSECL has calculated the Depreciation for FY 2020-21 in accordance with the provisions of the GERC (MYT) Regulations, 2016 and as per the directives of the Commission. GSECL submitted that the depreciation claimed for FY 2020-21 is within the values approved by the Commission.

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

Table 4.25: Gains / Losses from Depreciation for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved	Actual claimed	Gain/(Loss) Due to Controllable Factors	Gain/(Loss) Due to Uncontrollable Factors
1.	Ukai (3-5)	80.83	44.88		35.95
2.	Gandhinagar (3-4)	56.27	35.30		20.97
3.	Gandhinagar 5*	-	2.16		
4.	Wanakbori 1-6 TPS	127.36	99.28		28.08
5.	Wanakbori 7*	-	2.15		
6.	Sikka Extension (3-4)*	172.90	175.03		
7.	KLTPS 1-3	23.30	29.51		(6.21)
8.	KLTPS 4	36.44	36.35		0.09
9.	BLTPS*	190.87	238.71		
10.	Dhuvaran CCPP 1*	21.24	9.73		
11.	Dhuvaran CCPP 2	24.92	13.08		11.84

Sr. No.	Power Station	Approved	Actual claimed	Gain/(Loss) Due to Controllable Factors	Gain/(Loss) Due to Uncontrollable Factors
12.	Dhuvaran CCPP 3*	76.43	78.77		
13.	Utran Extension*	66.54	68.21		
14.	Ukai 6*	141.13	155.59		
15.	Wanakbori 8 TPS*	235.75	219.06		
16.	Ukai Hydro	-	2.31		(2.31)
17.	Kadana Hydro	15.90	5.49		10.41
18.	**Total**	**1,269.88**	**1,215.59**	**-**	**98.82**

** PPA based stations*

Commission's Analysis

The Commission has computed the depreciation for all the stations, taking into consideration the closing GFA of FY 2019-20 as the opening GFA for FY 2020-21, and adding the assets capitalized and deduction during FY 2020-21.

For the purpose of truing up, the Commission has considered the retirement of assets of Rs. 250.42 Crore as submitted by GSECL, which majorly include the retirement of Rs. 194.89 Crore towards Sikka TPS, Rs. 37.78 Crore towards Wanakbori TPS and Rs. 14.44 Crore towards Ukai 6. The Gross Fixed assets approved is given in the Table below:

Table 4.26: Approved Gross Fixed Assets

(Rs. Crore)

Sr. No.	Particulars	Opening GFA	Additions	Deductions	Closing GFA
1.	Ukai (3-5)	1,326.85	22.46	2.61	1,346.71
2.	Gandhinagar (3-4)	1,240.25	18.76	0.33	1,258.69
3.	Gandhinagar 5*	657.84	0.00	0.00	657.84
4.	Wanakbori 1-6 TPS	2,391.98	91.55	37.78	2,445.74
5.	Wanakbori 7*	638.97	0.00	0.00	638.97
6.	Sikka Extension (3-4)*	3,249.48	38.18	194.89	3,092.78
7.	KLTPS 1-3	937.72	11.20	0.00	948.92
8.	KLTPS 4	707.84	0.00	0.00	707.84
9.	BLTPS*	3,621.80	3.33	0.03	3,625.10
10.	Dhuvaran CCPP 1*	406.86	1.53	0.00	408.39
11.	Dhuvaran CCPP 2	430.77	0.29	0.13	430.93
12.	Dhuvaran CCPP 3*	1,595.56	0.51	0.00	1,596.07
13.	Utran Extension*	1,359.11	0.63	0.01	1,359.74
14.	Ukai 6*	2,988.56	12.77	14.44	2,986.89
15.	Wanakbori 8 TPS*	4,269.13	44.48	0.00	4,313.61
16.	Ukai Hydro	180.19	0.05	0.18	180.06

Sr. No.	Particulars	Opening GFA	Additions	Deductions	Closing GFA
17.	Kadana Hydro	333.27	0.17	0.03	333.41
	Total	**26,336.19**	**245.92**	**250.42**	**26,331.68**

** PPA based stations*

Gains / Losses

As per the GERC (MYT) Regulations, 2016, depreciation is 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 is calculated for Non-PPA plants.

In response to query of the Commission, GSECL clarified that depreciation on assets which have already depreciated up to 90% of GFA has not been taken into consideration under the fixed cost.

The Commission has computed the depreciation by applying actual weighted average rate of depreciation based on audited accounts on GFA for each Station approved in above Table.

The Commission, accordingly, approves the station-wise depreciation charges and the gain / (loss) on account of depreciation in the Truing up for FY 2020-21 as detailed in the Table below:

Table 4.27: Approved station-wise depreciation charges and gains/(losses) from Depreciation for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual as claimed by GSECL	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	80.83	44.88	44.66		36.17
2.	Gandhinagar (3-4)	56.27	35.30	37.88		18.39
3.	Wanakbori 1-6 TPS	127.36	99.28	98.60		28.76
4.	KLTPS 1-3	23.30	29.51	29.62		(6.31)
5.	KLTPS 4	36.44	36.35	36.37		0.07
6.	Dhuvaran CCPP 2	24.92	13.08	12.35		12.57
7.	Ukai Hydro	-	2.31	2.31		(2.31)
8.	Kadana Hydro	15.90	5.49	5.49		10.41
	Sub Total A	**365.02**	**266.20**	**267.27**		**97.76**

Sr. No.	Power Station	Approved as per Tariff Order	Actual as claimed by GSECL	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
9.	Gandhinagar 5*	-	2.16	-		-
10.	Wanakbori 7* TPS	-	2.15	-		-
11.	Sikka Extn.(3-4)*	172.90	175.03	160.79		-
12.	BLTPS*	190.87	238.71	189.80		-
13.	Dhuvaran CCPP 1*	21.24	9.73	11.62		-
14.	Dhuvaran CCPP 3*	76.43	78.77	81.46		-
15.	Utran Extension*	66.54	68.21	65.96		-
16.	Ukai 6*	141.13	155.59	148.92		-
17.	Wanakbori 8 TPS*	235.75	219.06	218.91		-
	Sub Total B	**904.86**	**949.39**	**877.46**	**-**	**-**
	Total (A+B)	**1,269.88**	**1,215.59**	**1,144.73**	**-**	**97.76**

** PPA based stations*

4.7.2 Interest and Finance charges for FY 2020-21

Petitioner's Submission

GSECL has claimed Rs. 857.34 Crore towards interest and finance charges in the Truing up for FY 2020-21. The repayment has been considered as minimum of depreciation computed or opening loan plus addition in loan for the FY 2020-21 in line with the approach as adopted by the Commission.

GSECL has computed the Actual interest rate for FY 2020-21 as 10.29% as against approved interest rate of 9.51% and accordingly has computed the interest charges.

Accordingly, the interest and finance charges approved for FY 2020-21 by the Commission in the Tariff Order, and now claimed by GSECL as actual, are given in the Table below:

Table 4.28: Interest and Finance Charges claimed in truing up for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Interest and Finance charges	808.26	857.34

Also, GSECL has claimed Rs. 32.24 Crore towards gain attributed to uncontrollable factors against interest and finance charges. The station-wise interest and finance charges claimed by GSECL in the truing for FY 2020-21 and the gains/losses are given in the Table below:

Table 4.29: Gains / Losses from Interest & Finance charges claimed for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	36.94	-		36.94
2.	Gandhinagar (3-4)	0.08	-		0.08
3.	Gandhinagar 5*	-	-		
4.	Wanakbori 1-6 TPS	18.12	25.89		(7.77)
5.	Wanakbori 7*	-	-		
6.	Sikka Extension (3-4)*	144.66	149.65		
7.	KLTPS 1-3	0.00	0.77		(0.77)
8.	KLTPS 4	9.13	9.87		(0.74)
9.	BLTPS*	142.08	165.31		
10.	Dhuvaran CCPP 1*	-	-		
11.	Dhuvaran CCPP 2	8.11	3.76		4.35
12.	Dhuvaran CCPP 3*	64.37	73.64		
13.	Utran Extension*	31.25	33.44		
14.	Ukai 6*	98.59	105.23		
15.	Wanakbori 8 TPS*	252.40	287.40		
16.	Ukai Hydro	2.53	2.38		0.15
17.	Kadana Hydro	-	-		-
	Total	**808.26**	**857.34**	**-**	**32.24**

** PPA based stations*

Commission's Analysis

The Commission has analysed the audited annual accounts of GSECL for FY 2020-21 and obtained the details of loans outstanding and the rate of interest for different stations. The Commission has considered the Closing normative Loans of FY 2019-20 as approved in FY 2019-20 true-up order as Opening Loans for FY 2020-21 and repayment is considered equal to the depreciation approved by the Commission.

For the stations for which depreciation allowed is lower than the Opening Loan plus addition in Loan during FY 2020-21 and for the stations for which depreciation is higher than the Opening Loan plus addition in Loan for FY 2020-21, lower amount of these two is considered as repayment since depreciation of asset cannot be more than the Closing Loan making Closing Loan a negative figure.

Table 4.30: Details of Approved Loan for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Opening Loan	Additions	Repayment	Closing Loan
1.	Ukai (3-5)	-	15.73	15.73	-
2.	Gandhinagar (3-4)	-	13.14	13.14	-
3.	Gandhinagar 5*	-	-	-	-
4.	Wanakbori 1-6 TPS	269.10	64.08	98.60	234.58
5.	Wanakbori 7*	-	-	-	-
6.	Sikka Extension (3-4)*	1,527.86	26.73	160.79	1,393.80
7.	KLTPS 1-3	15.05	7.84	22.89	-
8.	KLTPS 4	114.06	-	36.37	77.69
9.	BLTPS*	1,724.02	2.33	189.80	1,536.55
10.	Dhuvaran CCPP 1*	-	1.07	1.07	-
11.	Dhuvaran CCPP 2	42.99	0.20	12.35	30.85
12.	Dhuvaran CCPP 3*	754.56	0.35	81.46	673.45
13.	Utran Extension*	358.74	0.44	65.96	293.23
14.	Ukai 6*	1,095.60	8.94	148.92	955.63
15.	Wanakbori 8 TPS*	2,885.81	31.13	218.91	2,698.04
16.	Ukai Hydro	24.23	0.03	2.31	21.95
17.	Kadana Hydro	-	0.12	0.12	-
	Total	**8812.03**	**172.14**	**1068.42**	**7915.75**

** PPA based stations*

The Commission notes that GSECL has submitted the weighted average rate of interest of 10.29%. The Commission has analysed the reconciliation of actual interest charges considered for computation of this rate of interest vis-à-vis audited accounts. The Commission observes that, while computing the weighted average rate of interest, GSECL has allocated the actual interest charges towards stations, which has no actual loans. Also, as per Note 21.1 of the Audited Annual accounts, the interest rate of all the loans are in the range of 6.5% to 7.65%. In response to the query of the Commission, GSECL submitted the revised workings of weighted average rate of interest along with reconciliation of interest charges in annual accounts. The weighted average rate of interest re-computed by GSECL was 8.18%, which is also validated by the Commission.

Accordingly, the weighted average rate of interest of 8.18% is considered by the Commission as per the details submitted by the Petitioner.

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 2020-21 as detailed in the Table below:

Table 4.31: Approved Interest and Finance charges and gain/ (loss) for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual as claimed by GSECL	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	36.94	-	-		36.94
2.	Gandhinagar (3-4)	0.08	-	-		0.08
3.	Wanakbori 1-6 TPS	18.12	25.89	20.59		(2.47)
4.	KLTPS 1-3	0.00	0.77	0.62		(0.61)
5.	KLTPS 4	9.13	9.87	7.84		1.29
6.	Dhuvaran CCPP 2	8.11	3.76	3.02		5.09
7.	Ukai Hydro	2.53	2.38	1.89		0.64
8.	Kadana Hydro	-	-	-		-
	Sub Total A	**74.91**	**42.68**	**33.95**	**-**	**40.96**
9.	Gandhinagar 5*	-	-	-		
10.	Wanakbori 7 TPS*	-	-	-		
11.	Sikka Extn. (3-4)*	144.66	149.65	119.45		
12.	BLTPS*	142.08	165.31	133.30		
13.	Dhuvaran CCPP 1*	-	-	-		
14.	Dhuvaran CCPP 3*	64.37	73.64	58.38		
15.	Utran Extension*	31.25	33.44	26.65		
16.	Ukai 6*	98.59	105.23	83.86		
17.	Wanakbori 8 TPS*	252.40	287.40	228.29		
	Sub Total B	**733.35**	**814.66**	**649.93**	**-**	**-**
	Total (A+B)	**808.26**	**857.34**	**683.89**	**-**	**40.96**

** PPA based stations*

4.7.3 Return on Equity for FY 2020-21

Petitioner's Submission

GSECL has claimed Rs. 1,062.51 Crore towards RoE in the Truing up for FY 2020-21. The RoE approved for FY 2020-21 by the Commission in Tariff Order dated 26th March, 2020 for FY 2020-21, and now claimed by GSECL as actual are given in the Table below:

Table 4.32: Return on Equity for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Return on Equity	1,042.94	1,062.51

GSECL has submitted that the comparison of actual value for RoE computed based on Opening Equity for FY 2020-21 and addition to Equity during the year on account of funding of capital expenditure against the RoE approved in the Tariff Order dated 26th March, 2020 resulted in a loss of Rs. 26.51 Crore attributed to uncontrollable factors. The station-wise RoE claimed by GSECL in the truing for FY 2020-21 and the gains/(losses) are given in the Table below:

Table 4.33: Gains / Losses from Return on Equity claimed for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	32.86	23.14		9.72
2.	Gandhinagar (3-4)	17.67	24.27		(6.60)
3.	Gandhinagar 5*	30.88	28.67		
4.	Wanakbori 1-6 TPS	95.65	91.91		3.74
5.	Wanakbori 7*	28.03	26.16		
6.	Sikka Extension (3-4)*	137.53	137.28		
7.	KLTPS 1-3	17.19	54.15		(36.97)
8.	KLTPS 4	29.53	29.65		(0.12)
9.	BLTPS*	151.83	152.19		
10.	Dhuvaran CCPP 1*	11.07	10.48		
11.	Dhuvaran CCPP 2	18.49	14.53		3.96
12.	Dhuvaran CCPP 3*	65.36	67.02		
13.	Utran Extension*	57.60	57.51		
14.	Ukai 6*	122.46	125.79		
15.	Wanakbori 8 TPS*	187.53	180.24		

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
16.	Ukai Hydro	10.42	10.64		(0.22)
17.	Kadana Hydro	28.84	28.87		(0.03)
18.	**Total**	**1,042.94**	**1,062.51**	**-**	**(26.51)**

** PPA based stations*

Commission's Analysis

The Commission has observed that GSECL has compared the actual RoE of Rs. 1,062.51 Crore for FY 2020-21 with the RoE of Rs. 1,042.94 Crore approved in the Tariff Order dated 26th March, 2020 and arrived at a loss of Rs. 26.51 Crore.

The Commission notes that GSECL has not considered any reduction in equity towards retirement of GFA. However, the Commission has considered the reduction in equity at 30% of retirement of GFA.

The Commission has taken the closing equity of FY 2019-20 as the opening equity of FY 2020-21, further 30% of net addition has been considered as equity addition during the year as given in the Table below:

Table 4.34: Approved Equity for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Opening Equity	Addition	Reduction	Closing Equity
1.	Ukai (3-5)	161.89	6.74	0.78	167.84
2.	Gandhinagar (3-4)	170.55	5.63	0.10	176.08
3.	Gandhinagar 5*	220.57	0.00	0.00	220.57
4.	Wanakbori 1-6 TPS	642.74	27.46	11.34	658.87
5.	Wanakbori 7*	201.22	0.00	0.00	201.22
6.	Sikka Extension (3-4)*	974.86	11.46	58.47	927.85
7.	KLTPS 1-3	385.13	3.36	0.00	388.49
8.	KLTPS 4	211.78	0.00	0.00	211.78
9.	BLTPS*	1086.54	1.00	0.01	1087.53
10.	Dhuvaran CCPP 1*	80.42	0.46	0.00	80.88
11.	Dhuvaran CCPP 2	103.72	0.09	0.04	103.77
12.	Dhuvaran CCPP 3*	478.67	0.15	0.00	478.82
13.	Utran Extension*	410.71	0.19	0.00	410.90
14.	Ukai 6*	896.57	3.83	4.33	896.07
15.	Wanakbori 8 TPS*	1280.74	13.34	0.00	1294.08

Sr. No.	Power Station	Opening Equity	Addition	Reduction	Closing Equity
16.	Ukai Hydro	76.01	0.01	0.05	75.97
17.	Kadana Hydro	206.20	0.05	0.01	206.24
	Total	**7588.31**	**73.77**	**75.13**	**7586.96**

** PPA based stations*

Gains / (Losses)

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

The Commission, accordingly, approves the station-wise return on equity and gain / (loss) on account of variation in RoE in the truing up for FY 2020-21 as detailed in the Table below:

Table 4.35: Approved Return on Equity and gain/ (loss) for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (1-5)	32.86	23.14	23.08		9.78
2.	Gandhinagar (1-4)	17.67	24.27	24.26		(6.59)
3.	Wanakbori 1-6 TPS	95.65	91.91	91.11		4.54
4.	KLTPS 1-3	17.19	54.15	54.15		(36.97)
5.	KLTPS 4	29.53	29.65	29.65		(0.12)
6.	Dhuvaran CCPP 2	18.49	14.53	14.52		3.97
7.	Ukai Hydro	10.42	10.64	10.64		(0.22)
8.	Kadana Hydro	28.84	28.87	28.87		(0.03)
	Subtotal A	**250.65**	**277.16**	**276.29**	**-**	**(25.65)**
9.	Gandhinagar 5*	30.88	28.67	28.67		
10.	Wanakbori 7* TPS	28.03	26.16	26.16		
11.	Sikka Extn. (3-4)*	137.53	137.28	133.19		
12.	BLTPS*	151.83	152.19	152.18		
13.	Dhuvaran CCPP 1*	11.07	10.48	10.48		
14.	Dhuvaran CCPP 3*	65.36	67.02	67.02		

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
15.	Utran Extension*	57.60	57.51	57.51		
16.	Ukai 6*	122.46	125.79	125.48		
17.	Wanakbori 8 TPS*	187.53	180.24	180.24		
	Subtotal B	**792.29**	**785.35**	**780.95**	**-**	
	Total (A+B)	**1,042.94**	**1,062.51**	**1,057.24**	**-**	**(25.65)**

** PPA based stations*

4.7.4 O&M Expenses for FY 2020-21

Petitioner's Submission

GSECL has claimed Rs. 1,171.34 Crore towards actual O&M expenses in the truing up for FY 2020-21. The O&M charges approved for FY 2020-21 by the Commission in the Tariff Order dated 26th March, 2020, and now claimed by GSECL are given in the Table below:

Table 4.36: O&M expenses for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
O&M Expenses	1,481.35	1,171.34

As the O&M expenses have been classified as "Controllable", GSECL has worked out a gain of Rs. 29.13 Crore. The station-wise O&M expenses approved by the Commission in the Tariff Order dated 26th March, 2020 and now claimed by GSECL after revision in the truing for FY 2020-21 are given in the Table below:

Table 4.37: Gains / Losses from O&M expenses for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	184.09	191.49	(7.40)	
2.	Gandhinagar (3-4)	102.39	106.28	(3.89)	
3.	Gandhinagar 5*	26.09	53.00		
4.	Wanakbori 1-6 TPS	267.91	202.96	64.95	
5.	Wanakbori 7*	21.65	14.72		
6.	Sikka Extension (3-4)*	112.90	129.34		

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
7.	KLTPS 1-3	44.76	77.28	(32.52)	
8.	KLTPS 4	21.98	24.14	(2.16)	
9.	BLTPS*	168.60	86.70		
10.	Dhuvaran CCPP 1*	37.39	44.44		
11.	Dhuvaran CCPP 2	37.48	35.68	1.80	
12.	Dhuvaran CCPP 3*	77.85	35.04		
13.	Utran Extension*	62.03	48.71		
14.	Ukai 6*	112.90	39.25		
15.	Wanakbori 8 TPS*	153.54	40.86		
16.	Ukai Hydro	22.59	20.44	2.15	
17.	Kadana Hydro	27.20	21.00	6.20	
18.	**Total**	**1,481.35**	**1,171.34**	**29.13**	

** PPA based stations*

Commission's Analysis

The O&M expenses consist of following elements:

(i) Employees expenses;

(ii) Repairs & Maintenance expenses;

(iii) Administration & General expenses.

These elements are discussed hereunder:

(i) Employee expenses

The Employees expenses as per the audited Annual Accounts (Note No. 35) is Rs. 682.54 Crore net of expenses capitalised. It is further observed that GSECL has made provision of Rs. 36.62 Crore for impact of 7th Pay Commission. However, it has not made any payments during FY 2020-21. Hence, the Commission has not considered this cost of Rs. 36.62 Crore for the purpose of truing up.

Further, the Commission notes that, as per Note 51 of the Audited Accounts, GSECL has provided Rs. 2 Crore as compensation to be payable to employees deceased due to COVID-19. GSECL clarified that this provision was made towards Compensation payable to employees deceased due to COVID-19. The process for making payment is initiated and will be made to legal heirs of deceased employees.

In view of the above, since there is no payment made during FY 2020-21, the Commission has not considered this cost as per principle adopted in past tariff Order. Moreover, the Commission shall consider these expenses based on actual payment made during the subsequent years, based on the submission of GSECL.

Further, the Commission notes that GSECL has considered the amount of Rs. 13.76 Crore related to Other comprehensive income as part of employee cost as the same is reflecting in P&L account of GSECL. GSECL clarified that re measurement of the defined benefit plan of Rs. 13.76 Crores shown under the head Other comprehensive income pertains to gratuity of employees. This is as per the actuarial valuation which is done by LIC for the company. IND AS19 on employee benefit has prescribed the disclosure to be made for Gratuity expense in profit and loss account. Accordingly, the disclosure has been made and Rs. 13.76 Crores shown under other comprehensive income as part of employee benefit expenses. The Commission has also approved the same as apart of actual employee cost.

Hence, the net allowable employee expenses approved is work out as Rs. 624.51 Crore for FY 2020-21, after allocation of HO expenses.

(ii) Repairs & Maintenance expenses

As per the audited Annual Accounts (Note No. 34), the R&M expenses are to the tune of Rs. 384.12 Crore. The Commission has excluded R&M expenses of Rs. 13.94 Crore towards SSNNL and SPS and Rs. 5.05 Crore towards RE. The net R&M expenses works out to Rs. 364.94 Crore, after allocation of HO expenses.

(iii) Administration & General expenses

As per the audited Annual Accounts, the A&G expenses are Rs. 145.74 Crore. It is observed that these A&G expenses include expenses of Rs. 1.07 Crore towards Corporate Social Responsibility, Rs. 1.20 Crore towards provision on Loan to joint Venture, Rs. 2.10 Crore towards O&M contract of SSNNL and SPS, and Rs. 0.50 Crore towards RE assets and same were not claimed by GSECL also. The other expenses as mentioned above are excluded from A&G expenses being not admissible. The Commission has also excluded water charges which are allowed separately in True-up.

The Commission had asked GSECL to provide break-up of Miscellaneous expenses falling under A&G Expenses. It includes the expenses of Rs. 3.20 Crore towards Other losses written off, Rs. 0.07 Crore towards gifts to employees, Rs. 0.16 Crore towards celebration of events and Rs. 0.14 Crore for entertainment expenses. The Commission has not allowed these total expenses of Rs. 3.57 Crore as per principle adopted in past Order. The allowable A&G Expenses, hence, works out to be Rs. 133.63 Crore for FY 2020-21, after allocation of HO expenses.

(iv) Allocation of HO expenses

The Commission notes that GSECL has incurred actual O&M Expenses of Rs. 132.98 Crore towards Head Office, including Employee Cost of Rs. 115.64 Crore, A&G Expenses of Rs. 13.42 Crore and R&M Expenses of Rs. 3.93 Crore. GSECL has allocated these expenses amongst the Stations in proportion to their actual expenses. However, the Commission notes that GSECL has allocated these expenses towards Generating Stations, which are submitted in the present Petition. The said expenses have not been allocated by GSECL to SSNNL & SPS and RE Assets, even though part of expenses of Head Office are also incurred for activities of these plants. In this regard, GSECL clarified that since location other than stations covered in the Petition have separate O&M work contracts, hence the cost of HO is allocated to the stations covered in the present Petition.

The Commission notes that HO is responsible for overall monitoring, control and review of operations of stations. Hence, even though contracts are sperate for each station, the support/review from HO is required irrespective of location of station. Hence, for the purpose of truing up, the Commission has allocated the HO Expenses amongst Generating Stations, including SSNNL & SPS and RE, and then excluded the expenses of Rs. 6.21 Crore corresponding to these three stations.

In view of the above, the total actual O&M Expenses approved by the Commission for FY 2020-21 are Rs. 1,123.07 Crore, including Employee Cost of Rs. 624.51 Crore, A&G Expenses of Rs. 133.63 Crore and R&M Expenses of Rs. 364.94 Crore.

Gains / (Loss)

The Commission observed that there is a gain of Rs. 61.23 Crore due to controllable factors by comparing the actual amount with the O&M expenses approved by the

Commission in the Tariff Order dated 26th March, 2020.

The Commission, approves the station-wise O&M expenses and the gain / (loss) on account of O&M expenses in the truing up for FY 2020-21 as detailed in the Table below:

Table 4.38: Approved O&M expenses gains/losses for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	184.09	191.49	181.82	2.27	
2.	Gandhinagar (3-4)	102.39	106.28	100.50	1.89	
3.	Wanakbori 1-6 TPS	267.91	202.96	193.36	74.55	
4.	KLTPS 1-3	44.76	77.28	74.14	(29.37)	
5.	KLTPS 4	21.98	24.14	23.44	(1.46)	
6.	Dhuvaran CCPP 2	37.48	35.68	34.19	3.29	
7.	Ukai Hydro	22.59	20.44	19.75	2.84	
8.	Kadana Hydro	27.20	21.00	19.98	7.22	
	Subtotal A	**708.40**	**679.27**	**647.18**	**61.23**	
9.	Gandhinagar 5*	26.09	53.00	50.11		
10.	Wanakbori 7* TPS	21.65	14.72	14.09		
11.	Sikka Extn. (3-4)*	112.90	129.34	123.91		
12.	BLTPS*	168.60	86.70	85.76		
13.	Dhuvaran CCPP 1*	37.39	44.44	42.94		
14.	Dhuvaran CCPP 3*	77.85	35.04	34.91		
15.	Utran Extension*	62.03	48.71	46.86		
16.	Ukai 6*	112.90	39.25	38.01		
17.	Wanakbori 8 TPS*	153.54	40.86	39.31		
	Subtotal B	**772.95**	**492.07**	**475.89**	**0.00**	
	Total (A+B)	**1,481.35**	**1,171.34**	**1,123.07**	**61.23**	

** PPA based stations*

4.7.5 Interest on Working Capital for FY 2020-21

Petitioner's Submission

GSECL has claimed Rs. 317.53 Crore towards interest on working capital in the Truing up for FY 2020-21. The interest on working capital approved for FY 2020-21 in the Tariff Order dated

26th March, 2020 and as claimed in the Truing up are given in the Table below:

Table 4.39: Interest on Working Capital Claimed by GSECL in Truing up for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Interest on Working Capital	342.87	317.53*

*- Error in calculation

GSECL has submitted that it has considered the interest rate for calculating Interest on Working Capital as 9.57% (weighted average of 1-year SBI MCLR for FY 2020-21 plus 2.50%). GSECL has further submitted that the Interest on Working Capital computed in the Truing up for FY 2020-21 indicates a loss of Rs. 10.76 Crore as shown in the Table below:

Table 4.40: Gains / Losses from Interest on working capital claimed for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	30.30	32.30		(2.00)
2.	Gandhinagar (3-4)	22.52	24.25		(1.73)
3.	Gandhinagar 5*	14.70	11.56		
4.	Wanakbori 1-6 TPS	66.99	74.50		(7.51)
5.	Wanakbori 7*	11.49	11.47		
6.	Sikka Extension (3-4)*	29.20	27.77		
7.	KLTPS 1-3	3.12	4.22		(1.10)
8.	KLTPS 4	3.35	3.53		(0.18)
9.	BLTPS*	30.14	22.77		
10.	Dhuvaran CCPP 1*	5.27	4.11		
11.	Dhuvaran CCPP 2	6.00	4.67		1.33
12.	Dhuvaran CCPP 3*	13.11	14.35		
13.	Utran Extension*	19.18	13.71		
14.	Ukai 6*	29.88	25.94		
15.	Wanakbori 8 TPS*	55.51	40.71		
16.	Ukai Hydro	0.76	0.61		0.15
17.	Kadana Hydro	1.35	1.06		0.29
18.	**Total**	**342.87**	**317.53**	**-**	**(10.76)**

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the lower receivables while computing normative working capital. After query of the Commission, GSECL submitted the revised receivables, based on which revised IoWC is worked out as Rs. 352.67 Crore.

The working capital and the interest on working capital have been computed as per the GERC (MYT) Regulations, 2016. The Commission has calculated working capital based on approved values of O&M costs, fuel costs, ARR and SFO cost.

While calculating Interest on working capital, GSECL has considered Maintenance spares as 1% of opening GFA + 0.5% of addition during the year. GSECL clarified that it has to keep inventory of maintenance spares for the assets capitalized during the year also and which adds to the working capital requirement of the company. Considering the same, GSECL has claimed maintenance spares as 1% of opening GFA + 0.5% of addition during the year. However, as per Regulation, the same needs to be calculated as 1% of historical cost. The Commission has considered the maintenance spares at 1% of opening GFA as per approach adopted in earlier Orders.

Further, the Commission has considered the interest rate on working capital as 9.57% as per the GERC (MYT) Regulations, 2016.

The interest on working capital is calculated at Rs. 347.59 Crore based on the expenses approved in the truing up for FY 2020-21.

Gain / (Loss)

Regarding 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 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 2020-21 as detailed in the Table below:

Table 4.41: Approved Gains/ (Losses) from Interest on Working Capital for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff order	Actual claimed	Actual Claimed (revised)	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1	Ukai (3-5)	30.30	32.30	34.92	34.16		(3.86)
2	Gandhinagar (3-4)	22.52	24.25	25.69	26.26		(3.74)

Sr. No.	Power Station	Approved as per Tariff order	Actual claimed	Actual Claimed (revised)	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
3	Wanakbori 1-6 TPS	66.99	74.50	78.69	78.69		(11.70)
4	KLTPS 1-3	3.12	4.22	4.86	5.40		(2.28)
5	KLTPS 4	3.35	3.53	4.26	4.03		(0.68)
6	Dhuvaran CCPP 2	6.00	4.67	5.37	5.03		0.97
7	Ukai Hydro	0.76	0.61	0.61	0.62		0.14
8	Kadana Hydro	1.35	1.06	1.06	0.93		0.42
	Subtotal A	**134.39**	**145.15**	**155.45**	**155.11**	**-**	**(20.72)**
9	Gandhinagar 5*	14.70	11.56	12.10	12.31		
10	Wanakbori 7* TPS	11.49	11.47	11.93	11.86		
11	Sikka Extn. (3-4)*	29.20	27.77	32.09	31.52		
12	BLTPS*	30.14	22.77	27.77	24.22		
13	Dhuvaran CCPP 1*	5.27	4.11	4.65	4.51		
14	Dhuvaran CCPP 3*	13.11	14.35	16.50	16.54		
15	Utran Extension*	19.18	13.71	15.44	15.84		
16	Ukai 6*	29.88	25.94	29.56	28.43		
17	Wanakbori 8 TPS*	55.51	40.71	47.18	47.23		
	Subtotal B	**208.48**	**172.38**	**197.22**	**192.47**	**-**	**-**
	Total (A+B)	**342.87**	**317.53**	**352.67**	**347.59**	**-**	**(20.72)**

** PPA based stations*

4.7.6 SLDC Charges for FY 2020-21

Petitioner's Submission

GSECL has claimed Rs. 4.28 Crore towards SLDC charges in the Truing up for FY 2020-21. SLDC charges approved by the Commission in the Tariff Order for FY 2020-21, and now claimed by GSECL as actual are tabulated below:

Table 4.42: SLDC charges for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
SLDC charges	3.63	4.28

GSECL has submitted that it has considered the Gains/(Losses) on account of SLDC charges as "uncontrollable". The station-wise SLDC charges approved by the Commission in the Tariff Order dated 26th March, 2020 and as claimed by GSECL in the Truing up for FY 2020-21 and Gains/(Losses) on account of uncontrollable factors are given in the Table below:

Table 4.43: Gain/ (loss) for SLDC charges claimed for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	0.60	0.40		0.20
2.	Gandhinagar (3-4)	0.50	0.28		0.22
3.	Gandhinagar 5*	0.05	0.14		
4.	Wanakbori 1-6 TPS	0.81	0.83		(0.02)
5.	Wanakbori 7*	0.05	0.14		
6.	Sikka Extension (3-4)*	0.23	0.33		
7.	KLTPS 1-3	0.06	0.11		(0.05)
8.	KLTPS 4	0.02	0.05		(0.03)
9.	BLTPS*	0.24	0.33		
10.	Dhuvaran CCPP 1*	0.05	0.07		
11.	Dhuvaran CCPP 2	0.05	0.07		(0.02)
12.	Dhuvaran CCPP 3*	0.17	0.25		
13.	Utran Extension*	0.14	0.25		
14.	Ukai 6*	0.34	0.33		
15.	Wanakbori 8 TPS*	-	0.34		
16.	Ukai Hydro	0.17	0.20		(0.03)
17.	Kadana Hydro	0.15	0.16		(0.01)
18.	**Total**	**3.63**	**4.28**	**-**	**0.26**

** PPA based stations*

Commission’s Analysis

SLDC charges are not reflected separately in the annual accounts but are included in Other Expenses (Note 34). The Commission has reconciled the SLDC Charges with Other Expenses submitted in the Petition vis-à-vis audited accounts. The Commission approves Rs. 4.28 Crore towards SLDC charges in the truing up for FY 2020-21 as claimed by GSECL against Rs. 3.63 Crore approved in the Tariff Order dated 26th March, 2020.

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 4.44: Approved SLDC charges gains/ (losses) for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (1-5)	0.60	0.40	0.40		0.20
2.	Gandhinagar (1-4)	0.50	0.28	0.28		0.22
3.	Wanakbori 1-6 TPS	0.81	0.83	0.83		(0.02)
4.	KLTPS 1-3	0.06	0.11	0.11		(0.05)
5.	KLTPS 4	0.02	0.05	0.05		(0.03)
6.	Dhuvaran CCPP 2	0.05	0.07	0.07		(0.02)
7.	Ukai Hydro	0.17	0.20	0.20		(0.03)
8.	Kadana Hydro	0.15	0.16	0.16		(0.01)
	Subtotal A	**2.36**	**2.10**	**2.10**	**-**	**0.26**
9.	Gandhinagar 5*	0.05	0.14	0.14		
10.	Wanakbori 7* TPS	0.05	0.14	0.14		
11.	Sikka Extn. (3-4)*	0.23	0.33	0.33		
12.	BLTPS*	0.24	0.33	0.33		
13.	Dhuvaran CCPP 1*	0.05	0.07	0.07		
14.	Dhuvaran CCPP 3*	0.17	0.25	0.25		
15.	Utran Extension*	0.14	0.25	0.25		
16.	Ukai 6*	0.34	0.33	0.33		
17.	Wanakbori 8 TPS*	-	0.34	0.34		
	Subtotal B	**1.27**	**2.17**	**2.17**	**-**	**-**
	Total (A+B)	**3.63**	**4.28**	**4.28**	**-**	**0.26**

** PPA based stations*

4.7.7 Water Charges for FY 2020-21

GSECL has claimed Rs. 168.46 Crore towards water charges in the Truing up for FY 2020-21 against Rs. 69.10 Crore approved in the Tariff Order dated 26th March, 2020 as given in the Table below:

Table 4.45: Water Charges for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Water Charges	69.10	168.46

Petitioner's Submission

The station-wise water charges approved by the Commission in the Tariff Order dated 26th March, 2020, claimed by GSECL in the Truing up for FY 2020-21 and Gains/(Losses) on account of uncontrollable factors are given in the Table below:

Table 4.46: Gain/ (loss) for Water charges claimed for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	0.10	-		0.10
2.	Gandhinagar (3-4)	7.01	45.02		(38.01)
3.	Gandhinagar 5*	11.87	22.51		
4.	Wanakbori 1-6 TPS	35.76	32.09		3.67
5.	Wanakbori 7*	8.18	6.71		
6.	Sikka Extension (3-4)*	1.19	5.28		
7.	KLTPS 1-3	0.15	0.43		(0.28)
8.	KLTPS 4	0.13	-		0.13
9.	BLTPS*	-	13.72		
10.	Dhuvaran CCPP 1*	0.21	-		
11.	Dhuvaran CCPP 2	0.76	2.05		(1.29)
12.	Dhuvaran CCPP 3*	-	-		
13.	Utran Extension*	3.64	6.95		
14.	Ukai 6*	0.10	-		
15.	Wanakbori 8 TPS*	-	33.69		
16.	Ukai Hydro	-	-		-
17.	Kadana Hydro	-	-		-
18.	**Total**	**69.10**	**168.46**	**-**	**(35.69)**

** PPA based stations*

Commission's Analysis

The Commission has reconciled the Water Charges submitted in the Petition vis-à-vis audited accounts. It is noted that as per audited accounts the total water charges are Rs. 168.46 Crore. The water charges which are reflecting in Audited Accounts and as submitted by GSECL in the Petition, is exclusive of charges towards HO. The Commission has accepted the same and approves Water Charges accordingly.

Gains / (Losses):

As provided in the GERC (MYT) Regulations, 2016, as well as in the Tariff Order for FY 2020-21, 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 4.47: Approved Water charges gain/ (loss) for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (1-5)	0.10	-	-		0.10
2.	Gandhinagar (1-4)	7.01	45.02	45.02		(38.01)
3.	Wanakbori 1-6 TPS	35.76	32.09	32.09		3.67
4.	KLTPS 1-3	0.15	0.43	0.43		(0.28)
5.	KLTPS 4	0.13	-	-		0.13
6.	Dhuvaran CCPP 2	0.76	2.05	2.05		(1.29)
7.	Ukai Hydro	-	-	-		-
8.	Kadana Hydro	-	-	-		-
	Subtotal A	**43.91**	**79.60**	**79.60**	**-**	**(35.69)**
9.	Gandhinagar 5*	11.87	22.51	22.51		
10.	Wanakbori 7* TPS	8.18	6.71	6.71		
11.	Sikka Extn. (3-4)*	1.19	5.28	5.28		
12.	BLTPS*	-	13.72	13.72		
13.	Dhuvaran CCPP 1*	0.21	-	-		
14.	Dhuvaran CCPP 3*	-	-	-		
15.	Utran Extension*	3.64	6.95	6.95		
16.	Ukai 6*	0.10	-	-		
17.	Wanakbori 8 TPS*	-	33.69	33.69		
	Subtotal B	**25.19**	**88.87**	**88.87**	**-**	**-**
	Total (A+B)	**69.10**	**168.46**	**168.46**	**-**	**(35.69)**

** PPA based stations*

4.7.8 Income Tax for FY 2020-21

Petitioner's Submission

GSECL has claimed Rs. 191.63 Crore towards Income Tax in the Truing up for FY 2020-21. The Income Tax approved for FY 2020-21 by the Commission in the Tariff Order dated 26th

March, 2020 and now claimed by GSECL as actual is given in the Table below:

Table 4.48: Income Tax for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Income Tax	30.58	191.63

The station wise Income Tax approved by the Commission in the Tariff Order dated 26th March, 2020, claimed by GSECL in the Truing up for FY 2020-21 and Gains/(Losses) on account of uncontrollable factors are given in the Table below:

Table 4.49: Gain/ (loss) for Income Tax claimed for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	3.47	17.51		(14.04)
2.	Gandhinagar (3-4)	2.39	12.05		(9.66)
3.	Gandhinagar 5*	1.19	6.03		
4.	Wanakbori 1-6 TPS	7.17	36.16		(28.99)
5.	Wanakbori 7*	1.19	6.03		
6.	Sikka Extension (3-4)*	2.84	14.35		
7.	KLTPS 1-3	0.43	2.15		(1.73)
8.	KLTPS 4	0.43	2.15		(1.72)
9.	BLTPS*	-	14.35		
10.	Dhuvaran CCPP 1*	0.61	3.06		
11.	Dhuvaran CCPP 2	0.64	3.23		(2.59)
12.	Dhuvaran CCPP 3*	2.14	10.79		
13.	Utran Extension*	2.13	10.75		
14.	Ukai 6*	2.84	14.35		
15.	Wanakbori 8 TPS*	-	22.96		
16.	Ukai Hydro	1.73	8.75		(7.02)
17.	Kadana Hydro	1.38	6.95		(5.57)
	Total	**30.58**	**191.63**	**-**	**(71.33)**

** PPA based stations*

Commission's Analysis

The Commission has observed that the actual Income Tax as per the audited annual accounts for FY 2020-21 is Rs. 191.63 Crore. The Commission has also verified the computation of

Income tax of Rs. 191.63 Crore shown in the audited accounts. As per the principle adopted in the previous Orders, the Commission has considered the Income Tax as per audited accounts for the purpose of truing up.

Further, the Commission notes that GSECL has submitted the actual revenue earned from operations as Rs. 9,871.44 Crore. This includes revenue from operation of Rs. 51.10 Crore for SSNNL and SPS, Rs. 55.43 Crore for RE. Income Tax paid includes the total income of Rs. 106.54 Crore from SSNNL, SPS and RE assets. Hence, the Commission has reduced the Income Tax on income pertaining to SSNNL, SPS and RE assets.

It is further noted that the Income Tax is paid by the Company as whole. However, separate station-wise details of income, expenditure and Income Tax payable are not available. In light of foregoing, it would be appropriate to consider the Income Tax in proportion to the revenue from all the stations of GSECL. Accordingly, the Commission has computed Income Tax of Rs. 2.07 Crore towards income of SSNNL, SPS and RE Assets and the same has been reduced from current year's Income Tax.

The Commission accordingly approves Income Tax of Rs. 189.57 Crore for FY 2020-21. The station-wise approved Income Tax and gains/(losses) are given in the Table below:

Table 4.50: Approved Income Tax and gains/ (losses) for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (1-5)	3.47	17.51	18.80		(15.33)
2.	Gandhinagar (1-4)	2.39	12.05	9.17		(6.78)
3.	Wanakbori 1-6 TPS	7.17	36.16	26.92		(19.75)
4.	KLTPS 1-3	0.43	2.15	3.69		(3.26)
5.	KLTPS 4	0.43	2.15	2.74		(2.31)
6.	Dhuvaran CCPP 2	0.64	3.23	3.21		(2.57)
7.	Ukai Hydro	1.73	8.75	0.62		1.11
8.	Kadana Hydro	1.38	6.95	1.07		0.31
	Subtotal A	**17.64**	**88.96**	**66.22**	**-**	**(48.58)**
9.	Gandhinagar 5*	1.19	6.03	5.79		
10.	Wanakbori 7* TPS	1.19	6.03	4.84		
11.	Sikka Extn. (3-4)*	2.84	14.35	20.84		
12.	BLTPS*	-	14.35	9.56		
13.	Dhuvaran CCPP 1*	0.61	3.06	3.01		

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
14.	Dhuvaran CCPP 3*	2.14	10.79	7.09		
15.	Utran Extension*	2.13	10.75	13.50		
16.	Ukai 6*	2.84	14.35	23.02		
17.	Wanakbori 8 TPS*	-	22.96	35.70		
	Subtotal B	**12.94**	**102.67**	**123.35**	**-**	**-**
	Total (A+B)	**30.58**	**191.63**	**189.57**	**-**	**(48.58)**

** PPA based stations*

4.7.9 Non-Tariff Income for FY 2020-21

Petitioner's Submission

GSECL has claimed Rs. 79.40 Crore towards Non-Tariff Income in the Truing up FY 2020-21 as against Rs. 134.64 Crore approved in the Tariff Order dated 26th March, 2020, as given in the Table below:

Table 4.51: Non-Tariff Income claimed for FY 2020-21

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Non-Tariff Income	134.64	79.40

The Petitioner has submitted the station-wise Non-Tariff Income approved in the Tariff Order dated 26th March, 2020, claimed in the Truing up for FY 2020-21 and the Gains/(Losses) as given in the Table below:

Table 4.52: Gain/ (loss) for Non-Tariff Income claimed for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual Claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	11.39	3.78		(7.61)
2.	Gandhinagar (3-4)	12.50	9.99		(2.51)
3.	Gandhinagar 5*	11.93	8.34		
4.	Wanakbori 1-6 TPS	46.29	19.37		(26.92)
5.	Wanakbori 7*	6.75	19.80		
6.	Sikka Extension (3-4)*	9.60	5.03		
7.	KLTPS 1-3	1.69	1.84		0.15

Sr. No.	Power Station	Approved as per Tariff Order	Actual Claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
8.	KLTPS 4	1.65	0.14		(1.51)
9.	BLTPS*	-	2.51		
10.	Dhuvaran CCPP 1*	1.74	0.59		
11.	Dhuvaran CCPP 2	1.81	0.60		(1.21)
12.	Dhuvaran CCPP 3*	4.32	0.31		
13.	Utran Extension*	5.69	0.78		
14.	Ukai 6*	12.71	4.63		
15.	Wanakbori 8 TPS*	-	1.00		
16.	Ukai Hydro	3.51	0.25		(3.26)
17.	Kadana Hydro	3.06	0.45		(2.61)
	Total	**134.64**	**79.40**	**-**	**(45.49)**

** PPA based stations*

Commission's Analysis

The Non-Tariff Income as reflecting in audited accounts is Rs. 311.74 Crore. This income includes income for SSNNL and SPS of Rs. 52.35 Crore, income from penalties and LD recovered of Ukai 1&2 as Rs. 28.23 Crore and Ukai 6 as Rs. 144.36 Crore. Accordingly, GSECL has not considered the following items as income under Non-Tariff Income:

Table 4.53: Non-Tariff Income excluded for FY 2020-21

(Rs. Crore)

Sr. No.	Particulars	Amount
1	Penalties / LD recovered - Ukai 1&2	28.23
2	Provision write back	3.48
3	SSNNL	52.35
4	Electricity Charges Recovery at GTPS	1.12
5	Penalties / LD recovered-Ukai 6	144.36
6	Energy Conservation Grant	2.68
7	Solar	0.13
8	**Grand Total**	**232.34**

In response to query of the Commission related to income received towards penalties and LD recovered, GSECL submitted that penalties recovered of Rs. 144.36 Crore received for Ukai-6 is not offered as other Income as capital cost was reduced for Ukai-6. The Commission has perused through its past Orders and observes that income for Ukai 1&2 has not been considered in the past. Hence, said income of Rs. 28.23 Crore is considered and added to the Non-Tariff Income. Further, as regards Ukai 6, the Commission in its Order dated 17th April, 2015 in Petition No. 1411 of 2014 has considered the penalties of Rs. 99.12 Crore in capital cost of Ukai 6. Hence, the balance income received of Rs. 45.24 Crore is considered by the Commission under Non-tariff income.

The Commission accepts the submission of GSECL regarding the income related to other items and accordingly said income is not considered.

Further, the Commission has considered the income of Rs. 9.18 Crore towards adjustment of Fly Ash Utilisation reserve as part of Non-Tariff Income.

After excluding these elements, the net Non-Tariff Income works out to Rs. 162.05 Crore as outlined in the following table and accordingly, the Commission approves the same.

Table 4.54: Non-Tariff Income approved for FY 2020-21

(Rs. Crore)

Sr. No.	Particulars	Amount
1.	Total Other income as per Audited Accounts	311.74
2.	**Income Not considered in Non-Tariff Income**	
a.	*Provision write back*	*3.48*
b.	*SSNNL*	*52.35*
c.	*Electricity Charges Recovery at GTPS*	*1.12*
d.	*Penalties / LD recovered-Ukai 6 already claimed*	*99.12*
e.	*Energy Conservation Grant*	*2.68*
f.	*Solar*	*0.13*
3.	Add: Fly Ash utilisation reserve	9.18
4.	**Non-Tariff income Approved**	**162.05**

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 4.55: Approved Non-Tariff Income and gain/ (loss) for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (1-5)	11.39	3.78	33.87		22.48
2.	Gandhinagar (1-4)	12.50	9.99	10.42		(2.08)
3.	Wanakbori 1-6 TPS	46.29	19.37	20.39		(25.90)
4.	KLTPS 1-3	1.69	1.84	2.11		0.42
5.	KLTPS 4	1.65	0.14	0.27		(1.38)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
6.	Dhuvaran CCPP 2	1.81	0.60	0.52		(1.29)
7.	Ukai Hydro	3.51	0.25	-		(3.51)
8.	Kadana Hydro	3.06	0.45	0.26		(2.80)
	Subtotal A	**81.90**	**36.41**	**67.83**	**-**	**(14.07)**
9.	Gandhinagar 5*	11.93	8.34	8.88		
10.	Wanakbori 7* TPS	6.75	19.80	20.68		
11.	Sikka Extn.(3-4)*	9.60	5.03	5.82		
12.	BLTPS*	-	2.51	2.85		
13.	Dhuvaran CCPP 1*	1.74	0.59	0.52		
14.	Dhuvaran CCPP 3*	4.32	0.31	-		
15.	Utran Extension*	5.69	0.78	0.48		
16.	Ukai 6*	12.71	4.63	52.72		
17.	Wanakbori 8 TPS*	-	1.00	2.26		
	Subtotal B	**52.74**	**42.99**	**94.22**	**-**	**-**
	Total (A+B)	**134.64**	**79.40**	**162.05**	**-**	**(14.07)**

** PPA based stations*

4.8 Approved Fixed Charges

The performance of GSECL has been reviewed under Regulation 21 of the GERC (MYT) Regulations, 2016 with reference to audited annual accounts for FY 2020-21. Accordingly, the Commission has discussed and approved various components of fixed charges for approval of trued up ARR in the above paragraphs.

The fixed charges approved for FY 2020-21 in the Tariff Order dated 26th March, 2020, charges now approved by the Commission, and deviation (gain/ (loss)) with reference to approved values are given in the Table below:

Table 4.56: Fixed Charges Approved in the Truing up for FY 2020-21

(Rs. Crore)

Sr. No.	Fixed Charges	Approved as per Tariff Order	Actual claimed	Approved in truing up	Deviation+/(-)
1	**2**	**3**	**4**	5	**6=3-5**
(A)	**Non-PPA Stations**				
1.	Depreciation	365.02	266.20	267.27	97.76
2.	Interest and Finance Charges	74.91	42.68	33.95	40.96
3.	Return on Equity	250.65	277.16	276.29	-25.65

Sr. No.	Fixed Charges	Approved as per Tariff Order	Actual claimed	Approved in truing up	Deviation+/(-)
1	**2**	**3**	**4**	5	**6=3-5**
4.	Interest on Working Capital	134.39	145.15	155.11	-20.72
5.	O&M Expenses	708.40	679.27	647.18	61.23
6.	Water Charges	43.91	79.60	79.60	-35.69
7.	SLDC Charges	2.36	2.10	2.10	0.26
8.	Income Tax	17.64	88.96	66.22	-48.58
9.	**Total Fixed Charges**	**1,597.28**	**1,581.12**	**1,527.72**	**69.56**
10.	Less: Non- Tariff Income	81.90	36.41	67.83	14.07
11.	**Net Fixed Charges**	**1,515.38**	**1,544.71**	**1,459.89**	**55.49**
(B)	**PPA Stations**				
1.	Depreciation	904.86	949.39	877.46	27.40
2.	Interest and Finance Charges	733.35	814.66	649.93	83.42
3.	Return on Equity	792.29	785.35	780.95	11.34
4.	Interest on Working Capital	208.48	172.38	192.47	16.01
5.	O&M Expenses	772.95	492.07	475.89	297.06
6.	Water Charges	25.19	88.87	88.87	-63.68
7.	SLDC Charges	1.27	2.17	2.17	-0.90
8.	Income Tax	12.94	102.67	123.35	-110.41
9.	**Total Fixed Charges**	**3,451.33**	**3,407.55**	**3,191.10**	**260.23**
10.	Less: Non- Tariff Income	52.74	42.99	94.22	-41.48
11.	**Net Fixed Charges**	**3,398.59**	**3,364.56**	**3,096.88**	**301.71**
	Total Net Fixed Charges (A+B)	**4,913.97**	**4,909.28**	**4,556.77**	**357.20**

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

Table 4.57: Approved Station-wise Fixed Charges for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	O&M Expenses	Interest on Working Capital	SLDC Charges	Water Charges	Income Tax	Total Fixed Cost	Less: Non-Tariff Income	Net Fixed Charges
1.	Ukai (3-5)	44.66	-	23.08	181.82	34.16	0.40	-	18.80	302.92	33.87	269.05
2.	Gandhinagar (3-4)	37.88	-	24.26	100.50	26.26	0.28	45.02	9.17	243.35	10.42	232.94
3.	Wanakbori 1-6 TPS	-	-	28.67	50.11	12.31	0.14	22.51	5.79	119.53	8.88	110.66
4.	KLTPS 1-3	98.60	20.59	91.11	193.36	78.69	0.83	32.09	26.92	542.20	20.39	521.82
5.	KLTPS 4	-	-	26.16	14.09	11.86	0.14	6.71	4.84	63.80	20.68	43.11
6.	Dhuvaran CCPP 2	160.79	119.45	133.19	123.91	31.52	0.33	5.28	20.84	595.30	5.82	589.48
7.	Ukai Hydro	29.62	0.62	54.15	74.14	5.40	0.11	0.43	3.69	168.16	2.11	166.05
8.	Kadana Hydro	36.37	7.84	29.65	23.44	4.03	0.05	-	2.74	104.12	0.27	103.85
9.	Gandhinagar 5*	189.80	133.30	152.18	85.76	24.22	0.33	13.72	9.56	608.88	2.85	606.03
10.	Wanakbori 7* TPS	11.62	-	10.48	42.94	4.51	0.07	-	3.01	72.63	0.52	72.11
11.	Sikka Extn. (3-4)*	12.35	3.02	14.52	34.19	5.03	0.07	2.05	3.21	74.44	0.52	73.92
12.	BLTPS*	81.46	58.38	67.02	34.91	16.54	0.25	-	7.09	265.65	-	265.65
13.	Dhuvaran CCPP 1*	65.96	26.65	57.51	46.86	15.84	0.25	6.95	13.50	233.54	0.48	233.05
14.	Dhuvaran CCPP 3*	148.92	83.86	125.48	38.01	28.43	0.33	-	23.02	448.05	52.72	395.33
15.	Utran Extension*	218.91	228.29	180.24	39.31	47.23	0.34	33.69	35.70	783.72	2.26	781.46
16.	Ukai 6*	2.31	1.89	10.64	19.75	0.62	0.20	-	0.62	36.03	-	36.03
17.	Wanakbori 8 TPS*	5.49	-	28.87	19.98	0.93	0.16	-	1.07	56.50	0.26	56.24
	Total	**1,144.73**	**683.89**	**1,057.24**	**1,123.07**	**347.59**	**4.28**	**168.46**	**189.57**	**4,718.82**	**162.05**	**4,556.77**

** PPA based stations*

Sharing of Gains or Losses for FY 2020-21

The Commission has analysed the gains/losses on account of controllable and uncontrollable factors. The relevant Regulations of the GERC (MYT) Regulations, 2016 are reproduced 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 4.58: Approved Gains / (Losses) due to controllable factors for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Approved for FY 2020-21			Total Gains / (Losses) to be passed through (1/3rd of gains / losses)
		O&M Expenses	Fuel Charges	Total Gains / (Losses) Due to Controllable factors	
1.	Ukai (3-5)	2.27	7.12	9.39	3.13
2.	Gandhinagar (3-4)	1.89	4.15	6.04	2.01
3.	Wanakbori 1-6 TPS	74.55	2.10	76.65	25.55
4.	KLTPS 1-3	(29.37)	(1.32)	(30.69)	(10.23)
5.	KLTPS 4	(1.46)	(15.33)	(16.79)	(5.60)
6.	Dhuvaran CCPP 2	3.29	(10.78)	(7.49)	(2.50)
7.	Ukai Hydro	2.84	-	2.84	0.95
8.	Kadana Hydro	7.22	-	7.22	2.41
	Subtotal A	**61.23**	**(14.05)**	**47.18**	**15.73**
9.	Gandhinagar 5*				
10.	Wanakbori 7* TPS				
11.	Sikka Extn. (3-4)*				
12.	BLTPS*				
13.	Dhuvaran CCPP 1*				
14.	Dhuvaran CCPP 3*				
15.	Utran Extension*				
16.	Ukai 6*				
17.	Wanakbori 8 TPS*				
	Subtotal B				
	Total (A+B)	**61.23**	**(14.05)**	**47.18**	**15.73**

** 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:

Table 4.59: Approved Gains / (Losses) due to Uncontrollable Factors for FY 2020-21

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest on Working Capital	SLDC Charges	Water Charges	Income Tax	Non-Tariff Income	Total Gains / (Losses) to be passed through
1.	Ukai (3-5)	36.17	36.94	9.78	(3.86)	0.20	0.10	(15.33)	22.48	86.48
2.	Gandhinagar (3-4)	18.39	0.08	(6.59)	(3.74)	0.22	(38.01)	(6.78)	(2.08)	(38.50)
3.	Wanakbori 1-6 TPS	28.76	(2.47)	4.54	(11.70)	(0.02)	3.67	(19.75)	(25.90)	(22.89)
4.	KLTPS 1-3	(6.31)	(0.61)	(36.97)	(2.28)	(0.05)	(0.28)	(3.26)	0.42	(49.35)
5.	KLTPS 4	0.07	1.29	(0.12)	(0.68)	(0.03)	0.13	(2.31)	(1.38)	(3.03)
6.	Dhuvaran CCPP 2	12.57	5.09	3.97	0.97	(0.02)	(1.29)	(2.57)	(1.29)	17.43
7.	Ukai Hydro	(2.31)	0.64	(0.22)	0.14	(0.03)	-	1.11	(3.51)	(4.18)
8.	Kadana Hydro	10.41	-	(0.03)	0.42	(0.01)	-	0.31	(2.80)	8.30
	Sub Total A	**97.76**	**40.96**	**(25.65)**	**(20.72)**	**0.26**	**(35.69)**	**(48.58)**	**(14.07)**	**(5.73)**
9.	Gandhinagar 5*									
10.	Wanakbori 7* TPS									
11.	Sikka Extn. (3-4)*									
12.	BLTPS*									
13.	Dhuvaran CCPP 1*									
14.	Dhuvaran CCPP 3*									
15.	Utran Extension*									
16.	Ukai 6*									
17.	Wanakbori 8 TPS*									
	Sub Total B									
	Total (A+B)	**97.76**	**40.96**	**(25.65)**	**(20.72)**	**0.26**	**(35.69)**	**(48.58)**	**(14.07)**	**(5.73)**

** PPA based stations*

The Consolidated Gains / (Losses) approved in the Truing up for FY 2020-21 are given in the Table below:

Table 4.60: Total Consolidated Gains / (Losses) Approved for FY 2020-21

(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
A	**Non-PPA Based Stations**			
1.	Ukai (3-5)	9.39	86.48	89.61
2.	Gandhinagar (3-4)	6.04	(38.50)	(36.48)
3.	Wanakbori 1-6 TPS	76.65	(22.89)	2.67
4.	KLTPS 1-3	(30.69)	(49.35)	(59.58)
5.	KLTPS 4	(16.79)	(3.03)	(8.63)
6.	Dhuvaran CCPP 2	(7.49)	17.43	14.94
7.	Ukai Hydro	2.84	(4.18)	(3.23)
8.	Kadana Hydro	7.22	8.30	10.70
	Sub Total A	**47.18**	**(5.73)**	**9.99**
B	**PPA Based Stations**			
1.	Gandhinagar 5*			
2.	Wanakbori 7* TPS			
3.	Sikka Extn. (3-4)*			
4.	BLTPS*			
5.	Dhuvaran CCPP 1*			
6.	Dhuvaran CCPP 3*			
7.	Utran Extension*			
8.	Ukai 6*			
9.	Wanakbori 8 TPS*			
	Sub Total B			
	Total (A+B)	**47.18**	**(5.73)**	**9.99**

** PPA based stations*

Further, reduction in gains and losses for Fixed Charges has been considered in accordance with the provisions of GERC (MYT) Regulations, 2016. The presentation of the aforesaid loss and gain under fixed and fuel cost is given in the Table below:

Table 4.61: Total Consolidated (Fixed and Fuel Cost) Gains / (Losses) Approved for FY 2020-21

(Rs. Crore)

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	Total Gains/(losses) to be passed through at actual PAF	Gains / (Losses) of controllable factors (d)	Total Gains / (Losses) d/3	Total Gains / (Losses)
		Fixed charges	Fixed charges	Fixed charges	Fixed charges	Fuel cost	Fuel cost	Fixed & Fuel cost
A	**Non-PPA Stations**							
1.	Ukai (3-5)	2.27	86.48	87.24	87.24	7.12	2.37	89.61
2.	Gandhinagar (3-4)	1.89	(38.50)	(37.87)	(37.87)	4.15	1.38	(36.48)
3.	Wanakbori 1-6 TPS	74.55	(22.89)	1.96	1.96	2.10	0.70	2.67
4.	KLTPS 1-3	(29.37)	(49.35)	(59.14)	(59.14)	(1.32)	(0.44)	(59.58)
5.	KLTPS 4	(1.46)	(3.03)	(3.52)	(2.03)	(15.33)	(5.11)	(7.14)
6.	Dhuvaran CCPP 2	3.29	17.43	18.53	17.17	(10.78)	(3.59)	13.58
7.	Ukai Hydro	2.84	(4.18)	(3.23)	(3.06)	-	-	(3.06)
8.	Kadana Hydro	7.22	8.30	10.70	10.70	-	-	10.70
	Sub Total A	**61.23**	**(5.73)**	**14.68**	**14.98**	**(14.05)**	**(4.68)**	**10.29**
B	**PPA Stations**							
1.	Gandhinagar 5*							
2.	Wanakbori 7* TPS							
3.	Sikka Extn. (3-4)*							
4.	BLTPS*							
5.	Dhuvaran CCPP 1*							
6.	Dhuvaran CCPP 3*							
7.	Utran Extn. *							
8.	Ukai 6*							
9.	Wanakbori 8 TPS*							
	Sub Total B							
	Total (A+B)	**61.23**	**(5.73)**	**14.68**	**14.98**	**(14.05)**	**(4.68)**	**10.29**

* *PPA based stations*

The Commission thus approves the net gain of Rs. 10.29 Crore in the Truing up for FY 2020-21. The net gain of Rs. 10.29 Crore approved in the truing up for FY 2020-21 is to be passed on to four DISCOMs through GUVNL in Twelve (12) equal monthly instalments during FY 2022-23.

5 Determination of Aggregate Revenue Requirement for FY 2022-23

5.1 Introduction

This chapter deals with the determination of ARR and Tariff for FY 2022-23.

5.2 Generating Stations of GSECL

The details of the existing stations along with their capacities and date of commissioning are given in the Table below:

Table 5.1: Capacity and COD of GSECL existing Generating Stations

Name of Station	Unit No.	Capacity of the Unit (MW)	Date of Commissioning
Ukai	3	200	21/01/1979
	4	200	11/09/1979
	5	210	30/01/1985
	Sub Total	**610**	
Gandhinagar	3	210	20/03/1990
	4	210	20/07/1991
	5	210	17/03/1998
	Sub Total	**630**	
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
	Sub Total	**1,470**	
KLTPS	3	75	31/03/1997
	4	75	20/12/2009
	Sub Total	**150**	
BLTPS	1	250	16/05/2016
	2	250	27/03/2017
	Sub Total	**500**	
Dhuvaran	7 – Gas	106.617	28/01/2004
	8 – Gas	112.45	01/11/2007
	Sub Total	**219.067**	
Utran Extension	GT -1	375	08/11/2009
Sikka TPS 3&4	3	250	14/09/2015
	4	250	28/12/2015
	Sub Total	**500**	
Ukai TPS	6	500	08/06/2013
Dhuvaran (Gas)	3	376	21/05/2014
Wanakbori 8 TPS	1	800	13/10/2019

Name of Station	Unit No.	Capacity of the Unit (MW)	Date of Commissioning
SUB TOTAL GSECL (Coal + Lignite)		**5,160**	
SUB TOTAL GSECL (Gas)		**970**	
TOTAL GSECL (Thermal)		**6130**	
Ukai Hydro	1	75	08/07/1974
	2	75	13/12/1974
	3	75	22/04/1975
	4	75	04/03/1976
	Sub Total	**300**	
Ukai LBC	1	2.5	08/12/1987
	2	2.5	19/02/1988
	Sub Total	**5**	
Kadana Hydro	1	60	31/03/1990
	2	60	02/09/1990
	3	60	03/01/1998
	4	60	27/05/1998
	Sub Total	**240**	
SUB TOTAL GSECL (Hydro)		**545**	
Wind Mills	Layza	10	04/01/2009
Solar	Plant at GTPS Yard	1	27/03/2012
	Plant at Sanand Br. Canal	1	29/03/2012
	Charanka	10	23/03/2015
	KLTPS	1	02/05/2016
	Sikka TPS Dhuvaran	1 75	02/05/2016 05/02/2019
SUB TOTAL RE		**99**	
TOTAL GSECL as a Whole		**6,776**	

5.3 Operating Performance of GSECL Stations

The actual performance of the stations for FY 2020-21 as provided by GSECL and the Commission's analysis and decisions are already discussed in Chapter 4 in the truing up for FY 2020-21.

Power generating stations are broadly governed by the following operational parameters:

- ✓ Station Heat Rate
- ✓ Plant Availability Factor
- ✓ Plant Load Factor
- ✓ Secondary Fuel Oil Consumption
- ✓ Auxiliary Consumption

The above operating parameters are dependent on various technical factors like design, level of operation (low/partial load operation), ageing, etc. The justification for the operational parameters has been discussed in detail in the subsequent sections

5.3.1 Plant Availability Factor (PAF)

Petitioner's Submission

GSECL has submitted the projected PAF for different stations for FY 2022-23. GSECL has considered the PAF same as the PAF of FY 2021-22 approved in the Tariff Order of 30th March, 2021, for all power plants. The PAF projected by GSECL for its stations for FY 2022-23 for recovery of fixed charges are given in the Table below:

Table 5.2: Plant Availability Factor for FY 2022-23

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	80.00%
2.	Gandhinagar (3-4)	84.00%
3.	Gandhinagar 5*	85.00%
4.	Wanakbori 1-6 TPS	85.00%
5.	Wanakbori 7*	85.00%
6.	Sikka Extension (3-4)*	85.00%
7.	KLTPS 3	75.00%
8.	KLTPS 4	80.00%
9.	BLTPS*	80.00%
10.	Dhuvaran CCPP 1*	85.00%
11.	Dhuvaran CCPP 2	85.00%
12.	Dhuvaran CCPP 3*	85.00%
13.	Utran Extension*	85.00%
14.	Ukai 6*	85.00%
15.	Wanakbori 8 TPS*	85.00%
16.	Ukai Hydro	80.00%
17.	Kadana Hydro	80.00%

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the PAF for FY 2022-23 in line with the PAF approved for FY 2021-22 in the Tariff Order dated 30th March, 2020. The approved PAF for PPA governed stations is based on their respective PPA's and for other stations, the approved PAF is based on the GERC (MYT) Regulations, 2016. Accordingly, the Commission approves the normative PAF as submitted by GSECL for recovery of Fixed cost for FY 2022-23.

Table 5.3: Plant Availability Factor approved for FY 2022-23

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	80.00%	80.00%
2.	Gandhinagar (3-4)	84.00%	84.00%
3.	Gandhinagar 5*	85.00%	85.00%
4.	Wanakbori 1-6 TPS	85.00%	85.00%
5.	Wanakbori 7*	85.00%	85.00%
6.	Sikka Extension (3-4)*	85.00%	85.00%
7.	KLTPS 3	75.00%	75.00%
8.	KLTPS 4	80.00%	80.00%
9.	BLTPS*	80.00%	80.00%
10.	Dhuvaran CCPP 1*	85.00%	85.00%
11.	Dhuvaran CCPP 2	85.00%	85.00%
12.	Dhuvaran CCPP 3*	85.00%	85.00%
13.	Utran Extension*	85.00%	85.00%
14.	Ukai 6*	85.00%	85.00%
15.	Wanakbori 8 TPS*	85.00%	85.00%
16.	Ukai Hydro	80.00%	80.00%
17.	Kadana Hydro	80.00%	80.00%

** PPA based stations*

5.3.2 Plant Load Factor (PLF)

Petitioner's Submission

GSECL has submitted the projected PLF for different stations for FY 2022-23. GSECL has considered the PLF same as the PLF for FY 2021-22 approved in the Tariff Order of 30th March, 2021 for all power plants. The PLF projected by GSECL for its stations for FY 2022-23 is given in the Table below:

Table 5.4: Plant Load Factor for FY 2022-23

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	60.00%
2.	Gandhinagar (3-4)	55.00%
3.	Gandhinagar 5*	75.00%
4.	Wanakbori 1-6 TPS	55.00%
5.	Wanakbori 7*	70.00%
6.	Sikka Extension (3-4)*	70.00%
7.	KLTPS 3	75.00%
8.	KLTPS 4	75.00%
9.	BLTPS*	60.00%
10.	Dhuvaran CCPP 1*	25.00%
11.	Dhuvaran CCPP 2	25.00%

Sr. No.	Power Station	Projected
12.	Dhuvaran CCPP 3*	25.00%
13.	Utran Extension*	25.00%
14.	Ukai 6*	75.00%
15.	Wanakbori 8 TPS*	80.00%
16.	Ukai Hydro	13.00%
17.	Kadana Hydro	6.00%

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the PLF for FY 2022-23 in line with the PLF approved for FY 2021-22 in the Tariff Order dated 30th March, 2021. The approved PLF for PPA governed stations is based on their respective PPA's and for other stations, the approved PLF is based on the GERC (MYT) Regulations, 2016. Accordingly, the Commission approves the normative PLF as submitted by GSECL, as given in the Table below:

Table 5.5: PLF Approved for FY 2022-23

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	60.00%	60.00%
2.	Gandhinagar (3-4)	55.00%	55.00%
3.	Gandhinagar 5*	75.00%	75.00%
4.	Wanakbori 1-6 TPS	55.00%	55.00%
5.	Wanakbori 7*	70.00%	70.00%
6.	Sikka Extension (3-4)*	70.00%	70.00%
7.	KLTPS 3	75.00%	75.00%
8.	KLTPS 4	75.00%	75.00%
9.	BLTPS*	60.00%	60.00%
10.	Dhuvaran CCPP 1*	25.00%	25.00%
11.	Dhuvaran CCPP 2	25.00%	25.00%
12.	Dhuvaran CCPP 3*	25.00%	25.00%
13.	Utran Extension*	25.00%	25.00%
14.	Ukai 6*	75.00%	75.00%
15.	Wanakbori 8 TPS*	80.00%	80.00%
16.	Ukai Hydro	13.00%	13.00%
17.	Kadana Hydro	6.00%	6.00%

** PPA based stations*

5.3.3 Auxiliary Consumption

Petitioner's Submission

GSECL has submitted the Auxiliary Consumption for different stations for FY 2022-23. GSECL has considered the Auxiliary Consumption same as the Auxiliary Consumption of FY 2021-22 approved in the Tariff Order of 30th March, 2021 for all power plants. The Auxiliary Consumption projected by GSECL for its stations for FY 2022-23 is given in the Table below:

Table 5.6: Auxiliary Consumption for FY 2022-23

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	9.00%
2.	Gandhinagar (3-4)	9.00%
3.	Gandhinagar 5*	9.50%
4.	Wanakbori 1-6 TPS	9.00%
5.	Wanakbori 7*	9.50%
6.	Sikka Extension (3-4)*	9.00%
7.	KLTPS 3	12.00%
8.	KLTPS 4	12.00%
9.	BLTPS*	11.00%
10.	Dhuvaran CCPP 1*	4.00%
11.	Dhuvaran CCPP 2	3.00%
12.	Dhuvaran CCPP 3*	3.00%
13.	Utran Extension*	3.00%
14.	Ukai 6*	6.00%
15.	Wanakbori 8 TPS*	5.25%
16.	Ukai Hydro	0.60%
17.	Kadana Hydro	1.00%

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the Auxiliary Consumption for FY 2022-23 in line with the Auxiliary Consumption approved for FY 2021-22 in the Tariff Order dated 30th March, 2021. The approved Auxiliary Consumption for PPA governed stations is based on their respective PPA's and for other stations, the approved Auxiliary Consumption is based on the GERC (MYT) Regulations, 2016. Accordingly, the Commission approves the Auxiliary Consumption as submitted by GSECL, as given in the Table below:

Table 5.7: Auxiliary Consumption (%) approved for FY 2022-23

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	9.00%	9.00%
2.	Gandhinagar (3-4)	9.00%	9.00%
3.	Gandhinagar 5*	9.50%	9.50%
4.	Wanakbori 1-6 TPS	9.00%	9.00%
5.	Wanakbori 7*	9.50%	9.50%
6.	Sikka Extension (3-4)*	9.00%	9.00%
7.	KLTPS 3	12.00%	12.00%
8.	KLTPS 4	12.00%	12.00%
9.	BLTPS*	11.00%	11.00%
10.	Dhuvaran CCPP 1*	4.00%	4.00%
11.	Dhuvaran CCPP 2	3.00%	3.00%
12.	Dhuvaran CCPP 3*	3.00%	3.00%
13.	Utran Extension*	3.00%	3.00%
14.	Ukai 6*	6.00%	6.00%
15.	Wanakbori 8 TPS*	5.25%	5.25%
16.	Ukai Hydro	0.60%	0.60%
17.	Kadana Hydro	1.00%	1.00%

** PPA based stations*

5.3.4 Station Heat Rate (SHR)

Petitioner's Submission

GSECL has submitted the SHR for different stations for FY 2022-23. GSECL has considered the SHR same as the SHR of FY 2021-22 approved in the Tariff Order dated 30th March, 2021 for all power plants. The SHR projected by GSECL for its stations for FY 2022-23 is given in the Table below:

Table 5.8: Station Heat Rate for FY 2022-23

(kcal/kWh)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	2,625
2.	Gandhinagar (3-4)	2,625
3.	Gandhinagar 5*	2,460
4.	Wanakbori 1-6 TPS	2,575
5.	Wanakbori 7*	2,460
6.	Sikka Extension (3-4)*	2,398

Sr. No.	Power Station	Projected
7.	KLTPS 3	3,231
8.	KLTPS 4	3,000
9.	BLTPS*	2,623
10.	Dhuvaran CCPP 1*	1,950
11.	Dhuvaran CCPP 2	1,950
12.	Dhuvaran CCPP 3*	1,850
13.	Utran Extension*	1,850
14.	Ukai 6*	2,385
15.	Wanakbori 8 TPS*	2,248

** PPA based stations*

Commission's Analysis

The Commission has considered the SHR for FY 2022-23 in line with the SHR approved for FY 2021-22 in the Tariff Order dated 30th March, 2021. The approved SHR for PPA governed stations is based on their respective PPA's and for other stations, the approved SHR is based on the GERC (MYT) Regulations, 2016. Accordingly, the Commission approves the SHR as submitted by GSECL, as given in the Table below:

Table 5.9: Station Heat Rate approved for FY 2022-23

(kcal/kWh)

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	2,625	2,625
2.	Gandhinagar (3-4)	2,625	2,625
3.	Gandhinagar 5*	2,460	2,460
4.	Wanakbori 1-6 TPS	2,575	2,575
5.	Wanakbori 7*	2,460	2,460
6.	Sikka Extension (3-4)*	2,398	2,398
7.	KLTPS 3	3,231	3,231
8.	KLTPS 4	3,000	3,000
9.	BLTPS*	2,623	2,623
10.	Dhuvaran CCPP 1*	1,950	1,950
11.	Dhuvaran CCPP 2	1,950	1,950
12.	Dhuvaran CCPP 3*	1,850	1,850
13.	Utran Extension*	1,850	1,850
14.	Ukai 6*	2,385	2,385
15.	Wanakbori 8 TPS*	2,248	2,248

** PPA based stations*

5.3.5 Secondary Fuel Oil Consumption (SFOC)

Petitioner's Submission

GSECL has submitted the SFOC for different stations for FY 2022-23. GSECL has considered the SFOC same as the SFOC for FY 2021-22 approved in the Tariff Order dated 30th March, 2021 for all power plants. The SFOC projected by GSECL for its stations for FY 2022-23 is given in the Table below:

Table 5.10: Secondary Fuel Oil Consumption for FY 2022-23

(ml/kWh)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	1.00
2.	Gandhinagar (3-4)	1.00
3.	Gandhinagar 5*	3.50
4.	Wanakbori 1-6 TPS	1.00
5.	Wanakbori 7*	3.50
6.	Sikka Extension (3-4)*	1.00
7.	KLTPS 3	3.00
8.	KLTPS 4	3.00
9.	BLTPS*	1.00
10.	Ukai 6*	1.00
11.	Wanakbori 8 TPS*	0.50

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the SFOC for FY 2022-23 in line with the SFOC for FY 2021-22 approved in the Tariff Order dated 30th March, 2021. The approved SFOC for PPA governed stations is based on the terms of their respective PPA's and for other stations, the approved SFOC is based on the GERC (MYT) Regulations, 2016. Accordingly, the Commission approves the SFOC as submitted by GSECL, as given in the Table below:

Table 5.11: Secondary Fuel Oil Consumption approved for FY 2022-23

(ml/kWh)

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	1.00	1.00
2.	Gandhinagar (3-4)	1.00	1.00
3.	Gandhinagar 5*	3.50	3.50

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
4.	Wanakbori 1-6 TPS	1.00	1.00
5.	Wanakbori 7*	3.50	3.50
6.	Sikka Extension (3-4)*	1.00	1.00
7.	KLTPS 3	3.00	3.00
8.	KLTPS 4	3.00	3.00
9.	BLTPS*	1.00	1.00
10.	Ukai 6*	1.00	1.00
11.	Wanakbori 8 TPS*	0.50	0.50

** PPA based stations*

5.3.6 Transit Loss

Petitioner's Submission

GSECL has submitted the Transit Loss for different stations for FY 2022-23. GSECL has considered the Transit Loss same as the Transit Loss for FY 2021-22 approved in Tariff Order dated 30th March, 2021 for all power plants. The Transit Loss projected by GSECL for its stations for FY 2022-23 is given in the Table below:

Table 5.12: Transit Loss for FY 2022-23

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	0.80%
2.	Gandhinagar (3-4)	0.80%
3.	Gandhinagar 5*	0.80%
4.	Wanakbori 1-6 TPS	0.80%
5.	Wanakbori 7*	0.80%
6.	Sikka Extension (3-4)*	0.00%
7.	KLTPS 3	0.20%
8.	KLTPS 4	0.20%
9.	BLTPS*	0.20%
10.	Ukai 6*	0.80%
11.	Wanakbori 8 TPS*	0.80%

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the Transit Loss for FY 2022-23 in line with the Transit Loss for FY 2021-22 approved in the Tariff Order dated 30th March, 2021.

The approved Transit Loss for PPA governed stations is based on the terms of their respective PPA's and for other stations, the approved Transit Loss is based on the GERC (MYT) Regulations, 2016. Accordingly, the Commission approves the Transit Loss as submitted by GSECL, as given in the Table below.

Table 5.13: Transit Loss approved for FY 2022-23

(%)

Sr. No.	Power Stations	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	0.80%	0.80%
2.	Gandhinagar (3-4)	0.80%	0.80%
3.	Gandhinagar 5*	0.80%	0.80%
4.	Wanakbori 1-6 TPS	0.80%	0.80%
5.	Wanakbori 7*	0.80%	0.80%
6.	Sikka Extension (3-4)*	0.00%	0.00%
7.	KLTPS 3	0.20%	0.20%
8.	KLTPS 4	0.20%	0.20%
9.	BLTPS*	0.20%	0.20%
10.	Ukai 6*	0.80%	0.80%
11.	Wanakbori 8 TPS*	0.80%	0.80%

** PPA based stations*

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

5.3.7 Summary of Performance Parameters Approved for FY 2022-23

The performance parameters, approved for different stations for FY 2022-23 after the analysis in the preceding paras, are listed in the Table below:

Table 5.14: Performance parameters approved for FY 2022-23

Sr. No.	Power Stations	PAF	PLF	Auxiliary consumption	SHR	SFO consumption	Transit Loss
		%	%	%	kcal / kWh	ml / kWh	%
1.	Ukai (3-5)	80.00%	60.00%	9.00%	2,625	1.00	0.80%
2.	Gandhinagar (3-4)	84.00%	55.00%	9.00%	2,625	1.00	0.80%
3.	Gandhinagar 5*	85.00%	75.00%	9.50%	2,460	3.50	0.80%
4.	Wanakbori 1-6 TPS	85.00%	55.00%	9.00%	2,575	1.00	0.80%
5.	Wanakbori 7*	85.00%	70.00%	9.50%	2,460	3.50	0.80%
6.	Sikka Extension (3-4)*	85.00%	70.00%	9.00%	2,398	1.00	0.00%

Sr. No.	Power Stations	PAF	PLF	Auxiliary consumption	SHR	SFO consumption	Transit Loss
		%	%	%	kcal / kWh	ml / kWh	%
7.	KLTPS 3	75.00%	75.00%	12.00%	3,231	3.00	0.20%
8.	KLTPS 4	80.00%	75.00%	12.00%	3,000	3.00	0.20%
9.	BLTPS*	80.00%	60.00%	11.00%	2,623	1.00	0.20%
10.	Dhuvaran CCPP 1*	85.00%	25.00%	4.00%	1,950	-	-
11.	Dhuvaran CCPP 2	85.00%	25.00%	3.00%	1,950	-	-
12.	Dhuvaran CCPP 3*	85.00%	25.00%	3.00%	1,850	-	-
13.	Utran Extension*	85.00%	25.00%	3.00%	1,850	-	-
14.	Ukai 6*	85.00%	75.00%	6.00%	2,385	1.00	0.80%
15.	Wanakbori 8 TPS*	85.00%	80.00%	5.25%	2,248	0.50	0.80%
16.	Ukai Hydro	80.00%	13.00%	0.60%	-	-	-
17.	Kadana Hydro	80.00%	6.00%	1.00%	-	-	-

** PPA based stations*

5.4 Gross and Net Generation

The gross and net generation of different stations, based on the PLF and auxiliary consumption discussed above, as submitted by GSECL and as approved by the Commission for FY 2022-23, are given in the Table below:

Table 5.15: Gross and Net Generation for FY 2022-23

Sr. No.	Power Stations	As claimed by GSECL				As approved by the Commission			
		Gross Generation	Aux. Cons.	Aux. Cons.	Net Generation	Gross Generation	Aux. Cons.	Aux. Cons.	Net Generation
		MU	%	MU	MU	MU	%	MU	MU
1.	Ukai (3-5)	3,206.16	9.00%	288.55	2917.61	3,206.16	9.00%	288.55	2917.61
2.	Gandhinagar (3-4)	2,023.56	9.00%	182.12	1841.44	2,023.56	9.00%	182.12	1841.44
3.	Gandhinagar 5*	1,379.70	9.50%	131.07	1248.63	1,379.70	9.50%	131.07	1248.63
4.	Wanakbori 1-6 TPS	6,070.68	9.00%	546.36	5524.32	6,070.68	9.00%	546.36	5524.32
5.	Wanakbori 7*	1,287.72	9.50%	122.33	1165.39	1,287.72	9.50%	122.33	1165.39
6.	Sikka Extension (3-4)*	3,066.00	9.00%	275.94	2790.06	3,066.00	9.00%	275.94	2790.06
7.	KLTPS 3	492.75	12.00%	59.13	433.62	492.75	12.00%	59.13	433.62
8.	KLTPS 4	492.75	12.00%	59.13	433.62	492.75	12.00%	59.13	433.62
9.	BLTPS*	2,628.00	11.00%	289.08	2338.92	2,628.00	11.00%	289.08	2338.92
10.	Dhuvaran CCPP 1*	233.49	4.00%	9.34	224.15	233.49	4.00%	9.34	224.15
11.	Dhuvaran CCPP 2	246.27	3.00%	7.39	238.88	246.27	3.00%	7.39	238.88
12.	Dhuvaran CCPP 3*	823.66	3.00%	24.71	798.95	823.66	3.00%	24.71	798.95
13.	Utran Extension*	820.31	3.00%	24.61	795.70	820.31	3.00%	24.61	795.70
14.	Ukai 6*	3,285.00	6.00%	197.10	3087.90	3,285.00	6.00%	197.10	3087.90
15.	Wanakbori 8 TPS*	5,606.40	5.25%	294.34	5312.06	5,606.40	5.25%	294.34	5312.06
16.	Ukai Hydro	347.33	0.60%	2.08	345.25	347.33	0.60%	2.08	345.25
17.	Kadana Hydro	127.20	1.00%	1.27	125.92	127.20	1.00%	1.27	125.92
	Total	**32,136.98**		**2,514.56**	**29,622.42**	**32,136.98**		**2,514.56**	**29,622.42**

** PPA based stations*

5.5 Cost Parameters

The variable costs (mostly fuel cost) depend on the cost parameters such as GCV of different fuels used, mix of fuel and price of fuel. GSECL's generating stations operate on coal, lignite, oil and gas as base fuels. For some of the coal stations, a mix of indigenous and washed coal is used and for some station only imported coal is used.

In the case of hydro stations, no fuel costs are involved. However, the energy charge and fixed charge for hydro stations shall be recovered in accordance with the GERC (MYT) Regulations, 2016.

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

5.5.1 Wt. Avg. Gross Calorific Value (GCV) of fuels

GSECL has considered the Wt. Avg. GCV of primary fuels and secondary fuel and coal mix for FY 2022-23 same as actual value of weighted average GCV of primary fuels and secondary fuel and coal mix of FY 2020-21, as given in the Table below:

Table 5.16: Wt. Avg. Gross Calorific Value (GCV) of fuels for different stations for FY 2022-23

Sr. No.	Power Stations	Wt. Avg. GCV of Coal (kcal/kg)	Wt. Avg. GCV of Lignite (kcal/kg)	Wt. Avg. GCV of Gas (kcal/SCM)	Wt. Avg. GCV of Oil (kcal/kl)
1.	Ukai (3-5)	3,528			10,418
2.	Gandhinagar (3-4)	3,631			10,420
3.	Gandhinagar 5*	3,641			10,497
4.	Wanakbori 1-6 TPS	3,375			10,266
5.	Wanakbori 7 TPS*	3,427			10,254
6.	Sikka Extension (3-4)*	4,881			10,304
7.	KLTPS 3		2,346		10,479
8.	KLTPS 4		2,346		10,642
9.	BLTPS*		2,712		10,594
10.	Dhuvaran CCPP 1*			9,407	
11.	Dhuvaran CCPP 2			9,299	
12.	Dhuvaran CCPP 3*			9,269	
13.	Utran Extension*			9,329	
14.	Ukai 6*	3,577			10,397
15.	Wanakbori 8 TPS*	3,590			10,322

** PPA based stations*

Commission's Analysis

As GCV of coal is based on actual FSA signed, the Commission has considered the actual average GCV of coal and lignite for the month of April to November, 2021 on as fired basis.

The Commission has considered the Wt. Avg. GCV of Gas and secondary oil in line with the submission of GSECL and as per actual value of weighted average Gross Calorific Value approved for FY 2020-21.

Table 5.17: Approved Wt. Avg. Gross Calorific Value (GCV) of fuels for FY 2022-23

Sr. No	Power Stations	As per GSECL				As Approved by the Commission			
		Wt. Avg. GCV of Coal	Wt. Avg. GCV of Lignite	Wt. Avg. GCV of Gas	Wt. Avg. GCV of Oil	Wt. Avg. GCV of Coal	Wt. Avg. GCV of Lignite	Wt. Avg. GCV of Gas	Wt. Avg. GCV of Oil
		kcal/kg	kcal/kg	kcal/SCM	kcal/kl	kcal/kg	kcal/kg	kcal/SCM	kcal/kl
1.	Ukai (3-5)	3,528			10,418	3,650			10,418
2.	Gandhinagar (3-4)	3,631			10,420	3,605			10,420
3.	Gandhinagar 5*	3,641			10,497	3,838			10,497
4.	Wanakbori 1-6 TPS	3,375			10,266	3,502			10,266
5.	Wanakbori 7 TPS*	3,427			10,254	3,538			10,254
6.	Sikka Extension (3-4)*	4,881			10,304	4,944			10,304
7.	KLTPS 3		2,346		10,479		2,439		10,479
8.	KLTPS 4		2,346		10,642		2,439		10,642
9.	BLTPS*		2,712		10,594		2,698		10,594
10.	Dhuvaran CCPP 1*			9,407				9,407	
11.	Dhuvaran CCPP 2			9,299				9,299	
12.	Dhuvaran CCPP 3*			9,269				9,269	
13.	Utran Extension*			9,329				9,329	
14.	Ukai 6*	3,577			10,397	3,643			10,397
15.	Wanakbori 8 TPS*	3,590			10,322	3,472			10,322

** PPA based stations*

5.5.2 Mix of Coal

GSECL has considered the latest scenario of fuel availability and has considered 40% indigenous coal and 60% washed coal for all its coal-based power plants except for Sikka 3-4 which will fully run on imported coal whereas 100% lignite is considered for KLTPS 3 & 4 and BLTPS.

In addition to above, GSECL submitted that considering the 40% indigenous coal and 60% wash coal for all coal-based power stations, GSECL has worked out the same on the basis of the Annual off-take quantity available from SECL and WCL whereby around 80% coal off-take from SECL is supplied as wash coal and WCL coal is supplied as RoM coal. Considering these factors, the ratio works out to 40% indigenous coal and 60% wash coal.

Also, with respect to imported coal, GSECL has not considered the same for generating stations other than Sikka TPS as it was decided with Coal India Limited to stop the blending of imported coal in power stations of GSECL from FY 2019 onwards.

The detail projection for FY 2022-23 is given in the Table below:

Table 5.18: The Mix of Different Types of Coal for FY 2022-23

Sr. No.	Power Station	Mix of coal (%)			
		Indigenous	Washed	Lignite	Imported
1	Ukai (3-5)	40.00%	60.00%	-	-
2	Gandhinagar (3-4)	40.00%	60.00%	-	-
3	Gandhinagar 5*	40.00%	60.00%	-	-
4	Wanakbori 1-6 TPS	40.00%	60.00%	-	-
5	Wanakbori 7 TPS*	40.00%	60.00%	-	-
6	Sikka Extension (3-4)*			-	100%
7	KLTPS 3			100%	-
8	KLTPS 4			100%	-
9	BLTPS*			100%	-
10	Ukai 6*	40.00%	60.00%	-	-
11	Wanakbori 8 TPS*	40.00%	60.00%	-	-

** PPA based stations*

Commission's Analysis

With respect to the projected mix of coal, the same is based on the annual contracted quantities as per the fuel linkage for indigenous coal, washed coal, the targeted quantities of imported coal and the latest scenario of fuel availability, the Commission decides to accept the projections of the petitioner.

5.5.3 Wt. Avg. Prices of Fuel

GSECL has considered the actual coal prices of FY 2020-21 for projection of FY 2022-23 as given in the Table below:

Table 5.19: Wt. Avg. Price / Unit of Fuels for FY 2022-23

Sr. No.	Station	Wt. Avg. Cost of Indigenous Coal	Wt. Avg. Cost of Washed Coal	Wt. Avg. Cost of Imported Coal	Wt. Avg. Cost of Coal	Wt. Avg. Cost of Lignite	Wt. Avg. Cost of Gas	Wt. Avg. Cost of Oil
		(Rs./MT)	(Rs./MT)	(Rs./MT)	(Rs./MT)	(Rs./MT)	(Rs./SCM)	(Rs./Kl)
1.	Ukai (3-5)	4,597	4,979		4,826			37,223
2.	Gandhinagar (3-4)	5,032	5,655		5,406			32,333
3.	Gandhinagar 5*	4,688	5,428		5,132			33,728
4.	Wanakbori 1-6 TPS	4,928	4,994		4,968			31,748
5.	Wanakbori 7*	4,684	5,350		5,084			30,952
6.	Sikka Extension (3-4)*			8,147	8,147			38,400
7.	KLTPS 3					1,886		35,312
8.	KLTPS 4					1,853		36,971
9.	BLTPS*					2,237		39,383
10.	Dhuvaran CCPP 1*						12.32	
11.	Dhuvaran CCPP 2						13.58	
12.	Dhuvaran CCPP 3*						14.12	
13.	Utran Extension*						13.85	
14.	Ukai 6*	4,438	4,514		4,483			39,056
15.	Wanakbori 8 TPS*	4,653	5,402		5,103			32,847

** PPA based stations*

Commission's Analysis

The Commission has considered the Wt. Avg. of Fuel Price of primary fuel i.e. Domestic Coal, Washed Coal and Lignite as provided by GSECL for the month of April to November, 2021.

With respect to the cost of Gas and secondary fuel, the Commission has considered the same in line with the submission of GSECL and as per actual value of weighted average Gross Calorific Value approved for FY 2020-21.

Table 5.20: Approved Wt. Avg. Price / Unit of Fuels for FY 2022-23

Sr. No	Power Stations	Wt. Avg. Cost of Indigenous Coal	Wt. Avg. Cost of Washed Coal	Wt. Avg. Cost of Imported Coal	Wt. Avg. Cost of Coal	Wt. Avg. Cost of Lignite	Wt. Avg. Cost of Gas	Wt. Avg. Cost of Oil
		Rs./MT	Rs./MT	Rs./MT	Rs./MT	Rs./MT	Rs./SCM	Rs./Kl
1.	Ukai (3-5)	4,519	5,124		4,882			37,223
2.	Gandhinagar (3-4)	4,941	5,537		5,299			32,333
3.	Gandhinagar 5*	4,903	5,385		5,192			33,728

Sr. No	Power Stations	Wt. Avg. Cost of Indigenous Coal	Wt. Avg. Cost of Washed Coal	Wt. Avg. Cost of Imported Coal	Wt. Avg. Cost of Coal	Wt. Avg. Cost of Lignite	Wt. Avg. Cost of Gas	Wt. Avg. Cost of Oil
		Rs./MT	Rs./MT	Rs./MT	Rs./MT	Rs./MT	Rs./SCM	Rs./Kl
4.	Wanakbori 1-6 TPS	4,714	5,479		5,173			31,748
5.	Wanakbori 7*	4,726	5,484		5,181			30,952
6.	Sikka Extension (3-4)*			7,376				38,400
7.	KLTPS 3					2,054		35,312
8.	KLTPS 4					2,054		36,971
9.	BLTPS*					2,396		39,383
10.	Dhuvaran CCPP 1*						12.32	
11.	Dhuvaran CCPP 2						13.58	
12.	Dhuvaran CCPP 3*						14.12	
13.	Utran Extension*						13.85	
14.	Ukai 6*	4,502	5,133		4,881			39,056
15.	Wanakbori 8 TPS*	4,741	5,484		5,187			32,847

** PPA based stations*

The Commission approves the Wt. Avg. GCVs and prices of fuel (Coal / Lignite), as furnished by GSECL for the period of April, 2021 to November, 2021 and Coal Mix as well as Wt. Avg. GCVs and prices of Gas / Secondary fuel as submitted by GSECL which is equivalent to Weighted Average Actual of FY 2020-21.

5.6 Fuel Costs

Based on the performance and cost parameters, the approved fuel costs for each of the stations for FY 2022-23, along with the fuel cost submitted by GSECL, are given in the Table below:

Table 5.21: Fuel Cost of different stations for FY 2022-23

Sr. No.	Power Stations	As claimed by GSECL				As approved by the Commission			
		Gross Generation (MU)	Net Generation (MU)	Fuel Cost (Rs. Crore)	Fuel Cost per unit (Rs./kWh)	Gross Generation (MU)	Net Generation (MU)	Fuel Cost (Rs. Crore)	Fuel Cost per unit (Rs./kWh)
1	**2**	**3**	**4**	**5**	**6=5/4**	**7**	**8**	**9**	**10=9/8**
1.	Ukai (3-5)	3,206.16	2,917.61	1167.97	4.00	3,206.16	2,917.61	1,142.14	3.91
2.	Gandhinagar (3-4)	2,023.56	1,841.44	800.66	4.35	2,023.56	1,841.44	790.51	4.29
3.	Gandhinagar 5*	1,379.70	1,248.63	491.29	3.93	1,379.70	1,248.63	472.20	3.78
4.	Wanakbori 1-6 TPS	6,070.68	5,524.32	2329.26	4.22	6,070.68	5,524.32	2,337.63	4.23
5.	Wanakbori 7*	1,287.72	1,165.39	480.79	4.13	1,287.72	1,165.39	474.80	4.07
6.	Sikka Extension (3-4)*	3,066.00	2,790.06	1233.77	4.42	3,066.00	2,790.06	1,103.78	3.96
7.	KLTPS 3	492.75	433.62	132.20	3.05	492.75	433.62	138.27	3.19
8.	KLTPS 4	492.75	433.62	123.96	2.86	492.75	433.62	131.64	3.04
9.	BLTPS*	2,628.00	2,338.92	652.75	2.79	2,628.00	2,338.92	696.13	2.98
10.	Dhuvaran CCPP 1*	233.49	224.15	59.61	2.66	233.49	224.15	59.61	2.66
11.	Dhuvaran CCPP 2	246.27	238.88	70.15	2.94	246.27	238.88	70.15	2.94
12.	Dhuvaran CCPP 3*	823.66	798.95	232.05	2.90	823.66	798.95	232.05	2.90
13.	Utran Extension*	820.31	795.70	225.31	2.83	820.31	795.70	225.31	2.83
14.	Ukai 6*	3,285.00	3,087.90	998.47	3.23	3,285.00	3,087.90	1,066.32	3.45
15.	Wanakbori 8 TPS*	5,606.40	5,312.06	1810.93	3.41	5,606.40	5,312.06	1,902.90	3.58
16.	**Grand Total**	**31,662.45**	**29,151.24**	**10,809.17**	**3.71**	**31,662.45**	**29,151.24**	**10,843.44**	**3.72**

** PPA based stations*

5.7 Capital Expenditure and Capitalisation

Petitioner's Submission

GSECL submitted the expected Capital Expenditure of Rs. 457.38 Crore for FY 2022-23 for the existing power stations. This CAPEX includes major and minor Renovation & Modernisation works proposed to be undertaken by GSECL during the year. The following Table shows the Capital Expenditure proposed for FY 2022-23 by GSECL

Table 5.22: Capital Expenditure as submitted by GSECL for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	52.90
2.	Gandhinagar (3-4)	3.51
3.	Gandhinagar 5*	-
4.	Wanakbori 1-6 TPS	180.20
5.	Wanakbori 7*	-
6.	Sikka Extension (3-4)*	25.51
7.	KLTPS 3	10.07
8.	KLTPS 4	10.02
9.	BLTPS*	9.70
10.	Dhuvaran CCPP 1*	-
11.	Dhuvaran CCPP 2	-
12.	Dhuvaran CCPP 3*	-
13.	Utran Extension*	0.23
14.	Ukai 6*	15.66
15.	Wanakbori 8 TPS*	149.58
16.	Ukai Hydro	-
17.	Kadana Hydro	-
18.	**Total**	**457.38**

** PPA based stations*

With respect to nature of Capital expenditure to be undertaken, following proposal was submitted by GSECL:

- **<u>ESP Retrofitting of Unit 4, 5 & 6 of Wanakbori TPS and Unit 3 & 4 of KLTPS: -</u>**

GSECL submitted that it has proposed to take up ESP Retrofitting of Unit 4, 5 & 6 of Wanakbori TPS and Unit - 3 & 4 of KLTPS, in order to meet the revised MoEF norms for Particulate Matter (PM) and bring down the ESP emission within limits prescribed by Gujarat Pollution Control Board (GPCB).

- **LMZ Turbine & Boiler modification of WTPS Unit-1 & 2 and UKAI TPS 3 &5: -**

GSECL submitted that at present, there are 6 Nos. 210 MW units with LMZ turbine, whereby majority of these units are more than 30 years old and have completed their service life. Due to poor turbine efficiency, the operating unit heat rate of these units remains in the range of 2600-2750 kcal/kWh and can be improved by retrofitting of old LMZ turbines by newly designed efficiency turbines.

- **Installation of FGD System in Wanakbori Unit - 8, 250 x 2 MW Sikka Unit - 3 & 4 and Ukai - 6: -**

GSECL submitted that for installation of FGD system in Wanakbori-Unit-8, the work order has already been placed and work is also under progress whereas for FGD system of Ukai unit-6 and Sikka Units - 3 & 4, the tenders have already been published and technical bids have been opened. The FGD system is required to be installed to meet revised environmental norms for SOx. Moreover, Reduction in flue gas temperature improves the ESP performance and reduces stack emission also.

Based on the above expected capital expenditure, GSECL has proposed capitalization based on the capital expenditure carried out in past period and additional Capitalisation to be carried out in FY 2022-23.

The following Table shows the capitalisation proposed by GSECL for FY 2022-23. GSECL has proposed capitalization based on the capital expenditure estimated for FY 2020-21. The funding of capitalisation has been considered through debt-equity ratio of 70:30 in accordance with GERC (MYT) Regulations, 2016.

Table 5.23: Proposed Capitalisation for FY 2022-23 as submitted by GSECL

(Rs. Crore)

Sr. No.	Power Stations	Capitalisation	Funding of Capitalisation	
			Debt amount	Equity amount
1.	Ukai (3-5)	24.70	17.29	7.41
2.	Gandhinagar (3-4)	20.63	14.44	6.19
3.	Gandhinagar 5*	-	-	-
4.	Wanakbori 1-6 TPS	213.14	149.20	63.94
5.	Wanakbori 7*	-	-	-
6.	Sikka Extension (3-4)*	41.98	29.38	12.59
7.	KLTPS 3	12.31	8.62	3.69
8.	KLTPS 4	-	-	-
9.	BLTPS*	3.65	2.56	1.10
10.	Dhuvaran CCPP 1*	1.68	1.18	0.50
11.	Dhuvaran CCPP 2	0.32	0.22	0.10
12.	Dhuvaran CCPP 3*	0.55	0.39	0.17

Sr. No.	Power Stations	Capitalisation	Funding of Capitalisation	
			Debt amount	Equity amount
13.	Utran Extension*	0.69	0.49	0.21
14.	Ukai 6*	14.04	9.83	4.21
15.	Wanakbori 8 TPS*	48.90	34.23	14.67
16.	Ukai Hydro	0.06	0.04	0.02
17.	Kadana Hydro	0.19	0.13	0.06
18.	**Total**	**382.81**	**267.97**	**114.84**

** PPA BASED STATIONS*

Commission's Analysis

For approving the capitalisation for FY 2022-23, the Commission has analysed the actual capitalisation incurred by GSECL in the last three years. The following Table shows the actual capitalisation as submitted by GSECL at the time of Truing-up of respective year:

Table 5.24: Actual Capitalisation for FY 2018-19 to FY 2020-21

(Rs. Crore)

Sr. No.	Particulars	FY 2018-19	FY 2020-21	FY 2020-21	Average
1.	Capitalisation	362.18	226.17*	245.92	278.09

**Excluding Capital cost of Wanakbori 8 TPS*

As seen from the Table above, the proposed capitalisation of Rs. 382.81 Crore is higher than the actual average capitalisation of last three years.

Further it was observed that while projecting the capitalisation for FY 2022-23, GSECL has considered the 10% escalation on the actual capitalisation for FY 2020-21 and in addition, has proposed capitalisation of Rs. 112.5 Crores in Wanakbori (1-6) Power Station against ESP Retrofitting of Unit - 4, 5 & 6 to meet the revised MoEF norms.

Since GSECL has not provided any justification on 10% escalation considered on the actual capitalisation for FY 2020-21, the Commission has not considered any escalation while projecting the capitalisation for FY 2022-23. Also, with respect to the proposed capitalisation of Rs. 112.50 Crores in Wanakbori (1-6) Power Station against ESP Retrofitting of Unit - 4,5 & 6, the Commission feels that such expenditure though us required to be undertaken to meet the revised MoEF norms, the same is to be allowed on the basis of actual cost to be incurred at the time of true-up with detail justification and cost benefit analysis to be provided by GSECL. Accordingly, though the same is disallowed at present for the projection purpose, the same may be reconsider by the Commission at the time of true-up of FY 2022-23 based on the detail submission of GSECL during that time.

Accordingly, the Commission provisionally approves the capitalisation of Rs. 245.92 Crore for FY 2022-23, which is equivalent to the approved capitalisation for FY 2020-21.

Also, GSECL is directed to assess the work related to ESP retrofitting and take up the work in accordance with the revised timelines notified by MoP. The funding of capitalisation is approved in line with the normative Debt:Equity ratio of 70:30 specified in the GERC (MYT) Regulations, 2016.

5.8 Fixed Charges

As per GERC (MYT) Regulations, 2016, the Annual Fixed Charges of Generating Stations include the Depreciation, Interest and Finance Charges, Return on Equity, Operation and Maintenance Expenses, Interest on Working Capital, Water Charges, SLDC Charges, Income Tax and Non-Tariff Income. The analysis of each component of Annual Fixed Charges is discussed in subsequent Sections of this Order.

5.8.1 Depreciation for FY 2022-23

Petitioner's Submission

GSECL has considered the opening Gross Fixed Assets for FY 2022-23 based on the gross block of FY 2021-22. The addition during the FY 2021-22 is considered same as approved by the Commission in the Tariff Order dated 30th March, 2021. The capital addition to the fixed asset during the period FY 2022-23 has been considered based on the works which are likely to be capitalized during the year.

GSECL has considered Depreciation rates based on actual rate of depreciation in FY 2020-21 or average depreciation rate of 5.28%, whichever is lower.

GSECL has considered the useful life of 35 years for all thermal and hydro plants. The depreciation has been charged in line with GERC (MYT) Regulations, 2016 for a period of 12 years from the date of the Transfer Scheme, and thereafter depreciation is spread over the balance useful life of the asset.

The following Table shows the depreciation rates considered by GSECL and the depreciation claimed by GSECL for FY 2022-23

Table 5.25: Depreciation claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Depreciation rates (%)	Depreciation
1.	Ukai (3-5)	3.36%	46.33
2.	Gandhinagar (3-4)	2.83%	36.52
3.	Gandhinagar 5*	0.33%	2.16
4.	Wanakbori 1-6 TPS	4.10%	112.04

Sr. No.	Power Station	Depreciation rates (%)	Depreciation
5.	Wanakbori 7*	0.34%	2.16
6.	Sikka Extension (3-4)*	5.28%	165.78
7.	KLTPS 3	3.13%	30.25
8.	KLTPS 4	5.14%	36.35
9.	BLTPS*	5.28%	195.57
10.	Dhuvaran CCPP 1*	2.39%	9.77
11.	Dhuvaran CCPP 2	3.03%	13.09
12.	Dhuvaran CCPP 3*	4.94%	78.79
13.	Utran Extension*	5.02%	68.27
14.	Ukai 6*	5.21%	156.81
15.	Wanakbori 8 TPS*	5.10%	221.44
16.	Ukai Hydro	1.28%	2.41
17.	Kadana Hydro	1.65%	5.58
18.	**Total**		**1,183.33**

** PPA based stations*

Commission's Analysis

The Commission has considered the opening GFA for FY 2021-22 in line with the closing GFA approved in True-up of FY 2020-21. The capitalisation for FY 2021-22 is considered in line with the capitalisation approved in the Tariff Order dated 30th March, 2021. Accordingly, the Commission arrived at the closing balance of GFA for FY 2021-22. The closing balance of FY 2021-22 is considered as opening balance of GFA for FY 2022-23.

The Commission has considered the capitalisation for FY 2022-23 in line with the amount approved in the above section on Capitalisation for FY 2022-23. The Commission has thus, arrived at the closing GFA of FY 2022-23.

The Commission has considered Depreciation rates based on actual rate of depreciation in FY 2020-21 or average depreciation rate of 5.28%, whichever is lower.

The Commission has continued with the approach adopted in true-up for FY 2020-21 and has not considered any depreciation for Gandhinagar 5 and Wanakbori 7 for FY 2022-23. The GFA approved for FY 2022-23 is given in the Table below:

Table 5.26: Approved Gross Fixed Assets for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	Opening GFA	Additions	Closing GFA
1.	Ukai (3-5)	1,367.51	22.46	1,389.97
2.	Gandhinagar (3-4)	1,282.41	18.76	1,301.17
3.	Gandhinagar 5*	657.84	-	657.84
4.	Wanakbori 1-6 TPS	2,623.09	91.55	2,714.64
5.	Wanakbori 7*	643.74	-	643.74
6.	Sikka Extension (3-4)*	3,118.75	38.18	3,156.93
7.	KLTPS 3	960.85	11.20	972.05
8.	KLTPS 4	707.84	-	707.84
9.	BLTPS*	3,702.25	3.33	3,705.57
10.	Dhuvaran CCPP 1*	408.58	1.53	410.11
11.	Dhuvaran CCPP 2	431.12	0.29	431.41
12.	Dhuvaran CCPP 3*	1,596.07	0.51	1,596.57
13.	Utran Extension*	1,360.25	0.63	1,360.88
14.	Ukai 6*	3,004.22	12.77	3,016.99
15.	Wanakbori 8 TPS*	4,313.61	44.48	4,358.09
16.	Ukai Hydro	188.20	0.05	188.25
17.	Kadana Hydro	338.46	0.17	338.63
18.	**Total**	**26,704.78**	**245.92**	**26,950.69**

** PPA BASED STATIONS*

Based on the opening and closing GFA approved in the above Table, the Commission has worked out the depreciation for FY 2022-23. The depreciation rates considered are in line with the depreciation rate as computed in true-up for FY 2020-21.

The Commission, accordingly, approves the station-wise depreciation for FY 2022-23 as detailed in the Table below

Table 5.27: Depreciation approved for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	Depreciation rates	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	3.34%	46.33	46.06
2.	Gandhinagar (3-4)	3.03%	36.52	39.16
3.	Gandhinagar 5*	0.00%	2.16	0.00
4.	Wanakbori 1-6 TPS	4.08%	112.04	108.79
5.	Wanakbori 7*	0.00%	2.16	0.00
6.	Sikka Extension (3-4)*	5.07%	165.78	159.10

Sr. No.	Particulars	Depreciation rates	As claimed by GSECL	As approved by the Commission
7.	KLTPS 3	3.14%	30.25	30.34
8.	KLTPS 4	5.14%	36.35	36.37
9.	BLTPS*	5.24%	195.57	194.01
10.	Dhuvaran CCPP 1*	2.85%	9.77	11.67
11.	Dhuvaran CCPP 2	2.87%	13.09	12.36
12.	Dhuvaran CCPP 3*	5.10%	78.79	81.49
13.	Utran Extension*	4.85%	68.27	66.02
14.	Ukai 6*	4.98%	156.81	150.06
15.	Wanakbori 8 TPS*	5.10%	221.44	221.18
16.	Ukai Hydro	1.28%	2.41	2.42
17.	Kadana Hydro	1.65%	5.58	5.57
18.	**Total**		**1,183.33**	**1,164.60**

** PPA BASED STATIONS*

5.8.2 Interest and Finance charges for FY 2022-23

Petitioner's Submission

GSECL has considered the funding for new capital expenditure in FY 2022-23 at the normative debt:equity ratio of 70:30 in accordance with the GERC (MYT) Regulations, 2016 and accordingly estimated the new loan addition during the year.

Also, the closing balance of loan portfolio for FY 2020-21 is considered as opening balance of FY 2021-22. Further, addition and repayment during FY 2021-22 has been considered as approved by in Tariff Order dated 30th March, 2021 to work out closing balance of FY 2021-22, which becomes the opening balance of normative loan for FY 2022-23.

GSECL has considered the weighted average rate of interest of 10.29% on the basis of actuals of FY 2020-21, in line with the present market scenario.

The repayment has been considered as equivalent to depreciation for the year as specified in the GERC (MYT) Regulations, 2016. Accordingly, GSECL has projected interest and finance charges for FY 2022-23. The station-wise interest and finance charges claimed by GSECL for FY 2022-23 are given in the Table below:

Table 5.28: Interest & Finance charges claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	-
2.	Gandhinagar (3-4)	0.00

Sr. No.	Power Station	Projected
3.	Gandhinagar 5*	-
4.	Wanakbori 1-6 TPS	28.80
5.	Wanakbori 7*	0.23
6.	Sikka Extension (3-4)*	119.13
7.	KLTPS 3	0.00
8.	KLTPS 4	2.37
9.	BLTPS*	128.87
10.	Dhuvaran CCPP 1*	0.00
11.	Dhuvaran CCPP 2	0.96
12.	Dhuvaran CCPP 3*	57.46
13.	Utran Extension*	19.48
14.	Ukai 6*	75.31
15.	Wanakbori 8 TPS*	246.97
16.	Ukai Hydro	2.48
17.	Kadana Hydro	-
	Total	**682.06**

** PPA based stations*

Commission's Analysis

The Commission has considered the opening Loan for FY 2021-22 in line with the closing Loan approved in True-up of FY 2020-21. The loan addition for FY 2021-22 is considered in line with the 70% of the capitalisation approved in Tariff Order dated 30th March, 2021 for FY 2021-22. The loan repayment is considered equal to depreciation. Accordingly, the Commission has arrived at the closing balance of Loan for FY 2021-22, which is considered as opening balance of Loan for FY 2022-23.

The Commission has considered the addition to loan for FY 2022-23 in line with the normative loan of 70% on approved capitalisation for FY 2022-23. The repayment for FY 2022-23 is considered equal to approved depreciation or addition of opening loan and loan addition, whichever is lower. The Commission has thus, arrived at the closing Loan for FY 2022-23.

Table 5.29: Details of Approved Loan for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Opening Loan	Additions	Repayment	Closing Loan
1.	Ukai (3-5)	-	15.73	15.73	-
2.	Gandhinagar (3-4)	0.00	13.14	13.14	-
3.	Gandhinagar 5*	-	-	-	-

Sr. No.	Power Station	Opening Loan	Additions	Repayment	Closing Loan
4.	Wanakbori 1-6 TPS	261.85	64.08	108.79	217.13
5.	Wanakbori 7*	3.34	-	-	3.34
6.	Sikka Extension (3-4)*	1,239.71	26.73	159.10	1,107.34
7.	KLTPS 3	0.00	7.84	7.84	-
8.	KLTPS 4	41.19	-	36.37	4.82
9.	BLTPS*	1,397.29	2.33	194.01	1,205.60
10.	Dhuvaran CCPP 1*	0.00	1.07	1.07	-
11.	Dhuvaran CCPP 2	16.44	0.20	12.36	4.29
12.	Dhuvaran CCPP 3*	594.68	0.35	81.49	513.55
13.	Utran Extension*	225.35	0.44	66.02	159.78
14.	Ukai 6*	811.78	8.94	150.06	670.66
15.	Wanakbori 8 TPS*	2,492.88	31.13	221.18	2,302.83
16.	Ukai Hydro	25.29	0.03	2.42	22.91
17.	Kadana Hydro	-	0.12	0.12	-
	Total	**7,109.80**	**172.14**	**1,069.70**	**6,212.24**

** PPA based stations*

The Commission has considered the weighted average interest rate of 8.18% as approved in True-up of FY 2020-21.

The Commission, accordingly, approves the station-wise interest and finance charges for FY 2022-23 as detailed in the Table below:

Table 5.30: Approved Interest and Finance Charges for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	-	-
2.	Gandhinagar (3-4)	0.00	0.00
3.	Gandhinagar 5*	-	-
4.	Wanakbori 1-6 TPS	28.80	19.58
5.	Wanakbori 7*	0.23	0.27
6.	Sikka Extension (3-4)*	119.13	95.96
7.	KLTPS 3	0.00	0.00
8.	KLTPS 4	2.37	1.88
9.	BLTPS*	128.87	106.41
10.	Dhuvaran CCPP 1*	0.00	0.00
11.	Dhuvaran CCPP 2	0.96	0.85
12.	Dhuvaran CCPP 3*	57.46	45.31

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
13.	Utran Extension*	19.48	15.75
14.	Ukai 6*	75.31	60.61
15.	Wanakbori 8 TPS*	246.97	196.06
16.	Ukai Hydro	2.48	1.97
17.	Kadana Hydro	-	-
18.	**Total**	**682.06**	**544.65**

** PPA based stations*

5.8.3 Return on Equity for FY 2022-23

Petitioner's Submission

GSECL has considered closing equity for FY 2021-22 and addition to the equity expected during the year based on the normative equity contribution towards the projected capitalization in FY 2022-23.

GSECL has claimed RoE for FY 2022-23 on normative basis, i.e., at 14% for all transferred stations (non-PPA based stations), in line with the GERC (MYT) Regulations, 2016. The RoE claimed by GSECL for FY 2022-23 is shown in the Table below:

Table 5.31: Return on Equity claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	25.00
2.	Gandhinagar (3-4)	26.09
3.	Gandhinagar 5*	28.67
4.	Wanakbori 1-6 TPS	105.75
5.	Wanakbori 7*	26.34
6.	Sikka Extension (3-4)*	140.06
7.	KLTPS 3	55.15
8.	KLTPS 4	29.65
9.	BLTPS*	155.57
10.	Dhuvaran CCPP 1*	10.55
11.	Dhuvaran CCPP 2	14.55
12.	Dhuvaran CCPP 3*	67.05
13.	Utran Extension*	57.56
14.	Ukai 6*	127.08
15.	Wanakbori 8 TPS*	182.20

Sr. No.	Power Station	Projected
16.	Ukai Hydro	10.99
17.	Kadana Hydro	29.09
18.	**Total**	**1,091.36**

** PPA based stations*

Commission's Analysis

The Commission has considered the opening equity for FY 2021-22 in line with the closing equity approved in True-up of FY 2020-21. The equity addition for FY 2021-22 is considered in line with 30% of the capitalisation approved in Tariff Order dated 30th March, 2021 for FY 2021-22. Accordingly, the Commission arrived at the closing balance of Equity for FY 2021-22. The closing balance of FY 2021-22 is considered as opening balance of Equity for FY 2022-23.

The Commission has considered the addition to equity for FY 2022-23 at 30% of the approved capitalisation for FY 2022-23. The Commission has thus, arrived at the closing equity for FY 2022-23, as shown in the Table below:

Table 5.32: Approved Equity for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Opening Equity	Addition	Closing Equity
1.	Ukai (3-5)	174.08	6.74	180.82
2.	Gandhinagar (3-4)	183.20	5.63	188.83
3.	Gandhinagar 5*	220.57	0.00	220.57
4.	Wanakbori 1-6 TPS	712.08	27.46	739.54
5.	Wanakbori 7*	202.65	0.00	202.65
6.	Sikka Extension (3-4)*	935.64	11.46	947.10
7.	KLTPS 3	392.07	3.36	395.43
8.	KLTPS 4	211.78	0.00	211.78
9.	BLTPS*	1110.67	1.00	1111.67
10.	Dhuvaran CCPP 1*	80.94	0.46	81.40
11.	Dhuvaran CCPP 2	103.83	0.09	103.91
12.	Dhuvaran CCPP 3*	478.82	0.15	478.97
13.	Utran Extension*	411.05	0.19	411.24
14.	Ukai 6*	901.27	3.83	905.10
15.	Wanakbori 8 TPS*	1294.08	13.34	1307.43
16.	Ukai Hydro	78.41	0.01	78.42

Sr. No.	Power Station	Opening Equity	Addition	Closing Equity
17.	Kadana Hydro	207.75	0.05	207.80
18.	**Total**	**7,698.89**	**73.77**	**7,772.66**

** PPA based stations*

The Commission has considered RoE of 13% for Gandhinagar-5, Wanakbori-7 and Dhuvaran CCPP 1, as per their PPA, and RoE of 14% for all other stations.

The Commission, accordingly, approves the station-wise RoE for FY 2022-23 as detailed in the Table below:

Table 5.33: Approved Return on Equity for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	25.00	24.84
2.	Gandhinagar (3-4)	26.09	26.04
3.	Gandhinagar 5*	28.67	28.67
4.	Wanakbori 1-6 TPS	105.75	101.61
5.	Wanakbori 7*	26.34	26.34
6.	Sikka Extension (3-4)*	140.06	131.79
7.	KLTPS 3	55.15	55.12
8.	KLTPS 4	29.65	29.65
9.	BLTPS*	155.57	155.56
10.	Dhuvaran CCPP 1*	10.55	10.55
11.	Dhuvaran CCPP 2	14.55	14.54
12.	Dhuvaran CCPP 3*	67.05	67.05
13.	Utran Extension*	57.56	57.56
14.	Ukai 6*	127.08	126.45
15.	Wanakbori 8 TPS*	182.20	182.11
16.	Ukai Hydro	10.99	10.98
17.	Kadana Hydro	29.09	29.09
18.	**Total**	**1,091.36**	**1,077.96**

** PPA based stations*

5.8.4 O&M Expenses for FY 2022-23

Petitioner's Submission

GSECL has claimed O&M expenses for FY 2022-23 considering the approved O&M of FY 2021-22 in Tariff Order dated 30th March, 2021 and escalating the same with 5.72%, which is the escalation factor specified by the Commission in the GERC (MYT) Regulations, 2016.

The following Table shows the station-wise O&M expenses claimed by GSECL for FY 2022-23:

Table 5.34: O&M expenses claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	262.61
2.	Gandhinagar (3-4)	152.10
3.	Gandhinagar 5*	61.66
4.	Wanakbori 1-6 TPS	281.51
5.	Wanakbori 7*	21.32
6.	Sikka Extension (3-4)*	146.73
7.	KLTPS 3	51.70
8.	KLTPS 4	20.97
9.	BLTPS*	188.44
10.	Dhuvaran CCPP 1*	51.61
11.	Dhuvaran CCPP 2	52.34
12.	Dhuvaran CCPP 3*	5.20
13.	Utran Extension*	54.91
14.	Ukai 6*	57.54
15.	Wanakbori 8 TPS*	171.60
16.	Ukai Hydro	15.45
17.	Kadana Hydro	31.35
18.	**Total**	**1,627.04**

** PPA based stations*

Commission's Analysis

In the tariff order dated 30th March, 2021, for approving the O&M expenses for FY 2021-22, the Commission has already considered the average impact of last three years starting from FY 2017-18 to FY 2020-21 in respective Tariff Orders. The Commission has then considered the average of the O&M expenses for the three years to arrive at O&M expenses for mid-year, i.e., FY 2018-19 for these stations which is then escalated by 5.72% p.a. to arrive at the O&M expenses for FY 2021-22. The average O&M expenses for KLTPS 1-3 has been reduced proportionately in line with capacity to arrive at the O&M expenses for KLTPS Unit 3.

Accordingly, the Commission has projected O&M expenses for FY 2021-22 for all its existing stations except BLTPS and Wanakbori 8 TPS.

In case of BLTPS and Wanakbori 8 TPS, the Commission has considered the O&M expenses approved for FY 2020-21 in Tariff Order dated 26th March, 2020 and escalated the same by 5.72% to arrive at O&M expenses for FY 2021-22.

Since the impact of the three-year average O&M expenses has been considered in the last tariff order with normalising the impact of the 7th Pay commission, therefore the Commission feels that the normal escalation of 5.72% p.a. can be considered to arrive at O&M expenses for FY 2022-23 and which is the approach also considered by GSECL for projecting the O&M expenses for FY 2022-23.

Accordingly, the Commission, approves the station-wise O&M expenses for FY 2022-23, by providing escalation of 5.72% p.a. on the approved O&M Expenses for FY 2021-22, as detailed in the Table below:

Table 5.35: Approved O&M expenses for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	262.61	262.61
2.	Gandhinagar (3-4)	152.10	152.10
3.	Gandhinagar 5*	61.66	61.66
4.	Wanakbori 1-6 TPS	281.51	281.51
5.	Wanakbori 7*	21.32	21.32
6.	Sikka Extension (3-4)*	146.73	146.73
7.	KLTPS 3	51.70	51.70
8.	KLTPS 4	20.97	20.97
9.	BLTPS*	188.44	188.44
10.	Dhuvaran CCPP 1*	51.61	51.61
11.	Dhuvaran CCPP 2	52.34	52.34
12.	Dhuvaran CCPP 3*	5.20	5.20
13.	Utran Extension*	54.91	54.91
14.	Ukai 6*	57.54	57.54
15.	Wanakbori 8 TPS*	171.60	171.60
16.	Ukai Hydro	15.45	15.45
17.	Kadana Hydro	31.35	31.35
18.	**Total**	**1,627.04**	**1,627.04**

** PPA based stations*

5.8.5 Interest on Working Capital for FY 2022-23

Petitioner's Submission

GSECL has worked out IoWC based on norms specified under the GERC (MYT) Regulations, 2016. GSECL has considered the interest rate as 9.50% in line with the GERC (MYT) Regulations, 2016. The IoWC claimed by GSECL for FY 2022-23 is given in the Table below:

Table 5.36: Interest on working capital claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	37.07
2.	Gandhinagar (3-4)	28.69
3.	Gandhinagar 5*	13.07
4.	Wanakbori 1-6 TPS	80.99
5.	Wanakbori 7*	12.78
6.	Sikka Extension (3-4)*	38.56
7.	KLTPS 3	5.07
8.	KLTPS 4	4.18#
9.	BLTPS*	26.67
10.	Dhuvaran CCPP 1*	4.61#
11.	Dhuvaran CCPP 2	5.28
12.	Dhuvaran CCPP 3*	15.83
13.	Utran Extension*	15.58
14.	Ukai 6*	29.20
15.	Wanakbori 8 TPS*	50.71
16.	Ukai Hydro	0.62
17.	Kadana Hydro	1.15
18.	**Total**	**370.08**

** PPA based stations*

Commission's Analysis

The working capital requirement and the IoWC have been worked out as per the GERC (MYT) Regulations, 2016. The Commission has calculated working capital based on approved values of O&M costs, fuel costs, ARR and SFO cost in this order. Further, the Commission has considered the interest rate on working capital as 9.50% as per the GERC (MYT) Regulations, 2016.

The Commission accordingly approves the station-wise IoWC for FY 2022-23 as detailed in the Table below:

Table 5.37: Approved Interest on Working Capital for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	37.07	36.37
2.	Gandhinagar (3-4)	28.69	28.46
3.	Gandhinagar 5*	13.07	12.82
4.	Wanakbori 1-6 TPS	80.99	80.60
5.	Wanakbori 7*	12.78	13.34
6.	Sikka Extension (3-4)*	38.56	34.39
7.	KLTPS 3	5.07	5.22
8.	KLTPS 4	4.18	5.21
9.	BLTPS*	26.67	27.93
10.	Dhuvaran CCPP 1*	4.61	4.65
11.	Dhuvaran CCPP 2	5.28	5.67
12.	Dhuvaran CCPP 3*	15.83	15.57
13.	Utran Extension*	15.58	16.04
14.	Ukai 6*	29.20	31.66
15.	Wanakbori 8 TPS*	50.71	50.69
16.	Ukai Hydro	0.62	0.54
17.	Kadana Hydro	1.15	1.11
18.	**Total**	**370.08**	**370.27**

** PPA based stations*

5.8.6 SLDC Charges for FY 2022-23

Petitioner's Submission

GSECL has claimed SLDC Fees and Charges plant-wise for FY 2022-23, same as actually incurred in FY 2020-21. The following Table shows the SLDC Fees and Charges claimed by GSECL for FY 2022-23:

Table 5.38: SLDC Charges claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	0.40
2.	Gandhinagar (3-4)	0.28
3.	Gandhinagar 5*	0.14
4.	Wanakbori 1-6 TPS	0.83
5.	Wanakbori 7*	0.14

Sr. No.	Power Station	Projected
6.	Sikka Extension (3-4)*	0.33
7.	KLTPS 3	0.11
8.	KLTPS 4	0.05
9.	BLTPS*	0.33
10.	Dhuvaran CCPP 1*	0.07
11.	Dhuvaran CCPP 2	0.07
12.	Dhuvaran CCPP 3*	0.25
13.	Utran Extension*	0.25
14.	Ukai 6*	0.33
15.	Wanakbori 8 TPS*	0.34
16.	Ukai Hydro	0.20
17.	Kadana Hydro	0.16
18.	**Total**	**4.28**

** PPA based stations*

Commission's Analysis

The Commission has approved the SLDC Charges for FY 2022-23 in line with the amount considered in True-up of FY 2020-21. The SLDC charges approved for FY 2022-23 are as shown in the following Table:

Table 5.39: Approved SLDC Charges for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	0.40	0.40
2.	Gandhinagar (3-4)	0.28	0.28
3.	Gandhinagar 5*	0.14	0.14
4.	Wanakbori 1-6 TPS	0.83	0.83
5.	Wanakbori 7*	0.14	0.14
6.	Sikka Extension (3-4)*	0.33	0.33
7.	KLTPS 3	0.11	0.11
8.	KLTPS 4	0.05	0.05
9.	BLTPS*	0.33	0.33
10.	Dhuvaran CCPP 1*	0.07	0.07
11.	Dhuvaran CCPP 2	0.07	0.07
12.	Dhuvaran CCPP 3*	0.25	0.25
13.	Utran Extension*	0.25	0.25

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
14.	Ukai 6*	0.33	0.33
15.	Wanakbori 8 TPS*	0.34	0.34
16.	Ukai Hydro	0.20	0.20
17.	Kadana Hydro	0.16	0.16
18.	**Total**	**4.28**	**4.28**

** PPA based stations*

5.8.7 Water Charges for FY 2022-23

Petitioner's Submission

GSECL has claimed Water Charges plant-wise for FY 2022-23, same as actually incurred in FY 2020-21. However, considering the frequent increase in water charges of power plants and analysing the latest data of first six months of FY 2021-22, GSECL has provided escalation of 10% on water charges on FY 2021-22 computed based on first six months data. The following Table shows the Water Charges claimed by GSECL for FY 2022-23:

Table 5.40: Water Charges claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	0.00
2.	Gandhinagar (3-4)	33.72
3.	Gandhinagar 5*	16.86
4.	Wanakbori 1-6 TPS	53.67
5.	Wanakbori 7*	10.37
6.	Sikka Extension (3-4)*	4.91
7.	KLTPS 1-3	0.21
8.	KLTPS 4	0.00
9.	BLTPS*	11.10
10.	Dhuvaran CCPP 1*	0.19
11.	Dhuvaran CCPP 2	0.22
12.	Dhuvaran CCPP 3*	0.73
13.	Utran Extension*	2.63
14.	Ukai 6*	0.00
15.	Wanakbori 8 TPS*	42.18
16.	Ukai Hydro	0.00
17.	Kadana Hydro	0.00
18.	**Total**	**176.78**

** PPA based stations*

Commission's Analysis

The Commission has approved the Water Charges for FY 2022-23 in line with the amount considered in True-up of FY 2020-21. The Water Charges approved for FY 2022-23 are as shown in the following Table:

Table 5.41: Approved Water charges for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	0.00	0.00
2.	Gandhinagar (3-4)	33.72	45.02
3.	Gandhinagar 5*	16.86	22.51
4.	Wanakbori 1-6 TPS	53.67	32.09
5.	Wanakbori 7*	10.37	6.71
6.	Sikka Extension (3-4)*	4.91	5.28
7.	KLTPS 3	0.21	0.43
8.	KLTPS 4	0.00	0.00
9.	BLTPS*	11.10	13.72
10.	Dhuvaran CCPP 1*	0.19	0.00
11.	Dhuvaran CCPP 2	0.22	2.05
12.	Dhuvaran CCPP 3*	0.73	0.00
13.	Utran Extension*	2.63	6.95
14.	Ukai 6*	0.00	0.00
15.	Wanakbori 8 TPS*	42.18	33.69
16.	Ukai Hydro	0.00	0.00
17.	Kadana Hydro	0.00	0.00
18.	**Total**	**176.78**	**168.46**

** PPA based stations*

5.8.8 Income Tax for FY 2022-23

Petitioner's Submission

GSECL has claimed Income Tax plant-wise for FY 2022-23, same as actually incurred in FY 2020-21. The following Table shows the Income Tax claimed by GSECL for FY 2022-23:

Table 5.42: Income Tax claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	17.51
2.	Gandhinagar (3-4)	12.05
3.	Gandhinagar 5*	6.03
4.	Wanakbori 1-6 TPS	36.16
5.	Wanakbori 7*	6.03

Sr. No.	Power Station	Projected
6.	Sikka Extension (3-4)*	14.35
7.	KLTPS 1-3	2.15
8.	KLTPS 4	2.15
9.	BLTPS*	14.35
10.	Dhuvaran CCPP 1*	3.06
11.	Dhuvaran CCPP 2	3.23
12.	Dhuvaran CCPP 3*	10.79
13.	Utran Extension*	10.75
14.	Ukai 6*	14.35
15.	Wanakbori 8 TPS*	22.96
16.	Ukai Hydro	8.75
17.	Kadana Hydro	6.95
	Total	**191.63**

** PPA based stations*

Commission's Analysis

The Commission has approved the Income Tax for FY 2022-23 in line with the amount considered in True-up of FY 2020-21. The Income Tax approved for FY 2022-23 is as shown in the following Table

Table 5.43: Approved Income Tax for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	17.51	18.80
2.	Gandhinagar (3-4)	12.05	9.17
3.	Gandhinagar 5*	6.03	5.79
4.	Wanakbori 1-6 TPS	36.16	26.92
5.	Wanakbori 7*	6.03	4.84
6.	Sikka Extension (3-4)*	14.35	20.84
7.	KLTPS 3	2.15	3.69
8.	KLTPS 4	2.15	2.74
9.	BLTPS*	14.35	9.56
10.	Dhuvaran CCPP 1*	3.06	3.01
11.	Dhuvaran CCPP 2	3.23	3.21
12.	Dhuvaran CCPP 3*	10.79	7.09
13.	Utran Extension*	10.75	13.50
14.	Ukai 6*	14.35	23.02

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
15.	Wanakbori 8 TPS*	22.96	35.70
16.	Ukai Hydro	8.75	0.62
17.	Kadana Hydro	6.95	1.07
18.	**Total**	**191.63**	**189.57**

* PPA based stations

5.8.9 Non-Tariff Income for FY 2022-23

Petitioner's Submission

GSECL has claimed Non-Tariff Income plant-wise for FY 2022-23, same as actual income earned in FY 2020-21. The following Table shows the Non-Tariff Income claimed by GSECL for FY 2022-23:

Table 5.44: Non-Tariff Income claimed for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	3.78
2.	Gandhinagar (3-4)	9.99
3.	Gandhinagar 5*	8.34
4.	Wanakbori 1-6 TPS	19.37
5.	Wanakbori 7*	19.80
6.	Sikka Extension (3-4)*	5.03
7.	KLTPS 3	1.84
8.	KLTPS 4	0.14
9.	BLTPS*	2.51
10.	Dhuvaran CCPP 1*	0.59
11.	Dhuvaran CCPP 2	0.60
12.	Dhuvaran CCPP 3*	0.31
13.	Utran Extension*	0.78
14.	Ukai 6*	4.63
15.	Wanakbori 8 TPS*	1.00
16.	Ukai Hydro	0.25
17.	Kadana Hydro	0.45
	Total	**79.40**

** PPA based stations*

Commission's Analysis

The Commission has approved the Non-Tariff Income for FY 2022-23 in line with the amount considered in True-up of FY 2020-21. However, the impact of Liquidated Damages recovered in FY 2020-21, considered in Ukai (3-5) and Ukai-6, being non-recurring income in nature, has not been considered as a part of Non-Tariff Income while computing for FY 2022-23. The Non-Tariff Income approved for FY 2022-23 is as shown in the following Table:

Table 5.45: Approved Non-Tariff Income for FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	3.78	5.64
2.	Gandhinagar (3-4)	9.99	10.42
3.	Gandhinagar 5*	8.34	8.88
4.	Wanakbori 1-6 TPS	19.37	20.39
5.	Wanakbori 7*	19.80	20.68
6.	Sikka Extension (3-4)*	5.03	5.82
7.	KLTPS 3	1.84	2.11
8.	KLTPS 4	0.14	0.27
9.	BLTPS*	2.51	2.85
10.	Dhuvaran CCPP 1*	0.59	0.52
11.	Dhuvaran CCPP 2	0.60	0.52
12.	Dhuvaran CCPP 3*	0.31	-
13.	Utran Extension*	0.78	0.48
14.	Ukai 6*	4.63	7.48
15.	Wanakbori 8 TPS*	1.00	2.26
16.	Ukai Hydro	0.25	-
17.	Kadana Hydro	0.45	0.26
18.	**Total**	**79.40**	**88.58**

** PPA based stations*

5.9 Approved Fixed Charges

The Commission has discussed and approved various components of fixed charges for approval of ARR for FY 2022-23 in the above paragraphs.

The station-wise approved fixed charges for FY 2022-23 are given in the Table below:

Table 5.46: Approved Station-wise Fixed Charges for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest on Working Capital	O&M Expenses	Income Tax	SLDC charges	Water Charges	Total Fixed Cost	Less: Non-Tariff Income	Net Fixed Charges
1.	Ukai (3-5)	46.06	0.00	24.84	36.37	262.61	18.80	0.40	-	389.08	5.64	383.44
2.	Gandhinagar (3-4)	39.16	-	26.04	28.46	152.10	9.17	0.28	45.02	300.21	10.42	289.80
3.	Gandhinagar 5*	-	19.58	28.67	12.82	61.66	5.79	0.14	22.51	151.16	8.88	142.29
4.	Wanakbori 1-6 TPS	108.79	0.27	101.61	80.60	281.51	26.92	0.83	32.09	632.64	20.39	612.25
5.	Wanakbori 7*	-	95.96	26.34	13.34	21.32	4.84	0.14	6.71	168.65	20.68	147.96
6.	Sikka Extension (3-4)*	159.10	0.00	131.79	34.39	146.73	20.84	0.33	5.28	498.47	5.82	492.64
7.	KLTPS 3	30.34	1.88	55.12	5.22	51.70	3.69	0.11	0.43	148.50	2.11	146.38
8.	KLTPS 4	36.37	106.41	29.65	5.21	20.97	2.74	0.05	-	201.41	0.27	201.14
9.	BLTPS*	194.01	0.00	155.56	27.93	188.44	9.56	0.33	13.72	589.56	2.85	586.71
10.	Dhuvaran CCPP 1*	11.67	0.85	10.55	4.65	51.61	3.01	0.07	-	82.41	0.52	81.89
11.	Dhuvaran CCPP 2	12.36	45.31	14.54	5.67	52.34	3.21	0.07	2.05	135.56	0.52	135.03
12.	Dhuvaran CCPP 3*	81.49	15.75	67.05	15.57	5.20	7.09	0.25	-	192.39	-	192.39
13.	Utran Extension*	66.02	60.61	57.56	16.04	54.91	13.50	0.25	6.95	275.84	0.48	275.35
14.	Ukai 6*	150.06	196.06	126.45	31.66	57.54	23.02	0.33	-	585.12	7.48	577.64
15.	Wanakbori 8 TPS*	221.18	1.97	182.11	50.69	171.60	35.70	0.34	33.69	697.29	2.26	695.03
16.	Ukai Hydro	2.42	-	10.98	0.54	15.45	0.62	0.20	-	30.20	-	30.20
17.	Kadana Hydro	5.57	-	29.09	1.11	31.35	1.07	0.16	-	68.35	0.26	68.10
	Total	**1,164.60**	**544.65**	**1,077.96**	**370.27**	**1,627.04**	**189.57**	**4.28**	**168.46**	**5,146.83**	**88.58**	**5,058.25**

** PPA based stations*

6 Determination of Tariff for FY 2022-23

The Commission approves the station-wise energy charges for FY 2022-23 as outlined in the Table below:

Table 6.1: Energy Charges Approved for FY 2022-23

(Rs./kWh)

Sr. No.	Power Station	Energy Charges
1.	Ukai (3-5)	3.915
2.	Gandhinagar (3-4)	4.293
3.	Gandhinagar 5*	3.782
4.	Wanakbori 1-6	4.232
5.	Wanakbori 7*	4.074
6.	Sikka Extension (3-4)*	3.956
7.	KLTPS 1-3	3.189
8.	KLTPS 4	3.036
9.	BLTPS*	2.976
10.	Dhuvaran CCPP 1*	2.659
11.	Dhuvaran CCPP 2	2.937
12.	Dhuvaran CCPP 3*	2.904
13.	Utran Extension*	2.832
14.	Ukai 6*	3.453
15.	Wanakbori 8*	3.582

* *PPA based stations*

The approved Energy Charges for FY 2022-23 are given in **Annexure B** of this Order.

The Commission approves the station-wise fixed charges for FY 2022-23 as approved in the Chapter on Determination of ARR for FY 2022-23, and as summarised in the Table below:

Table 6.2: Approved Station-wise Fixed Charges for FY 2022-23

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest on Working Capital	O&M Expenses	Income Tax	SLDC charges	Water Charges	Total Fixed Cost	Less: Non-Tariff Income	Net Fixed Charges
1.	Ukai (3-5)	46.06	0.00	24.84	36.37	262.61	18.80	0.40	-	389.08	5.64	383.44
2.	Gandhinagar (3-4)	39.16	-	26.04	28.46	152.10	9.17	0.28	45.02	300.21	10.42	289.80
3.	Gandhinagar 5*	-	19.58	28.67	12.82	61.66	5.79	0.14	22.51	151.16	8.88	142.29
4.	Wanakbori 1-6 TPS	108.79	0.27	101.61	80.60	281.51	26.92	0.83	32.09	632.64	20.39	612.25
5.	Wanakbori 7*	-	95.96	26.34	13.34	21.32	4.84	0.14	6.71	168.65	20.68	147.96
6.	Sikka Extension (3-4)*	159.10	0.00	131.79	34.39	146.73	20.84	0.33	5.28	498.47	5.82	492.64
7.	KLTPS 3	30.34	1.88	55.12	5.22	51.70	3.69	0.11	0.43	148.50	2.11	146.38
8.	KLTPS 4	36.37	106.41	29.65	5.21	20.97	2.74	0.05	-	201.41	0.27	201.14
9.	BLTPS*	194.01	0.00	155.56	27.93	188.44	9.56	0.33	13.72	589.56	2.85	586.71
10.	Dhuvaran CCPP 1*	11.67	0.85	10.55	4.65	51.61	3.01	0.07	-	82.41	0.52	81.89
11.	Dhuvaran CCPP 2	12.36	45.31	14.54	5.67	52.34	3.21	0.07	2.05	135.56	0.52	135.03
12.	Dhuvaran CCPP 3*	81.49	15.75	67.05	15.57	5.20	7.09	0.25	-	192.39	-	192.39
13.	Utran Extension*	66.02	60.61	57.56	16.04	54.91	13.50	0.25	6.95	275.84	0.48	275.35
14.	Ukai 6*	150.06	196.06	126.45	31.66	57.54	23.02	0.33	-	585.12	7.48	577.64
15.	Wanakbori 8 TPS*	221.18	1.97	182.11	50.69	171.60	35.70	0.34	33.69	697.29	2.26	695.03
16.	Ukai Hydro	2.42	-	10.98	0.54	15.45	0.62	0.20	-	30.20	-	30.20
17.	Kadana Hydro	5.57	-	29.09	1.11	31.35	1.07	0.16	-	68.35	0.26	68.10
	Total	**1,164.60**	**544.65**	**1,077.96**	**370.27**	**1,627.04**	**189.57**	**4.28**	**168.46**	**5,146.83**	**88.58**	**5,058.25**

** PPA based stations*

7 Compliance to Directives

7.1 Compliance of Directives issued by the Commission

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

Directive 1: Actual Performance Parameters

GSECL shall submit month-wise, at quarterly intervals, the actual performance parameters like PAF, PLF, SHR, Aux. Consumption, SFOC, Transit Loss, etc., actual gross generation, actual net generation and coal stock position (both imported and indigenous) for each station to the Commission and place the said information on its website.

Compliance:

GSECL submitted the month wise performance parameter and coal stock position for each quarter of FY 2020-21 along with the Petition and the same has also been uploaded on its website.

Commission Comments:

The Commission has noted the submission. GSECL shall continue to submit the report as per directive.

Directive 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:

GSECL submitted that it will submit the capital expenditure proposal in its Tariff Petition for next Control Period commencing from 1st April, 2022.

Commission Comments:

The Commission has noted that GSECL has submitted the details of proposed capital expenditure for FY 2022-23 and the same has been considered by the Commission for approval, subject to prudence check. The Commission re-iterates its directive that GSECL to submit its Capex proposal along with the next MYT Petition for next Control Period commencing from 1st April, 2023.

Directive 3: Life Assessment & fulfilling Environment Norms of GSECL Plants (vide Order dated 24th April, 2019)

GSECL is directed to carry out detailed technical study on the ageing of its different Units at various stations for life assessment and requirement of any Renovation & Modernization with techno-commercial assessment keeping new environmental norms of MoEF for Thermal Power Plants. GSECL shall submit a comprehensive report at the earliest.

Compliance:

GSECL submitted the progress report on Life assessment and Fulfilling environment norms of GSECL plants along with the Petition. It is noted that the report includes status of installation of FGD for 800 MW Unit No. 8 of Wanakbori TPS, 500 MW Unit No. 6 of UTPS and 2 x 250 MW Units 3 & 4 of STPS. For all other units, approval for installation of FGD in old units are under consideration.

Commission Comments:

The Commission has noted the submission. GSECL shall continue to submit the progress report as per directive.

Directive 4: Study for Technical Minimum Operations of plants at 55% of MCR (vide Order dated 24th April, 2019)

To achieve the National RE capacity addition target of 175 GW by the year 2022, the existing coal based base load capacity has to be used as balancing power and anticipated to be more and more cycled with increase in variable RE generation in the State Grid. To absorb the highly intermittent and variable generation from RE sources, more flexible and cyclic operations with fast Ramp Up and Ramp Down from base load plants is need of the time. In order to meet this, GSECL is directed to submit a comprehensive report covering the present status of Technical minimum level operation of each thermal plant with Ramp Up and Ramp Down capability and action plan for implementing 55% Technical minimum criteria for all such efficient plants. The report may include cost of implementation including timeline and impact on machine’s life and efficiency. This report should be submitted within 3 months to the Commission.

Compliance:

GSECL submitted that, the pilot project of Coal Plant Flexible Operation covering low load trial run of Ukai TPS Unit no 4 (200 MW) & Ukai TPS Unit no 6 (500 MW) with the assistance from

USAID – GTG RISE is completed during the year 2020-21. Under the same, the low load trial of Ukai TPS unit no 6 up to 55% & 40% with ramp rate of 1% & 5% is successfully completed. Based on the learning (low load procedure) from above Pilot Coal Flexible Project, the Company has successfully completed the trial run of all other units of 200/210/250 MW up to 55% successfully. The ramp rate of the generating units is observed to be in the range of 1% - 1.7%. At present the units are run at low tech minimum load consultation with SLDC during low demand period to support grid.

Commission Comments:

The Commission has noted the submission of the Petitioner. However, GSECL is further directed to continue updating the Commission on the progress made to achieve 55% technical minimum operation and 3% ramp rate for generating plants. GSECL also needs to highlight the impact on the performance parameter due to same alongwith the detail report highlighting the cost benefit analysis.

Directive 5: Action Plan for Capacity Retirement/Addition/Utilisation (vide Order dated 26th March, 2020)

GSECL is directed to submit its Action Plan for next 10 (ten) years in next Tariff Petition for Control Period commencing from 1st April, 2021. The Action Plan shall include the plan for retirement of existing Old Stations, plan for capacity addition of Conventional Generating Stations, plan for capacity addition of Renewable Energy Plants, plan for optimum utilisation of existing Generating Stations and plan for achieving operational and economic efficiency.

Compliance:

(1) Plan for retirement of existing old Units:

(A) **Coal Based –** It would be as per recommendation of the committee constituted by CEA.

(B) **Gas Based** –

(1) Dhuvaran CCPP-I - 27.01.2024

(2) Dhuvaran CCPP-II - 31.10.2027

(3) Utran Extension - 07.11.2029

(2) Plan for Capacity Addition:

(a) Conventional power plant: *800 MW Coal based supercritical Unit 7 at Ukai TPS*

GSECL has applied for Environment clearance to MoEF&CC. Terms of Reference (TOR) received. Based on TOR, EIA report is already submitted to MoEF&CC. Preparation of Compliance to Observations of Expert Appraisal Committee in EIA report is under progress.

(b) Renewable Energy

1. Implementation of 75 MW Solar PV Project Phase-II at Dhuvaran is under progress - Scheduled COD of the project is 12.02.2021
2. 100 MW Solar PV Project Phase-I at Raghanesda is under progress - Scheduled COD of the project is 17.02.2021
3. 100 MW Solar PV Project Phase-II at Raghanesda is under progress - Scheduled COD of the project is 26.07.2021
4. 2500 MW Solar PV Project on Government around GETCO S/S

(A) LoI for (40/35/35/25/30/20) Total185 MW EPC at 06 (six) locations is awarded.

- Scheduled COD of Projects is 31.05.2021 for above 20 MW Capacity projects and 30.04.2021 for 20 MW Capacity project

(B) Pre-feasibility for potential CUF and preparation of tender for 500 MW is under progress for 18 locations where Allotment of Govt. land is received.

(C) Acquisition of Land for 2195 MW capacity at various locations (108 no's) is under progress.

(3) Plan for optimum utilisation of existing Generating stations and plan for achieving operational and economic efficiency:

- Retrofitting of Turbine and Boiler Modification in Units 3 & 5 of UTPS is planned.
- Tender preparation for EPC is under progress.

Commission Comments:

GSECL has submitted the following details as compliance to this directive

✓ Plan for retirement of existing old Units

✓ Plan for Capacity Addition (Conventional as well as Renewable Energy)

✓ Status of the Projects to be commissioned

✓ Plan for optimum utilisation of existing Generating stations and plan for achieving operational and economic efficiency

The Commission has studied the response submitted by GSECL and observed that some of the details were missing. GSECL submitted that coal-based stations would be retired based on Committee constituted by CEA but has not provided its proposal on which old coal-based Units it plans to retire. GSECL has also not provided details on the year-wise power availability and the effect of commissioning/de-commissioning on Y-o-Y basis for the next ten years.

Further, no details were provided for existing non-performing power stations (excluding the ones proposed to retire) on how it plans to achieve optimum utilisation and the road map for attaining operational and economic efficiency.

In view of the above, the Commission was not satisfied with the information submitted by GSECL in this regard. The Commission therefore directs GSECL to submit Action Plan on Capacity retirement/Addition/Utilisation for next ten (10) years for the Control Period commencing from 1st April, 2022, along with details of retirement of existing Unit/stations, generation capacity availability, capacity addition from Conventional Generating station and Renewable Energy, plan for optimum utilisation of existing generating stations and plan for achieving operational efficiency in economical manner, as directed in previous Tariff Order, in the form of a report within 45 days of the issuance of this Tariff Order.

The Commission in this regard has also issued a fresh directive to GSECL to undertake a comprehensive assessment of the rate of its existing power plants with respect to the power purchase rate prevailing in the State and overall power supply scenario before proposing additional capital expenditure for its existing plants.

Further Compliance:

GSECL submitted the following:

(1) Plan for retirement of existing old units:

The Committee of CEA has identified Ukai TPS Unit No. 3 & 5 and Wanakbori TPS Unit No 1 & 2 as Old & Inefficient and recommended for phasing out in view of higher Station heat rate (> 2600 kcal/kWh) and non-compliance of new environment norms.

For the above said units, there is no plan for retirement at present. However, GSECL intends to carry out Energy Efficiency Renovation & Modernisation to reduce SHR as well as making these units flexible (capable to run up to 30% load without oil support). After R & M, the SHR of 2350 Kcal/kWh is expected to be achieved. The tender for Ukai TPS Unit No 3 & 5 for Retrofitting of Turbine and Boiler Modification is published and

Last date of bid submission is 30th June, 2021.

(2) Plan for Capacity Addition:

(A) Conventional power plant: 800 MW Coal based supercritical Unit no 7 at Ukai TPS:

Environment clearance from MoEF & CC is received. Further Processing will be done on confirmation/Principle approval from GoG.

(B) Renewable Energy: RE Projects development plan is as under:

a. Projects to be developed under competitive bidding of GUVNL

<table>
<tr><th>Project</th><th>Capacity (MW)</th><th>Completion by/Status</th></tr>
<tr><td>SPV Project at Dhuvaran</td><td>75</td><td>Inspection for commissioning by GEDA is completed on 15.04.21</td></tr>
<tr><td>SPV Project Raghanesh da UMRE Park Ph. I</td><td>100</td><td rowspan="2">Design Engineering Material supply and civil work is under progress. Scheduled Completion by March'2022</td></tr>
<tr><td>SPV Project Raghanesh da UMRE Park Ph. II</td><td>100</td></tr>
</table>

b. 2500 MW SPV Projects to be developed on Government Waste Land near GETCO Substation:

I. Orders for EPC are awarded for 575 MW Capacity.

II. Tender for EPC for 112 MW is live. Last date of bid submission is 18.05.2021

III. Application for Land allotment of 37818 Ha at 93 locations is under progress at different collectorate

c. Development of 3325 MW RE Projects at Khavda RE Park:

- 6650 Ha. land for 3325 MW is allotted to GSECL by High power Committee of GoG.
- 50% of total capacity is to be developed within 3 years and 100% capacity to be completed within 5 years.
- Feasibility report is prepared and Preparation of Detailed Project report is under progress. - Expected submission by May, 2021
- GSECL has applied for Stage I Connectivity for power evacuation of 500MW Capacity.
- Formation of JV amongst NREL, GSECL & GIPCL is in process for Development of RE Park. MoU for Joint venture approved by Respective Boards of all Companies. Further activities will be carried out after

finalisation of JVA.

(C) GSECL also submitted the year wise capacity addition plan as under:

Year	Renewable Energy (MW)			Conventional (MW)	Total addition (MW)
	Comp. Bidding	Waste land	Khavda RE Park		
FY 2020-21	75				75
FY 2021-22	200	130			330
FY 2022-23		390	200		590
FY 2023-24		1000	500		1500
FY 2024-25		980	1000		1980
FY 2025-26			1000		1000
FY 2026-27			625	800	1425

(3) Plan for optimum utilisation of existing Generating stations and plan for achieving operational and economic efficiency:

As far as possible generation from efficient units viz UTPS Unit No 4 & 6, WTPS Unit No 3 & 8 is maximized by maintaining higher availability/reliability of these units. The major R & M of Old LMZ Units is planned to reduce variable cost by Rs. 0.46-50 per unit. This will further help in maximizing generation from these units.

Commission Comments:

The Commission has noted the submission of GSECL. Further, the Commission directed GSECL to submit ten-year action plan in order to have clear visibility on demand supply planning for the State. However, GSECL has not submitted such details. Hence, the Commission re-iterates its direction to submit the action plan for next 10 (ten) years in next Tariff Petition for Control Period commencing from 1st April, 2023. The Action Plan shall include the plan for retirement of existing Old Stations, plan for capacity addition of Conventional Generating Stations, plan for capacity addition of Renewable Energy Plants, plan for optimum utilisation of existing Generating Stations and plan for achieving operational and economic efficiency. Further, the plan shall be in coordination with the demand supply planning projected by Discoms.

Directive 6: Roadmap for Improvement of Performance of Lignite Based Stations (vide Order dated 26th March, 2020)

The Commission directs GSECL to submit roadmap for improvement the performance of Lignite based power stations, in economical manner.

Compliance:

The Power Station wise Roadmap for improvement in Performance of Lignite Based Power Stations is as under:

(A) KLTPS

1. The KLTPS Unit No 3 is capable of running at rated load of 75 MW
2. The load on KLTPS Unit No 4 is restricted to 45-47 MW against rated capacity of 75 MW due to the following
   (a) Both LHS/RHS Combustor outlet duct (COD) leakage
   (b) Frequent water wall tube leakages from 17 to 20 mtr. in combustor due to water wall tubes sagging & fins leakages
   (c) Low PA pressure due to excessive tubular APH leakages

All of the above defects are planned to be attended in ensuing AOH of unit preferably during monsoon and the required materials and work contracts are in place.

On rectification of above defects, the rated load on unit is expected

(B) BLTPS

The Major constraint in achieving rated load on Bhavnagar Lignite TPS Units is the availability/reliability of lignite feeding system. For the same, following actions are undertaken/planned to have sustained availability of lignite feeding system:

1. **Lignite Feeders** – The drag link chains of existing lignite feeders are replaced by modified designed drag link chain having better strength and reliability in both the units. After replacement of the same, no issues related to damage to drag link chain and resultant loss of generation are observed
2. **Belt Conveyors/Crushers/SCR** – At present 1 stream of lignite feeding from stockyard to bunkers is commissioned and running smoothly. The 2nd stream is yet to be commissioned (about 80-85% work is completed). The Company has taken up matter with concerned executing agency very strongly so as to complete the pending work as early as possible to have redundancy to avoid loss of generation. The work is under progress and expected to be completed by Sep.'21 end.
3. **Pipe Conveyor System** – The work of erection of pipe conveyor system for lignite transportation from lignite mines up to the Bhavnagar lignite TPS is under progress

and expected to be completed by 2021-22 end. This will help to minimize the coal feeding problems and improve availability of the units.

Since takeover/merger of the BECL is with GSECL, the Company is doing maximum efforts to put Bhavnagar TPS units on track. The generation of Bhavnagar Lignite Units during 2017-18 (prior to merger) was 480 Mus which has increased to 1201 Mus during the year 2020-21 and GSECL is committed to improve/enhance the performance of units in line with other Power Plants of GSECL in due course of time by rectification of various chronic bottlenecks.

Commission Comments:

The Commission has noted the submission made by GSECL. During truing up for FY 2020-21, the Commission notes that performance of lignite-based station is not as per approved parameters. The Commission is of view that GSECL shall take necessary measures for improvement of such performance and the same shall be considered during next tariff Petition while approving the performance parameters for these Stations. The lower performance will not give any liberty to GSECL for claim of lower performance parameter in future years.

Further, the Commission directs that GSECL shall submit the progress report on performance improvement plan for Lignite based Power Stations.

GSECL is directed to improve the O&M practices of these units so as to have improvement in PLF and efficiency.

Directive 7: Capitalisation of Capital Spares (vide Order dated 30th March, 2021)

The Commission directs GSECL to submit details of the capital spares capitalised for FY 2020-21 and onwards along with every MYT/Tariff Petition to be filed subsequently:

GSECL along with the above details should also submit the detailed justification for excess capitalisation of capital spares, if any, with respect to the limit specified in the GERC (MYT) Regulations, 2016, and the actions proposed with respect to the excess capitalisation of capital spares, if any. Non-submission of such details along with every subsequent MYT/ Tariff Petition may lead to disallowance of capitalisation.

Compliance:

GSECL submitted that the capital Spares capitalized for FY 2020-21 are of Rs. 137.09 Crore based on the unaudited Account for FY 2020-21.

Commission Comments:

During truing up for FY 2020-21, the Commission has noted the submission of GSECL regarding the emergency nature of the spares. Further, the Commission has approved this capital spares for FY 2020-21 based on submission of GSECL.

Directive 8: ESP Retrofitting works (vide Order dated 30th March, 2021)

The Commission directs GSECL to make a plant-wise assessment of the ESP Retrofitting works necessary to meet the SPM norms specified by MoEF & CC. GSECL is directed to submit station/unit wise cost required for ESP retrofitting and the benefit to be achieved through reduction in SPM norms. GSECL shall also quantify station/unit wise number of years for which the emission shall be within the norms specified by MoEF & CC, and the period of recovery of the additional cost proposed to be incurred.

Further, GSECL shall ensure that the decision to take up ESP Retrofitting works in each of the unit/station shall be after taking into account the remaining useful life of old Units which are planned to be phased out in the near future.

GSECL shall submit the comprehensive assessment report on ESP Retrofitting works covering the above details along with the next MYT/Tariff Petition.

Compliance:

GSECL submitted that, as per tender/order, the performance Guarantee is for 1.5 years. However, Environment norms are expected to be met during remaining plant life. The combine order for ESP retrofitting were awarded for WTPS Units 1, 2 & 3 & Ukai Unit No. 5, WTPS Units 4, 5 & 6 and Ukai Units 3 & 4 respectively. Unit wise beak up of cost is submitted separately by GSECL. Further, it is submitted that the payback period, considering 14 % of RoE in pass through ARR work out to be 7 years and two months.

Commission Comments:

The Commission has noted the submission made by GSECL. The Commission, while approving the capital cost for FY 2022-23, has not considered these expenses. The Commission feels that such expenditure though us required to be undertaken to meet the revised MoEF norms, the same is to be allowed on the basis of actual cost to be incurred at the time of true-up. The Commission directs GSECL to submit the cost of such works with detail justification and cost benefit analysis.

Directive 9: Overview of Power Supply Scenario (vide Order dated 30th March, 2021)

It is observed that most of the older stations of GSECL have achieved lower PLF since they are not part of the Merit Order Dispatch (MOD) schedule notified by SLDC and have been asked to backdown. On the other hand, GSECL has been commissioning new stations which qualify for MOD due to their lower energy charges but have higher fixed cost. Overall, the power stations of GSECL impose a significant burden on the consumers of the State. Further, GSECL has been proposing to take up Renovation and Modernisation works for several plants every year under capitalisation.

GSECL is therefore directed to take a holistic view on the Renovation and Modernization works claimed/proposed to be taken up every year as well as consider future Generation projects, after keeping the overall power purchase scenario in mind. GSECL shall also take into account the existing power purchase rate prevailing in the State as compared to the rates of its existing power stations before proposing capital expenditure/capitalisation through Renovation and Modernization for its stations or new Generation projects. In this regard, GSECL shall do a comprehensive assessment of the major and minor Renovation and Modernization works, taking into consideration all the above factors and submit the same along with the next MYT/Tariff Petition.

Compliance:

GSECL submitted that the new unit commissioned by GSECL during last five (5) years is 1 x 800 MW unit at Wanakbori. Thereafter, no new units are under planning stage by the Company. Moreover, the Energy Efficiency Major Renovation & Modernisation of 2 units (Ukai TPS Unit No. 4 & Wanakbori TPS Unit No. 3) was carried out during 2017-18 & 2018-19. After R &M substantial reduction (to the tune or Rs. 0.46 - 0.50 per kWh) in cost of generation was achieved in these units. The PLF of these units during the year 2019-20 was 60% as more energy was scheduled from these units being cheaper generation in the overall interest of the consumers.

However, the directive of Commission is noted and the Renovation & Modernisation proposals will be included.

Commission Comments:

The Commission has noted the submission made by GSECL. The Commission re-iterates that GSECL to take a holistic view on the Renovation and Modernization works claimed/proposed to be taken up every year as well as consider future Generation projects, after keeping the overall power purchase scenario in mind. GSECL shall also take into account the existing power purchase rate prevailing in the State as compared to the rates of its existing power stations before proposing capital expenditure/capitalisation through Renovation and Modernization for its stations or new Generation projects. In this regard, GSECL shall do a comprehensive assessment of the major and minor Renovation and Modernization works, taking into consideration all the above factors and submit the same along with the next MYT/Tariff Petition.

7.2 Fresh Directive

GSECL is directed to quarterly report the progress and status of all the above directives.

COMMISSION'S ORDER

The Commission has determined tariff of GSECL for FY 2022-23 in Chapter 6 of this Order. Accordingly, the approved energy charges and fixed charges are as mentioned in the Table Nos. Table 6.1 and Table 6.2, respectively. The Commission approves the station-wise fixed charges and energy charges for FY 2022-23 as outlined in the Table below:

Sr. No.	Power Station	Annual Fixed Charges for FY 2022-23 (Rs. Crore)	Energy Charges for FY 2022-23 (Rs./kWh)
1.	Ukai (3-5)	383.44	3.915
2.	Gandhinagar (3-4)	289.80	4.293
3.	Gandhinagar 5*	142.29	3.782
4.	Wanakbori 1-6	612.25	4.232
5.	Wanakbori 7*	147.96	4.074
6.	Sikka 3 & 4*	492.64	3.956
7.	KLTPS 3	146.38	3.189
8.	KLTPS 4	201.14	3.036
9.	BLTPS*	586.71	2.976
10.	Dhuvaran CCPP 1*	81.89	2.659
11.	Dhuvaran CCPP 2	135.03	2.937
12.	Dhuvaran CCPP 3*	192.39	2.904
13.	Utran Extension*	275.35	2.832
14.	Ukai 6*	577.64	3.453
15.	Wanakbori 8*	695.03	3.582
16.	Ukai Hydro	30.20	-
17.	Kadana Hydro	68.10	-
	Total	**5,058.25**	

** PPA based stations*

The Annual Fixed Charges is Rs. 5,058.25 Crore.

There is net gain of Rs. 10.29 Crore after considering Consolidated (Fixed & Fuel Cost) Gains / (Losses) in True-up of FY 2020-21. This amount is to be passed on to four DISCOMs in Twelve (12) equal monthly instalments through GUVNL in FY 2022-23.

This order shall come into force with effect from 1st April, 2022.

-Sd-	-Sd-	-Sd-
S.R. PANDEY **Member**	**MEHUL M. GANDHI** **Member**	**ANIL MUKIM** **Chairman**

Place: Gandhinagar
Date: 30.03.2022

Annexure A

A-1: Ukai TPS 3 to 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,100.79
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	189.07
4	Net Generation	Y=A-B	MUs	1,911.72
5	Station Heat Rate	D	Kcal/kWh	2,625.00
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,527.89
8	Calorific value of oil	G	Kcal/l	10,418.24
9	Overall Heat	H= A x D	Gcal	55,14,573.75
10	Heat from Oil	I= (A x E x G)/1000	Gcal	21,886.53
11	Heat from Coal	J = H-I	Gcal	54,92,687.22
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	91.17%
15	(B) Washed Coal	X2	%	8.83%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2,100.79
18	Actual Coal consumption	M= (J x 1000)/F	MT	15,56,932.09
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	14,30,925.22
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1,38,562.77
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,596.51
24	(B) Washed Coal	P2	Rs./MT	4,979.42
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	37,222.51
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	65,772.57
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	6,899.62
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	72,672.19
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	781.97
33	Total fuel cost	O= N4+N5	Rs.Lakh	73,454.16
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.497**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.842**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,332.00
37	Actual net generation	S	MUs	1,884.39
38	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**724.04**

A-2: Gandhinagar 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	743.35
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	66.90
4	Net Generation	Y=A-B	MUs	676.45
5	Station Heat Rate	D	Kcal/kWh	2,625.00
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,630.65
8	Calorific value of oil	G	Kcal/l	10,420.00
9	Overall Heat	H= A x D	Gcal	19,51,296.38
10	Heat from Oil	I= (A x E x G)/1000	Gcal	7,745.72
11	Heat from Coal	J = H-I	Gcal	19,43,550.66
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	94.31%
15	(B) Washed Coal	X2	%	5.69%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	743.35
18	Actual Coal consumption	M= (J x 1000)/F	MT	5,35,316.88
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	5,08,921.34
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	30,712.62
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	5,031.70
24	(B) Washed Coal	P2	Rs./MT	5,655.32
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	32,333.43
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	25,607.41
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	1,736.90
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	27,344.31
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	240.35
33	Total fuel cost	O= N4+N5	Rs.Lakh	27,584.66
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.711**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**4.078**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,413.66
37	Actual net generation	S	MUs	659.56
38	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**268.96**

A-3: Gandhinagar 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	721.11
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	68.51
4	Net Generation	Y=A-B	MUs	652.61
5	Station Heat Rate	D	Kcal/kWh	2,460.00
6	Sp. Oil Consumption	E	ml/kWh	3.50
7	Gross calorific value of coal	F	Kcal/Kg	3,641.29
8	Calorific value of oil	G	Kcal/l	10,497.17
9	Overall Heat	H= A x D	Gcal	17,73,933.06
10	Heat from Oil	I= (A x E x G)/1000	Gcal	26,493.68
11	Heat from Coal	J = H-I	Gcal	17,47,439.38
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	75.37%
15	(B) Washed Coal	X2	%	24.63%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2,523.89
18	Actual Coal consumption	M= (J x 1000)/F	MT	4,79,895.54
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	3,64,623.27
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1,19,142.40
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,688.10
24	(B) Washed Coal	P2	Rs./MT	5,427.80
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	33,727.66
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	17,093.91
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	6,466.82
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	23,560.73
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	851.25
33	Total fuel cost	O= N4+N5	Rs.Lakh	24,411.98
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.385**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.741**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,376.15
37	Actual net generation	S	MUs	641.41
38	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**239.93**

A-4: Wanakbori 1-6- Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,443.12
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	219.88
4	Net Generation	Y=A-B	MUs	2,223.24
5	Station Heat Rate	D	kcal/kWh	2,575.00
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	kcal/Kg	3,375.33
8	Calorific value of oil	G	kcal/L	10,266.00
9	Overall Heat	H= A x D	Gcal	62,91,028.85
10	Heat from Oil	I= (A x E x G)/1000	Gcal	25,081.05
11	Heat from Coal	J = H-I	Gcal	62,65,947.80
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	93.31%
15	(B) Washed Coal	X2	%	6.69%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	Kl	2,443.12
18	Actual Coal consumption	M= (J x 1000)/F	MT	18,56,397.00
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	17,46,205.39
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1,25,162.56
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,927.69
24	(B) Washed Coal	P2	Rs./MT	4,994.30
25	(C) Imported Coal	P3	Rs./MT	5,095.39
26	Price of oil	P4	Rs./Kl	31,747.69
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	86,047.56
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	6,250.99
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	92,298.55
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	775.63
33	Total fuel cost	O= N4+N5	Rs.Lakh	93,074.18
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.810**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**4.186**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,479.47
37	Actual net generation	S	MUs	2,192.85
38	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**918.02**

A-5: Wanakbori 7- Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	572.90
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	54.43
4	Net Generation	Y=A-B	MUs	518.47
5	Station Heat Rate	D	Kcal/kWh	2,460.00
6	Sp. Oil Consumption	E	ml/kWh	3.50
7	Gross calorific value of coal	F	Kcal/Kg	3,426.60
8	Calorific value of oil	G	Kcal/l	10,254.08
9	Overall Heat	H= A x D	Gcal	14,09,334.00
10	Heat from Oil	I= (A x E x G)/1000	Gcal	20,560.97
11	Heat from Coal	J = H-I	Gcal	13,88,773.03
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	91.65%
15	(B) Washed Coal	X2	%	8.35%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2,005.15
18	Actual Coal consumption	M= (J x 1000)/F	MT	4,05,291.70
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	3,74,459.73
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	34,100.44
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,683.60
24	(B) Washed Coal	P2	Rs./MT	5,350.25
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	30,952.08
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	17,538.18
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	1,824.46
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	19,362.64
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	620.64
33	Total fuel cost	O= N4+N5	Rs.Lakh	19,983.28
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.488**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.854**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,417.92
37	Actual net generation	S	MUs	515.28
38	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**198.60**

A-6: Sikka Extension 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	1,836.21
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	165.26
4	Net Generation	Y=A-B	MUs	1,670.95
5	Station Heat Rate	D	kcal/kWh	2,398.00
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	4,880.63
8	Calorific value of oil	G	Kcal/L	10,304.00
9	Overall Heat	H= A x D	Gcal	44,03,233.98
10	Heat from Oil	I= (A x E x G)/1000	Gcal	18,920.32
11	Heat from Coal	J = H-I	Gcal	43,84,313.66
12	Transit losses	K	%	0.00%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	0.00%
15	(B) Washed Coal	X2	%	0.00%
16	(C) Imported Coal	X3	%	100.00%
17	Actual oil consumption	L= A x E	KL	1,836.21
18	Actual Coal consumption	M= (J x 1000)/F	MT	8,98,309.64
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	-
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	-
21	(C) Imported Coal	Q3=M* X X3	MT	8,98,309.64
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	-
24	(B) Washed Coal	P2	Rs./MT	-
25	(C) Imported Coal	P3	Rs./MT	6,251.73
26	Price of oil	P4	Rs./Kl	38,399.88
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	-
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	-
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	56,159.85
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	56,159.85
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	705.10
33	Total fuel cost	O= N4+N5	Rs.Lakh	56,864.95
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.097**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.403**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,291.44
37	Actual net generation	S	MUs	1,652.69
38	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**562.44**

A-7: KLTPS 1-3 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	478.26
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	57.39
4	Net Generation	Y=A-B	MUs	420.87
5	Station Heat Rate	D	kcal/kWh	3,231.00
6	Sp. Oil Consumption	E	ml/kWh	3.00
7	Gross calorific value of Lignite	F	kcal/Kg	2,345.95
8	Calorific value of oil	G	kcal/l	10,478.90
9	Overall Heat	H= A x D	Gcal	15,45,248.37
10	Heat from Oil	I= (A x E x G)/1000	Gcal	15,034.82
11	Heat from Lignite	J = H-I	Gcal	15,30,213.55
12	Transit losses	K	%	0.20%
13	Actual oil consumption	L= A x E	KL	1,434.77
14	Actual lignite consumption	M= (J x 1000)/F	MT	6,52,277.68
15	Actual lignite consumption including transit losses	N=M/(1-k)	MT	6,53,584.85
16	Price of Lignite	P1	Rs/MT	1,885.65
17	Price of Oil	P2	Rs/KL	35,312.45
18	Cost of Lignite	N1=MxP1	Rs.Lakh	12,324.34
19	Oil Cost	N2=LxP2	Rs.Lakh	506.65
20	Total Fuel Cost	O=N1+N2	Rs.Lakh	12,830.99
21	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**2.683**
22	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.049**
23	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	830.35
24	Actual net generation	S	MUs	418.75
25	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**127.66**

A-8: KLTPS 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	331.18
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	39.74
4	Net Generation	Y=A-B	MUs	291.44
5	Station Heat Rate	D	Kcal/kWh	3,000.00
6	Sp. Oil Consumption	E	ml/kWh	3.00
7	Gross calorific value of Lignite	F	Kcal/Kg	2,345.95
8	Calorific value of oil	G	Kcal/l	10,642.31
9	Overall Heat	H= A x D	Gcal	9,93,531.00
10	Heat from Oil	I= (A x E x G)/1000	Gcal	10,573.47
11	Heat from Lignite	J = H-I	Gcal	9,82,957.53
12	Transit losses	K	%	0.20%
13	Actual oil consumption	L= A x E	KL	993.53
14	Actual lignite consumption	M= (J x 1000)/F	MT	4,19,001.16
15	Actual lignite consumption including transit losses	N=M/(1-k)	MT	4,19,840.85
16	Price of Lignite	P1	Rs/MT	1,852.84
17	Price of Oil	P2	Rs/KL	36,971.12
18	Cost of Lignite	N1=MxP1	Rs.Lakh	7,778.97
19	Oil Cost	N2=LxP2	Rs.Lakh	367.32
20	Total Fuel Cost	O=N1+N2	Rs.Lakh	8,146.29
21	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**2.460**
22	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**2.795**
23	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	819.93
24	Actual net generation	S	MUs	253.73
25	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**70.92**

A-9: BLTPS 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1.	Gross Generation	A	MUs	1,201.03
2.	Auxiliary Consumption	C	%	11.00%
3.	Auxiliary Consumption	B	MUs	132.11
4.	Net Generation	Y=A-B	MUs	1,068.92
5.	Station Heat Rate	D	Kcal/kWh	2,623.00
6.	Sp. Oil Consumption	E1	ml/kWh	1.00
7.	Sp. Consumption of Limestone	E2	kg/kWh	0.26
8.	Gross calorific value of Lignite	F	Kcal/Kg	2,712.27
9.	Calorific value of oil	G	Kcal/l	10,594.18
10.	Overall Heat	H= A x D	Gcal	31,50,301.69
11.	Heat from Oil	I= (A x E x G)/1000	Gcal	12,723.93
12.	Heat from lignite	J = H-I	Gcal	31,37,577.76
13.	Transit losses	K	%	0.80%
14.	Lignite		%	100.00%
15.	Actual oil consumption	L= A x E	KL	1,201.03
16.	Actual Lignite consumption	M= (J x 1000)/F	MT	11,56,807.91
17.	Coal consumption incl. transit losses	N=M/(1-K)	MT	11,66,137.01
18.	Actual Lime Consumption	O=E2 x A x1000	MT	3,12,267.80
19.	Price of lignite	P1	Rs./MT	2,237.13
20.	Price of oil	P2	Rs./KL	39,383.31
21.	Price of Lime	P3	Rs./MT	1,096.74
22.	Cost of lignite	N1= M x P1	Rs. Lakh	26,088.01
23.	Oil cost	N2=P2 x L/10^5	Rs. Lakh	473.01
24.	Cost of Lime	N3 = O x P3/10^5	Rs.Lakh	3,424.76
25.	Total fuel cost	O= N1 + N2+N3	Rs. Lakh	29,985.78
26.	**Fuel cost/Unit (Gross)**	**P=O/(A*10)**	**Rs/kWh**	**2.497**
27.	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**2.805**
28.	Cost of fuel/Gcal	R=(O/H)*10^5	Rs./Gcal	951.84
29.	Actual net generation	S	MUs	927.40
30.	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**260.16**

A-10: Dhuvaran CCPP 1 - Approved Fuel Costs (Gas) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	341.36
2	Auxiliary Consumption	B	%	4.00%
3	Auxiliary Consumption	C	MUs	13.65
4	Net Generation	Y=A-C	MUs	327.70
5	Station Heat Rate	D	Kcal/kWh	1,950.00
6	Calorific value of gas	E	Kcal/Scm	9,406.83
7	Overall heat from gas	F= A x D	Gcal	6,65,646.15
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	70.76
9	Price of gas	H	Rs/scm	12.32
10	Cost of gas	I = G x H *10	Rs. Lakh	8,714.49
11	Total fuel cost	J = I	Rs. Lakh	8,714.49
12	**Fuel cost/unit (Gross)**	**K=J/(A*10)**	**Rs/kWh**	**2.553**
13	**Fuel cost/unit (Net)**	**L=J/(Y*10)**	**Rs/kWh**	**2.659**
14	Cost of fuel/G.Cal	M=(J / F)*10^5	Rs/Gcal	1,309.18
15	Actual net generation	N	Mus	322.47
16	**Normative Fuel Cost for actual Net Generation**	**O=L x N/10**	**Rs. Crore**	**85.75**

A-11: Dhuvaran CCPP 2 - Approved Fuel Costs (Gas) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	339.18
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	10.18
4	Net Generation	Y=A-C	MUs	329.01
5	Station Heat Rate	D	Kcal/kWh	1,950.00
6	Calorific value of gas	E	Kcal/Scm	9,298.72
7	Overall heat from gas	F= A x D	Gcal	6,61,410.56
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	71.13
9	Price of gas	H	Rs/scm	13.58
10	Cost of gas	I = G x H *10	Rs. Lakh	9,661.82
11	Total fuel cost	J = I	Rs. Lakh	9,661.82
12	**Fuel cost/unit (Gross)**	**K=J/(A*10)**	**Rs/kWh**	**2.849**
13	**Fuel cost/unit (Net)**	**L=J/(Y*10)**	**Rs/kWh**	**2.937**
14	Cost of fuel/G.Cal	M=(J / F)*10^5	Rs/Gcal	1,460.79
15	Actual net generation	N	Mus	320.41
16	**Normative Fuel Cost for actual Net Generation**	**O=L x N/10**	**Rs. Crore**	**94.09**

A-12: Dhuvaran CCPP 3 - Approved Fuel Costs (Gas) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	963.91
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	28.92
4	Net Generation	Y=A-C	MUs	935.00
5	Station Heat Rate	D	Kcal/kWh	1,850.00
6	Calorific value of gas	E	Kcal/Scm	9,269.15
7	Overall heat from gas	F= A x D	Gcal	17,83,239.05
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	192.38
9	Price of gas	H	Rs/scm	14.12
10	Cost of gas	I = G x H *10	Rs.Lakh	27,156.66
11	Total fuel cost	J = I	Rs. Lakh	27,156.66
12	**Fuel cost/unit (Gross)**	**K=J/(A*10)**	**Rs/kWh**	**2.817**
13	**Fuel cost/unit (Net)**	**L=J/(Y*10)**	**Rs/kWh**	**2.904**
14	Cost of fuel/G.Cal	M=(J / F)*10^5	Rs/Gcal	1,522.88
15	Actual net generation	N	Mus	936.15
16	**Normative Fuel Cost for actual Net Generation**	**O=L x N/10**	**Rs. Crore**	**271.90**

A-13: Utran Extension - Approved Fuel Costs (Gas) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	APPROVED
2	Auxiliary Consumption	B	%	1,764.45
3	Auxiliary Consumption	C	MUs	3.00%
4	Net Generation	Y=A-C	MUs	52.93
5	Station Heat Rate	D	Kcal/kWh	1,711.52
6	Calorific value of gas	E	Kcal/Scm	1,850.00
7	Overall heat from gas	F= A x D	Gcal	9,328.80
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	32,64,238.05
9	Price of gas	H	Rs/scm	349.91
10	Cost of gas	I = G x H *10	Rs.Lakh	13.85
11	Total fuel cost	J = I	Rs. Lakh	48,462.33
12	**Fuel cost/unit (Gross)**	**K=J/(A*10)**	**Rs/kWh**	**2.747**
13	**Fuel cost/unit (Net)**	**L=J/(Y*10)**	**Rs/kWh**	**2.832**
14	Cost of fuel/G.Cal	M=(J / F)*10^5	Rs/Gcal	1,484.64
15	Actual net generation	N	Mus	1,721.68
16	**Normative Fuel Cost for actual Net Generation**	**O=L x N/10**	**Rs. Crore**	**487.50**

A-14: Ukai 6 - Approved Fuel Costs (Coal, Lignite &Secondary oil) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,501.16
2	Auxiliary Consumption	C	%	6.00%
3	Auxiliary Consumption	B	MUs	150.07
4	Net Generation	Y=A-B	MUs	2,351.09
5	Station Heat Rate	D	Kcal/kWh	2,385.00
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,576.90
8	Calorific value of oil	G	Kcal/l	10,396.88
9	Overall Heat	H= A x D	Gcal	59,65,259.45
10	Heat from Oil	I= (A x E x G)/1000	Gcal	26,004.24
11	Heat from Coal	J = H-I	Gcal	59,39,255.20
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	80.91%
15	(B) Washed Coal	X2	%	19.09%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2,501.16
18	Actual Coal consumption	M= (J x 1000)/F	MT	16,60,446.97
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	13,54,293.32
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	3,19,544.35
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,438.23
24	(B) Washed Coal	P2	Rs./MT	4,513.54
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	39,056.23
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	60,106.61
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	14,422.77
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	74,529.39
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	976.86
33	Total fuel cost	O= N4+N5	Rs.Lakh	75,506.24
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.019**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.212**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,265.77
37	Actual net generation	S	MUs	2,334.00
38	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**749.57**

A-15: Wanakbori 8 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2020-21

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	3,392.67
2	Auxiliary Consumption	C	%	5.25%
3	Auxiliary Consumption	B	MUs	178.12
4	Net Generation	Y=A-B	MUs	3,214.56
5	Station Heat Rate	D	Kcal/kWh	2,248.00
6	Sp. Oil Consumption	E	ml/kWh	0.50
7	Gross calorific value of coal	F	Kcal/Kg	3,589.11
8	Calorific value of oil	G	Kcal/l	10,322.00
9	Overall Heat	H= A x D	Gcal	76,26,726.66
10	Heat from Oil	I= (A x E x G)/1000	Gcal	17,509.58
11	Heat from Coal	J = H-I	Gcal	76,09,217.08
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	67.17%
15	(B) Washed Coal	X2	%	32.83%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	1,696.34
18	Actual Coal consumption	M= (J x 1000)/F	MT	21,20,083.50
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	14,35,446.56
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	7,01,734.39
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,652.93
24	(B) Washed Coal	P2	Rs./MT	5,402.22
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	32,846.96
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	66,790.37
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	37,909.26
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	1,04,699.63
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	557.19
33	Total fuel cost	O= N4+N5	Rs.Lakh	1,05,256.83
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.102**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.274**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,380.10
37	Actual net generation	S	MUs	3,205.03
38	**Normative Fuel Cost for actual Net Generation**	**T=S*Q/10**	**Rs. Crore**	**1,049.45**

Annexure B

B-1: Ukai TPS 3 to 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	3206.16
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	288.55
4	Net Generation	Y=A-B	MUs	2917.61
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	3650
8	Calorific value of oil	G	Kcal/l	10418
9	Overall Heat	H= A x D	Gcal	8416170
10	Heat from Oil	I= (A x E x G)/1000	Gcal	33402
11	Heat from Coal	J = H-I	Gcal	8382767
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	40%
15	(B) Washed Coal	X2	%	60%
16	(C) Imported Coal	X3	%	0%
17	Actual oil consumption	L= A x E	KL	3206
18	Actual Coal consumption	M= (J x 1000)/F	MT	2296478
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	925999
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1388999
21	(C) Imported Coal	Q3=M* X X3	MT	0.00
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,519.17
24	(B) Washed Coal	P2	Rs./MT	5,124.07
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	37,222.51
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	41,847.46
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	71,173.23
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	0.00
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	1,13,020.68
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,193.41
33	Total fuel cost	O= N4+N5	Rs.Lakh	1,14,214.09
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.562**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.915**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1357.08

B-2: Gandhinagar 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2023.56
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	182.12
4	Net Generation	Y=A-B	MUs	1841.44
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	3604.90
8	Calorific value of oil	G	Kcal/l	10420
9	Overall Heat	H= A x D	Gcal	5311845
10	Heat from Oil	I= (A x E x G)/1000	Gcal	21085
11	Heat from Coal	J = H-I	Gcal	5290760
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	40%
15	(B) Washed Coal	X2	%	60%
16	(C) Imported Coal	X3	%	0%
17	Actual oil consumption	L= A x E	KL	2024
18	Actual Coal consumption	M= (J x 1000)/F	MT	1467656
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	591797
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	887695
21	(C) Imported Coal	Q3=M* X X3	MT	0.00
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4941
24	(B) Washed Coal	P2	Rs./MT	5537
25	(C) Imported Coal	P3	Rs./MT	0
26	Price of oil	P4	Rs./Kl	32333
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	29241.45
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	49155.48
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	0.00
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	78396.93
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	654.29
33	Total fuel cost	O= N4+N5	Rs.Lakh	79051.21
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.907**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**4.293**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1488.21

B-3: Gandhinagar 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	1379.70
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	131.07
4	Net Generation	Y=A-B	MUs	1,248.63
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	3,838
8	Calorific value of oil	G	Kcal/l	10,497
9	Overall Heat	H= A x D	Gcal	33,94,062
10	Heat from Oil	I= (A x E x G)/1000	Gcal	50,690
11	Heat from Coal	J = H-I	Gcal	33,43,372
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	40%
15	(B) Washed Coal	X2	%	60%
16	(C) Imported Coal	X3	%	0%
17	Actual oil consumption	L= A x E	KL	4,829
18	Actual Coal consumption	M= (J x 1000)/F	MT	8,71,086
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	3,51,244
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	5,26,867
21	(C) Imported Coal	Q3=M* X X3	MT	0.00
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,902.84
24	(B) Washed Coal	P2	Rs./MT	5,384.81
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	33,727.66
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	17,220.97
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	28,370.78
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	45,591.75
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,628.69
33	Total fuel cost	O= N4+N5	Rs.Lakh	47,220.44
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.423**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.782**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,391.27

B-4: Wanakbori 1-6- Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	6070.68
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	546.36
4	Net Generation	Y=A-B	MUs	5,524.32
5	Station Heat Rate	D	Kcal/kWh	2575
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,502
8	Calorific value of oil	G	Kcal/l	10,266
9	Overall Heat	H= A x D	Gcal	1,56,32,001
10	Heat from Oil	I= (A x E x G)/1000	Gcal	62,322
11	Heat from Coal	J = H-I	Gcal	1,55,69,679
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	40%
15	(B) Washed Coal	X2	%	60%
16	(C) Imported Coal	X3	%	0%
17	Actual oil consumption	L= A x E	KL	6,071
18	Actual Coal consumption	M= (J x 1000)/F	MT	44,45,709
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	17,92,625
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	26,88,937
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,713.75
24	(B) Washed Coal	P2	Rs./MT	5,479.34
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	31,747.69
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	84,499.80
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	1,47,336.06
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	2,31,835.86
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,927.30
33	Total fuel cost	O= N4+N5	Rs.Lakh	2,33,763.16
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.851**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**4.232**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,495.41

B-5: Wanakbori 7- Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	1,287.72
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	122.33
4	Net Generation	Y=A-B	MUs	1,165.39
5	Station Heat Rate	D	Kcal/kWh	2,460
6	Sp. Oil Consumption	E	ml/kWh	3.50
7	Gross calorific value of coal	F	Kcal/Kg	3,538
8	Calorific value of oil	G	Kcal/l	10,254
9	Overall Heat	H= A x D	Gcal	31,67,791
10	Heat from Oil	I= (A x E x G)/1000	Gcal	46,215
11	Heat from Coal	J = H-I	Gcal	31,21,576
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	40%
15	(B) Washed Coal	X2	%	60%
16	(C) Imported Coal	X3	%	0%
17	Actual oil consumption	L= A x E	KL	4,507
18	Actual Coal consumption	M= (J x 1000)/F	MT	8,82,361
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	3,55,791
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	5,33,686
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,726.41
24	(B) Washed Coal	P2	Rs./MT	5,484.21
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	30,952.08
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	16,816.11
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	29,268.45
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	46,084.56
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,395.02
33	Total fuel cost	O= N4+N5	Rs.Lakh	47,479.58
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.687**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**4.074**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,498.82

B-6: Sikka Extension 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	3,066.00
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	275.94
4	Net Generation	Y=A-B	MUs	2,790.06
5	Station Heat Rate	D	Kcal/kWh	2,398
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	4,944
8	Calorific value of oil	G	Kcal/l	10,304
9	Overall Heat	H= A x D	Gcal	73,52,268
10	Heat from Oil	I= (A x E x G)/1000	Gcal	31,592
11	Heat from Coal	J = H-I	Gcal	73,20,676
12	Transit losses	K	%	0.00%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	0%
15	(B) Washed Coal	X2	%	0%
16	(C) Imported Coal	X3	%	100%
17	Actual oil consumption	L= A x E	KL	3,066
18	Actual Coal consumption	M= (J x 1000)/F	MT	14,80,576
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	-
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	-
21	(C) Imported Coal	Q3=M* X X3	MT	14,80,576
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	-
24	(B) Washed Coal	P2	Rs./MT	-
25	(C) Imported Coal	P3	Rs./MT	7,375.52
26	Price of oil	P4	Rs./Kl	38,399.88
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	-
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	-
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	1,09,200.24
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	1,09,200.24
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,177.34
33	Total fuel cost	O= N4+N5	Rs.Lakh	1,10,377.58
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.600**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.956**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,501.27

B-7: KLTPS 1-3 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	492.75
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	59.13
4	Net Generation	Y=A-B	MUs	433.62
5	Station Heat Rate	D	kcal/kWh	3,231
6	Sp. Oil Consumption	E	ml/kWh	3.00
7	Gross calorific value of Lignite	F	kcal/Kg	2,439
8	Calorific value of oil	G	kcal/l	10,479
9	Overall Heat	H= A x D	Gcal	15,92,075.25
10	Heat from Oil	I= (A x E x G)/1000	Gcal	15,490.43
11	Heat from Lignite	J = H-I	Gcal	15,76,584.82
12	Transit losses	K	%	0.20%
13	Actual oil consumption	L= A x E	KL	1,478.25
14	Actual lignite consumption including transit losses	M=(J x 1000)/F/(1-K)	MT	6,47,708.15
15	Price of Lignite	P1	Rs/MT	2,054.11
16	Price of Oil	P2	Rs/KL	35,312.45
17	Cost of Lignite	N1=MxP1	Rs.Lakh	13,304.66
18	Oil Cost	N2=LxP2	Rs.Lakh	522.01
19	Total Fuel Cost	O=N1+N2	Rs.Lakh	13,826.67
20	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**2.806**
21	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.189**
22	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	868.47

B-8: KLTPS 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	492.75
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	59.13
4	Net Generation	Y=A-B	MUs	433.62
5	Station Heat Rate	D	kcal/kWh	3,000
6	Sp. Oil Consumption	E	ml/kWh	3.00
7	Sp. Consumption of Limestone	LM1	Kg/kWh	0.26
8	Gross calorific value of Lignite	F	kcal/Kg	2,439
9	Calorific value of oil	G	kcal/l	10,642
10	Overall Heat	H= A x D	Gcal	14,78,250
11	Heat from Oil	I= (A x E x G)/1000	Gcal	15,732
12	Heat from Lignite	J = H-I	Gcal	14,62,518
13	Transit losses	K	%	0.20%
14	Actual oil consumption	L= A x E	KL	1,478
15	Actual lignite consumption including transit losses	M=(J x 1000)/F/(1-K)	MT	6,00,846
16	Actual Lime Consumption	LM2 = LM1*A*1000	MT	1,28,115
17	Price of Lignite	P1	Rs/MT	2,054.11
18	Price of Oil	P2	Rs/KL	36,971.12
19	Price of Lime	P3	Rs/MT	215.28
20	Cost of Lignite	N1=MxP1	Rs.Lakh	12,342.06
21	Oil Cost	N2=LxP2	Rs.Lakh	546.53
22	Cost of Lime	N3=LM2 X P3/10^5	Rs.Lakh	275.81
23	Total Fuel Cost	O=N1+N2+N3	Rs.Lakh	13,164.39
24	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**2.672**
25	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.036**
26	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	890.54

B-9: BLTPS 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,628.00
2	Auxiliary Consumption	C	%	11.00%
3	Auxiliary Consumption	B	MUs	289.08
4	Net Generation	Y=A-B	MUs	2,338.92
5	Station Heat Rate	D	kcal/kWh	2,623
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Sp. Consumption of Limestone	LM1	Kg/kWh	0.26
8	Gross calorific value of Lignite	F	kcal/Kg	2,698
9	Calorific value of oil	G	kcal/l	10,594
10	Overall Heat	H= A x D	Gcal	68,93,244
11	Heat from Oil	I= (A x E x G)/1000	Gcal	27,842
12	Heat from Lignite	J = H-I	Gcal	68,65,402
13	Transit losses	K	%	0.20%
14	Actual oil consumption	L= A x E	KL	2,628
15	Actual lignite consumption including transit losses	M=(J x 1000)/F/(1-K)	MT	25,49,793
16	Actual Lime Consumption	LM2 = LM1*A*1000	MT	6,83,280
17	Price of Lignite	P1	Rs/MT	2,395.65
18	Price of Oil	P2	Rs/KL	39,383.31
19	Price of Lime	P3	Rs/MT	1,096.74
20	Cost of Lignite	N1=MxP1	Rs.Lakh	61,084.12
21	Oil Cost	N2=LxP2	Rs.Lakh	1,034.99
22	Cost of Lime	N3=LM2 X P3/10^5	Rs.Lakh	7,493.79
23	Total Fuel Cost	O=N1+N2+N3	Rs.Lakh	69,612.90
24	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**2.649**
25	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**2.976**
26	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,009.87

B-10: Dhuvaran CCPP 1 - Approved Fuel Costs (Gas) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	233.49
2	Auxiliary Consumption	B	%	4.00%
3	Auxiliary Consumption	C	MUs	9.34
4	Net Generation	Y=A-C	MUs	224.15
5	Station Heat Rate	D	Kcal/kWh	1,950
6	Calorific value of gas	E	Kcal/Scm	9,407
7	Overall heat from gas	F= A x D	Gcal	4,55,308
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	48.40
9	Price of gas	H	Rs/scm	12.32
10	Cost of gas	I = G x H *10	Rs. Lakh	5,960.79
11	Total fuel cost	J = I	Rs. Lakh	5,960.79
12	**Fuel cost/unit (Gross)**	**K=J/(A*10)**	**Rs/kWh**	**2.553**
13	**Fuel cost/unit (Net)**	**L=J/(Y*10)**	**Rs/kWh**	**2.659**
14	Cost of fuel/G.Cal	M=(J / F)*10^5	Rs/Gcal	1,309.18

B-11: Dhuvaran CCPP 2 - Approved Fuel Costs (Gas) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	246.27
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	7.39
4	Net Generation	Y=A-C	MUs	238.88
5	Station Heat Rate	D	Kcal/kWh	1,950
6	Calorific value of gas	E	Kcal/Scm	9,299
7	Overall heat from gas	F= A x D	Gcal	4,80,218
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	51.64
9	Price of gas	H	Rs/scm	13.58
10	Cost of gas	I = G x H *10	Rs. Lakh	7,014.97
11	Total fuel cost	J = I	Rs. Lakh	7,014.97
12	**Fuel cost/unit (Gross)**	**K=J/(A*10)**	**Rs/kWh**	**2.849**
13	**Fuel cost/unit (Net)**	**L=J/(Y*10)**	**Rs/kWh**	**2.937**
14	Cost of fuel/G.Cal	M=(J / F)*10^5	Rs/Gcal	1,460.79

B-12: Dhuvaran CCPP 3 - Approved Fuel Costs (Gas) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	823.66
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	24.71
4	Net Generation	Y=A-C	MUs	798.95
5	Station Heat Rate	D	Kcal/kWh	1,850.00
6	Calorific value of gas	E	Kcal/Scm	9,269
7	Overall heat from gas	F= A x D	Gcal	15,23,769
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	164.39
9	Price of gas	H	Rs/scm	14.12
10	Cost of gas	I = G x H *10	Rs. Lakh	23,205.23
11	Total fuel cost	J = I	Rs. Lakh	23,205.23
12	**Fuel cost/unit (Gross)**	**K=J/(A*10)**	**Rs/kWh**	**2.817**
13	**Fuel cost/unit (Net)**	**L=J/(Y*10)**	**Rs/kWh**	**2.904**
14	Cost of fuel/G.Cal	M=(J / F)*10^5	Rs/Gcal	1,522.88

B-13: Utran Extension - Approved Fuel Costs (Gas) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	820.31
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	24.61
4	Net Generation	Y=A-C	MUs	795.70
5	Station Heat Rate	D	Kcal/kWh	1,850
6	Calorific value of gas	E	Kcal/Scm	9,329
7	Overall heat from gas	F= A x D	Gcal	15,17,574
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	162.68
9	Price of gas	H	Rs/scm	13.85
10	Cost of gas	I = G x H *10	Rs. Lakh	22,530.59
11	Total fuel cost	J = I	Rs. Lakh	22,530.59
12	**Fuel cost/unit (Gross)**	**K=J/(A*10)**	**Rs/kWh**	**2.747**
13	**Fuel cost/unit (Net)**	**L=J/(Y*10)**	**Rs/kWh**	**2.832**
14	Cost of fuel/G.Cal	M=(J / F)*10^5	Rs/Gcal	1,484.64

B-14: Ukai 6 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	3,285.00
2	Auxiliary Consumption	C	%	6.00%
3	Auxiliary Consumption	B	MUs	197.10
4	Net Generation	Y=A-B	MUs	3,087.90
5	Station Heat Rate	D	Kcal/kWh	2,385
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,643
8	Calorific value of oil	G	Kcal/l	10,397
9	Overall Heat	H= A x D	Gcal	78,34,725
10	Heat from Oil	I= (A x E x G)/1000	Gcal	34,154
11	Heat from Coal	J = H-I	Gcal	78,00,571
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	40%
15	(B) Washed Coal	X2	%	60%
16	(C) Imported Coal	X3	%	0%
17	Actual oil consumption	L= A x E	KL	3,285
18	Actual Coal consumption	M= (J x 1000)/F	MT	21,41,149
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	8,63,366
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	12,95,050
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,502.07
24	(B) Washed Coal	P2	Rs./MT	5,133.39
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	39,056.23
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	38,869.40
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	66,479.94
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	1,05,349.35
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,283.00
33	Total fuel cost	O= N4+N5	Rs.Lakh	1,06,632.34
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.246**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.453**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,361.02

B-15: Wanakbori 8 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2022-23

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	5,606.40
2	Auxiliary Consumption	C	%	5.25%
3	Auxiliary Consumption	B	MUs	294.34
4	Net Generation	Y=A-B	MUs	5,312.06
5	Station Heat Rate	D	Kcal/kWh	2,248
6	Sp. Oil Consumption	E	ml/kWh	0.50
7	Gross calorific value of coal	F	Kcal/Kg	3,472
8	Calorific value of oil	G	Kcal/l	10,322
9	Overall Heat	H= A x D	Gcal	1,26,03,187
10	Heat from Oil	I= (A x E x G)/1000	Gcal	28,935
11	Heat from Coal	J = H-I	Gcal	1,25,74,253
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	40.00%
15	(B) Washed Coal	X2	%	60.00%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2803
18	Actual Coal consumption	M= (J x 1000)/F	MT	3621792
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1460400
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	2190600
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,740.55
24	(B) Washed Coal	P2	Rs./MT	5,484.25
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	32,846.96
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	69,230.99
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	1,20,137.91
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	1,89,368.90
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	920.77
33	Total fuel cost	O= N4+N5	Rs.Lakh	1,90,289.67
34	**Fuel cost/Unit (Gross)**	**P= O/(A*10)**	**Rs/kWh**	**3.394**
35	**Fuel cost/Unit (Net)**	**Q=O/(Y*10)**	**Rs/kWh**	**3.582**
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,509.85