

GUJARAT ELECTRICITY REGULATORY COMMISSION



Tariff Order

Truing up for FY 2021-22

and

Determination of ARR and Tariff for FY 2023-24

For

Gujarat State Electricity Corporation Limited (GSECL)

Case No. 2162 of 2022

31st March, 2023

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**GUJARAT ELECTRICITY REGULATORY COMMISSION
(GERC)**

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(GSECL)**

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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. 2162 of 2022

Date of the Order: 31st March, 2023

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 2020-21 and Determination of Tariff for FY 2022-23

The Petitioner filed its Petition for Truing up for FY 2020-21 and determination of tariff for FY 2022-23 on 29th November, 2021. The Petition was registered on 3rd December, 2021 (Case No. 2025 of 2021). The Commission vide Order dated 30th March, 2022 approved the Truing up for FY 2020-21 and determined the Tariff for FY 2022-23.



1.3 Background of the present Petition

Gujarat State Electricity Corporation Limited (hereinafter referred to as “GSECL” or the “Petitioner”) has filed the present Petition on 15th December, 2022 for the truing up for FY 2021-22 and determination of tariff for FY 2023-24 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 and Suo-motu Order dated 24th September, 2021 in Petition No. 1995 of 2021 deferred the notification of the Regulations by one year and directed the Licensees / utilities to file the tariff application for the FY 2021-22 and FY 2022-23 respectively 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. 2140 of 2022 dated 20th October, 2022 directed generating companies, licensees and utilities to file their tariff applications for approval of true-up for FY 2021- 22 and for determination of ARR and Tariff for FY 2023-24 on or before 15th December, 2022 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 2021-22, Aggregate Revenue Requirement (ARR) for FY 2023-24, revenue from the sale of power at existing tariffs and charges for FY 2023-24, and Revenue Gap or Revenue Surplus for FY 2023-24.

1.4 Registration of the Current Petition and Public Hearing Process

GSECL has filed the present petition for Truing up for FY 2021-22 and Determination of ARR and Tariff for FY 2023-24 on 15th December, 2022. After technical validation of the Petition, it was registered on 28th December, 2022 as Case No. 2162 of 2022. 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

S. No.	Name of the Newspaper	Language	Date of publication
1.	The Indian Express	English	03/1/2023
2.	Divya Bhaskar	Gujarati	03/1/2023

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 3rd February, 2023.

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

S. No.	Name of the Newspaper	Language	Date of publication
1.	The Times of India	English	21/02/2023
2.	Divya Bhaskar	Gujarati	21/02/2023
3.	Gujarat Samachar	Gujarati	22/02/2023

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 Public Hearing through at the Commission's Office for the Petition on 28th February, 2023 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

S. 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.	Reliance Jio Infocomm Ltd.	Yes	No	No
3.	Digital Infrastructure Providers Association	Yes	No	No
4.	Cellular Operators Association of India	Yes	No	No
5.	Shri. K. K. Bajaj	Yes	Yes	Yes
6.	The Bharati Airtel Ltd.	Yes	No	No

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.

1.5 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 2021-22;
- (5) The **Fifth Chapter** deals with the Aggregate Revenue Requirement (ARR) for FY 2023-24;
- (6) The **Sixth Chapter** deals with Tariff Determination for FY 2023-24;
- (7) The **Seventh Chapter** deals with the Compliance of directives.

1.6 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 and Suo-motu Order dated 24th September, 2021 in Petition No. 1995 of 2021 deferred the notification of the Regulations by one year and directed the Licensees / utilities to file the tariff application for the FY 2021-22 and FY 2022-23 respectively 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. 2140 of 2022 dated 20th October, 2022 directed generating companies, licensees and utilities to file their tariff applications for approval of true-up for FY 2021- 22 and for determination of ARR and Tariff for FY 2023-24 on or before 15th December, 2022 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 2021-22 and determination of ARR and tariff for FY 2023-24.

The Commission has undertaken Truing up for FY 2021-22, based on the submissions of the Petitioner and based on the values approved in Tariff Order dated 30th March, 2021. The Commission has undertaken the computation of Gains and Losses for FY 2021-22, based on the audited annual accounts and prudence check.

While truing up of FY 2021-22, the Commission has been primarily guided by the following principles:

Controllable parameters have been considered at the level approved under the Tariff Order dated 30th March, 2021, 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 2021-22 has been considered based on the GERC (MYT) Regulations, 2016.

The Commission has undertaken Determination of ARR and Tariff for FY 2023-24 as per the GERC (MYT) Regulations, 2016 and its amendment thereof as the base. Truing up of FY 2023-24 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 2021-22 and Determination of ARR Tariff for FY 2023-24.

2.2 True-Up of FY 2021-22

GSECL submitted the present Petition on 15th December, 2022 seeking approval of Truing up of ARR for FY 2021-22. GSECL has worked out its Aggregate Revenue Requirement (ARR) for FY 2021-22 as a part of the True-Up for FY 2021-22. GSECL has presented the actual cost components based on the audited annual accounts for FY 2021-22.

Tables below summarize the results of the True-up of FY 2021-22 of GSECL Stations. For the purpose of True-Up, GSECL has compared the actual cost for FY 2021-22 with the cost approved by the Commission in the Tariff Order dated 30th March, 2021.

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



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Table 2.1: Actual Fixed Cost for FY 2021-22 (Rs. Crore)

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
UKAI (3-5)	47.80	-	23.99	245.98	-	0.30	3.99	37.41	359.46	15.46	344.00
GANDHINAGAR (3-4)	37.17	-	24.99	150.97	68.96	0.20	3.27	26.85	312.40	31.55	280.85
GANDHINAGAR 5*	2.16	-	28.67	75.40	34.48	0.10	2.75	12.84	156.40	0.07	156.32
WANAKBORI 1-6 TPS	102.69	15.84	92.85	259.50	73.76	0.61	1.37	80.30	626.92	24.62	602.30
WANAKBORI 7*	2.15	-	26.16	17.24	15.23	0.10	8.24	12.73	81.85	0.07	81.77
SIKKA EXTENSION (3-4)*	177.36	107.35	130.33	167.16	4.86	0.24	1.37	35.25	623.93	3.81	620.12
KLTPS-3	30.80	-	54.59	96.24	0.25	0.04	5.23	5.85	193.00	4.46	188.54
KLTPS 4	17.89	5.62	29.65	26.60	-	0.04	3.27	4.64	87.71	0.10	87.61
BLTPS*	239.23	116.46	151.84	101.02	17.48	0.24	0.49	28.20	654.96	2.83	652.14
DHUVARAN CCPP 1*	10.04	-	10.54	48.71	0.89	0.05	0.49	11.92	82.64	16.99	65.65
DHUVARAN CCPP 2	13.10	2.00	14.54	39.58	0.89	0.05	3.27	9.78	83.20	3.65	79.55
DHUVARAN CCPP 3*	78.84	51.90	67.06	10.70	-	0.18	0.70	32.88	242.26	1.09	241.16
UTRAN EXTENSION*	37.76	22.52	57.59	122.85	2.32	0.18	0.74	36.69	280.65	3.22	277.42
UKAI 6*	155.87	72.19	125.74	50.92	-	0.24	2.46	30.81	438.22	0.18	438.04
WANAKBORI 8 TPS*	221.06	212.68	181.92	55.23	45.51	0.39	2.45	50.37	769.61	0.29	769.32
UKAI HYDRO	2.31	1.70	10.64	17.36	-	0.15	1.99	0.56	34.72	0.11	34.61
KADANA HYDRO	5.52	-	28.88	25.42	-	0.12	1.58	1.04	62.57	0.68	61.89
TOTAL	1,181.73	608.26	1,059.98	1,510.87	264.62	3.24	43.65	418.13	5,090.49	109.17	4,981.32

* PPA based stations



Based on actual operating and fuel related parameters during FY 2021-22, the Table below indicates actual audited energy charges for GSECL's stations for FY 2021-22 along with the approved energy charges:

Table 2.2: Energy Charges for GSECL's Plants for FY 2021-22

S. No.	POWER STATION	APPROVED IN TARIFF ORDER (Rs./KWH)	ACTUAL CLAIMED (Rs./KWH)
1	UKAI (3-5)	3.91	4.21
2	GANDHINAGAR (3-4)	4.14	4.06
3	GANDHINAGAR 5*	3.86	3.89
4	WANAKBORI 1-6 TPS	4.22	4.31
5	WANAKBORI 7*	4.10	4.10
6	SIKKA EXTENSION (3-4)*	3.91	4.03
7	KLTPS-3	3.60	3.90
8	KLTPS 4	3.06	5.16
9	BLTPS*	2.84	3.63
10	DHUVARAN CCPP 1*	8.31	10.08
11	DHUVARAN CCPP 2	6.14	7.86
12	DHUVARAN CCPP 3*	6.70	7.51
13	UTRAN EXTENSION*	7.68	7.87
14	UKAI 6*	3.49	3.58
15	WANAKBORI 8 TPS*	3.53	3.52

* 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 2021-22 (Rs. Crore)

S. No.	POWER STATION	GAIN/(LOSS) DUE TO CONTROLLABLE FACTORS		TOTAL GAINS/ (LOSSES) DUE TO CONTROLLABLE FACTORS	TOTAL GAINS/ (LOSSES) TO BE PASSED THROUGH (1/3 RD OF GAINS/ LOSSES)
		O&M EXPENSES	FUEL COST		
1	UKAI (3-5)	34.82	(72.23)	(37.41)	(12.47)
2	GANDHINAGAR (3-4)	15.24	15.83	31.07	10.36



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S. No.	POWER STATION	GAIN/(LOSS) DUE TO CONTROLLABLE FACTORS		TOTAL GAINS/(LOSSES) DUE TO CONTROLLABLE FACTORS	TOTAL GAINS/(LOSSES) TO BE PASSED THROUGH (1/3 RD OF GAINS/LOSSES)
		O&M EXPENSES	FUEL COST		
3	GANDHINAGAR 5*	-	-	-	-
4	WANAKBORI 1-6 TPS	42.81	(42.26)	0.55	0.18
5	WANAKBORI 7*	-	-	-	-
6	SIKKA EXTENSION (3-4)*	-	-	-	-
7	KLTPS-3	(40.71)	(12.20)	(52.91)	(17.64)
8	KLTPS 4	(5.59)	(6.25)	(11.84)	(3.95)
9	BLTPS*	-	-	-	-
10	DHUVRAN CCPP 1*	-	-	-	-
11	DHUVRAN CCPP 2	15.08	(8.84)	6.24	2.08
12	DHUVRAN CCPP 3*	-	-	-	-
13	UTRAN EXTENSION*	-	-	-	-
14	UKAI 6*	-	-	-	-
15	WANAKBORI 8 TPS*	-	-	-	-
16	UKAI HYDRO	(0.53)	-	(0.53)	(0.18)
17	KADANA HYDRO	8.13	-	8.13	2.71
	TOTAL	69.24	(125.95)	(56.71)	(18.90)

* PPA based stations

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



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Table 2.4: Gains/(Losses) on account of Uncontrollable Factors for FY 2021-22 (Rs. Crore)

S. No.	PARTICULARS	O&M EXPENSES	DEPRECIATION	INTEREST & FINANCE CHARGES	ROE	WATER CHARGES	SLDC CHARGES	MAT	INTEREST ON WORKING CAPITAL	NON-TARIFF INCOME	TOTAL GAIN/(LOSSES) TO BE PASSED
1	UKAI (3-5)	(32.40)	(2.54)	-	1.37	-	0.08	(0.57)	(0.37)	(18.00)	(52.42)
2	GANDHINAGAR (3-4)	(22.34)	(3.33)	-	(0.56)	(26.86)	0.06	(0.92)	2.23	21.37	(30.34)
3	GANDHINAGAR 5*	-	-	-	-	-	-	-	-	-	-
4	WANAKBORI 1-6 TPS	(36.03)	(5.81)	4.06	3.88	(35.30)	0.17	5.69	0.36	(18.40)	(81.38)
5	WANAKBORI 7*	-	-	-	-	-	-	-	-	-	-
6	SIKKA EXTENSION (3-4)*	-	-	-	-	-	-	-	-	-	-
7	KLTPS-3	(6.63)	(1.38)	-	(17.36)	(0.16)	0.01	(4.81)	(0.92)	1.98	(29.28)
8	KLTPS 4	(1.17)	18.61	(0.54)	0.12	0.15	0.01	(2.85)	(0.48)	(4.41)	9.44
9	BLTPS*	-	-	-	-	-	-	-	-	-	-
10	DHUVARAN CCPP 1*	-	-	-	-	-	-	-	-	-	-
11	DHUVARAN CCPP 2	(5.15)	1.44	2.71	2.08	(0.69)	0.02	(2.64)	(3.65)	2.92	(2.95)
12	DHUVARAN CCPP 3*	-	-	-	-	-	-	-	-	-	-
13	UTRAN EXTENSION*	-	-	-	-	-	-	-	-	-	-
14	UKAI 6*	-	-	-	-	-	-	-	-	-	-
15	WANAKBORI 8 TPS*	-	-	-	-	-	-	-	-	-	-
16	UKAI HYDRO	(2.22)	0.05	0.44	0.17	-	0.04	(0.28)	0.03	(0.04)	(1.82)
17	KADANA HYDRO	(3.90)	0.00	-	0.16	-	0.03	(0.22)	0.13	0.29	(3.52)
	TOTAL	(109.83)	7.04	6.67	(10.14)	(62.86)	0.43	(6.60)	(2.67)	(14.31)	(192.27)

* PPA based stations



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Based on the above estimated gains/(losses) on account of controllable and uncontrollable factors, GSECL has worked out the gains/(losses) of FY 2021-22 to be passed through in FY 2023-24, as given below:

Table 2.5: Net Entitlement calculated by GSECL for FY 2021-22 (Rs. Crore)

S. 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)	34.82	(52.42)	(40.81)	(36.14)	(72.23)	(24.08)	(60.22)
2	Gandhinagar (3-4)	15.24	(30.34)	(25.26)	(25.26)	15.83	5.28	(19.98)
3	Gandhinagar 5*	-	-	-	-	-	-	-
4	Wanakbori 1-6 TPS	42.81	(81.38)	(67.11)	(55.91)	(42.26)	(14.09)	(69.99)
5	Wanakbori 7 TPS*	-	-	-	-	-	-	-
6	Sikka Extn. (3-4)*	-	-	-	-	-	-	-
7	KLTPS 3	(40.71)	(29.28)	(42.85)	(39.82)	(12.20)	(4.07)	(43.89)
8	KLTPS 4	(5.59)	9.44	7.57	0.62	(6.25)	(2.08)	(1.46)
9	BLTPS*	-	-	-	-	-	-	-
10	Dhuvaran CCPP 1*	-	-	-	-	-	-	-
11	Dhuvaran CCPP 2	15.08	(2.95)	2.08	1.88	(8.84)	(2.95)	(1.06)
12	Dhuvaran CCPP 3*	-	-	-	-	-	-	-
13	Utran Extension*	-	-	-	-	-	-	-



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S. 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
14	Ukai 6*	-	-	-	-	-	-	-
15	Wanakbori 8 TPS*	-	-	-	-	-	-	-
16	Ukai Hydro	(0.53)	(1.82)	(2.00)	(2.00)	-	-	(2.00)
17	Kadana Hydro	8.13	(3.52)	(0.81)	(0.81)	-	-	(0.81)
	Total	69.24	(192.27)	(169.19)	(157.43)	(125.95)	(41.98)	(199.41)

* PPA based stations



GSECL has proposed Fixed Cost for its Generating Stations for FY 2023-24 as shown in the following Table:

Table 2.6: Proposed Fixed Cost of GSECL plants for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	FIXED CHARGES FOR FY 2023-24	TOTAL GAINS/(LOSSES) TO BE PASSED THROUGH	NET FIXED CHARGES FOR FY 2023-24
1	UKAI (3-5)	378.64	(60.22)	318.42
2	GANDHINAGAR (3-4)	294.49	(19.98)	274.51
3	GANDHINAGAR 5*	146.57	-	146.57
4	WANAKBORI 1-6 TPS	649.94	(69.99)	579.95
5	WANAKBORI 7*	87.33	-	87.33
6	SIKKA EXTN. (3-4)*	611.05	-	611.05
7	KLTPS 3	148.30	(43.89)	104.41
8	KLTPS 4	78.40	(1.46)	76.94
9	BLTPS*	671.44	-	671.44
10	DHUVARAN CCPP 1*	71.17	-	71.17
11	DHUVARAN CCPP 2	93.18	(1.06)	92.12
12	DHUVARAN CCPP 3*	222.41	-	222.41
13	UTRAN EXTENSION*	203.79	-	203.79
14	UKAI 6*	426.86	-	426.86
15	WANAKBORI 8 TPS*	875.13	-	875.13
16	UKAI HYDRO	33.20	(2.00)	31.20
17	KADANA HYDRO	69.74	(0.81)	68.93
	TOTAL	5,061.64	(199.41)	4,862.23

* PPA based stations

GSECL has proposed Energy Charges for FY 2023-24 as shown in the following Table:

Table 2.7: Proposed Energy Charges of GSECL plants for FY 2023-24

S. No.	POWER STATION	ENERGY CHARGES (RS/KWH)
1	UKAI (3-5)	3.95
2	GANDHINAGAR (3-4)	4.21
3	GANDHINAGAR 5*	3.92
4	WANAKBORI 1-6 TPS	4.25
5	WANAKBORI 7*	4.10
6	SIKKA EXTENSION (3-4)*	9.29
7	KLTPS 3	3.60



S. No.	POWER STATION	ENERGY CHARGES (Rs/kWh)
8	KLTPS 4	3.12
9	BLTPS*	3.20
10	DHUVARAN CCPP 1*	8.31
11	DHUVARAN CCPP 2	6.14
12	DHUVARAN CCPP 3*	6.70
13	UTRAN EXTENSION*	7.68
14	UKAI 6*	3.49
15	WANAKBORI 8 TPS*	3.54

** PPA based stations*

2.3 Request of GSECL

Petitioner's Prayer:

- (1) To admit this Petition seeking True up of FY 2021-22, Aggregate Revenue Requirement for FY 2022-23 & Tariff Proposal for FY 2023-24.
- (2) To approve the True up for FY 2021-22 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 2021-22 from four DISCOMs through GUVNL in Twelve (12) equal monthly instalments during FY 2023-24.
- (4) To approve Aggregate Revenue Requirement for FY 2023-24 as submitted by the Petitioner.
- (5) Pass suitable orders for implementation of Tariff Proposal for FY 2023-24 for making it applicable from 1st April, 2023 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 2021-22 and determination of ARR for FY 2023-24 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 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 2021-22 is in the range of Rs. 4.86 to Rs. 5.66 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.

Response of GSECL

The Petitioner submitted that the PLF of KLTPS-4 (7.47%) during the FY 2021-22 was lower on account of unforeseen longer forced outage of unit for 286 days due to LHS Cyclone Outlet Duct Work (major damages observed) as it was an unforeseen incident involving huge amount of MS structural as well as erection work.

Moreover, as regards to the contention of the respondent regarding decommissioning of unit 3-4 Gandhinagar TPS, Unit 3 – 5 Ukai TPS and Wanakbori TPS unit no 1 – 6, GSECL is



not planning to retire these coal based thermal generating units at present in view of the existing demand supply scenario prevailing in the state of Gujarat and as advised by CEA vide letter no. CEA-TH-14-24/5/2022-TRM Division/235-335 dated: - 20/01/2023.

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 Hon'ble Commission.

As regards to the submission of respondent regarding fixed charges of Gandhinagar Unit-5 and Wanakbori Unit-7, it is to submit that, the higher fixed cost in Gandhinagar TPS-Unit-5 than in Wanakbori-TPS-Unit-7 is on account of higher O&M expenses in Gandhinagar Unit-5. However, GSECL claims the fixed charges including O&M expenses as approved by Hon'ble Commission at actual Plant Availability Factor (PAF) and accordingly the normative limits of O&M charges are observed.

It is also to submit that the procurement of power from IEX / other generators is not in purview of GSECL. Moreover, the respondent has submitted the calculation of per unit cost of the energy (Fixed & variable) from GSECL's power stations. In this regard, it is also humbly submitted that, the fixed cost is charged at the rate approved by Hon'ble commission at actual PAF and variable cost is charged at the approved rate for actual energy scheduled only. Hence, the calculation submitted by the respondent does not seem to be appropriate.

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 LHS Cyclone Outlet Duct Work, the availability of the plant KLTPS-4 was below normative level.

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.

3.1.2 Station Heat Rate for FY 2021-22

The Objector submitted that, from the comparison of Station Heat Rate for old units and new units, it is observed that GSECL is using 11% of higher quantum of coal by continuing old units resulting into higher fuel cost and environment degradation. Financial implication of the same is also around Rs. 550 Crore loss i.e., $[11230 (MUs) \times 4.11 (Energy Charge Rate) \times 0.11 (\% difference)]$. Under any UMPP Bids for power, nowhere such high fixed costs or the Station Heat Rates (SHR) i.e., energy costs were even quoted/accepted for FY 2021-22.

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.

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 units at Ukai TPS & Wanakbori TPS Unit 1-2 which will help in substantial reduction of SHR of these units. Moreover, SHR of all units considered by GSECL for projections of FY 2023-24 are as per the SHR approved by the Commission for FY 2022-23.

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 SHR and O&M practices so as to maintain / achieve performance parameters as approved by the Commission.

3.1.3 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 12 (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.

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.

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 Ukai 3-5 and Wanakbori 1-6 were lower than the normative level due to certain forced shut down in Ukai-3 and planned outage for ESP retrofitting work at Wanakbori-6, moreover, the fixed charges are recovered at actual availability factor only. 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, 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.

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 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.



3.1.4 Mismatch of Fixed Costs in GSECL and DISCOMs Petitions for FY 2023-24

The Objector observed that Annual Fixed Costs of unit wise and total generation costs as compared under GSECL petition and DISCOMs petition needs serious attention for appropriate actions.

Response of GSECL

The Petitioner submitted that the figures of fixed charges of different generation units submitted by GSECL for F.Y. 2023-24 in the petition have been worked out as per the provisions of MYT regulations of hon'ble Commission. The clarifications regarding figures of fixed charges submitted in petitions of distribution companies may be sought from the respective distribution company.

Commission's View

The Commission has allowed the tariff to GSECL as per normative parameters in line with the GERC Tariff regulations, 2016 and the same is being considered in DISCOMs Tariff Order for FY 2023-24.

3.1.5 Unduly High Fixed Costs of Old Units

The Objector observed that the total Fixed Costs for all old, outlived units are much more than 50% of the relatively newer unit and needs serious attention for appropriate actions.

Response of GSECL

The Petitioner submitted that it has worked out and claimed fixed costs for F.Y. 2023-24 as per the provisions of the MYT regulations issued by Hon'ble Commission.

Commission's View

The Commission has allowed the tariff to GSECL as per normative parameters in line with the GERC Tariff regulations, 2016.

3.1.6 Imported Coal Price for Sikka Extn. Unit 3 & 4

The Objector observed that cost of Imported Coal considered for Sikka Extn. 3 & 4 to work out the energy charges for FY 2023-24 is very high and unviable and needs to be checked and confirmed.



Response of GSECL

The Petitioner submitted that the cost of imported coal has significantly risen in the recent past owing to geopolitical conditions prevailing internationally. The cost of imported coal for working out the energy charges for F.Y. 2023-24 has been worked out based on the average cost of imported coal procured by GSECL during past 3 months (Sept. 2022 to Nov. 2022) and is the actual cost incurred by GSECL. This working is also in accordance with the Regulation 58.8 of the MYT regulations of Hon'ble commission.

Commission's View

The Commission has considered the price of imported coal as per actual incurred during FY 202-23 for approving energy charges of Sikka Extn. 3 & 4 for FY 2023-24.

3.1.7 Capital Expenditure for FY 2023-24

The Objector observed that the Petitioner has proposed to incurred Capital Expenditure on units with 45 years of age which may not be recovered as there is no enough life hours leftover and hence it may turnout to be a wasteful expenditure just to capitalize the same being a pass through in tariff which will result in substantial increase in fixed costs without commensurate gain in any way.

Response of GSECL

The Petitioner submitted that the details submitted by GSECL in table 46 of the petition is the projected capital expenditure and not actual proposed capitalization. Accordingly, the said expenditure shall not have impact on the fixed charges for F.Y. 2023-24. Moreover, proposed capital expenditure includes expenditure towards various R&M activities like FGD installation, ESP retrofits, Boiler Back-pass and turbine retrofitting. These activities are required to be carried out in order to meet the environment norms and also for improvement of efficiency of older thermal units. Moreover, it is also humbly submitted that, as per recent CEA guidelines, all power utilities have been advised not to retire any thermal units till 2030 and ensure the availability of units after carrying out R&M activities, if required. Accordingly, the capital expenditure proposed by GSECL may please be approved by hon'ble commission.

Further, the projected capital expenditure also includes the expenditure that is likely to be incurred at different power stations towards certain capital civil works and procurement of capital spares.



Commission's View

The Commission notes the response of the Petitioner. The detailed analysis and ruling of the Commission regarding Capital Expenditure 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.

3.1.8 High O&M Expenses for old units

The Objector observed that huge amount of expenditure is proposed for very old 40+ age units which is not relevant as it will further add to the generation cost and hence must be avoided by closing down such machines which legitimately deserves to be closed down as per CEA norms.

It is also observed by an Objector that inspite of units of Gandhinagar – 5 and Wanakbori – 7 being of identical capacity, there is quite higher difference in the O & M cost claimed by the Petitioner.

Response of GSECL

The Petitioner submitted that the O&M expenses are claimed by GSECL as per the provisions of the MYT regulations issued by Hon'ble Commission hence same may be allowed by Hon'ble commission.

Further, as regards to the observation raised by the Objector during course of hearing before the commission regarding higher O&M Expenditure in case of Gandhinagar TPS Unit-5 as compared to Wanakbori TPS –Unit-7, it is clarified that, in case of Wanakbori TPS-Unit-7, the O&M Expenditure are booked on actual basis whereas in case of Gandhinagar TPS Unit-5, The O&M expenditure is considered on pro rata basis between Gandhinagar TPS-Unit-3-4 & Unit-5. Hence there is considerable difference between the O&M expenditure of WTPS-7 & GTPS-5. Moreover, it is also to state that, Gandhinagar TPS-Unit-5 being PPA based station, due to pro rata distribution of O&M expenditure between unit-3-4 & Unit-5 of GTPS, the amount being passed on as Loss/gain from the component of O&M expenditure for GTPS-3-4 is also less. However, necessary corrective actions shall be taken for actual booking of O&M expenditure of Unit-5 of GTPS and considering same for the tariff proposal.



Commission's View

The Commission has allowed the O&M expenses as per GERC MYT Tariff Regulations, 2016 in respective chapter of this Order. The Commission noted the submission of the Petitioner regarding O & M Expenses of Gandhinagar – 5 and Wanakbori – 7.

3.1.9 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. KLTPS-4 plant of 75 MWs Commissioned on 20-12-2009 has very low PLF of 7.5% and very high auxiliary consumption of 39.6% needs to be scrap which was under shut down for 286 days in FY 2021-22.

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-namadh mines. Moreover, due to frequent issues related to combustor/cyclone refractory damage the unit was required to be run at partial load leading to higher APC and higher SHR. Further, during F.Y. 2021-22, this unit has remained under major unforeseen forced outage for 286 days on account of the accidental breakdown of LHS Combustor Outlet duct which involved huge amount of Structural as well as pressure part repairing to restore the unit. However, during F.Y. 2022-23 (Till December-2023), the plant availability factor (PAF) & Plant Load Factor (PLF) of KLTPS-Unit-4 are 42.95% & 45.76% respectively which shows significant improvement as compared to previous year.

Bhavnagar Lignite TPS Unit No. 1 - 2

The lower PLF at BLTPS for FY 2021-22 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, Moreover, there were multiple forced outages of units due to Boiler Tube Leakages. However, after vigorous efforts to rectify the design deficiency (convective pass boiler tube leakages) and Lignite feeder issues (new lignite feeder chains are replaced in both the units), the units could be stabilized at 150 MW – 175 MW load. Further stabilization of units at 250 MW is under progress by undertaking the pending works related to project completion since take over.



In continuation to above, GSECL submitted that during the F.Y. 2021-22 the generation of 1656.67 MUs is achieved against 1201.03 MUs during F.Y. 2020-21 i. e. 38% higher which shows significant improvement. GSECL claims fixed charges based on the availability and variable charges at the rate approved by Hon'ble Commission for actual scheduled energy only.

In view of above, Hon'ble commission is requested to consider the submission of GSECL and the contention of the respondent to scrap KLTPS-Unit-4 may not be accepted.

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.

3.1.10 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.

The Petitioner should be directed to operate its new power plants at maximum capacity during FY 2023-24.

Response of GSECL

The Petitioner submitted that reasons for lower availability for following units as under;

WTPS-Unit-8:-

Wanakbori-8 was declared as commercially operational in October-2019. Generally planned maintenance of units is taken after 1-1.5 years to sustain reliability. Accordingly, the first planned outage of WTPS Unit no 8 was scheduled during Monsoon season of 2021. However, the persistent high demand of power post COVID 19 unlock coupled with lower generation availability, due to high Gas Prices and high volatility in prices of Imported



Coal, the first planned outage of unit was deferred continuously to meet the system demand so that cheaper power can be supplied to state consumers. Delay in preventive maintenance (AOH) has resulted into increased Boiler tube leakages (spiral water wall), Clinker formation, Air Preheater support bearing failure etc. Moreover, being super critical technology unit, outage of about 10 days is required to attend any boiler tube leakage due to metallurgical requirements. This has affected overall availability of unit. However, the first overhauling of unit is completed during September 2022 & there after the rated load is achieved.

Ukai-6:-

As stated above, due to increased system demand after Sept 2020 (unlock from COVID - 19), in all total 1955 MW capacity units could not be taken under scheduled preventive maintenance – resulting into reduced reliability of Ukai-Unit-6 also along with other units. It is also to submit that during F.Y. 2021-22, the Capital Overhauling (COH) of Ukai Unit-6 was taken. This outage period was required to further extended for more 59 days for unforeseen work of repairing of IP turbine rotor blades at BHEL Haridwar works. Moreover, PLF of Ukai unit-6 achieved during F.Y. 2022-23 (Till January-2023) is 58.23% which has shown improvement as compared to previous year.

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 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.

3.1.11 Poor Performance of Gas Based Plants

The Objector observed that the Petitioner's gas based plants at Dhuvaran (595 MWs) and Utran (375 MWs) have been shutdown since last one year and performed badly during FY 2021-22 with PLF of meagre 5.4% putting heavy burden on consumers in form of fixed



costs. The Petitioner should be directed to terminate PPAs signed for 25 years OR procure gas from other sources.

Response of GSECL

The Petitioner has submitted factual data regarding higher cost of generation of gas based plants for the F.Y. 2021-22 is as under: -

STATEMENT SHOWING AVAILABILITY AND SCHEDULED GENERATION OF GSECL'S GAS BASED POWER PLANTS DURING F.Y. 2021-22				
SR. NO.	NAME OF THE STATION	AVAILABILITY DECLARATION (Mus)	ENERGY SCHEDULED BY GUVNL)	% SCHEDULED ENERGY
1	DHUVARAN CAPP-1	537.77	35.50	6.60
2	DHUVARAN CAPP-2	547.86	25.37	4.63
3	DHUVARAN CAPP-3	711.032	57.98	8.15
4	UTRAN EXTENSION	1928.00	120.84	6.27
TOTAL GAS BASED STATIONS		3724.70	239.70	6.44

From the data of GSECL's gas based stations, it is seen that GSECL's gas based stations were consistently available during F.Y. 2021-22. However, out of the total availability declaration, only 6.44% energy has been scheduled from these stations. Moreover, GSECL claims fixed cost as per the approved rate by Hon'ble commission in accordance with the MYT regulations. Energy charges are claimed at the approved rate for scheduled energy only.

The scheduling of generation from Gas based plant is purely dependent upon the gas prices which is linked to the international gas prices and fluctuates accordingly. However, the costly gas based generation may be scheduled depending upon load generation balance in the system.

Commission's View

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

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.

3.2 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 108% 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 Scraping of most inefficient Lignite based 75 MWs KLTPS-4

The Objector submitted that KLTPS-4 has failed to operate at all operating parameters as approved by the Hon'ble Commission. Thus, failure of Petitioner to operate this plant efficiently demands that this plant should be scrapped with effect from 01-04-2023 to avoid unwarranted burden on consumers of Gujarat.

Response of GSECL

The Petitioner submitted that, during F.Y. 2021-22, the aforesaid unit has remained under forced outage for 286 days on account of the unforeseen incident involving huge amount of M.S. structure work in LHS Cyclone outlet duct. However, during F.Y. 2022-23 (Till January-2023), the plant availability factor (PAF) & Plant Load Factor (PLF) of KLTPS-Unit-4 are 43% & 46% respectively which shows significant improvement as compared to previous year.

Moreover, as regards to the submission regarding low PLF, Higher Auxiliary consumption and higher station Heat Rate of this unit, it is respectfully submitted that, in case of deviation of the performance parameters like SHR or Auxiliary Consumption from normative parameters approved by Hon'ble commission, the cost of any inefficiency is absorbed by GSECL and is not passed on to the consumers of the State. GSECL claims energy charges for actual energy scheduled only at approved parameters by the Hon'ble commission.

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.

3.2.3 Abrupt Increase in Proposed Energy Charge for FY 2023-24

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 2023-24 (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 energy charges projected by petitioner for F.Y. 2023-24 are based on actual fuel prices incurred by GSECL during F.Y. 2021-22 i.e. the actual landed cost of fuel during F.Y. 2021-22 and considering normative parameters approved by Hon'ble Commission and at projected PLF which is on the basis of available resources except for Sikka TPS which uses imported coal. For Sikka TPS the fuel cost has been considered as the weighted average coal price for the period of September 2022 to November 2022 due to exorbitant price hike in import coal price during last one year in accordance with the Regulation 58.8 of the MYT regulations of Hon'ble commission. Therefore in case of Sikka TPS the energy charges projected for F.Y. 2023-24 seems to be in order.

Hence, the submission of the respondent stating that there is abrupt increase in the energy charges proposed for F.Y. 2023-24 by comparing the same with the energy charges for F.Y. 2022-23 does seem to be relevant.

Commission's View

The Commission noted the response of the Petitioner. The energy charges approved for FY 2023-24 are based on the normative performance parameters and actual fuel cost submitted in FY 2021-22.



3.3 Objections related to other topics

3.3.1 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.

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.

3.3.2 Capital expenses towards R&M 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.



3.3.3 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.

4. TRUING UP OF FY 2021-22

4.1 Generating Stations of GSECL

This Chapter deals with the truing up of FY 2021-22.

GSECL owned and operated the following generating stations as on 1st April, 2021:

- 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, 2021

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



Gujarat State Electricity Corporation Limited
Truing Up for FY 2021-22 and Determination of ARR and Tariff for FY 2023-24

NAME OF STATION	UNIT No.	CAPACITY OF THE UNIT (MW)	DATE OF COMMISSIONING
	4	75	20/12/2009
	SUB TOTAL	150	
DHUVARAN	7 – GAS	106.617	28/01/2004
	8 – GAS	112.45	01/11/2007
	SUB TOTAL	219.067	
UTRAN EXTENSION	GT -1	374.571	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	376.10	21/05/2014
	1	250	16/05/2016
BLTPS	2	250	27/03/2017
	SUB TOTAL	500	
WANAKBORI 8 TPS	1	800	13/10/2019
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	5.0	
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	



NAME OF STATION	UNIT No.	CAPACITY OF THE UNIT (MW)	DATE OF COMMISSIONING
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	1	02/05/2016
	DHUVARAN I	75	05/02/2019
	CHANDARVA	30	28/08/2021
	DHUVARAN II	75	15/04/2021
TOTAL GSECL AS A WHOLE		6,881	

4.2 Operating Performance Parameters

The fuel cost of a generation station depends on:

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 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 2021-22 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 2021-22, 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 2021-22. The comparison of PAF as approved in the Tariff Order dated 30th March, 2021; and the actuals as furnished by GSECL in the Petition are given in the Table below:



Table 4.2: Plant Availability Factor for FY 2021-22

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL
1	UKAI (3-5)	80.00%	70.85%
2	GANDHINAGAR (3-4)	84.00%	88.58%
3	GANDHINAGAR 5*	85.00%	72.45%
4	WANAKBORI 1-6 TPS	85.00%	70.81%
5	WANAKBORI 7*	85.00%	87.03%
6	SIKKA EXTENSION (3-4)*	85.00%	40.04%
7	KLTPS-3	75.00%	69.70%
8	KLTPS 4	80.00%	6.59%
9	BLTPS*	80.00%	34.84%
10	DHUVARAN CCPP 1*	85.00%	78.35%
11	DHUVARAN CCPP 2	85.00%	77.01%
12	DHUVARAN CCPP 3*	85.00%	38.24%
13	UTRAN EXTENSION*	85.00%	84.91%
14	UKAI 6*	85.00%	58.29%
15	WANAKBORI 8 TPS*	85.00%	71.49%
16	UKAI HYDRO	80.00%	86.10%
17	KADANA HYDRO	80.00%	79.99%

* PPA based stations

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 2021-22, as given below:

- Ukai (3-5): Ukai TPS unit no. 3 remained under forced outage for 55 days due to turbine bearing replacement and LP rotor repairing work. (4.941%) Partial Operations (DC revisions) due to Poor Coal Quality and coal handling (12.24%).
- Ukai 6: COH of unit was extended by 59 days to repair IP turbine Rotor blades at BHEL Haridwar works. (16.16%) and Partial Operations (DC revisions) due to Poor Coal Quality and coal handling (8.97%).
- Gandhinagar 5: The forced outages/COH of Gandhinagar TPS unit no. 5 for 91 days (Extended 46 days) due to generator stator earth fault. (12.60%)
- Wanakbori 1-6; Wanakbori TPS unit no. 6 - R&M activity of ESP Retrofitting has been extended by 120 days. (5.48%) and Partial Operations (DC revisions) in all units Due to Poor Coal Quality and coal handling (13.75%).



- Wanakbori 8; Unit experienced forced outages due to frequent BTL. (8.78%). This was due to exorbitant extension of Annual overhauling schedule due to high System Demand and to maintain Gujarat grid stability.
- Sikka 3 & 4: Both units of Sikka TPS remained under FSD for more than 06 months due to non-availability of imported coal (55.34%)
- KLTPS 3: Annual overhauling schedule was not approved due to high system demand and to maintain Gujarat grid stability. Led to partial operation (15.38%) and outage of unit (13.94%).
- KLTPS 4: Remained under forced outage for 286 days for LHS Cyclone outlet Duct work. It was an unforeseen incident involving a huge amount of MS structure work. (80.69%).
- BLTPS 1-2: Partial Operation due to Coal feeding as single stream was commissioned. (37.04%) and Forced Outage due to BTL, fire in Feeding system and other (21.58%)
- Dhuvaran 1: Partial Operation (DC revisions) due to unit constraints
- Dhuvaran 2: Partial Operation (DC revisions) due to unit constraints
- Dhuvaran 3: The forced outage of Dhuvaran Unit no.3 for 220 KV GCB R & B -Phase major flash over (61.17%)
- Utran Extension: Non-availability of Gas (6.09%)
- Kadana Hydro: Unit no.1 TG guide bearing replacement work

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 has considered the actual PAF as per SLDC certificate for True-up of FY 2021-22.

It is observed that except Gandhinagar (3-4), Wanakbori-7, and Ukai Hydro all plants of GSECL have achieved lower PAF than that approved by the Commission for FY 2021-22 in the Tariff Order.

The Commission has noted that the submissions made by the Petitioner for the actual PAF being lower than the approved PAF in case of Ukai (3-5), Ukai-6, Gandhinagar-5, Wanakbori 1-6, Wanakbori-8, Sikka Extension, KLTPS 3 & 4, BLTPS, Dhuvaran CCPP 1, 2 &



3, Utran Extension and kadana Hydro. However, as the PAF is controllable, for truing up purpose, the PAF approved for FY 2021-22 in the Tariff Order dated 31st March, 2021 has been considered.

The station-wise PAF approved for truing up purpose for FY 2021-22 is given in the Table below:

Table 4.3: Plant Availability Factors approved for truing up for FY 2021-22

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL	APPROVED IN TRUING UP
1	UKAI (3-5)	80.00%	70.85%	80.00%
2	GANDHINAGAR (3-4)	84.00%	88.58%	84.00%
3	GANDHINAGAR 5*	85.00%	72.45%	85.00%
4	WANAKBORI 1-6 TPS	85.00%	70.81%	85.00%
5	WANAKBORI 7*	85.00%	87.03%	85.00%
6	SIKKA EXTENSION (3-4)*	85.00%	40.03%	85.00%
7	KLTPS-3	75.00%	69.70%	75.00%
8	KLTPS 4	80.00%	6.59%	80.00%
9	BLTPS*	80.00%	34.84%	80.00%
10	DHUVARAN CCPP 1*	85.00%	78.35%	85.00%
11	DHUVARAN CCPP 2	85.00%	77.01%	85.00%
12	DHUVARAN CCPP 3*	85.00%	38.24%	85.00%
13	UTRAN EXTENSION*	85.00%	84.91%	85.00%
14	UKAI 6*	85.00%	58.29%	85.00%
15	WANAKBORI 8 TPS*	85.00%	71.49%	85.00%
16	UKAI HYDRO	80.00%	86.10%	80.00%
17	KADANA HYDRO	80.00%	79.99%	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 2021-22. The comparison of PLF as approved in the Tariff Order dated 30th March, 2021 and the actuals as furnished by GSECL in the Petition are given in the Table below:



Table 4.4: Plant Load Factor for FY 2021-22

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL
1	UKAI (3-5)	58.00%	49.59%
2	GANDHINAGAR (3-4)	45.00%	60.07%
3	GANDHINAGAR 5*	77.00%	59.96%
4	WANAKBORI 1-6 TPS	50.00%	48.37%
5	WANAKBORI 7*	70.00%	64.81%
6	SIKKA EXTENSION (3-4)*	70.00%	21.97%
7	KLTPS-3	75.00%	70.02%
8	KLTPS 4	75.00%	7.47%
9	BLTPS*	80.00%	37.82%
10	DHUVARAN CCPP 1*	25.00%	7.41%
11	DHUVARAN CCPP 2	25.00%	6.05%
12	DHUVARAN CCPP 3*	25.00%	4.45%
13	UTRAN EXTENSION*	25.00%	8.53%
14	UKAI 6*	77.00%	54.29%
15	WANAKBORI 8 TPS*	85.00%	65.11%
16	UKAI HYDRO	13.00%	24.60%
17	KADANA HYDRO	6.00%	10.56%

* PPA based stations

Commission's Analysis

The Commission has analysed the submissions made by the Petitioner in the Table above. It is observed that all the stations except Gandhinagar (3-4), Ukai & Kadana Hydro stations, have achieved lower PLF for FY 2021-22 than that approved in the Tariff Order.

Further, the Commission observed that the PAF (69.70%, 6.59% and 34.84%) of KLTPS-3 & 4 and BLTPS were lower than PLF of 70.02%, 7.47% and 37.82%. In this regard, GSECL clarified that, PAF is based on Declared capacity (DC - net generation- ex-bus) 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 the Plant Load Factor (PLF) depends on the availability of unit, schedule given by SLDC as per the merit order dispatch, fuel mix and actual generation during the real time operation. GSECL stations generate energy as per the schedules received from SLDC as per merit order dispatch principle. Actual energy charges are worked out for truing up is based on the actual fuel cost incurred, coal blending ratio, weighted average GCV of the coal and station heat rate during the whole financial year. In most of the other power stations, the reason of lower PLF is attributable to less PAF even though the energy charges are lower than other stations.

The Commission has taken note of the submissions made by the Petitioner and approved the PLF for FY 2021-22 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 2021-22 for truing up purpose

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL	APPROVED IN TRUING UP
1	UKAI (3-5)	58.00%	49.59%	49.59%
2	GANDHINAGAR (3-4)	45.00%	60.07%	60.07%
3	GANDHINAGAR 5*	77.00%	59.96%	59.96%
4	WANAKBORI 1-6 TPS	50.00%	48.37%	48.37%
5	WANAKBORI 7*	70.00%	64.81%	64.81%
6	SIKKA EXTENSION (3-4)*	70.00%	21.97%	21.97%
7	KLTPS-3	75.00%	70.02%	70.02%
8	KLTPS 4	75.00%	7.47%	7.47%
9	BLTPS*	80.00%	37.82%	37.82%
10	DHUVARAN CCPP 1*	25.00%	7.41%	7.41%
11	DHUVARAN CCPP 2	25.00%	6.05%	6.05%
12	DHUVARAN CCPP 3*	25.00%	4.45%	4.45%
13	UTRAN EXTENSION*	25.00%	8.53%	8.53%
14	UKAI 6*	77.00%	54.29%	54.29%
15	WANAKBORI 8 TPS*	85.00%	65.11%	65.11%
16	UKAI HYDRO	13.00%	24.60%	24.60%
17	KADANA HYDRO	6.00%	10.56%	10.56%

* PPA based stations

4.2.3 Auxiliary Consumption



Petitioner's Submission

GSECL has submitted the actual auxiliary consumption of different stations for FY 2021-22. The auxiliary consumption as approved in the Tariff Order dated 30th March, 2021 and the actuals as furnished by GSECL in the Petition, are given in the Table below:

Table 4.6: Auxiliary consumption for FY 2021-22

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL
1	UKAI (3-5)	9.00%	10.24%
2	GANDHINAGAR (3-4)	9.00%	10.32%
3	GANDHINAGAR 5*	9.50%	10.41%
4	WANAKBORI 1-6 TPS	9.00%	9.94%
5	WANAKBORI 7*	9.50%	10.08%
6	SIKKA EXTENSION (3-4)*	9.00%	10.53%
7	KLTPS-3	12.00%	13.53%
8	KLTPS 4	12.00%	39.36%
9	BLTPS*	11.00%	19.04%
10	DHUVARAN CCPP 1*	4.00%	10.60%
11	DHUVARAN CCPP 2	3.00%	13.82%
12	DHUVARAN CCPP 3*	3.00%	7.67%
13	UTRAN EXTENSION*	3.00%	5.70%
14	UKAI 6*	6.00%	7.23%
15	WANAKBORI 8 TPS*	5.25%	5.22%
16	UKAI HYDRO	0.60%	0.77%
17	KADANA HYDRO	1.00%	0.76%

* 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 - 27.55 %) & APC consumption during RSD - 0.23%. Partial Operations (DC revisions) due to poor coal quality and coal handling (12.24%)
- Ukai 6: Partial Operation due to backing down (Partial Operation - 31.72 %). Partial Operations (DC revisions) due to poor coal quality and coal handling (8.97%)



- Gandhinagar 3-4: Partial Operation due to backing down (Partial Operation - 48.72 %) & APC consumption during RSD - 0.30%
- Gandhinagar 5: Partial Operation due to backing down (Partial Operation - 46.29 %) & APC consumption during RSD - 0.10%
- Wanakbori 1-6: Partial Operation due to backing down (Partial Operation - 39.84 %) & APC consumption during RSD - 0.58%
- Wanakbori 7: Partial Operation due to backing down (Partial Operation - 44.50%) & APC consumption during RSD - 0.55%. Partial Operations (DC revisions) due to poor coal quality and coal handling (13.75%)
- Sikka 3 & 4: Partial Operation due to backing down (Partial Operation - 48.55%) & APC consumption during RSD - 0.50%
- KLTPS 3: Partial Operation due to Unit constraints (Partial Operation)
- KLTPS 4: Remained under forced outage for 286 days for LHS Cyclone outlet Duct work. It was an unforeseen incident involving huge amount of MS structure work. (80.69%)
- BLTPS 1-2: Partial Operation due to unit constraints (Partial Operation - 100%)
- Dhuvaran 1: Partial Operation due to backing down (Partial Operation - 55.05%) APC consumption during RSD - 4.84%
- Dhuvaran 2: Partial Operation due to backing down (Partial Operation - 56.94%) APC consumption during RSD - 7.66%
- Dhuvaran 3: Partial Operation due to backing down (Partial Operation - 79.13%) APC consumption during RSD - 2.51%
- Utran Extension: Partial Operation due to backing down (Partial Operation - 66.93%) APC consumption during RSD - 2.68%
- Kadana Hydro: Irrigation dependent – low reservoir level
- 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 30th March, 2021 for FY 2021-22. The actual auxiliary consumption in all plants is higher than approved in the Tariff Order dated 30th March, 2021 for FY 2021-22 except Kadana hydro station, where the actual auxiliary consumption is less than that approved in the Tariff Order.

The Commission approves the auxiliary consumption for various stations as approved in the Tariff Order dated 30th March, 2021 for FY 2021-22, 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 2021-22 is given in the Table below:

Table 4.7: Auxiliary consumption (%) approved for FY 2021-22 for truing up

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL	APPROVED IN TRUING UP
1	UKAI (3-5)	9.00%	10.24%	9.00%
2	GANDHINAGAR (3-4)	9.00%	10.32%	9.00%
3	GANDHINAGAR 5*	9.50%	10.41%	9.50%
4	WANAKBORI 1-6 TPS	9.00%	9.94%	9.00%
5	WANAKBORI 7*	9.50%	10.08%	9.50%
6	SIKKA EXTENSION (3-4)*	9.00%	10.53%	9.00%
7	KLTPS-3	12.00%	13.53%	12.00%
8	KLTPS 4	12.00%	39.36%	12.00%
9	BLTPS*	11.00%	19.04%	11.00%
10	DHUVARAN CCPP 1*	4.00%	10.60%	4.00%
11	DHUVARAN CCPP 2	3.00%	13.82%	3.00%
12	DHUVARAN CCPP 3*	3.00%	7.67%	3.00%
13	UTRAN EXTENSION*	3.00%	5.70%	3.00%
14	UKAI 6*	6.00%	7.23%	6.00%
15	WANAKBORI 8 TPS*	5.25%	5.22%	5.25%
16	UKAI HYDRO	0.60%	0.77%	0.60%
17	KADANA HYDRO	1.00%	0.76%	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 2021-22. The comparison of SHR as approved by the Commission in the Tariff Order dated 30th March, 2021 and the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.8: Station Heat Rate for FY 2021-22 (kcal/kWh)

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL
1	UKAI (3-5)	2625	2618
2	GANDHINAGAR (3-4)	2625	2545
3	GANDHINAGAR 5*	2460	2516
4	WANAKBORI 1-6 TPS	2575	2579
5	WANAKBORI 7*	2460	2488
6	SIKKA EXTENSION (3-4)*	2398	2419
7	KLTPS-3	3231	3254
8	KLTPS 4	3000	3154
9	BLTPS*	2623	2969
10	DHUVARAN CCPP 1*	1950	2202
11	DHUVARAN CCPP 2	1950	2217
12	DHUVARAN CCPP 3*	1850	1974
13	UTRAN EXTENSION*	1850	1843
14	UKAI 6*	2385	2402
15	WANAKBORI 8 TPS*	2248	2226

* 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 2021-22:

- Ukai 6: Partial Operation due to backing down (Partial Operation 31.72%). Partial Operations (DC revisions) due to poor coal quality and coal handling 8.97%
- Gandhinagar 5: Partial Operation due to backing down & start stop due to RSD (04 Nos)
- Wanakbori 7: Partial Operation due to backing down & start stop due to RSD (10 Nos)



- Sikka Extn 3-4: Partial Operation due to backing down & start stop due to RSD (09 Nos)
- KLPTS 3: Annual overhauling schedule was not approved due to high system demand and to maintain Gujarat grid stability. Leads to Partial operation (15.38%) and Outage of unit (13.94%)
- KLPTS 4: Remained under forced outage for 286 days for LHS Cyclone outlet Duct work. It was an unforeseen incident involving a huge amount of MS structure work. (80.69%)
- BLTPS 1-2: Partial Operation due to unit constraints and Frequent start stop due to forced outages (45 Nos)
- Dhuvaran gas 1: Partial Operation due to backing down and frequent start stop due to RSD (59 Nos)
- Dhuvaran gas 2: Partial Operation due to backing down and frequent start stop due to RSD (56 Nos)
- Dhuvaran gas 3: Partial Operation due to backing down and frequent start stop due to RSD (28 Nos)

Commission's Analysis

For PPA governed stations, the SHR is approved as per the respective PPA terms. However, the Generation Stations of Gandhinagar 3-4, Wanakbori 1-6, Wanakbori 7, Sikka Extn 3-4, KLTPS 3 & 4, BLTPS 1-2, Dhuvaran CCPP 1,2 & 3 and Ukai 6 have SHR higher than normative SHR for FY 2021-22. 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 30th March, 2021 for FY 2021-22 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 2021-22, the Commission approves the SHR as considered in the Tariff Order for FY 2021-22, as given in the Table below:

Table 4.9: Station Heat Rate approved for FY 2021-22 for truing up (kcal/kWh)

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL	APPROVED IN TRUING UP
1	UKAI (3-5)	2625	2618	2625
2	GANDHINAGAR (3-4)	2625	2545	2625
3	GANDHINAGAR 5*	2460	2516	2460



S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL	APPROVED IN TRUING UP
4	WANAKBORI 1-6 TPS	2575	2579	2575
5	WANAKBORI 7*	2460	2488	2460
6	SIKKA EXTENSION (3-4)*	2398	2419	2398
7	KLTPS-3	3231	3254	3231
8	KLTPS 4	3000	3154	3000
9	BLTPS*	2623	2969	2623
10	DHUVARAN CCPP 1*	1950	2202	1950
11	DHUVARAN CCPP 2	1950	2217	1950
12	DHUVARAN CCPP 3*	1850	1974	1850
13	UTRAN EXTENSION*	1850	1843	1850
14	UKAI 6*	2385	2402	2385
15	WANAKBORI 8 TPS*	2248	2226	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 2021-22. The comparison of SFOC as approved by the Commission in the Tariff Order dated 30th March, 2021 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 2021-22 (ml/kWh)

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL
1	UKAI (3-5)	1.00	8.07
2	GANDHINAGAR (3-4)	1.00	1.23
3	GANDHINAGAR 5*	3.50	0.84
4	WANAKBORI 1-6 TPS	1.00	2.15
5	WANAKBORI 7*	3.50	1.30
6	SIKKA EXTENSION (3-4)*	1.00	1.80
7	KLTPS-3	3.00	7.55
8	KLTPS 4	3.00	9.39
9	BLTPS*	1.00	2.98
10	UKAI 6*	1.00	1.87
11	WANAKBORI 8 TPS*	0.50	1.42

* 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 2021-22:

- Ukai 3-5: Start stop due to RSD (19 nos.; 0.31 ml/kWh) and Partial Operation due to coal feeding issue
- Ukai 6: Partial Operation (DC revisions) due to poor coal quality and coal handling 8.97%
- Gandhinagar 3-4: Start stop due to RSD (13 nos.; 0.34 ml/kWh)
- Wanakbori 1-6: Start stop due to RSD (44 nos.; 0.27 ml/kWh)
- Wanakbori 8: higher forced outages (15 nos. and 1.28 ml/kWh) due to exorbitant extension of Annual overhauling schedule due to high system demand
- Sikka 3-4: Start stop due to RSD (09 nos. and 0.69 ml/kWh) and forced Outages (09 nos.; 0.36 ml/kWh)
- KLTPS 3: higher forced outages (39 Nos and 2.63 ml/kWh); partial operation due to unit constraints
- KLTPS 4: higher forced outages (5 Nos and 5.21 ml/kWh); less PLF of unit
- BLTPS 1-2: higher forced outages (45 Nos. and 1.25 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 2021-22 for all non-PPA stations, the Commission approves SFOC as considered in the Tariff Order for FY 2021-22.

Accordingly, the SFOC approved for FY 2021-22 for various stations is given in the Table below:



Table 4.11: Secondary Fuel Oil Consumption approved for FY 2021-22 (ml/kWh)

S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL	APPROVED IN TRUING UP
1	UKAI (3-5)	1.00	8.07	1.00
2	GANDHINAGAR (3-4)	1.00	1.23	1.00
3	GANDHINAGAR 5*	3.50	0.84	3.50
4	WANAKBORI 1-6 TPS	1.00	2.15	1.00
5	WANAKBORI 7*	3.50	1.30	3.50
6	SIKKA EXTENSION (3-4)*	1.00	1.80	1.00
7	KLTPS-3	3.00	7.55	3.00
8	KLTPS 4	3.00	9.39	3.00
9	BLTPS*	1.00	2.98	1.00
10	UKAI 6*	1.00	1.87	1.00
11	WANAKBORI 8 TPS*	0.50	1.42	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 2021-22. The transit loss as approved by the Commission in the Tariff Order dated 30th March, 2021 and the actuals as furnished by GSECL in the Petition, are given in the Table below:

Table 4.12: Transit Loss for FY 2021-22

SR. NO.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL
1	UKAI (3-5)	0.80%	0.32%
2	GANDHINAGAR (3-4)	0.80%	0.28%
3	GANDHINAGAR 5*	0.80%	0.28%
4	WANAKBORI 1-6 TPS	0.80%	0.78%
5	WANAKBORI 7*	0.80%	0.78%
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*	0.80%	0.20%
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 30th March, 2021 for FY 2021-22. 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 2021-22 as given in the Table below:

Table 4.13: Transit Loss approved for FY 2021-22 for truing up (%)

Sr. No.	POWER STATION	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%	0.28%	0.80%
3	GANDHINAGAR 5*	0.80%	0.28%	0.80%
4	WANAKBORI 1-6 TPS	0.80%	0.78%	0.80%
5	WANAKBORI 7*	0.80%	0.78%	0.80%
6	SIKKA EXTENSION (3-4)*	0.00%	0.00%	0.00%
7	KLTPS-3	0.20%	0.20%	0.20%
8	KLTPS 4	0.20%	0.20%	0.20%
9	BLTPS*	0.80%	0.20%	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 2021-22

The performance parameters, approved for different stations for FY 2021-22 after the analysis in the preceding paras for the purpose of truing up of FY 2021-22, are listed in the Table below:

Table 4.14: Performance parameters approved for truing up purpose for FY 2021-22

S. No.	POWER STATIONS	PAF (%)	PLF (%)	AUXILIARY CONSUMPTION (%)	SHR (KCAL / KWH)	SFO CONSUMPTION (ML / KWH)	TRANSIT LOSS (%)
1	UKAI (3-5)	80.00%	49.59%	9.00%	2625	1.00	0.80%
2	GANDHINAGAR (3-4)	84.00%	60.07%	9.00%	2625	1.00	0.80%
3	GANDHINAGAR 5*	85.00%	59.96%	9.50%	2460	3.50	0.80%



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S. No.	POWER STATIONS	PAF (%)	PLF (%)	AUXILIARY CONSUMPTION (%)	SHR (KCAL / KWH)	SFO CONSUMPTION (ML / KWH)	TRANSIT LOSS (%)
4	WANAKBORI 1-6 TPS	85.00%	48.37%	9.00%	2575	1.00	0.80%
5	WANAKBORI 7*	85.00%	64.81%	9.50%	2460	3.50	0.80%
6	SIKKA EXTENSION (3-4)*	85.00%	21.97%	9.00%	2398	1.00	0.00%
7	KLTPS-3	75.00%	70.02%	12.00%	3231	3.00	0.20%
8	KLTPS 4	80.00%	7.47%	12.00%	3000	3.00	0.20%
9	BLTPS*	80.00%	37.82%	11.00%	2623	1.00	0.80%
10	DHUVRAN CCPP 1*	85.00%	7.41%	4.00%	1950	-	-
11	DHUVRAN CCPP 2	85.00%	6.05%	3.00%	1950	-	-
12	DHUVRAN CCPP 3*	85.00%	4.45%	3.00%	1850	-	-
13	UTRAN EXTENSION*	85.00%	8.53%	3.00%	1850	-	-
14	UKAI 6*	85.00%	54.29%	6.00%	2385	1.00	0.80%
15	WANAKBORI 8 TPS*	85.00%	65.11%	5.25%	2248	0.50	0.80%
16	UKAI HYDRO	80.00%	24.60%	0.60%	-	-	-
17	KADANA HYDRO	80.00%	10.56%	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 2021-22, are given in the Table below:



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Table 4.15: Gross and net generation for FY 2021-22 for truing up purpose

S. 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)	2,650	10.24%	271	2,379	2,650	10.24%	271	2,379
2	GANDHINAGAR (3-4)	2,210	10.32%	228	1,982	2,210	10.32%	228	1,982
3	GANDHINAGAR 5*	1,103	10.41%	115	988	1,103	10.41%	115	988
4	WANAKBORI 1-6 TPS	5,339	9.94%	530	4,808	5,339	9.94%	530	4,808
5	WANAKBORI 7*	1,192	10.08%	120	1,072	1,192	10.08%	120	1,072
6	SIKKA EXTENSION (3-4)*	962	10.53%	101	861	962	10.53%	101	861
7	KLTPS-3	460	13.53%	62	398	460	13.53%	62	398
8	KLTPS 4	49	39.36%	19	30	49	39.36%	19	30
9	BLTPS*	1,657	19.04%	316	1,341	1,657	19.04%	316	1,341
10	DHUVARAN CCPP 1*	69	10.60%	7	62	69	10.60%	7	62
11	DHUVARAN CCPP 2	60	13.82%	8	51	60	13.82%	8	51
12	DHUVARAN CCPP 3*	147	7.67%	11	135	147	7.67%	11	135
13	UTRAN EXTENSION*	280	5.70%	16	264	280	5.70%	16	264
14	UKAI 6*	2,378	7.23%	172	2,206	2,378	7.23%	172	2,206
15	WANAKBORI 8 TPS*	4,563	5.22%	238	4,325	4,563	5.22%	238	4,325
16	UKAI HYDRO	657	0.77%	5	652	657	0.77%	5	652
17	KADANA HYDRO	224	0.76%	2	222	224	0.76%	2	222
	TOTAL	23,999		2,223	21,777	23,999		2,223	21,777

* 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 2021-22 as given in the Table below:

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

S. 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)	3,594			10,353
2	GANDHINAGAR (3-4)	3,722			10,452
3	GANDHINAGAR 5*	3,871			10,468
4	WANAKBORI 1-6 TPS	3,507			10,324
5	WANAKBORI 7 TPS*	3,570			10,316
6	SIKKA EXTENSION (3-4)*	4,944			10,424
7	KLTPS-3		2,413		10,461
8	KLTPS 4		2,413		10,666
9	BLTPS*		2,733		10,376
10	DHUVARAN CCPP 1*			9,711	-
11	DHUVARAN CCPP 2			9,723	-
12	DHUVARAN CCPP 3*			9,754	-
13	UTRAN EXTENSION*			9,181	-
14	UKAI 6*	3,632			10,378
15	WANAKBORI 8 TPS*	3,526			10,356

* 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 2021-22 as given in the Table below:



Table 4.17: The Mix of Different Types of Coal for FY 2021-22

S. No.	POWER STATION	MIX OF COAL (%)		
		INDIGENOUS	WASHED	IMPORTED
1	UKAI (3-5)	51.44%	48.56%	0.00%
2	GANDHINAGAR (3-4)	67.00%	33.00%	0.00%
3	GANDHINAGAR 5*	58.49%	41.51%	0.00%
4	WANAKBORI 1-6 TPS	47.59%	52.41%	0.09%
5	WANAKBORI 7*	41.01%	58.99%	0.00%
6	SIKKA EXTENSION (3-4)*	0.00%	0.00%	100.00%
7	UKAI 6*	39.85%	60.15%	0.00%
8	WANAKBORI 8 TPS*	42.28%	57.72%	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 2021-22, as given in the Table below:

Table 4.18: Wt. Avg. Price / Unit of Fuels for FY 2021-22 (Actual)

S. 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 GAS (RS./SCM)	WT. AVG. COST OF OIL (RS./KL)
1	UKAI (3-5)	4,557	5,021	-	4,782	-	49,311
2	GANDHINAGAR (3-4)	5,145	5,495	-	5,261	-	41,858
3	GANDHINAGAR 5*	5,124	5,573	-	5,310	-	41,341
4	WANAKBORI 1-6 TPS	4,945	5,343	-	5,154	-	45,906
5	WANAKBORI 7*	4,828	5,461	-	5,201	-	42,859
6	SIKKA EXTENSION (3-4)*	-	-	7,275	7,275	-	41,946
7	KLTPS-3	-	-	-	2,266	-	51,339
8	KLTPS 4	-	-	-	2,043	-	57,087
9	BLTPS*	-	-	-	2,564	-	58,369
10	DHUVARAN CCPP 1*	-	-	-	-	39.74	-
11	DHUVARAN CCPP 2	-	-	-	-	29.71	-
12	DHUVARAN CCPP 3*	-	-	-	-	34.26	-
13	UTRAN EXTENSION*	-	-	-	-	36.97	-
14	UKAI 6*	4,485	5,182	-	4,905	-	48,128
15	WANAKBORI 8 TPS*	4,804	5,463	-	5,184	-	44,586

* 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 2021-22. 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. 49.40 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.

The Commission has 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 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)

S. NO	COST COMPONENT	AUDITED ACCOUNTS	PETITION
1	COST OF COAL	7,713.57	7736.17
2	COST OF GAS	412.06	412.06
3	COST OF OIL	286.76	286.76
4	OTHER FUEL COST	5.13	INCLUDED IN COST OF COAL
5	LUBRICANTS AND CONSUMABLES	17.47	
	TOTAL	*8435.00	*8435.00

*Water Charges of Rs. 264.62 Crores considered separately

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 2021-22, 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 2021-22 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 2021-22

S. 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)	2,650	2,379	1,002	4.21	2,650	2,379	930	3.91
2	GANDHINAGAR (3-4)	2,210	1,982	805	4.06	2,210	1,982	821	4.14
3	GANDHINAGAR 5*	1,103	988	384	3.89	1,103	988	382	3.86
4	WANAKBORI 1-6 TPS	5,339	4,808	2,074	4.31	5,339	4,808	2,032	4.22
5	WANAKBORI 7*	1,192	1,072	440	4.10	1,192	1,072	439	4.10
6	SIKKA EXTENSION (3-4)*	962	861	347	4.03	962	861	336	3.91
7	KLTPS-3	460	398	155	3.90	460	398	143	3.60
8	KLTPS 4	49	30	15	5.16	49	30	9	3.06
9	BLTPS*	1,657	1,341	487	3.63	1,657	1,341	381.21	2.84
10	DHUVARAN CCPP 1*	69	62	62	10.08	69	62	51	8.31
11	DHUVARAN CCPP 2	60	51	40	7.86	60	51	32	6.14
12	DHUVARAN CCPP 3*	147	135	102	7.51	147	135	91	6.70
13	UTRAN EXTENSION*	280	264	208	7.87	280	264	203	7.68
14	UKAI 6*	2,378	2,206	789	3.58	2,378	2,206	770	3.49
15	WANAKBORI 8 TPS*	4,563	4,325	1,524	3.52	4,563	4,325	1,527	3.53
	GRAND TOTAL	23,999.31	21,776.62	7,976.08	3.66	23,999.31	21,776.62	7,773.91	3.51

* 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 2021-22 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 2021-22 (Rs. Crore)

S. No.	PARTICULARS	COST AS PER ANNUAL ACCOUNTS	COST AS APPROVED
1	FUEL COST	8,435.00	8,146.19
2	WATER CHARGES	264.62	264.61
	TOTAL FUEL COST AS PER ACCOUNTS	8,699.62	8,410.8

* - 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. 8435.00 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 2021-22 considering the performance parameters such as auxiliary consumption, SHR, SFOC and transit loss, as approved in the Tariff Order dated 30th March, 2021 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. 125.95 Crore due to controllable factors on account of operational efficiencies during FY 2021-22. 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 2021-22 (Rs. Crore)

S. No.	POWER STATION	FUEL COST ARRIVED WITH APPROVED PARAMETERS FOR ACTUAL NET GENERATION FOR FY 2021-22	ACTUAL FUEL COST INCURRED BY GSECL	GAIN / (LOSS) DUE TO CONTROLLABLE FACTORS
1	UKAI (3-5)	929.65	1,001.88	(72.23)
2	GANDHINAGAR (3-4)	820.62	804.78	15.83
3	WANAKBORI 1-6 TPS	2,031.52	2,073.78	(42.26)
4	KLTPS-3	143.05	155.26	(12.20)
5	KLTPS 4	9.09	15.34	(6.25)
6	DHUVARAN CCPP 2	31.57	40.41	(8.84)
7	UKAI HYDRO	-	-	-
8	KADANA HYDRO	-	-	-
	SUB TOTAL A	3,965.50	4,091.45	(125.95)
11	GANDHINAGAR 5*	381.74	384.26	
12	WANAKBORI 7* TPS	439.47	439.77	
13	SIKKA EXTN. (3-4)*	336.29	347.12	
14	BLTPS*	381.21	486.54	
15	DHUVARAN CCPP 1*	51.39	62.33	
16	DHUVARAN CCPP 3*	90.65	101.61	
17	UTRAN EXTENSION*	202.70	207.72	
18	UKAI 6*	769.79	788.85	
19	WANAKBORI 8 TPS*	1,527.46	1,523.98	
	SUB TOTAL B	4,180.7	4,342.18	-
	TOTAL (A+B)	8,146.19	8,433.63	(125.95)

* PPA based stations



4.6 Capital Expenditure and Capitalisation

Petitioner's Submission

GSECL submitted the actual Capitalisation of Rs. 174.63 Crore for FY 2021-22. 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 2021-22 as submitted by GSECL (Rs. Crore)

S. No.	POWER STATION	ACTUAL CAPITALISATION	FUNDING OF CAPITALISATION	
			DEBT AMOUNT	EQUITY AMOUNT
1	UKAI (3-5)	23.30	16.31	6.99
2	GANDHINAGAR (3-4)	16.04	11.23	4.81
3	GANDHINAGAR 5*	0.00	0.00	0.00
4	WANAKBORI 1-6 TPS	29.59	20.72	8.88
5	WANAKBORI 7*	0.00	0.00	0.00
6	SIKKA EXTENSION (3-4)*	20.79	14.55	6.24
7	KLTPS-3	9.78	6.85	2.94
8	KLTPS 4	0.00	0.00	0.00
9	BLTPS*	19.24	13.47	5.77
10	DHUVARAN CCPP 1*	1.36	0.95	0.41
11	DHUVARAN CCPP 2	0.42	0.30	0.13
12	DHUVARAN CCPP 3*	1.19	0.83	0.36
13	UTRAN EXTENSION*	2.87	2.01	0.86
14	UKAI 6*	13.74	9.62	4.12
15	WANAKBORI 8 TPS*	35.80	25.06	10.74
16	UKAI HYDRO	0.00	0.00	0.00
17	KADANA HYDRO	0.50	0.35	0.15
	TOTAL	174.63	122.24	52.39

* PPA based stations

Commission's Analysis

The Commission notes that GSECL has submitted the actual capitalisation of Rs. 174.63 Crore for power stations as against the capitalisation of Rs. 373.09 Crore approved for these plants in the Tariff Order dated 30th March, 2021. The Commission has analysed the details of works completed by GSECL during FY 2021-22.

For the purpose of Truing up, the Commission approves the Capitalisation of Rs. 174.43 Crore for FY 2021-22.



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 2021-22

Petitioner's Submission

GSECL has claimed Rs. 1,181.73 Crore towards depreciation charges in the Truing up for FY 2021-22. The depreciation approved for FY 2021-22 by the Commission in the Tariff Order dated 30th March, 2021 and now claimed by GSECL are as given in the Table below:

Table 4.24: Depreciation for FY 2021-22 (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 2021-22 has been computed by adding the assets capitalized during FY 2021-22 and deducting the assets retired or transferred from the opening balance of GFA.

GSECL has calculated the Depreciation for FY 2021-22 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 2021-22 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 2021-22 (Rs. Crore)

S. No.	POWER STATION	APPROVED	ACTUAL CLAIMED	GAIN/(LOSS) DUE TO CONTROLLABLE FACTORS	GAIN/(LOSS) DUE TO UNCONTROLLABLE FACTORS
1	UKAI (3-5)	45.26	47.80		(2.54)
2	GANDHINAGAR (3-4)	33.84	37.17		(3.33)
3	GANDHINAGAR 5*	-	2.16		-
4	WANAKBORI 1-6 TPS	96.88	102.69		(5.81)
5	WANAKBORI 7*	-	2.15		-
6	SIKKA EXTENSION (3-4)*	172.26	177.36		-
7	KLTPS-3	29.42	30.80		(1.38)
8	KLTPS 4	36.50	17.89		18.61
9	BLTPS*	193.27	239.23		-
10	DHUVARAN CCPP 1*	9.74	10.04		-
11	DHUVARAN CCPP 2	14.54	13.10		1.44
12	DHUVARAN CCPP 3*	78.77	78.84		-
13	UTRAN EXTENSION*	68.23	37.76		-
14	UKAI 6*	155.98	155.87		-
15	WANAKBORI 8 TPS*	205.16	221.06		-
16	UKAI HYDRO	2.36	2.31		0.05
17	KADANA HYDRO	5.52	5.52		0.00
	TOTAL	1,147.74	1,181.73	-	7.04

* PPA based stations

Commission's Analysis

The Commission has computed the depreciation for all the stations, taking into consideration the closing GFA of FY 2020-21 as the opening GFA for FY 2021-22, and adding the assets capitalized and deduction during FY 2021-22.

For the purpose of truing up, the Commission has considered the retirement of assets of Rs. 39.51 Crore as submitted by GSECL, which majorly include the retirement of Rs. 38.86 Crore towards BLTPS. The Gross Fixed assets approved is given in the Table below:



Table 4.26: Approved Gross Fixed Assets (Rs. Crore)

S. No.	PARTICULARS	OPENING GFA	ADDITIONS	DEDUCTIONS	CLOSING GFA
1	UKAI (3-5)	1,346.71	23.30	0.00	1,370.01
2	GANDHINAGAR (3-4)	1,258.69	16.04	0.04	1,274.69
3	GANDHINAGAR 5*	657.84	0.00	0.00	657.84
4	WANAKBORI 1-6 TPS	2,445.74	29.59	0.51	2,474.83
5	WANAKBORI 7*	638.97	0.00	0.00	638.97
6	SIKKA EXTENSION (3-4)*	3,092.78	20.79	0.10	3,113.46
7	KLTPS-3	948.92	9.78	0.00	958.70
8	KLTPS 4	707.84	0.00	0.00	707.84
9	BLTPS*	3,625.10	19.24	38.86	3,605.49
10	DHUVARAN CCPP 1*	408.39	1.36	0.00	409.75
11	DHUVARAN CCPP 2	430.93	0.42	0.00	431.35
12	DHUVARAN CCPP 3*	1,596.07	1.19	0.00	1,597.26
13	UTRAN EXTENSION*	1,359.74	2.87	0.00	1,362.61
14	UKAI 6*	2,986.89	13.74	0.00	3,000.63
15	WANAKBORI 8 TPS*	4,313.61	35.80	0.00	4,349.41
16	UKAI HYDRO	180.06	0.00	0.00	180.06
17	KADANA HYDRO	333.40	0.50	0.00	333.90
	TOTAL	26,331.68	174.63	39.51	26,466.80

* 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 2021-22 as detailed in the Table below:

Table 4.27: Approved station-wise depreciation charges and gains/(losses) from Depreciation for FY 2021-22 (Rs. Crore)

S. 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)	45.26	47.80	47.80		(2.54)
2	GANDHINAGAR (3-4)	33.84	37.17	37.17		(3.33)
3	WANAKBORI 1-6 TPS	96.88	102.69	102.69		(5.81)
4	KLTPS-3	29.42	30.80	30.80		(1.38)
5	KLTPS 4	36.50	17.89	17.89		18.61
6	DHUVRAN CCPP 2	14.54	13.10	13.10		1.44
7	UKAI HYDRO	2.36	2.31	2.31		0.05
8	KADANA HYDRO	5.52	5.52	5.52		0.00
	SUB TOTAL A	264.32	156.75	257.28		7.04
9	GANDHINAGAR 5*	-	2.16	2.16		-
10	WANAKBORI 7* TPS	-	2.15	2.15		-
11	SIKKA EXTN.(3-4)*	172.26	177.36	177.36		-
12	BLTPS*	193.27	239.23	239.23		-
13	DHUVRAN CCPP 1*	9.74	10.04	10.04		-
14	DHUVRAN CCPP 3*	78.77	78.84	78.84		-
15	UTRAN EXTENSION*	68.23	37.76	37.76		-
16	UKAI 6*	155.98	155.87	155.87		-
17	WANAKBORI 8 TPS*	205.16	221.06	221.06		-
	SUB TOTAL B	883.41	924.47	924.47		-
	TOTAL (A+B)	1,147.74	1,181.73	1,181.73		7.04

* PPA based stations

4.7.2 Interest and Finance charges for FY 2021-22

Petitioner's Submission

GSECL has claimed Rs. 608.26 Crore towards interest and finance charges in the Truing up for FY 2021-22. The repayment has been considered as minimum of depreciation computed or opening loan plus addition in loan for the FY 2021-22 in line with the approach as adopted by the Commission.



GSECL has computed the Actual interest rate for FY 2021-22 as 15.38% as per the methodology prescribed in the GERC MYT Regulations, 2016 and also as adopted by the Hon'ble Commission in the past as against approved interest rate of 8.26%. It is submitted that all the actual outstanding loans of GSECL are repaid in the early part of the year and hence, the weighted average rate of interest for the actual loan portfolio works out to be very high i.e. 15.38%. Accordingly, it is submitted that there were no actual loans during most of the part of FY 2021-22. Further, the Regulation 38.5 of the GERC MYT Regulation, 2016 states the following:

“38.5 The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the Generating Company or the Transmission Licensee or SLDC or the Distribution Licensee:

Provided that at the time of truing up, the weighted average rate of interest calculated on the basis of the actual loan portfolio during the year applicable to the Generating Company or the Transmission Licensee or SLDC or the Distribution Licensee shall be considered as the rate of interest:

Provided further that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest for the actual loan shall be considered:

As evident from the second proviso of Regulation 38.5, in case there is no actual loan for a particular year (FY 2021-22 in the present context), but normative loan is still outstanding, the last available weighted average rate of interest for the actual loan shall be considered. In the present case, the last available weighted average rate of interest for actual loan is 8.18% which is weighted average rate of interest approved by the Hon'ble Commission for FY 2020-21 in its Order in Case No. 205 of 2021 dated 30th March, 2022. Considering circumstances highlighted by GSECL, the Hon'ble Commission is requested to approve the rate of interest as 8.18% for the truing up of FY 2021-22.

GSECL has computed the Actual interest rate for FY 2021-22 as 8.18% as against approved interest rate of 8.26% and accordingly has computed the interest charges.

Accordingly, the interest and finance charges approved for FY 2021-22 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 2021-22 (Rs. Crore)

PARTICULARS	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED
INTEREST AND FINANCE CHARGES	808.26	857.34

Also, GSECL has claimed Rs. 6.67 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 2021-22 and the gains/losses are given in the Table below:

Table 4.29: Gains/Losses from Interest charges claimed for FY 2021-22 (Rs. Crore)

S. 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)	-	-		-
2	GANDHINAGAR (3-4)	-	-		-
3	GANDHINAGAR 5*	-	-		
4	WANAKBORI 1-6 TPS	19.90	15.84		4.06
5	WANAKBORI 7*	0.14	-		
6	SIKKA EXTENSION (3-4)*	105.64	107.35		
7	KLTPS-3	-	-		-
8	KLTPS 4	5.08	5.62		(0.54)
9	BLTPS*	120.82	116.46		
10	DHUVARAN CCPP 1*	-	-		
11	DHUVARAN CCPP 2	4.71	2.00		2.71
12	DHUVARAN CCPP 3*	52.55	51.90		
13	UTRAN EXTENSION*	21.19	22.52		
14	UKAI 6*	71.69	72.19		
15	WANAKBORI 8 TPS*	212.89	212.68		
16	UKAI HYDRO	2.14	1.70		0.44
17	KADANA HYDRO	-	-		-
	TOTAL	616.74	608.26		6.67

* PPA based stations

Commission's Analysis

The Commission has analysed the audited annual accounts of GSECL for FY 2021-22 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 2020-21 as approved in FY 2020-21 true-up order as Opening Loans for FY 2021-22 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 2021-22 and for the stations for which depreciation is higher than the Opening Loan plus addition in Loan for FY 2021-22, 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 2021-22 (Rs. Crore)

S. No.	POWER STATION	OPENING LOAN	ADDITIONS	REPAYMENT	CLOSING LOAN
1	UKAI (3-5)	-	16.31	16.31	-
2	GANDHINAGAR (3-4)	-	11.22	11.20	-
3	GANDHINAGAR 5*	-	-	-	-
4	WANAKBORI 1-6 TPS	234.58	20.36	102.69	152.25
5	WANAKBORI 7*	-	-	-	-
6	SIKKA EXTENSION (3-4)*	1,393.80	14.48	177.36	1,230.92
7	KLTPS-3	-	6.85	6.85	-
8	KLTPS 4	77.69	-	17.89	59.80
9	BLTPS*	1,536.55	-	239.23	1,297.32
10	DHUVARAN CCPP 1*	-	0.95	0.95	-
11	DHUVARAN CCPP 2	30.85	0.30	13.10	18.05
12	DHUVARAN CCPP 3*	673.45	0.83	78.84	595.44
13	UTRAN EXTENSION*	293.23	2.01	37.76	257.48
14	UKAI 6*	955.63	9.62	155.87	809.38
15	WANAKBORI 8 TPS*	2,698.04	25.06	221.06	2,502.04
16	UKAI HYDRO	21.95	-	2.31	19.64
17	KADANA HYDRO	-	0.35	0.35	-
	TOTAL	7,915.77	108.32	1,081.76	6,942.32

* PPA based stations

The Commission notes that GSECL has submitted the weighted average rate of interest of 8.18% as during earlier part of the year the outstanding actual loan got repaid. The Commission has worked out weighted average rate of interest as 7.08% considering actual date of repayment for each loan portfolio. Accordingly, the Commission allows interest and finance charge at the rate of 7.08%.

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



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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 2021-22 as detailed in the Table below:

Table 4.31: Approved Interest Charges and gain/ (loss) for FY 2021-22 (Rs. Crore)

S. 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)	-	-	-		-
2	GANDHINAGAR (3-4)	-	-	-		-
3	WANAKBORI 1-6 TPS	19.90	15.84	13.70		6.20
4	KLTPS-3	-	-			
5	KLTPS 4	5.08	5.62	4.87		(0.21)
6	DHUVARAN CCPP 2	4.71	2.00	1.73		2.98
7	UKAI HYDRO	2.14	1.70	1.47		0.67
8	KADANA HYDRO	-	-			
	SUB TOTAL A	31.83	25.16	21.77		10.05
9	GANDHINAGAR 5*	-	-	-		
10	WANAKBORI 7 TPS*	0.14	-	-		
11	SIKKA EXTN. (3-4)*	105.64	107.35	92.98		
12	BLTPS*	120.82	116.46	100.39		
13	DHUVARAN CCPP 1*	-	-	-		
14	DHUVARAN CCPP 3*	52.55	51.90	44.95		
15	UTRAN EXTENSION*	21.19	22.52	19.51		
16	UKAI 6*	71.69	72.19	62.52		
17	WANAKBORI 8 TPS*	212.89	212.68	184.20		
	SUB TOTAL B	584.92	583.10	504.55		0.00
	TOTAL (A+B)	616.75	608.26	526.33		10.05

* PPA based stations



4.7.3 Return on Equity for FY 2021-22

Petitioner's Submission

GSECL has claimed Rs. 1,059.98 Crore towards RoE in the Truing up for FY 2021-22. The RoE approved for FY 2021-22 by the Commission in Tariff Order dated 30th March, 2021 for FY 2021-22, and now claimed by GSECL as actual are given in the Table below:

Table 4.32: Return on Equity for FY 2021-22 (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 2021-22 and addition to Equity during the year on account of funding of capital expenditure against the RoE approved in the Tariff Order dated 30th March, 2021 resulted in a loss of Rs. 10.14 Crore attributed to uncontrollable factors. The station-wise RoE claimed by GSECL in the truing for FY 2021-22 and the gains/(losses) are given in the Table below:

Table 4.33: Gains / Losses from Return on Equity claimed for FY 2021-22 (Rs. Crore)

S. 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)	25.36	23.99		1.37
2	GANDHINAGAR (3-4)	24.43	24.99		(0.56)
3	GANDHINAGAR 5*	28.67	28.67		
4	WANAKBORI 1-6 TPS	96.73	92.85		3.88
5	WANAKBORI 7*	26.25	26.16		
6	SIKKA EXTENSION (3-4)*	137.03	130.33		
7	KLTPS-3	37.23	54.59		(17.36)
8	KLTPS 4	29.77	29.65		0.12
9	BLTPS*	153.74	151.84		
10	DHUVARAN CCPP 1*	10.46	10.54		
11	DHUVARAN CCPP 2	16.62	14.54		2.08
12	DHUVARAN CCPP 3*	67.01	67.06		
13	UTRAN EXTENSION*	57.51	57.59		
14	UKAI 6*	125.88	125.74		
15	WANAKBORI 8 TPS*	179.30	181.92		
16	UKAI HYDRO	10.81	10.64		0.17



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S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED	GAIN/(LOSS) DUE TO CONTROLLABLE FACTORS	GAIN/(LOSS) DUE TO UNCONTROLLABLE FACTORS
17	KADANA HYDRO	29.04	28.88		0.16
	TOTAL	1,055.85	1,059.98	-	(10.14)

* PPA based stations

Commission's Analysis

The Commission has observed that GSECL has compared the actual RoE of Rs. 1,059.98 Crore for FY 2021-22 with the RoE of Rs. 1,055.85 Crore approved in the Tariff Order dated 30th March, 2021 and arrived at a loss of Rs. 10.14 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 2020-21 as the opening equity of FY 2021-22, 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 2021-22 (Rs. Crore)

S. No.	POWER STATION	OPENING EQUITY	ADDITION	REDUCTION	CLOSING EQUITY
1	UKAI (3-5)	167.84	6.99	-	174.83
2	GANDHINAGAR (3-4)	176.08	4.81	0.01	180.88
3	GANDHINAGAR 5*	220.57	-	-	220.57
4	WANAKBORI 1-6 TPS	658.87	8.88	0.15	667.60
5	WANAKBORI 7*	201.22	-	-	201.22
6	SIKKA EXTENSION (3-4)*	927.85	6.24	0.03	934.05
7	KLTPS-3	388.49	2.94	-	391.43
8	KLTPS 4	211.78	-	-	211.78
9	BLTPS*	1,087.53	5.77	11.66	1,081.65
10	DHUVARAN CCPP 1*	80.88	0.41	-	81.29
11	DHUVARAN CCPP 2	103.77	0.13	-	103.90
12	DHUVARAN CCPP 3*	478.82	0.36	-	479.18
13	UTRAN EXTENSION*	410.90	0.86	-	411.76
14	UKAI 6*	896.07	4.12	-	900.19
15	WANAKBORI 8 TPS*	1,294.08	10.74	-	1,304.82
16	UKAI HYDRO	75.97	-	-	75.97



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S. No.	POWER STATION	OPENING EQUITY	ADDITION	REDUCTION	CLOSING EQUITY
17	KADANA HYDRO	206.24	0.15	-	206.39
	TOTAL	7,586.96	52.39	11.85	7,627.50

* PPA based stations

Gains / (Losses)

The GER (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 2021-22 as detailed in the Table below:

Table 4.35: Approved Return on Equity and gain/ (loss) for FY 2021-22 (Rs. Crore)

S. 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)	25.36	23.99	23.99		1.37
2	GANDHINAGAR (3-4)	24.43	24.99	24.99		(0.56)
3	WANAKBORI 1-6 TPS	96.73	92.85	92.85		3.88
4	KLTPS-3	37.23	54.59	54.59		(17.36)
5	KLTPS 4	29.77	29.65	29.65		0.12
6	DHUVRAN CCPP 2	16.62	14.54	14.54		2.08
7	UKAI HYDRO	10.81	10.64	10.64		0.17
8	KADANA HYDRO	29.04	28.88	28.88		0.16
	SUBTOTAL A	269.99	280.13	280.13		(10.14)
9	GANDHINAGAR 5*	28.67	28.67	28.67		
10	WANAKBORI 7* TPS	26.25	26.16	26.16		
11	SIKKA EXTN. (3-4)*	137.03	130.33	130.33		
12	BLTPS*	153.74	151.84	151.84		
13	DHUVRAN CCPP 1*	10.46	10.54	10.54		
14	DHUVRAN CCPP 3*	67.01	67.06	67.06		
15	UTRAN EXTENSION*	57.51	57.59	57.59		
16	UKAI 6*	125.88	125.74	125.74		



S. 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
17	WANAKBORI 8 TPS*	179.30	181.92	181.92		
	SUBTOTAL B	785.85	779.85	779.85		
	TOTAL (A+B)	1,055.84	1,059.98	1,059.98		(10.14)

* PPA based stations

4.7.4 O&M Expenses for FY 2021-22

Petitioner's Submission

GSECL has claimed Rs. 1,510.87 Crore towards actual O&M expenses in the truing up for FY 2021-22. The O&M charges approved for FY 2021-22 by the Commission in the Tariff Order dated 30th March, 2021, and now claimed by GSECL are given in the Table below:

Table 4.36: O&M expenses for FY 2021-22 (Rs. Crore)

PARTICULARS	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED
O&M EXPENSES	1,539.02	1,510.87

As the O&M expenses have been classified as "Controllable", GSECL has worked out a gain of Rs. 69.24 Crore. While, wage revision arrear considered as uncontrollable. The station-wise O&M expenses approved by the Commission in the Tariff Order dated 30th March, 2021 and now claimed by GSECL after revision in the truing for FY 2021-22 are given in the Table below:

Table 4.37: Gains / Losses from O&M expenses for FY 2021-22 (Rs. Crore)

S. 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)	248.40	245.98	34.82	(32.40)
2	GANDHINAGAR (3-4)	143.87	150.97	15.24	(22.34)
3	GANDHINAGAR 5*	58.32	75.40		
4	WANAKBORI 1-6 TPS	266.28	259.50	42.81	(36.03)
5	WANAKBORI 7*	20.17	17.24		
6	SIKKA EXTENSION (3-4)*	138.79	167.16		
7	KLTPS-3	48.90	96.24	(40.71)	(6.63)
8	KLTPS 4	19.84	26.60	(5.59)	(1.17)
9	BLTPS*	178.24	101.02		



S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED	GAIN/(LOSS) DUE TO CONTROLLABLE FACTORS	GAIN/(LOSS) DUE TO UNCONTROLLABLE FACTORS
10	DHUVARAN CCPP 1*	48.82	48.71		
11	DHUVARAN CCPP 2	49.51	39.58	15.08	(5.15)
12	DHUVARAN CCPP 3*	4.92	10.70		
13	UTRAN EXTENSION*	51.94	122.85		
14	UKAI 6*	54.43	50.92		
15	WANAKBORI 8 TPS*	162.32	55.23		
16	UKAI HYDRO	14.61	17.36	(0.53)	(2.22)
17	KADANA HYDRO	29.65	25.42	8.13	(3.90)
	TOTAL	1,539.02	1,510.87	69.24	(109.83)

* PPA based stations

Commission's Analysis

The O&M expenses consist of following elements:

- Employees expenses;
- Repairs & Maintenance expenses;
- Administration & General expenses.

These elements are discussed hereunder:

Employee expenses

The Employees expenses as per the audited Annual Accounts (Note No. 28) is Rs. 754.34 Crore net of expenses capitalised. It is further observed that GSECL has made payments towards 7th Pay Commission of Rs. 125.20 Crore during FY 2021-22. Hence, the Commission has considered the same cost of Rs. 125.20 Crore for the purpose of truing up.

Further, the Commission notes that GSECL has considered the amount of Rs. 2.41 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. 2.41 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. 2.41



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. 879.54 Crore for FY 2021-22, after allocation of HO expenses.

Repairs & Maintenance expenses

As per the audited Annual Accounts (Note No. 30), the R&M expenses are to the tune of Rs. 509.96 Crore. The Commission has excluded R&M expenses of Rs. 10.15 Crore towards SSNNL and SPS and Rs. 4.45 Crore towards RE and other expenses related to solar of Rs. 5.40 Crore. The net R&M expenses works out to Rs. 489.96 Crore, after allocation of HO expenses.

Administration & General expenses

As per the audited Annual Accounts, the A&G expenses are Rs. 153.12 Crore. It is observed that these A&G expenses include expenses of Rs. 4.27 Crore towards Corporate Social Responsibility, Rs. 0.98 Crore towards provision on Loan to joint Venture, Rs. 2.18 Crore towards O&M contract of SSNNL and SPS. 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 for the purpose of truing up, has allocated the HO Expenses amongst Generating Stations, including SSNNL & SPS and RE, and then excluded the expenses corresponding to these three stations.

In view of the above, the total actual O&M Expenses approved by the Commission for FY 2021-22 are Rs. 1,510.87 Crore, including Employee Cost of Rs. 879.54 Crore, A&G Expenses of Rs. 141.38 Crore and R&M Expenses of Rs. 489.96 Crore.

Gains / (Loss)

The Commission observed that there is a gain of Rs. 69.24 Crore due to controllable factors by comparing the actual amount with the O&M expenses approved by the Commission in the Tariff Order dated 30th March, 2021.

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 2021-22 as detailed in the Table below:



Table 4.38: Approved O&M expenses gains/losses for FY 2021-22 (Rs. Crore)

S. 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)	248.40	245.98	245.98	34.82	(32.40)
2	GANDHINAGAR (3-4)	143.87	150.97	150.97	15.24	(22.34)
3	WANAKBORI 1-6 TPS	266.28	259.50	259.50	42.81	(36.03)
4	KLTPS-3	48.90	96.24	96.24	(40.71)	(6.63)
5	KLTPS 4	19.84	26.60	26.60	(5.59)	(1.17)
6	DHUVRAN CCPP 2	49.51	39.58	39.58	15.08	(5.15)
7	UKAI HYDRO	14.61	17.36	17.36	(0.53)	(2.22)
8	KADANA HYDRO	29.65	25.42	25.42	8.13	(3.90)
	SUBTOTAL A	821.06	861.65	861.65	69.24	(109.83)
9	GANDHINAGAR 5*	58.32	75.40	75.40		
10	WANAKBORI 7* TPS	20.17	17.24	17.24		
11	SIKKA EXTN. (3-4)*	138.79	167.16	167.16		
12	BLTPS*	178.24	101.02	101.02		
13	DHUVRAN CCPP 1*	48.82	48.71	48.71		
14	DHUVRAN CCPP 3*	4.92	10.70	10.70		
15	UTRAN EXTENSION*	51.94	122.85	122.85		
16	UKAI 6*	54.43	50.92	50.92		
17	WANAKBORI 8 TPS*	162.32	55.23	55.23		
	SUBTOTAL B	717.95	649.23	649.23		
	TOTAL (A+B)	1,539.01	1,510.88	1,510.87	69.24	(109.83)

* PPA based stations

4.7.5 Interest on Working Capital for FY 2021-22

Petitioner's Submission

GSECL has claimed Rs. 418.13 Crore towards interest on working capital in the Truing up for FY 2021-22. The interest on working capital approved for FY 2021-22 in the Tariff Order dated 30th March, 2021 and as claimed in the Truing up are given in the Table below:

Table 4.39: Interest on Working Capital Claimed in Truing up for FY 2021-22 (Rs. Crore)

PARTICULARS	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED
INTEREST ON WORKING CAPITAL	385.74	418.13



GSECL has submitted that it has considered the interest rate for calculating Interest on Working Capital as 9.50% (weighted average of 1-year SBI MCLR for FY 2021-22 plus 2.50%). GSECL has further submitted that the Interest on Working Capital computed in the Truing up for FY 2021-22 indicates a loss of Rs. 2.67 Crore as shown in the Table below:

Table 4.40: Gains/(Losses) from Interest on working capital for FY 2021-22 (Rs. Crore)

S. 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)	37.04	37.41		(0.37)
2	GANDHINAGAR (3-4)	29.08	26.85		2.23
3	GANDHINAGAR 5*	13.94	12.84		
4	WANAKBORI 1-6 TPS	80.66	80.30		0.36
5	WANAKBORI 7*	12.73	12.73		
6	SIKKA EXTENSION (3-4)*	35.25	35.25		
7	KLTPS-3	4.93	5.85		(0.92)
8	KLTPS 4	4.16	4.64		(0.48)
9	BLTPS*	29.98	28.20		
10	DHUVARAN CCPP 1*	5.38	11.92		
11	DHUVARAN CCPP 2	6.13	9.78		(3.65)
12	DHUVARAN CCPP 3*	20.06	32.88		
13	UTRAN EXTENSION*	20.44	36.69		
14	UKAI 6*	31.27	30.81		
15	WANAKBORI 8 TPS*	52.93	50.37		
16	UKAI HYDRO	0.59	0.56		0.03
17	KADANA HYDRO	1.17	1.04		0.13
	TOTAL	385.74	418.13	-	(2.67)

* PPA based stations

Commission's Analysis

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. 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 9.50% as per the GERC (MYT) Regulations, 2016.

The interest on working capital is calculated at Rs. 412.12 Crore based on the expenses approved in the truing up for FY 2021-22.

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 2021-22 as detailed in the Table below:

Table 4.41: Approved Gains/(Losses) from Interest on working Capital for FY 2021-22
(Rs. Crore)

S. 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)	37.04	37.41	35.75		1.29
2	GANDHINAGAR (3-4)	29.08	26.85	27.37		1.71
3	WANAKBORI 1-6 TPS	80.66	80.30	79.91		0.75
4	KLTPS-3	4.93	5.85	6.19		(1.26)
5	KLTPS 4	4.16	4.64	4.22		(0.06)
6	DHUVARAN CCPP 2	6.13	9.78	9.12		(2.99)
7	UKAI HYDRO	0.59	0.56	0.58		0.01
8	KADANA HYDRO	1.17	1.04	1.01		0.16
	SUBTOTAL A	163.76	165.43	155.14		(0.40)
9	GANDHINAGAR 5*	13.94	12.84	13.25		
10	WANAKBORI 7* TPS	12.73	12.73	12.97		
11	SIKKA EXTN. (3-4)*	35.25	35.25	35.07		
12	BLTPS*	29.98	28.20	26.09		
13	DHUVARAN CCPP 1*	5.38	11.92	11.21		
14	DHUVARAN CCPP 3*	20.06	32.88	32.01		
15	UTRAN EXTENSION*	20.44	36.69	37.17		
16	UKAI 6*	31.27	30.81	30.56		
17	WANAKBORI 8 TPS*	52.93	50.37	49.64		



S. 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
	SUBTOTAL B	221.98	252.70	247.95		
	TOTAL (A+B)	385.74	418.13	412.11		(0.40)

* PPA based stations

4.7.6 SLDC Charges for FY 2021-22

Petitioner's Submission

GSECL has claimed Rs. 3.69 Crore towards SLDC charges in the Truing up for FY 2021-22. SLDC charges approved by the Commission in the Tariff Order for FY 2021-22, and now claimed by GSECL as actual are tabulated below:

Table 4.42: SLDC charges for FY 2021-22 (Rs. Crore)

PARTICULARS	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED
SLDC CHARGES	3.9	3.24

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 30th March, 2021 and as claimed by GSECL in the Truing up for FY 2021-22 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 2021-22 (Rs. Crore)

S. 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)	0.38	0.30		0.08
2	GANDHINAGAR (3-4)	0.26	0.20		0.06
3	GANDHINAGAR 5*	0.13	0.10		
4	WANAKBORI 1-6 TPS	0.78	0.61		0.17
5	WANAKBORI 7*	0.13	0.10		
6	SIKKA EXTENSION (3-4)*	0.31	0.24		
7	KLTPS-3	0.05	0.04		0.01
8	KLTPS 4	0.05	0.04		0.01
9	BLTPS*	0.32	0.24		
10	DHUVARAN CCPP 1*	0.07	0.05		
11	DHUVARAN CCPP 2	0.07	0.05		0.02
12	DHUVARAN CCPP 3*	0.23	0.18		



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S. No.	POWER STATION	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED	GAIN / (LOSS) DUE TO CONTROLLABLE FACTOR	GAIN / (LOSS) DUE TO UNCONTROLLABLE FACTOR
13	UTRAN EXTENSION*	0.23	0.18		
14	UKAI 6*	0.31	0.24		
15	WANAKBORI 8 TPS*	0.03	0.39		
16	UKAI HYDRO	0.19	0.15		0.04
17	KADANA HYDRO	0.15	0.12		0.03
	TOTAL	3.69	3.24	-	0.43

* PPA based stations

Commission's Analysis

SLDC charges are not reflected separately in the annual accounts but are included in Other Expenses (Note 30). The Commission has reconciled the SLDC Charges with Other Expenses submitted in the Petition vis-à-vis audited accounts. The Commission approves Rs. 3.24 Crore towards SLDC charges in the truing up for FY 2021-22 as claimed by GSECL against Rs. 3.69 Crore approved in the Tariff Order dated 30th March, 2021.

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 2021-22 (Rs. Crore)

S. 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 (3-5)	0.38	0.30	0.30		0.08
2	GANDHINAGAR (3-4)	0.26	0.20	0.20		0.06
3	WANAKBORI 1-6 TPS	0.78	0.61	0.61		0.17
4	KLTPS-3	0.05	0.04	0.04		0.01
5	KLTPS 4	0.05	0.04	0.04		0.01
6	DHUVARAN CCPP 2	0.07	0.05	0.05		0.02
7	UKAI HYDRO	0.19	0.15	0.15		0.04
8	KADANA HYDRO	0.15	0.12	0.12		0.03
	SUBTOTAL A	1.93	1.51	1.51		0.43
9	GANDHINAGAR 5*	0.13	0.10	0.10		



S. 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
10	WANAKBORI 7* TPS	0.13	0.10	0.10		
11	SIKKA EXTN. (3-4)*	0.31	0.24	0.24		
12	BLTPS*	0.32	0.24	0.24		
13	DHUVARAN CCPP 1*	0.07	0.05	0.05		
14	DHUVARAN CCPP 3*	0.23	0.18	0.18		
15	UTRAN EXTENSION*	0.23	0.18	0.18		
16	UKAI 6*	0.31	0.24	0.24		
17	WANAKBORI 8 TPS*	0.03	0.39	0.39		
	SUBTOTAL B	1.63	1.62	1.62		
	TOTAL (A+B)	3.69	3.13	3.24		0.43

* PPA based stations

4.7.7 Water Charges for FY 2021-22

GSECL has claimed Rs. 264.62 Crore towards water charges in the Truing up for FY 2021-22 against Rs. 132.84 Crore approved in the Tariff Order dated 30th March, 2021 as given in the Table below:

Table 4.45: Water Charges for FY 2021-22 (Rs. Crore)

PARTICULARS	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED
WATER CHARGES	132.84	264.62

Petitioner's Submission

The station-wise water charges approved by the Commission in the Tariff Order dated 30th March, 2021, claimed by GSECL in the Truing up for FY 2021-22 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 2021-22 (Rs. Crore)

S. 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)	-	-		-
2	GANDHINAGAR (3-4)	42.10	68.96		(26.86)
3	GANDHINAGAR 5*	21.05	34.48		
4	WANAKBORI 1-6 TPS	38.46	73.76		(35.30)
5	WANAKBORI 7*	10.17	15.23		



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6	SIKKA EXTENSION (3-4)*	5.11	4.86	
7	KLTPS-3	0.09	0.25	(0.16)
8	KLTPS 4	0.15	-	0.15
9	BLTPS*	6.32	17.48	
10	DHUVARAN CCPP 1*	0.19	0.89	
11	DHUVARAN CCPP 2	0.20	0.89	(0.69)
12	DHUVARAN CCPP 3*	0.66	-	
13	UTRAN EXTENSION*	2.40	2.32	
14	UKAI 6*	-	-	
15	WANAKBORI 8 TPS*	5.95	45.51	
16	UKAI HYDRO	-	-	-
17	KADANA HYDRO	-	-	-
	TOTAL	132.84	264.62	-
				(62.86)

* 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. 264.62 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 2021-22, 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 2021-22 (Rs. Crore)

S. 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 (3-5)	-		-		-
2	GANDHINAGAR (3-4)	42.10	68.96	68.96		(26.86)
3	WANAKBORI 1-6 TPS	38.46	73.76	73.76		(35.30)
4	KLTPS-3	0.09	0.25	0.25		(0.16)
5	KLTPS 4	0.15	-	-		0.15
6	DHUVRAN CCPP 2	0.20	0.89	0.89		(0.69)
7	UKAI HYDRO	-	-	-		-
8	KADANA HYDRO	-	-	-		-
	SUBTOTAL A	81	143.86	143.86		(62.86)
9	GANDHINAGAR 5*	21.05	34.48	34.48		
10	WANAKBORI 7* TPS	10.17	15.23	15.23		
11	SIKKA EXTN. (3-4)*	5.11	4.86	4.86		
12	BLTPS*	6.32	17.48	17.48		
13	DHUVRAN CCPP 1*	0.19	0.89	0.89		
14	DHUVRAN CCPP 3*	0.66	-	-		
15	UTRAN EXTENSION*	2.40	2.32	2.32		
16	UKAI 6*	-	-	-		
17	WANAKBORI 8 TPS*	5.95	45.51	45.51		
	SUBTOTAL B	51.85	120.77	120.77		
	TOTAL (A+B)	132.85	264.62	264.62		(62.86)

* PPA based stations

4.7.8 Income Tax for FY 2021-22

Petitioner's Submission

GSECL has claimed Rs. 43.65 Crore towards Income Tax in the Truing up for FY 2021-22. The Income Tax approved for FY 2021-22 by the Commission in the Tariff Order dated 30th March, 2021 and now claimed by GSECL as actual is given in the Table below:

Table 4.48: Income Tax for FY 2021-22 (Rs. Crore)

PARTICULARS	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED
INCOME TAX	30.13	43.65



The station wise Income Tax approved by the Commission in the Tariff Order dated 30th March, 2021, claimed by GSECL in the Truing up for FY 2021-22 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 2021-22 (Rs. Crore)

S. 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)	3.42	3.99		(0.57)
2	GANDHINAGAR (3-4)	2.35	3.27		(0.92)
3	GANDHINAGAR 5*	1.18	2.75		
4	WANAKBORI 1-6 TPS	7.06	1.37		5.69
5	WANAKBORI 7*	1.18	8.24		
6	SIKKA EXTENSION (3-4)*	2.80	1.37		
7	KLTPS-3	0.42	5.23		(4.81)
8	KLTPS 4	0.42	3.27		(2.85)
9	BLTPS*	-	0.49		
10	DHUVARAN CCPP 1*	0.60	0.49		
11	DHUVARAN CCPP 2	0.63	3.27		(2.64)
12	DHUVARAN CCPP 3*	2.11	0.70		
13	UTRAN EXTENSION*	2.10	0.74		
14	UKAI 6*	2.80	2.46		
15	WANAKBORI 8 TPS*	-	2.45		
16	UKAI HYDRO	1.71	1.99		(0.28)
17	KADANA HYDRO	1.36	1.58		(0.22)
	TOTAL	30.13	43.65	-	(6.60)

* PPA based stations

Commission's Analysis

The Commission has observed that the actual Income Tax as per the audited annual accounts for FY 2021-22 is Rs. 43.65 Crore. The Commission has also verified the computation of Income tax of Rs. 43.65 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. 11,240.40 Crore. This includes revenue from operation of Rs. 67.65 Crore for SSNNL and SPS, Rs. 79.30 Crore for RE. Income Tax paid includes the total income of



Rs. 146.95 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. 0.57 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. 43.08 Crore for FY 2021-22. 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 2021-22 (Rs. Crore)

S. 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 (3-5)	3.42	3.99	3.94		(0.52)
2	GANDHINAGAR (3-4)	2.35	3.27	2.71		(0.36)
3	WANAKBORI 1-6 TPS	7.06	1.37	8.13		(1.07)
4	KLTPS-3	0.42	5.23	0.48		(0.06)
5	KLTPS 4	0.42	3.27	0.48		(0.06)
6	DHUVARAN CCPP 2	0.63	3.27	0.73		(0.10)
7	UKAI HYDRO	1.71	1.99	1.97		(0.26)
8	KADANA HYDRO	1.36	1.58	1.56		(0.20)
	SUBTOTAL A	17.37	23.97	20.06		(2.63)
9	GANDHINAGAR 5*	1.18	1.18	1.35		
10	WANAKBORI 7* TPS	1.18	8.24	1.35		
11	SIKKA EXTN. (3-4)*	2.8	1.37	3.23		
12	BLTPS*	-	0.49	3.23		
13	DHUVARAN CCPP 1*	0.6	0.49	0.69		
14	DHUVARAN CCPP 3*	2.11	0.7	2.43		
15	UTRAN EXTENSION*	2.1	0.74	2.42		
16	UKAI 6*	2.8	2.46	3.23		
17	WANAKBORI 8 TPS*	-	2.45	5.16		
	SUBTOTAL B	12.77	18.12	23.02		(2.63)
	TOTAL (A+B)	30.14	43.65	43.08		(2.63)

* PPA based stations



4.7.9 Non-Tariff Income for FY 2021-22

Petitioner's Submission

GSECL has claimed Rs. 109.17 Crore towards Non-Tariff Income in the Truing up FY 2021-22 as against Rs. 157.32 Crore approved in the Tariff Order dated 30th March, 2021, as given in the Table below:

Table 4.51: Non-Tariff Income claimed for FY 2021-22 (Rs. Crore)

PARTICULARS	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED
NON-TARIFF INCOME	157.32	109.17

The Petitioner has submitted the station-wise Non-Tariff Income approved in the Tariff Order dated 30th March, 2021, claimed in the Truing up for FY 2021-22 and the Gains/(Losses) as given in the Table below:

Table 4.52: Gain/ (loss) for Non-Tariff Income claimed for FY 2021-22 (Rs. Crore)

S. 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)	33.46	15.46		(18.00)
2	GANDHINAGAR (3-4)	10.18	31.55		21.37
3	GANDHINAGAR 5*	9.96	0.07		
4	WANAKBORI 1-6 TPS	43.02	24.62		(18.40)
5	WANAKBORI 7*	14.44	0.07		
6	SIKKA EXTENSION (3-4)*	5.17	3.81		
7	KLTPS-3	2.48	4.46		1.98
8	KLTPS 4	4.51	0.10		(4.41)
9	BLTPS*	14.84	2.83		
10	DHUVARAN CCPP 1*	0.73	16.99		
11	DHUVARAN CCPP 2	0.73	3.65		2.92
12	DHUVARAN CCPP 3*	0.95	1.09		
13	UTRAN EXTENSION*	0.47	3.22		
14	UKAI 6*	15.43	0.18		
15	WANAKBORI 8 TPS*	0.40	0.29		
16	UKAI HYDRO	0.15	0.11		(0.04)
17	KADANA HYDRO	0.39	0.68		0.29
	TOTAL	157.32	109.17	-	(14.31)

* PPA based stations



Commission's Analysis

The Commission has duly verified the non-tariff income from audited accounts for FY 2021-22 as Rs. 399.33 Crore, which includes (i) encashment of Rs. 96.98 Crore of bank guarantee submitted by imported coal supplier of Sikka3-4 TPS towards security deposit for the contract since the supplier failed to supply the coal in terms of the order issued by the GSECL, (ii) Rs. 113.76 Crore of amount received from BHEL against delay in commissioning of the plant at Wanakbori 8 TPS, (iii) Rs. 0.19 Crore of trading activity, (iv) Rs. 8.17 Crore of provisional amount written back, (v) Rs. 3.01 Crore received as energy conservation grant, (vi) Rs. 68.05 Crore towards other income from SSHEP, SPS and Solar plants. The Commission has considered the net Non-Tariff Income as Rs. 109.17 Crore since Sikka 3-4 TPS received lower fixed charge to the tune of Rs. 313.11 Crore on account of non-availability of coal and incurred additional Rs. 57.72 Crore against re-tendering cost. The Commission also notes that the amount of Rs. 113.76 Crore received during FY 2021-22 from BHEL against delay in commissioning of Wanakbori 8 TPS has been considered by GSECL by reducing the capital cost to that extent. The Commission notes that the income of Rs. 0.19 Crore against trading activity is not considered by GSECL as non-tariff income since cost of Rs. 0.19 Crore for trading activity, which reflects in Note 27 of the audited accounts, has also not been considered by GSECL as fuel or any other cost. The Commission further notes that income of Rs. 3.01 Crore is infact energy conservation grant and income of Rs. 68.05 Crore is from the non-regulated activity of GSECL and cost of which is not recovered through the tariff determined by the Commission. Further, it is noted by the Commission that GSECL has not considered amount of Rs. 38.81 Crore transferred to fly ash utilisation reserve as non tariff income. This amount is considered by the Commission as Non-tariff Income as per the approach adopted in the Order dated 30th March, 2022. Accordingly, the Commission approves Rs. 147.98 Crore as Non-tariff Income for FY 2021-22.

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 4.53: Approved Non-Tariff Income and gain/ (loss) for FY 2021-22 (Rs. Crore)

S. 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 (3-5)	33.46	15.46	20.02		(13.44)
2	GANDHINAGAR (3-4)	10.18	31.55	35.35		25.17
3	WANAKBORI 1-6 TPS	43.02	24.62	33.80		(9.22)
4	KLTPS-3	2.48	4.46	5.25		2.77
5	KLTPS 4	4.51	0.1	0.18		(4.33)
6	DHUVARAN CCPP 2	0.73	3.65	3.65		2.92
7	UKAI HYDRO	0.15	0.11	0.11		(0.04)
8	KADANA HYDRO	0.39	0.68	0.68		0.29
	SUBTOTAL A	94.92	80.63	99.03		(9.33)
9	GANDHINAGAR 5*	9.96	0.07	1.97		
10	WANAKBORI 7* TPS	14.44	0.07	2.13		
11	SIKKA EXTN.(3-4)*	5.17	3.81	5.46		
12	BLTPS*	14.84	2.83	5.68		
13	DHUVARAN CCPP 1*	0.73	16.99	16.99		
14	DHUVARAN CCPP 3*	0.95	1.09	1.09		
15	UTRAN EXTENSION*	0.47	3.22	3.22		
16	UKAI 6*	15.43	0.18	4.27		
17	WANAKBORI 8 TPS*	0.4	0.29	8.13		
	SUBTOTAL B	62.39	28.55	48.95		
	TOTAL (A+B)	157.32	109.17	147.98	-	(9.33)

* PPA based stations

4.8 Approved Fixed Charges

S. 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	264.32	257.28	257.28	7.04
2	INTEREST AND FINANCE CHARGES	31.83	25.16	21.79	10.04
3	RETURN ON EQUITY	269.99	280.13	280.13	(10.14)
4	INTEREST ON WORKING CAPITAL	163.76	166.43	164.16	(0.40)



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S. No.	FIXED CHARGES	APPROVED AS PER TARIFF ORDER	ACTUAL CLAIMED	APPROVED IN TRUING UP	DEVIATION+ / (-)
1	2	3	4	5	6=3-5
5	O&M EXPENSES	821.06	861.65	861.65	(40.59)
6	WATER CHARGES	81.00	143.86	143.86	(62.86)
7	SLDC CHARGES	1.93	1.51	1.50	0.43
8	INCOME TAX	17.37	23.97	20.00	(2.63)
	TOTAL FIXED CHARGES	1,651.26	1,759.99	1,750.37	(99.11)
9	LESS: NON- TARIFF INCOME	94.92	80.63	99.03	(4.11)
	NET FIXED CHARGES	1,556.34	1,679.36	1,651.33	(94.99)
(B)	PPA STATIONS				
1	DEPRECIATION	883.41	924.47	924.45	(41.04)
2	INTEREST AND FINANCE CHARGES	584.92	583.10	504.53	79.39
3	RETURN ON EQUITY	785.85	779.85	779.86	5.99
4	INTEREST ON WORKING CAPITAL	221.98	220.88	247.96	(25.98)
5	O&M EXPENSES	717.95	649.23	649.22	68.73
6	WATER CHARGES	51.85	120.77	120.76	(68.91)
7	SLDC CHARGES	1.76	1.72	1.74	0.02
8	INCOME TAX	12.77	19.69	23.08	(10.31)
	TOTAL FIXED CHARGES	3,260.49	3,299.81	3,251.61	8.39
9	LESS: NON- TARIFF INCOME	62.39	28.55	48.95	13.44
	NET FIXED CHARGES	3,198.10	3,299.81	3,202.67	(4.57)
	TOTAL NET FIXED CHARGES (A+B)	4,754.44	4,979.17	4,853.98	(99.54)

The performance of GSECL has been reviewed under Regulation 21 of the GERC (MYT) Regulations, 2016 with reference to audited annual accounts for FY 2021-22. 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 2021-22 in the Tariff Order dated 30th March, 2021, charges now approved by the Commission, and deviation (gain/ (loss)) with reference to approved values are given in the Table below:

Table 4.54: Fixed Charges Approved in the Truing up for FY 2021-22 (Rs. Crore)

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



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Table 4.55: Approved Station-wise Fixed Charges for FY 2021-22 (Rs. Crore)

S. No.	POWER STATION	DEPRECIATION	INTEREST AND FINANCE CHARGES	RETURN ON EQUITY	INTEREST ON WORKING CAPITAL	O&M EXPENSES	WATER CHARGES	SLDC CHARGES	INCOME TAX	TOTAL FIXED COST	LESS: NON-TARIFF INCOME	NET FIXED CHARGES
1	UKAI (3-5)	47.80	-	23.99	35.75	245.98	-	0.30	3.94	357.75	20.02	337.73
2	GANDHINAGAR (3-4)	37.17	-	24.99	27.37	150.97	68.96	0.20	2.71	312.37	35.35	277.02
3	GANDHINAGAR 5*	2.16	-	28.67	13.25	75.40	34.48	0.10	1.35	155.42	1.97	153.44
4	WANAKBORI 1-6 TPS	102.69	13.70	92.85	79.91	259.50	73.76	0.61	8.13	631.17	33.80	597.37
5	WANAKBORI 7* TPS	2.15	-	26.16	12.97	17.24	15.23	0.10	1.35	75.20	2.13	73.07
6	SIKKA EXTN. (3-4)*	177.36	92.98	130.33	35.07	167.16	4.86	0.24	3.23	611.22	5.46	605.76
7	KLTPS 3	30.80	-	54.59	6.19	96.24	0.25	0.04	0.48	188.59	5.25	183.35
8	KLTPS 4	17.89	4.87	29.65	4.22	26.60	-	0.04	0.48	83.76	0.18	83.58
9	BLTPS*	239.23	100.39	151.84	26.09	101.02	17.48	0.24	3.23	639.99	5.68	634.32
10	DHUVRAN CCPP 1*	10.04	-	10.54	11.21	48.71	0.89	0.05	0.69	82.12	16.99	65.13
11	DHUVRAN CCPP 2	13.10	1.73	14.54	9.12	39.58	0.89	0.05	0.73	79.73	3.65	76.08
12	DHUVRAN CCPP 3*	78.84	44.95	67.06	32.01	10.70	-	0.18	2.43	236.16	1.09	235.07
13	UTRAN EXTENSION*	37.76	19.51	57.59	37.17	122.85	2.32	0.18	2.42	279.79	3.22	276.57
14	UKAI 6*	155.87	62.52	125.74	30.56	50.92	-	0.24	3.23	429.07	4.27	424.80
15	WANAKBORI 8 TPS*	221.06	184.20	181.92	49.64	55.23	45.51	0.39	5.16	743.11	8.13	734.98
16	UKAI HYDRO	2.31	1.47	10.64	0.58	17.36	-	0.15	1.97	34.48	0.11	34.37
17	KADANA HYDRO	5.52	-	28.88	1.01	25.42	-	0.12	1.56	62.51	0.68	61.83
	TOTAL	1,181.73	526.33	1,059.98	412.12	1,510.87	264.62	3.24	43.08	5,001.97	147.98	4,853.98

* PPA based stations



4.9 Sharing of Gains or Losses for FY 2021-22

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 4.56: Approved Gains/(Losses) due to controllable factors for FY 2021-22 (Rs. Crore)

S. No.	POWER STATION	APPROVED FOR FY 2021-22			TOTAL GAINS / (LOSSES) TO BE PASSED THROUGH (1/3 RD OF GAINS / LOSSES)
		O&M EXPENSES	FUEL CHARGES	TOTAL GAINS / (LOSSES) DUE TO CONTROLLABLE FACTORS	
1	UKAI (3-5)	34.82	(72.23)	(37.41)	(12.47)
2	GANDHINAGAR (3-4)	15.24	15.83	31.07	10.36
3	WANAKBORI 1-6 TPS	42.81	(42.26)	0.55	0.18
4	KLTPS-3	(40.71)	(12.20)	(52.91)	(17.64)
5	KLTPS 4	(5.59)	(6.25)	(11.84)	(3.95)
6	DHUVARAN CCPP 2	15.08	(8.84)	6.24	2.08
7	UKAI HYDRO	(0.53)	-	(0.53)	(0.18)
8	KADANA HYDRO	8.13	-	8.13	2.71
	SUBTOTAL A	69.24	(125.95)	(56.71)	(18.90)
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	-	-	-	-



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S. No.	POWER STATION	APPROVED FOR FY 2021-22			TOTAL GAINS / (LOSSES) TO BE PASSED THROUGH (1/3 RD OF GAINS / LOSSES)
		O&M EXPENSES	FUEL CHARGES	TOTAL GAINS / (LOSSES) DUE TO CONTROLLABLE FACTORS	
TOTAL (A+B)		69.24	(125.95)	(56.71)	(18.90)

* PPA based stations

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



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Table 4.57: Approved Gains / (Losses) due to Uncontrollable Factors for FY 2021-22 (Rs. Crore)

S. No.	POWER STATION	DEPRECIATION	INTEREST & FINANCE CHARGES	RETURN ON EQUITY	INTEREST ON WORKING CAPITAL	O&M EXPENSES	WATER CHARGES	SLDC CHARGES	INCOME TAX	NTI	TOTAL GAINS / (LOSSES) TO BE PASSED THROUGH
1	UKAI (3-5)	(2.54)	-	1.37	1.29	(32.40)	-	0.08	(0.52)	(13.44)	(46.15)
2	GANDHINAGAR (3-4)	(3.33)	-	(0.56)	1.71	(22.34)	(26.86)	0.06	(0.36)	25.17	(26.51)
3	WANAKBORI 1-6 TPS	(5.81)	6.20	3.88	0.75	(36.03)	(35.30)	0.17	(1.07)	(9.22)	(76.43)
4	KLTPS-3	(1.38)	-	(17.36)	(1.26)	(6.63)	(0.16)	0.01	(0.06)	2.77	(24.08)
5	KLTPS 4	18.61	0.21	0.12	(0.06)	(1.17)	0.15	0.01	(0.06)	(4.33)	13.47
6	DHUVARAN CCPP 2	1.44	2.98	2.08	(2.99)	(5.15)	(0.69)	0.02	(0.10)	2.92	0.52
7	UKAI HYDRO	0.05	0.67	0.17	0.01	(2.22)	-	0.04	(0.26)	(0.04)	(1.58)
8	KADANA HYDRO	0.00	-	0.16	0.16	(3.90)	-	0.03	(0.20)	0.29	(3.46)
	SUB TOTAL A	7.04	10.05	(10.14)	(0.40)	(109.83)	(62.86)	0.43	(2.63)	4.11	(164.22)
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)	7.04	10.05	(10.14)	(0.40)	(109.83)	(62.86)	0.43	(2.63)	4.11	(164.22)



The Consolidated Gains / (Losses) approved in the Truing up for FY 2021-22 are given in the Table below:

Table 4.58: Total Consolidated Gains / (Losses) Approved for FY 2021-22 (Rs. Crore)

S. 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)	(37.41)	(46.15)	(58.62)
2	GANDHINAGAR (3-4)	31.07	(26.51)	(16.15)
3	WANAKBORI 1-6 TPS	0.55	(76.43)	(76.25)
4	KLTPS-3	(52.91)	(24.08)	(41.72)
5	KLTPS 4	(11.84)	13.47	9.52
6	DHUVARAN CCPP 2	6.24	0.52	2.60
7	UKAI HYDRO	(0.53)	(1.58)	(1.76)
8	KADANA HYDRO	8.13	(3.46)	(0.75)
	SUB TOTAL A	(56.71)	(164.22)	(183.13)
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)	(56.71)	(164.24)	(183.14)

* 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:



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Table 4.59: Total Consolidated (Fixed and Fuel Cost) Gains / (Losses) Approved for FY 2021-22 (Rs. Crore)

S. No.	POWER STATION	GAINS / (LOSSES) OF CONTROLLABLE FACTORS	GAINS / (LOSSES) OF UNCONTROLLABLE FACTORS TO BE PASSED THROUGH	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)
		(A)	(B)					
		FIXED CHARGES	FIXED CHARGES	FIXED CHARGES	FIXED CHARGES	FUEL COST	FUEL COST	FIXED & FUEL COST
A	NON-PPA STATIONS							
1	UKAI (3-5)	34.82	(46.15)	(34.54)	(30.59)	(72.23)	(24.08)	(54.67)
2	GANDHINAGAR (3-4)	15.24	(26.51)	(21.43)	(21.43)	15.83	5.28	(16.15)
3	WANAKBORI 1-6 TPS	42.81	(76.43)	(62.17)	(51.79)	(42.26)	(14.09)	(65.87)
4	KLTPS-3	(40.71)	(24.08)	(37.65)	(34.99)	(12.20)	(4.07)	(39.06)
5	KLTPS 4	(5.59)	13.47	11.61	0.96	(6.25)	(2.08)	(1.13)
6	DHUVARAN CCPP 2	15.08	0.52	5.55	5.02	(8.84)	(2.95)	2.08
7	UKAI HYDRO	(0.53)	(1.58)	(1.76)	(1.76)	-	-	(1.76)
8	KADANA HYDRO	8.13	(3.46)	(0.75)	(0.75)	-	-	(0.75)
	SUB TOTAL A	69.24	(164.22)	(141.14)	(135.32)	(125.95)	(41.98)	(177.31)
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*	-	-	-	-	-	-	-



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S. No.	POWER STATION	GAINS / (LOSSES) OF CONTROLLABLE FACTORS	GAINS / (LOSSES) OF UNCONTROLLABLE FACTORS TO BE PASSED THROUGH	TOTAL GAINS / (LOSSES) C = A/3+B	TOTAL GAINS/(LOSSES) TO BE PASSED THROUGH AT ACTUAL PAF	GAINS / (LOSSES) OF CONTROLLABLE FACTORS	TOTAL GAINS / (LOSSES) D/3	TOTAL GAINS / (LOSSES)
		(A)	(B)			(D)		
		FIXED CHARGES	FIXED CHARGES	FIXED CHARGES	FIXED CHARGES	FUEL COST	FUEL COST	FIXED & FUEL COST
7	UTRAN EXTN. *	-	-	-	-	-	-	-
8	UKAI 6*	-	-	-	-	-	-	-
9	WANAKBORI 8 TPS*	-	-	-	-	-	-	-
	SUB TOTAL B	-	-	-	-	-	-	-
	TOTAL (A+B)	69.24	(164.22)	(141.14)	(135.32)	(125.95)	(41.98)	(177.31)

* PPA based stations

The Commission thus approves the net loss of Rs. 177.31 Crore in the Truing up for FY 2021-22. The net loss of Rs. 177.31 Crore approved in the truing up for FY 2021-22 is to be passed on to four DISCOMs through GUVNL in Twelve (12) equal monthly instalments during FY 2023-24.



5. DETERMINATION OF AGGREGATE REVENUE REQUIREMENT FOR FY 2023-24

5.1 Introduction

This chapter deals with the determination of ARR and Tariff for FY 2023-24.

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



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NAME OF STATION	UNIT No.	CAPACITY OF THE UNIT (MW)	DATE OF COMMISSIONING
	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
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	
PANAM	1	1	24/03/1994
1		1	31/03/1994
SUB TOTAL GSECL (HYDRO)		547	
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	1	02/05/2016
	DHUVARAN I	75	05/02/2019
	CHANDARVA	30	28/08/2021



NAME OF STATION	UNIT No.	CAPACITY OF THE UNIT (MW)	DATE OF COMMISSIONING
	DHUVARAN II	75	15/04/2021
SUB TOTAL RE		204	
TOTAL GSECL AS A WHOLE		6,881	

5.3 Operating Performance of GSECL Stations

The actual performance of the stations for FY 2021-22 as provided by GSECL and the Commission's analysis and decisions are already discussed in Chapter 4 in the truing up for FY 2021-22.

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 2023-24. GSECL has considered the PAF same as the PAF of FY 2022-23 approved in the Tariff Order of 30th March, 2022, for all power plants. The PAF projected by GSECL for its stations for FY 2023-24 for recovery of fixed charges are given in the Table below:

Table 5.2: Plant Availability Factor for FY 2023-24

S. 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%



S. No.	POWER STATION	PROJECTED
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 2023-24 in line with the PAF approved for FY 2022-23 in the Tariff Order dated 30th March, 2021. 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 2023-24.

Table 5.3: Plant Availability Factor approved for FY 2023-24

S. 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%



S. No.	POWER STATION	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
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 2023-24. GSECL has considered the PLF on the basis of available resources to achieve optimum generation from different units. The PLF projected by GSECL for its stations for FY 2023-24 is given in the Table below:

Table 5.4: Plant Load Factor for FY 2023-24

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	54.59%
2	GANDHINAGAR (3-4)	54.89%
3	GANDHINAGAR 5*	65.05%
4	WANAKBORI 1-6 TPS	53.53%
5	WANAKBORI 7*	62.34%
6	SIKKA EXTENSION (3-4)*	37.00%
7	KLTPS 3	75.90%
8	KLTPS 4	60.72%
9	BLTPS*	48.38%
10	DHUVARAN CCPP 1*	5.13%
11	DHUVARAN CCPP 2	5.06%
12	DHUVARAN CCPP 3*	4.99%
13	UTRAN EXTENSION*	4.86%
14	UKAI 6*	76.84%
15	WANAKBORI 8 TPS*	75.42%
16	UKAI HYDRO	21.46%
17	KADANA HYDRO	10.58%



* PPA based stations

Commission's Analysis

The Commission observed that GSECL has considered the PLF for FY 2023-24 as per the available resources in order to optimize the generation from sources. However, Commission has considered the PLF as envisaged by the beneficiaries of the petitioner for working out their power purchase cost for FY 2023-24. Accordingly, the Commission approves the PLF as given in the Table below:

Table 5.5: PLF Approved for FY 2023-24

S. No.	POWER STATION	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
1	UKAI (3-5)	54.59%	80.00%
2	GANDHINAGAR (3-4)	54.89%	59.64%
3	GANDHINAGAR 5*	65.05%	85.00%
4	WANAKBORI 1-6 TPS	53.53%	48.08%
5	WANAKBORI 7*	62.34%	67.08%
6	SIKKA EXTENSION (3-4)*	37.00%	70.00%
7	KLTPS 3	75.90%	68.99%
8	KLTPS 4	60.72%	80.00%
9	BLTPS*	48.38%	60.00%
10	DHUVARAN CCPP 1*	5.13%	1.00%
11	DHUVARAN CCPP 2	5.06%	1.00%
12	DHUVARAN CCPP 3*	4.99%	1.00%
13	UTRAN EXTENSION*	4.86%	1.00%
14	UKAI 6*	76.84%	53.80%
15	WANAKBORI 8 TPS*	75.42%	65.53%
16	UKAI HYDRO	21.46%	25.84%
17	KADANA HYDRO	10.58%	15.49%

* PPA based stations

5.3.3 Auxiliary Consumption

Petitioner's Submission

GSECL has submitted the Auxiliary Consumption for different stations for FY 2023-24. GSECL has considered the Auxiliary Consumption same as the Auxiliary Consumption of FY 2022-23 approved in the Tariff Order of 30th March, 2022 for all power plants. The



Auxiliary Consumption projected by GSECL for its stations for FY 2023-24 is given in the Table below:

Table 5.6: Auxiliary Consumption for FY 2023-24

S. 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 2023-24 in line with the Auxiliary Consumption approved for FY 2022-23 in the Tariff Order dated 30th March, 2022. 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 2023-24

S. 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%



S. No.	POWER STATION	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
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 2023-24. GSECL has considered the SHR same as the SHR of FY 2022-23 approved in the Tariff Order dated 30th March, 2022 for all power plants. The SHR projected by GSECL for its stations for FY 2023-24 is given in the Table below:

Table 5.8: Station Heat Rate for FY 2023-24 (kcal/kWh)

S. 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
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



S. No.	POWER STATION	PROJECTED
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 2023-24 in line with the SHR approved for FY 2022-23 in the Tariff Order dated 30th March, 2022. 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 2023-24 (kcal/kWh)

S. 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 2023-24. GSECL has considered the SFOC same as the SFOC for FY 2022-23 approved in the Tariff Order dated 30th March,



2022 for all power plants. The SFOC projected by GSECL for its stations for FY 2023-24 is given in the Table below:

Table 5.10: Secondary Fuel Oil Consumption for FY 2023-24 (ml/kWh)

S. 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 2023-24 in line with the SFOC for FY 2022-23 approved in the Tariff Order dated 30th March, 2022. 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)

S. 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
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



S. No.	POWER STATION	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
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 2023-24. GSECL has considered the Transit Loss same as the Transit Loss for FY 2022-23 approved in Tariff Order dated 30th March, 2022 for all power plants. The Transit Loss projected by GSECL for its stations for FY 2023-24 is given in the Table below:

Table 5.12: Transit Loss for FY 2023-24

S. 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 2023-24 in line with the Transit Loss for FY 2021-22 approved in the Tariff Order dated 30th March, 2022. 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 (%)

S. 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 2023-24

The performance parameters, approved for different stations for FY 2023-24 after the analysis in the preceding paras, are listed in the Table below:

Table 5.14: Performance parameters approved for FY 2023-24

S. No.	POWER STATIONS	PAF	PLF	AUXILIARY CONSUMPTION	SHR	SFO CONSUMPTION	TRANSIT LOSS
		%	%	%	KCAL / KWH	ML / KWH	%
1	UKAI (3-5)	80.00%	80.00%	9.00%	2,625	1.00	0.80%
2	GANDHINAGAR (3-4)	84.00%	59.64%	9.00%	2,625	1.00	0.80%
3	GANDHINAGAR 5*	85.00%	85.00%	9.50%	2,460	3.50	0.80%
4	WANAKBORI 1-6 TPS	85.00%	48.08%	9.00%	2,575	1.00	0.80%
5	WANAKBORI 7*	85.00%	67.08%	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%
7	KLTPS 3	75.00%	68.99%	12.00%	3,231	3.00	0.20%
8	KLTPS 4	80.00%	80.00%	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%	1.00%	4.00%	1,950	-	-
11	DHUVARAN CCPP 2	85.00%	1.00%	3.00%	1,950	-	-



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S. No.	POWER STATIONS	PAF	PLF	AUXILIARY CONSUMPTION	SHR	SFO CONSUMPTION	TRANSIT LOSS
		%	%	%	KCAL / KWH	ML / KWH	%
12	DHUVARAN CCPP 3*	85.00%	1.00%	3.00%	1,850	-	-
13	UTRAN EXTENSION*	85.00%	1.00%	3.00%	1,850	-	-
14	UKAI 6*	85.00%	53.80%	6.00%	2,385	1.00	0.80%
15	WANAKBORI 8 TPS*	85.00%	65.53%	5.25%	2,248	0.50	0.80%
16	UKAI HYDRO	80.00%	25.84%	0.60%	-	-	-
17	KADANA HYDRO	80.00%	15.49%	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 2023-24, are given in the Table below:



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Table 5.15: Gross and Net Generation for FY 2023-24

S. 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)	2,925.00	9.00%	263.25	2,661.75	4,286.59	9.00%	385.79	3,900.80
2	GANDHINAGAR (3-4)	2,025.00	9.00%	182.25	1,842.75	2,200.11	9.00%	198.01	2,002.10
3	GANDHINAGAR 5*	1,200.00	9.50%	114.00	1,086.00	1,567.94	9.50%	148.95	1,418.99
4	WANAKBORI 1-6 TPS	5,925.00	9.00%	533.25	5,391.75	5,321.03	9.00%	478.89	4,842.14
5	WANAKBORI 7*	1,150.00	9.50%	109.25	1,040.75	1,237.47	9.50%	117.56	1,119.91
6	SIKKA EXTENSION (3-4)*	1,625.00	9.00%	146.25	1,478.75	3,074.40	9.00%	276.70	2,797.70
7	KLTPS 3	500.00	12.00%	60.00	440.00	454.50	12.00%	54.54	399.96
8	KLTPS 4	400.00	12.00%	48.00	352.00	527.04	12.00%	63.24	463.80
9	BLTPS*	2,125.00	11.00%	233.75	1,891.25	2,635.20	11.00%	289.87	2,345.33
10	DHUVARAN CCPP 1*	48.00	4.00%	1.92	46.08	9.37	4.00%	0.37	8.99
11	DHUVARAN CCPP 2	50.00	3.00%	1.50	48.50	9.88	3.00%	0.30	9.58
12	DHUVARAN CCPP 3*	165.00	3.00%	4.95	160.05	33.04	3.00%	0.99	32.05
13	UTRAN EXTENSION*	160.00	3.00%	4.80	155.20	32.90	3.00%	0.99	31.92
14	UKAI 6*	3,375.00	6.00%	202.50	3,172.50	2,362.83	6.00%	141.77	2,221.06
15	WANAKBORI 8 TPS*	5,300.00	5.25%	278.25	5,021.75	4,604.64	5.25%	241.74	4,362.89
16	UKAI HYDRO	575.00	0.60%	3.45	571.55	692.37	0.60%	4.15	688.22
17	KADANA HYDRO	225.00	1.00%	2.25	222.75	329.20	1.00%	3.29	325.91
	TOTAL	27,773.00	7.88%	2,189.62	25,583.38	29,378.50	8.92%	2,407.16	26,971.33

* 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 2023-24 same as actual value of weighted average GCV of primary fuels and secondary fuel and coal mix of FY 2021-22 except for Sikka 3-4 which runs on imported coal, as given in the Table below:

Table 5.16: Wt. Avg. Gross Calorific Value (GCV) for different stations for FY 2023-24

S. 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)	3,594			10,353
2	GANDHINAGAR (3-4)	3,722			10,452
3	GANDHINAGAR 5*	3,871			10,468
4	WANAKBORI 1-6 TPS	3,507			10,324
5	WANAKBORI 7 TPS*	3,570			10,316
6	SIKKA EXTENSION (3-4)*	4,992			10,424
7	KLTPS-3		2,413		10,461
8	KLTPS 4		2,413		10,666
9	BLTPS*		2,733		10,376
10	DHUVARAN CCPP 1*			9,711	-
11	DHUVARAN CCPP 2			9,723	-
12	DHUVARAN CCPP 3*			9,754	-
13	UTRAN EXTENSION*			9,181	-
14	UKAI 6*	3,632			10,378
15	WANAKBORI 8 TPS*	3,526			10,356

* PPA based stations

Commission's Analysis

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 2021-22 except for Sikka 3-4 TPS for which GCV of imported coal has been considered based on average of past three months i.e. September 2022 to November 2022.

Table 5.17: Approved Wt. Avg. Gross Calorific Value (GCV) of fuels for FY 2023-24

S. 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)	3,594			10,353	3,594			10,353
2	GANDHINAGAR (3-4)	3,722			10,452	3,722			10,452
3	GANDHINAGAR 5*	3,871			10,468	3,871			10,468
4	WANAKBORI 1-6 TPS	3,507			10,324	3,507			10,324



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S. 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
5	WANAKBORI 7 TPS*	3,570			10,316	3,570			10,316
6	SIKKA EXTENSION (3-4)*	4,992			10,424	4,992			10,424
7	KLTPS 3		2,413		10,461		2,413		10,461
8	KLTPS 4		2,413		10,666		2,413		10,666
9	BLTPS*		2,733		10,376		2,733		10,376
10	DHUVARAN CCPP 1*			9,711	-			9,711	-
11	DHUVARAN CCPP 2			9,723	-			9,723	-
12	DHUVARAN CCPP 3*			9,754	-			9,754	-
13	UTRAN EXTENSION*			9,181	-			9,181	-
14	UKAI 6*	3,632			10,378	3,632			10,378
15	WANAKBORI 8 TPS*	3,526			10,356	3,526			10,356

* 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 2023-24 is given in the Table below:



Table 5.18: The Mix of Different Types of Coal for FY 2023-24

S. 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 2021-22 for projection of FY 2023-24 as given in the Table below:



Table 5.19: Wt. Avg. Price / Unit of Fuels for FY 2023-24

S. 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/LIGNITE	WT. AVG. COST OF GAS	WT. AVG. COST OF OIL
		(Rs./MT)	(Rs./MT)	(Rs./MT)	(Rs./MT)	(Rs./SCM)	(Rs./Kl)
1	UKAI (3-5)	4,557	5,021		4,836		49,311
2	GANDHINAGAR (3-4)	5,145	5,495		5,355		41,858
3	GANDHINAGAR 5*	5,124	5,573		5,393		41,341
4	WANAKBORI 1-6 TPS	4,945	5,343		5,184		45,906
5	WANAKBORI 7*	4,828	5,461		5,208		42,859
6	SIKKA EXTENSION (3-4)*			17,580	17,580		41,946
7	KLTPS 3				2,266		51,339
8	KLTPS 4				2,043		57,087
9	BLTPS*				2,564		58,369
10	DHUVARAN CCPP 1*					39.74	
11	DHUVARAN CCPP 2					29.71	
12	DHUVARAN CCPP 3*					34.26	
13	UTRAN EXTENSION*					36.97	
14	UKAI 6*	4,485	5,182		4,904		48,128
15	WANAKBORI 8 TPS*	4,804	5,463		5,199		44,586

* 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 as approved for FY 2021-22.

For Sikka 3-4 TPS for which Fuel price of primary fuel i.e. imported coal has been considered based on average of past three months i.e. September 2022 to November 2022.

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 2021-22.



Table 5.20: Approved Wt. Avg. Price / Unit of Fuels for FY 2023-24

S. 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/LIGNITE	WT. AVG. COST OF GAS	WT. AVG. COST OF OIL
		(Rs./MT)	(Rs./MT)	(Rs./MT)	(Rs./MT)	(Rs./SCM)	(Rs./KL)
1	UKAI (3-5)	4,557	5,021		4,836		49,311
2	GANDHINAGAR (3-4)	5,145	5,495		5,355		41,858
3	GANDHINAGAR 5*	5,124	5,573		5,393		41,341
4	WANAKBORI 1-6 TPS	4,945	5,343		5,184		45,906
5	WANAKBORI 7*	4,828	5,461		5,208		42,859
6	SIKKA EXTENSION (3-4)*			17,580	17,580		41,946
7	KLTPS 3				2,266		51,339
8	KLTPS 4				2,043		57,087
9	BLTPS*				2,564		58,369
10	DHUVARAN CCPP 1*					39.74	
11	DHUVARAN CCPP 2					29.71	
12	DHUVARAN CCPP 3*					34.26	
13	UTRAN EXTENSION*					36.97	
14	UKAI 6*	4,485	5,182		4,904		48,128
15	WANAKBORI 8 TPS*	4,804	5,463		5,199		44,586

* PPA based stations

The Commission approves the Wt. Avg. GCVs and prices of fuel (Coal / Lignite), as approved for FY 2021-22 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 2021-22 except for Sikka 3-4 TPS for which GCV and price of primary fuel has been considered based on average of past three months i.e. September 2022 to November 2022.

5.6 Fuel Costs

Based on the performance and cost parameters, the approved fuel costs for each of the stations for FY 2023-24, along with the fuel cost submitted by GSECL, are given in the Table below:



Table 5.21: Fuel Cost of different stations for FY 2023-24

S. 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)	2,925.00	2,661.75	1051.62	3.95	4,286.59	3,900.80	1541.15	3.95
2	GANDHINAGAR (3-4)	2,025.00	1,842.75	776.38	4.21	2,200.11	2,002.10	843.52	4.21
3	GANDHINAGAR 5*	1,200.00	1,086.00	425.82	3.92	1,567.94	1,418.99	556.38	3.92
4	WANAKBORI 1-6 TPS	5,925.00	5,391.75	2291.19	4.25	5,321.03	4,842.14	2,057.64	4.25
5	WANAKBORI 7*	1,150.00	1,040.75	427.14	4.10	1,237.47	1,119.91	459.63	4.10
6	SIKKA EXTENSION (3-4)*	1,625.00	1,478.75	1373.14	9.29	3,074.40	2,797.70	2,597.90	9.29
7	KLTPS 3	500.00	440.00	158.24	3.60	454.50	399.96	143.84	3.60
8	KLTPS 4	400.00	352.00	109.81	3.12	527.04	463.80	144.69	3.12
9	BLTPS*	2,125.00	1,891.25	605.03	3.20	2,635.20	2,345.33	662.71	2.83
10	DHUVARAN CCPP 1*	48.00	46.08	38.30	8.31	9.37	8.99	7.47	8.31
11	DHUVARAN CCPP 2	50.00	48.50	29.80	6.14	9.88	9.58	5.89	6.14
12	DHUVARAN CCPP 3*	165.00	160.05	107.22	6.70	33.04	32.05	21.47	6.70
13	UTRAN EXTENSION*	160.00	155.20	119.18	7.68	32.90	31.92	24.51	7.68
14	UKAI 6*	3,375.00	3,172.50	1106.86	3.49	2,362.83	2,221.06	774.91	3.49
15	WANAKBORI 8 TPS*	5,300.00	5,021.75	1778.81	3.54	4,604.64	4,362.89	1,545.43	3.54
GRAND TOTAL		27,773.00	25,583.38	10,398.54		28,356.93	25,957.20	11,387.13	

* PPA stations



5.7 Capital Expenditure and Capitalisation

Petitioner's Submission

GSECL submitted the expected Capital Expenditure of Rs. 1,163.78 Crore for FY 2023-24 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 2023-24 by GSECL

Table 5.22: Capital Expenditure as submitted by GSECL for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	200.00
2	GANDHINAGAR (3-4)	25.83
3	GANDHINAGAR 5*	3.00
4	WANAKBORI 1-6 TPS	172.00
5	WANAKBORI 7*	3.00
6	SIKKA EXTENSION (3-4)*	26.46
7	KLTPS 3	20.00
8	KLTPS 4	20.00
9	BLTPS*	56.48
10	DHUVARAN CCPP 1*	2.00
11	DHUVARAN CCPP 2	1.00
12	DHUVARAN CCPP 3*	2.00
13	UTRAN EXTENSION*	4.00
14	UKAI 6*	200.00
15	WANAKBORI 8 TPS*	328.00
16	UKAI HYDRO	-
17	KADANA HYDRO	100.00
	TOTAL	1,163.78

* PPA based stations

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

Various works to be undertaken at Ukai Units-3 & 5: -

The works proposed to be undertaken include turbine retrofitting, boiler back pass & 40% load flexible Unit Operation, C&I upgradation and FGD Installation. The proposed capex is being undertaken for improving the efficiency of the units, improving the capability for



flexible operations of the units even at low loading conditions of 40% and to meet the environmental requirements. The EPC Tender for efficiency improvement through Turbine Retrofitting of Unit No. 3 & 5 is under process and price bid is also opened. Similarly, the EPC Tender for Boiler Back-pass and 40% load flexible Unit Operation of Unit No. 3 & 5 has also been issued. The EPC Tender for C&I upgradation Unit No. 3&5 is under finalization stage while the tender for FGD installation is under preparation.

ESP retrofitting of Units 4,5 & 6 of Wanakbori TPS and Unit 3&4 of KLTPS: -

To meet the revised MoEF norms for PM, the Upgradation / retrofitting of existing ESPs is required for providing 01 additional field increase in volume of ESP. Accordingly the ESP retrofitting of Wanakbori TPS Unit no 4 & 5 and 75 MW Units of KLTPS. Contract already awarded for Wanakbori Unit No.4 &5 and the work is in progress. The work for Wanakbori Unit-6 is already completed. The work will be started in Wanakbori Unit No.4&5 during upcoming shutdown. EPC Tender for KLTPS units 3 & 4 ESP retrofitting work is under finalization.

Turbine retrofitting of WTPS Unit 1&2: -

In case of older units no. 1&2 of Wanakbori TPS, the operating unit heat rate of these units remain around 2600 kcal/kWh. This can be improved by retrofitting of old LMZ turbines. The Tender for awarding of EPC contract for turbine retrofitting is under preparation for efficiency improvement of Unit No. 1 & 2 of WTPS.

Installation of FGD System in Wanakbori-8, Ukai-6, Sikka-3&4, Gandhinagar-3,4&5, Wanakbori-1-6&7 and KLTPS-3&4: -

The FGD system is required to be installed to meet revised environmental norms for SO_x. Moreover, reduction in flue gas temperature improves the ESP performance and reduces stack emission as well. For installation of FGD system in Wanakbori-Unit-8, the tender has been re-invited. For FGD system of Ukai unit-6 & Sikka Units-3 &4 the tenders have been already processed and are in finalization stage. Moreover, for Gandhinagar Units 3, 4 & 5 and Wanakbori-Units- 1-6 &7 the tenders preparation work is under finalization stage. Tenders for Installation of FGD system in KLTPS-3 & 4 are also being finalized and shall be floated in nearby future.



Boiler back- pass and 40% load flexible Unit Operation Wanakbori units 1-2: -

This capital expenditure is planned to improve the operational flexibility of the plants at low loading conditions (40% loading). EPC tender for Wanakbori units 1-2 is under preparation.

SCR Wanaknori-8: -

Consultancy work is under finalization and EPC likely to be finalized in FY 2022-23.

R&M of old units (Pump Mode Operation) of Kadana Hydro: -

The process of approval for Pump Mode Operation of Kadana Hydro units is already initiated. The estimated expenditure shall be around Rs. 750.00 crores for all units of Kadana Hydro Project. On receipt of the approval, the tender for awarding of EPC contract shall be finalized. However, the capital expenditure of Rs. 100 crores has been proposed to be incurred during FY 2023-24.

The following Table shows the capitalisation proposed by GSECL for FY 2023-24. GSECL has proposed capitalization based on the capital expenditure estimated for FY 2021-22. 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 2023-24 as submitted by GSECL (Rs. Crore)

S. No.	POWER STATIONS	CAPITALISATION	FUNDING OF CAPITALISATION	
			DEBT AMOUNT	EQUITY AMOUNT
1	UKAI (3-5)	23.16	16.21	6.95
2	GANDHINAGAR (3-4)	15.95	11.16	4.78
3	GANDHINAGAR 5*	-	-	-
4	WANAKBORI 1-6 TPS	141.92	99.34	42.58
5	WANAKBORI 7*	-	-	-
6	SIRKA EXTENSION (3-4)*	20.66	14.46	6.20
7	KLTPS 3	9.73	6.81	2.92
8	KLTPS 4	-	-	-
9	BLTPS*	30.00	21.00	9.00
10	DHUVARAN CCPP 1*	1.35	0.95	0.41
11	DHUVARAN CCPP 2	0.42	0.29	0.13
12	DHUVARAN CCPP 3*	1.18	0.83	0.35
13	UTRAN EXTENSION*	2.86	2.00	0.86
14	UKAI 6*	20.00	14.00	6.00



S. No.	POWER STATIONS	CAPITALISATION	FUNDING OF CAPITALISATION	
			DEBT AMOUNT	EQUITY AMOUNT
15	WANAKBORI 8 TPS*	50.00	35.00	15.00
16	UKAI HYDRO	-	-	-
17	KADANA HYDRO	0.49	0.35	0.15
	TOTAL	317.72	222.40	95.31

*PPA BASED STATIONS

Commission's Analysis

For approving the capitalisation for FY 2023-24, 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)

S. No	PARTICULARS	FY 2019-20	FY 2020-21	FY 2021-22	AVERAGE
1	CAPITALISATION	226.17*	245.92	174.63	215.57

* For FY 2019-20, capitalisation of Wanakbori 8 TPS is deducted from total capitalisation.

As seen from the Table above, the proposed capitalisation of Rs. 317.72 Crore is higher than the actual average capitalisation of last three years.

In order to avoid upfront cost on the consumers w.r.t. capitalisation of assets, the Commission finds it appropriate to consider the average of actual capitalisation of last three years i.e. FY 2019-20 to FY 2021-22 for projecting capitalisation for FY 2023-24. The Commission will allow the actual capitalisation at the time of truing up of FY 2023-24 after prudence check. Accordingly, the Commission provisionally approves the capitalisation of Rs. 215.57 Crore for FY 2023-24 as shown in the table above. For working out other ARR components, station wise proposed capitalisation has been reduced in proportion to the difference between total projected and approved capitalisation for FY 2023-24. 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 2023-24

Petitioner's Submission

GSECL has considered the opening Gross Fixed Assets for FY 2023-24 based on the gross block of FY 2022-23. The addition during the FY 2022-23 is considered same as approved by the Commission in the Tariff Order dated 30th March, 2022. The capital addition to the fixed asset during the period FY 2023-24 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 2021-22 or average depreciation rate of 4.48%, 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 2023-24.

Table 5.25: Depreciation claimed for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	DEPRECIATION RATES (%)	DEPRECIATION
1	UKAI (3-5)	3.52%	49.41
2	GANDHINAGAR (3-4)	2.93%	38.19
3	GANDHINAGAR 5*	0.33%	2.16
4	WANAKBORI 1-6 TPS	4.17%	110.08
5	WANAKBORI 7*	0.34%	2.15
6	SIKKA EXTENSION (3-4)*	5.28%	166.95
7	KLTPS 3	3.23%	31.48
8	KLTPS 4	2.53%	17.89
9	BLTPS*	5.28%	191.34
10	DHUVARAN CCPP 1*	2.45%	10.11
11	DHUVARAN CCPP 2	3.04%	13.12
12	DHUVARAN CCPP 3*	4.94%	78.92
13	UTRAN EXTENSION*	2.77%	37.86
14	UKAI 6*	5.21%	157.41



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S. No.	POWER STATION	DEPRECIATION RATES (%)	DEPRECIATION
15	WANAKBORI 8 TPS*	5.10%	225.52
16	UKAI HYDRO	1.28%	2.31
17	KADANA HYDRO	1.65%	5.53
	TOTAL		1,140.42

* PPA based stations

Commission's Analysis

The Commission has considered the opening GFA for FY 2022-23 in line with the closing GFA approved in True-up of FY 2021-22. The capitalisation for FY 2022-23 is considered in line with the capitalisation approved in the Tariff Order dated 30th March, 2022. Accordingly, the Commission arrived at the closing balance of GFA for FY 2022-23. The closing balance of FY 2022-23 is considered as opening balance of GFA for FY 2023-24.

The Commission has considered the capitalisation for FY 2023-24 in line with the amount approved in the above section on Capitalisation for FY 2023-24. The Commission has thus, arrived at the closing GFA of FY 2023-24.

The Commission has considered Depreciation rates based on actual rate of depreciation in FY 2021-22 or average depreciation rate of 4.21%, whichever is lower.

The Commission has continued with the approach adopted in true-up for FY 2021-22 and has not considered any depreciation for Gandhinagar 5 and Wanakbori 7 for FY 2023-24. The GFA approved for FY 2023-24 is given in the Table below:

Table 5.26: Approved Gross Fixed Assets for FY 2023-24 (Rs. Crore)

S. No.	PARTICULARS	OPENING GFA	ADDITIONS	CLOSING GFA
1	UKAI (3-5)	1,392.47	15.71	1,408.19
2	GANDHINAGAR (3-4)	1,293.45	10.82	1,304.27
3	GANDHINAGAR 5*	657.84	-	657.84
4	WANAKBORI 1-6 TPS	2,566.38	96.29	2,662.67
5	WANAKBORI 7*	638.97	-	638.97
6	SIKKA EXTENSION (3-4)*	3,151.64	14.02	3,165.66
7	KLTPS 3	969.91	6.60	976.51
8	KLTPS 4	707.84	-	707.84
9	BLTPS*	3,608.82	20.35	3,629.17
10	DHUVARAN CCPP 1*	411.28	0.92	412.20
11	DHUVARAN CCPP 2	431.64	0.28	431.93



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S. No.	PARTICULARS	OPENING GFA	ADDITIONS	CLOSING GFA
12	DHUVARAN CCPP 3*	1,597.77	0.80	1,598.57
13	UTRAN EXTENSION*	1,363.24	1.94	1,365.18
14	UKAI 6*	3,013.40	13.57	3,026.97
15	WANAKBORI 8 TPS*	4,393.89	33.92	4,427.82
16	UKAI HYDRO	180.11	-	180.11
17	KADANA HYDRO	334.07	0.34	334.40
	TOTAL	26,712.72	215.57	26,928.29

*PPA BASED STATIONS

Based on the opening and closing GFA approved in the above Table, the Commission has worked out the depreciation for FY 2023-24. The depreciation rates considered are in line with the depreciation rate as computed in true-up for FY 2021-22.

The Commission, accordingly, approves the station-wise depreciation for FY 2023-24 as detailed in the Table below

Table 5.27: Depreciation approved for FY 2023-24 (Rs. Crore)

S. No.	PARTICULARS	DEPRECIATION RATES	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
1	UKAI (3-5)	3.52%	49.41	49.28
2	GANDHINAGAR (3-4)	2.93%	38.19	38.11
3	GANDHINAGAR 5*	0.33%	2.16	-
4	WANAKBORI 1-6 TPS	4.17%	110.08	109.12
5	WANAKBORI 7*	0.34%	2.15	-
6	SIKKA EXTENSION (3-4)*	5.28%	166.95	166.78
7	KLTPS 3	3.23%	31.48	31.43
8	KLTPS 4	2.53%	17.89	17.89
9	BLTPS*	5.28%	191.34	191.08
10	DHUVARAN CCPP 1*	2.45%	10.11	10.10
11	DHUVARAN CCPP 2	3.04%	13.12	13.12
12	DHUVARAN CCPP 3*	4.94%	78.92	78.91
13	UTRAN EXTENSION*	2.77%	37.86	37.84
14	UKAI 6*	5.21%	157.41	157.24
15	WANAKBORI 8 TPS*	5.10%	225.52	225.11
16	UKAI HYDRO	1.28%	2.31	2.31
17	KADANA HYDRO	1.65%	5.53	-
	TOTAL		1,140.42	1,128.34

*PPA BASED STATIONS



5.8.2 Interest and Finance charges for FY 2023-24

Petitioner's Submission

GSECL has considered the funding for new capital expenditure in FY 2023-24 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 2021-22 is considered as opening balance of FY 2022-23. Further, addition and repayment during FY 2022-23 has been considered as approved by in Tariff Order dated 30th March, 2022 to work out closing balance of FY 2022-23, which becomes the opening balance of normative loan for FY 2023-24.

GSECL has considered the weighted average rate of interest of 8.18% on the basis of actuals of FY 2021-22, 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 2023-24. The station-wise interest and finance charges claimed by GSECL for FY 2023-24 are given in the Table below:

Table 5.28: Interest & Finance charges claimed for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	0.05
2	GANDHINAGAR (3-4)	-
3	GANDHINAGAR 5*	-
4	WANAKBORI 1-6 TPS	9.36
5	WANAKBORI 7*	-
6	SIKKA EXTENSION (3-4)*	82.55
7	KLTPS 3	-
8	KLTPS 4	1.17
9	BLTPS*	84.64
10	DHUVARAN CCPP 1*	0.04
11	DHUVARAN CCPP 2	0.15
12	DHUVARAN CCPP 3*	39.10
13	UTRAN EXTENSION*	14.05
14	UKAI 6*	48.31
15	WANAKBORI 8 TPS*	182.64
16	UKAI HYDRO	1.32



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S. No.	POWER STATION	PROJECTED
17	KADANA HYDRO	-
	TOTAL	463.39

* PPA based stations

Commission's Analysis

The Commission has considered the opening Loan for FY 2022-23 in line with the closing Loan approved in True-up of FY 2021-22. The loan addition for FY 2022-23 is considered in line with the 70% of the capitalisation approved in Tariff Order dated 30th March, 2022 for FY 2022-23. The loan repayment is considered equal to depreciation. Accordingly, the Commission has arrived at the closing balance of Loan for FY 2022-23, which is considered as opening balance of Loan for FY 2023-24.

The Commission has considered the addition to loan for FY 2023-24 in line with the normative loan of 70% on approved capitalisation for FY 2023-24. The repayment for FY 2023-24 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 2023-24.

Table 5.29: Details of Approved Loan for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	OPENING LOAN	ADDITIONS	REPAYMENT	CLOSING LOAN
1	UKAI (3-5)	-	11.00	10.99	-
2	GANDHINAGAR (3-4)	-	7.57	7.57	-
3	GANDHINAGAR 5*	-	-	-	-
4	WANAKBORI 1-6 TPS	107.55	67.40	109.12	65.83
5	WANAKBORI 7*	-	-	-	-
6	SIKKA EXTENSION (3-4)*	1,098.55	9.81	166.78	941.58
7	KLTPS 3	-	4.62	4.62	-
8	KLTPS 4	23.43	-	17.89	5.53
9	BLTPS*	1,105.64	14.25	191.08	928.81
10	DHUVARAN CCPP 1*	-	0.64	0.64	-
11	DHUVARAN CCPP 2	5.89	0.20	6.09	-
12	DHUVARAN CCPP 3*	514.31	0.56	78.91	435.95
13	UTRAN EXTENSION*	191.90	1.36	37.84	155.42
14	UKAI 6*	668.26	9.50	157.24	520.52
15	WANAKBORI 8 TPS*	2,312.00	23.75	225.11	2,110.64
16	UKAI HYDRO	17.25	-	2.31	14.94



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S. No.	POWER STATION	OPENING LOAN	ADDITIONS	REPAYMENT	CLOSING LOAN
17	KADANA HYDRO	-	0.24	-	0.23
TOTAL		6,044.76	150.90	1,016.21	5,179.45

** PPA based stations*

The Commission has considered the weighted average interest rate of 7.08% as approved in True-up of FY 2021-22.

The Commission, accordingly, approves the station-wise interest and finance charges for FY 2023-24 as detailed in the Table below:

Table 5.30: Approved Interest and Finance Charges for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
1	UKAI (3-5)	0.05	-
2	GANDHINAGAR (3-4)	-	-
3	GANDHINAGAR 5*	-	-
4	WANAKBORI 1-6 TPS	9.36	6.14
5	WANAKBORI 7*	-	-
6	SIKKA EXTENSION (3-4)*	82.55	72.27
7	KLTPS 3	-	-
8	KLTPS 4	1.17	1.03
9	BLTPS*	84.64	72.07
10	DHUVARAN CCPP 1*	0.04	0.00
11	DHUVARAN CCPP 2	0.15	0.21
12	DHUVARAN CCPP 3*	39.10	33.66
13	UTRAN EXTENSION*	14.05	12.30
14	UKAI 6*	48.31	42.11
15	WANAKBORI 8 TPS*	182.64	156.67
16	UKAI HYDRO	1.32	1.14
17	KADANA HYDRO	-	0.01
TOTAL		463.39	397.60

** PPA based stations*

5.8.3 Return on Equity for FY 2023-24



Petitioner's Submission

GSECL has considered closing equity for FY 2022-23 and addition to the equity expected during the year based on the normative equity contribution towards the projected capitalization in FY 2023-24.

GSECL has claimed RoE for FY 2023-24 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 2023-24 is shown in the Table below:

Table 5.31: Return on Equity claimed for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	25.91
2	GANDHINAGAR (3-4)	26.45
3	GANDHINAGAR 5*	28.67
4	WANAKBORI 1-6 TPS	100.29
5	WANAKBORI 7*	26.16
6	SIKKA EXTENSION (3-4)*	132.81
7	KLTPS 3	55.47
8	KLTPS 4	29.65
9	BLTPS*	152.20
10	DHUVARAN CCPP 1*	10.65
11	DHUVARAN CCPP 2	14.57
12	DHUVARAN CCPP 3*	67.13
13	UTRAN EXTENSION*	57.73
14	UKAI 6*	126.98
15	WANAKBORI 8 TPS*	185.59
16	UKAI HYDRO	10.64
17	KADANA HYDRO	28.91
	TOTAL	1079.81

* PPA based stations

Commission's Analysis

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



of Equity for FY 2022-23. The closing balance of FY 2022-23 is considered as opening balance of Equity for FY 2023-24.

The Commission has considered the addition to equity for FY 2023-24 at 30% of the approved capitalisation for FY 2023-24. The Commission has thus, arrived at the closing equity for FY 2023-24, as shown in the Table below:

Table 5.32: Approved Equity for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	OPENING EQUITY	ADDITION	CLOSING EQUITY
1	UKAI (3-5)	181.57	4.71	186.28
2	GANDHINAGAR (3-4)	186.51	3.25	189.76
3	GANDHINAGAR 5*	220.57	-	220.57
4	WANAKBORI 1-6 TPS	695.06	28.89	723.95
5	WANAKBORI 7*	201.22	-	201.22
6	SIKKA EXTENSION (3-4)*	945.51	4.21	949.71
7	KLTPS 3	394.79	1.98	396.77
8	KLTPS 4	211.78	-	211.78
9	BLTPS*	1,082.65	6.11	1,088.75
10	DHUVARAN CCPP 1*	81.75	0.27	82.02
11	DHUVARAN CCPP 2	103.98	0.09	104.07
12	DHUVARAN CCPP 3*	479.33	0.24	479.57
13	UTRAN EXTENSION*	411.95	0.58	412.53
14	UKAI 6*	904.02	4.07	908.09
15	WANAKBORI 8 TPS*	1,318.16	10.18	1,328.34
16	UKAI HYDRO	75.99	-	75.99
17	KADANA HYDRO	206.44	0.10	206.54
	TOTAL	7,701.27	64.67	7,765.94

* 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 2023-24 as detailed in the Table below:

Table 5.33: Approved Return on Equity for FY 2023-24 (Rs. Crore)

S. No.	PARTICULARS	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
1	UKAI (3-5)	25.91	25.75
2	GANDHINAGAR (3-4)	26.45	26.34



S. No.	PARTICULARS	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
3	GANDHINAGAR 5*	28.67	28.67
4	WANAKBORI 1-6 TPS	100.29	99.33
5	WANAKBORI 7*	26.16	26.16
6	SIKKA EXTENSION (3-4)*	132.81	132.67
7	KLTPS 3	55.47	55.41
8	KLTPS 4	29.65	29.65
9	BLTPS*	152.20	152.00
10	DHUVARAN CCPP 1*	10.65	10.65
11	DHUVARAN CCPP 2	14.57	14.56
12	DHUVARAN CCPP 3*	67.13	67.12
13	UTRAN EXTENSION*	57.73	57.71
14	UKAI 6*	126.98	126.85
15	WANAKBORI 8 TPS*	185.59	185.26
16	UKAI HYDRO	10.64	10.64
17	KADANA HYDRO	28.91	28.91
	TOTAL	1,079.81	1,077.67

* PPA based stations

5.8.4 O&M Expenses for FY 2023-24

Petitioner's Submission

GSECL has claimed O&M expenses for FY 2023-24 considering the approved O&M of FY 2022-23 in Tariff Order dated 30th March, 2022 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 2023-24:

Table 5.34: O&M expenses claimed for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	277.63
2	GANDHINAGAR (3-4)	160.80
3	GANDHINAGAR 5*	65.19
4	WANAKBORI 1-6 TPS	297.61
5	WANAKBORI 7*	22.54
6	SIKKA EXTENSION (3-4)*	155.12
7	KLTPS 3	54.66



S. No.	POWER STATION	PROJECTED
8	KLTPS 4	22.17
9	BLTPS*	199.22
10	DHUVARAN CCPP 1*	54.56
11	DHUVARAN CCPP 2	55.33
12	DHUVARAN CCPP 3*	5.50
13	UTRAN EXTENSION*	58.05
14	UKAI 6*	60.83
15	WANAKBORI 8 TPS*	181.42
16	UKAI HYDRO	16.33
17	KADANA HYDRO	33.14
	TOTAL	1720.11

* PPA based stations

Commission's Analysis

In the tariff order dated 30th March, 2022, considering that for approving O & M expenses for FY 2021-22, the Commission has already considered average impact of three years starting from FY 2017-18 to FY 2020-21 for approving the O&M expenses for FY 2021-22, it was felt appropriate to apply normal escalation of 5.72% to arrive at O & M expenses for FY 2022-23. Following the same approach, the Commission has escalated O & M expenses approved for FY 2022-23 by 5.72% to arrive at normative O & M expenses for FY 2023-24. Accordingly, the Commission, approves the station-wise O&M expenses for FY 2023-24, by providing escalation of 5.72% p.a. on the approved O&M Expenses for FY 2022-23, as detailed in the Table below:

Table 5.35: Approved O&M expenses for FY 2023-24 (Rs. Crore)

S. No.	PARTICULARS	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
1	UKAI (3-5)	277.63	277.63
2	GANDHINAGAR (3-4)	160.80	160.80
3	GANDHINAGAR 5*	65.19	65.19
4	WANAKBORI 1-6 TPS	297.61	297.61
5	WANAKBORI 7*	22.54	22.54
6	SIKKA EXTENSION (3-4)*	155.12	155.12
7	KLTPS 3	54.66	54.66
8	KLTPS 4	22.17	22.17
9	BLTPS*	199.22	199.22



S. No.	PARTICULARS	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
10	DHUVARAN CCPP 1*	54.56	54.56
11	DHUVARAN CCPP 2	55.33	55.33
12	DHUVARAN CCPP 3*	5.50	5.50
13	UTRAN EXTENSION*	58.05	58.05
14	UKAI 6*	60.83	60.83
15	WANAKBORI 8 TPS*	181.42	181.42
16	UKAI HYDRO	16.33	16.33
17	KADANA HYDRO	33.14	33.14
	TOTAL	1,720.11	1,720.11

* PPA based stations

5.8.5 Interest on Working Capital for FY 2023-24

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 2023-24 is given in the Table below:

Table 5.36: Interest on working capital claimed for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	36.82
2	GANDHINAGAR (3-4)	28.18
3	GANDHINAGAR 5*	13.30
4	WANAKBORI 1-6 TPS	81.48
5	WANAKBORI 7*	12.99
6	SIKKA EXTENSION (3-4)*	70.96
7	KLTPS 3	5.63
8	KLTPS 4	4.31
9	BLTPS*	28.66
10	DHUVARAN CCPP 1*	11.36
11	DHUVARAN CCPP 2	9.44
12	DHUVARAN CCPP 3*	31.98
13	UTRAN EXTENSION*	36.08
14	UKAI 6*	30.80
15	WANAKBORI 8 TPS*	51.90
16	UKAI HYDRO	0.56



S. No.	POWER STATION	PROJECTED
17	KADANA HYDRO	1.13
TOTAL		455.58

** 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 2023-24 as detailed in the Table below:

Table 5.37: Approved Interest on Working Capital for FY 2023-24 (Rs. Crore)

S. No.	PARTICULARS	AS CLAIMED BY GSECL	AS APPROVED BY THE COMMISSION
1	UKAI (3-5)	36.82	36.78
2	GANDHINAGAR (3-4)	28.18	28.14
3	GANDHINAGAR 5*	13.30	13.26
4	WANAKBORI 1-6 TPS	81.48	81.40
5	WANAKBORI 7*	12.99	12.90
6	SIKKA EXTENSION (3-4)*	70.96	70.87
7	KLTPS 3	5.63	5.58
8	KLTPS 4	4.31	4.28
9	BLTPS*	28.66	27.63
10	DHUVARAN CCPP 1*	11.36	11.36
11	DHUVARAN CCPP 2	9.44	9.42
12	DHUVARAN CCPP 3*	31.98	31.95
13	UTRAN EXTENSION*	36.08	36.08
14	UKAI 6*	30.80	30.72
15	WANAKBORI 8 TPS*	51.90	51.64
16	UKAI HYDRO	0.56	0.56
17	KADANA HYDRO	1.13	1.09
TOTAL		455.58	453.65

** PPA based stations*



5.8.6 SLDC Charges for FY 2023-24

Petitioner's Submission

GSECL has claimed SLDC Fees and Charges plant-wise for FY 2023-24, same as actually incurred in FY 2021-22. The following Table shows the SLDC Fees and Charges claimed by GSECL for FY 2023-24:

Table 5.38: SLDC Charges claimed for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	0.30
2	GANDHINAGAR (3-4)	0.20
3	GANDHINAGAR 5*	0.10
4	WANAKBORI 1-6 TPS	0.61
5	WANAKBORI 7*	0.10
6	SIKKA EXTENSION (3-4)*	0.24
7	KLTPS 3	0.04
8	KLTPS 4	0.04
9	BLTPS*	0.24
10	DHUVARAN CCPP 1*	0.05
11	DHUVARAN CCPP 2	0.05
12	DHUVARAN CCPP 3*	0.18
13	UTRAN EXTENSION*	0.18
14	UKAI 6*	0.24
15	WANAKBORI 8 TPS*	0.39
16	UKAI HYDRO	0.15
17	KADANA HYDRO	0.12
	TOTAL	3.24

* PPA based stations

Commission's Analysis

The Commission has approved the SLDC Charges for FY 2023-24 in line with the amount considered in True-up of FY 2021-22. The SLDC charges approved for FY 2021-22 are as shown in the following Table:

Table 5.39: Approved SLDC Charges for FY 2022-23 (Rs. Crore)

S. No.	POWER STATION	PROJECTED	APPROVED BY COMMISSION
1	UKAI (3-5)	0.30	0.30



S. No.	POWER STATION	PROJECTED	APPROVED BY COMMISSION
2	GANDHINAGAR (3-4)	0.20	0.20
3	GANDHINAGAR 5*	0.10	0.10
4	WANAKBORI 1-6 TPS	0.61	0.61
5	WANAKBORI 7*	0.10	0.10
6	SIKKA EXTENSION (3-4)*	0.24	0.24
7	KLTPS 3	0.04	0.04
8	KLTPS 4	0.04	0.04
9	BLTPS*	0.24	0.24
10	DHUVARAN CCPP 1*	0.05	0.05
11	DHUVARAN CCPP 2	0.05	0.05
12	DHUVARAN CCPP 3*	0.18	0.18
13	UTRAN EXTENSION*	0.18	0.18
14	UKAI 6*	0.24	0.24
15	WANAKBORI 8 TPS*	0.39	0.39
16	UKAI HYDRO	0.15	0.15
17	KADANA HYDRO	0.12	0.12
	TOTAL	3.24	3.24

* PPA based stations

5.8.7 Water Charges for FY 2023-24

Petitioner's Submission

GSECL has claimed Water Charges plant-wise for FY 2023-24, same as actually incurred in FY 2021-22. The following table shows the Water Charges claimed by GSECL for FY 2023-24:

Table 5.40: Water Charges claimed for FY 2022-23 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	0.00
2	GANDHINAGAR (3-4)	68.96
3	GANDHINAGAR 5*	34.48
4	WANAKBORI 1-6 TPS	73.76
5	WANAKBORI 7*	15.23
6	SIKKA EXTENSION (3-4)*	4.86
7	KLTPS-3	0.25
8	KLTPS 4	-



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S. No.	POWER STATION	PROJECTED
9	BLTPS*	17.48
10	DHUVARAN CCPP 1*	0.89
11	DHUVARAN CCPP 2	0.89
12	DHUVARAN CCPP 3*	-
13	UTRAN EXTENSION*	2.32
14	UKAI 6*	-
15	WANAKBORI 8 TPS*	45.51
16	UKAI HYDRO	-
17	KADANA HYDRO	-
	TOTAL	264.62

* PPA based stations

Commission's Analysis

The Commission has approved the Water Charges for FY 2023-24 in line with the amount considered in True-up of FY 2021-22. The Water Charges approved for FY 2023-24 are as shown in the following Table:

Table 5.41: Approved Water charges for FY 2022-23 (Rs. Crore)

S. No.	POWER STATION	PROJECTED	APPROVED
1	UKAI (3-5)	0.00	0.00
2	GANDHINAGAR (3-4)	68.96	68.96
3	GANDHINAGAR 5*	34.48	34.48
4	WANAKBORI 1-6 TPS	73.76	73.76
5	WANAKBORI 7*	15.23	15.23
6	SIKKA EXTENSION (3-4)*	4.86	4.86
7	KLTPS-3	0.25	0.25
8	KLTPS 4	-	-
9	BLTPS*	17.48	17.48
10	DHUVARAN CCPP 1*	0.89	0.89
11	DHUVARAN CCPP 2	0.89	0.89
12	DHUVARAN CCPP 3*	-	-
13	UTRAN EXTENSION*	2.32	2.32
14	UKAI 6*	-	-
15	WANAKBORI 8 TPS*	45.51	45.51
16	UKAI HYDRO	-	-
17	KADANA HYDRO	-	-
	TOTAL	264.62	264.62



* PPA based stations

5.8.8 Income Tax for FY 2023-24

Petitioner's Submission

GSECL has claimed Income Tax plant-wise for FY 2023-24, same as actually incurred in FY 2021-22. The following table shows the Income Tax claimed by GSECL for FY 2023-24:

Table 5.42: Income Tax claimed for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	3.99
2	GANDHINAGAR (3-4)	3.27
3	GANDHINAGAR 5*	2.75
4	WANAKBORI 1-6 TPS	1.37
5	WANAKBORI 7*	8.24
6	SIKKA EXTENSION (3-4)*	1.37
7	KLTPS-3	5.23
8	KLTPS 4	3.27
9	BLTPS*	0.49
10	DHUVARAN CCPP 1*	0.49
11	DHUVARAN CCPP 2	3.27
12	DHUVARAN CCPP 3*	0.70
13	UTRAN EXTENSION*	0.74
14	UKAI 6*	2.46
15	WANAKBORI 8 TPS*	2.45
16	UKAI HYDRO	1.99
17	KADANA HYDRO	1.58
	TOTAL	43.65

* PPA based stations

Commission's Analysis

The Commission has approved the Income Tax for FY 2023-24 in line with the amount considered in True-up of FY 2021-22. The Income Tax approved for FY 2023-24 is as shown in the following Table

Table 5.43: Approved Income Tax for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	CLAIMED	APPROVED
1	UKAI (3-5)	3.99	3.94
2	GANDHINAGAR (3-4)	3.27	2.71

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S. No.	POWER STATION	CLAIMED	APPROVED
3	GANDHINAGAR 5*	2.75	1.35
4	WANAKBORI 1-6 TPS	1.37	8.13
5	WANAKBORI 7*	8.24	1.35
6	SIKKA EXTENSION (3-4)*	1.37	3.23
7	KLTPS-3	5.23	0.48
8	KLTPS 4	3.27	0.48
9	BLTPS*	0.49	3.23
10	DHUVARAN CCPP 1*	0.49	0.69
11	DHUVARAN CCPP 2	3.27	0.73
12	DHUVARAN CCPP 3*	0.70	2.43
13	UTRAN EXTENSION*	0.74	2.42
14	UKAI 6*	2.46	3.23
15	WANAKBORI 8 TPS*	2.45	5.16
16	UKAI HYDRO	1.99	1.97
17	KADANA HYDRO	1.58	1.56
	TOTAL	43.65	43.08

* PPA based stations

5.8.9 Non-Tariff Income for FY 2023-24

Petitioner's Submission

GSECL has claimed Non-Tariff Income plant-wise for FY 2023-24, same as actual income earned in FY 2021-22. The following Table shows the Non-Tariff Income claimed by GSECL for FY 2023-24:

Table 5.44: Non-Tariff Income claimed for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED
1	UKAI (3-5)	15.46
2	GANDHINAGAR (3-4)	31.55
3	GANDHINAGAR 5*	0.07
4	WANAKBORI 1-6 TPS	24.62
5	WANAKBORI 7*	0.07
6	SIKKA EXTENSION (3-4)*	3.81
7	KLTPS 3	4.46
8	KLTPS 4	0.10
9	BLTPS*	2.83
10	DHUVARAN CCPP 1*	16.99



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S. No.	POWER STATION	PROJECTED
11	DHUVARAN CCPP 2	3.65
12	DHUVARAN CCPP 3*	1.09
13	UTRAN EXTENSION*	3.22
14	UKAI 6*	0.18
15	WANAKBORI 8 TPS*	0.29
16	UKAI HYDRO	0.11
17	KADANA HYDRO	0.68
TOTAL		109.17

* PPA based stations

Commission's Analysis

The Commission has approved the Non-Tariff Income for FY 2023-24 in line with the amount considered in True-up of FY 2021-22. The Non-Tariff Income approved for FY 2023-24 is as shown in the following Table:

Table 5.45: Approved Non-Tariff Income for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	PROJECTED	APPROVED
1	UKAI (3-5)	15.46	20.02
2	GANDHINAGAR (3-4)	31.55	35.35
3	GANDHINAGAR 5*	0.07	1.97
4	WANAKBORI 1-6 TPS	24.62	33.80
5	WANAKBORI 7*	0.07	2.13
6	SIKKA EXTENSION (3-4)*	3.81	5.46
7	KLTPS 3	4.46	5.25
8	KLTPS 4	0.10	0.18
9	BLTPS*	2.83	5.68
10	DHUVARAN CCPP 1*	16.99	16.99
11	DHUVARAN CCPP 2	3.65	3.65
12	DHUVARAN CCPP 3*	1.09	1.09
13	UTRAN EXTENSION*	3.22	3.22
14	UKAI 6*	0.18	4.27
15	WANAKBORI 8 TPS*	0.29	8.13
16	UKAI HYDRO	0.11	0.11
17	KADANA HYDRO	0.68	0.68
TOTAL		109.17	147.98

* 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 2023-24 in the above paragraphs. The station-wise approved fixed charges for FY 2023-24 are given in the Table below:



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Table 5.46: Approved Station-wise Fixed Charges for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	DEPRECIATION	INTEREST AND FINANCE CHARGES	RETURN ON EQUITY	INTEREST ON WORKING CAPITAL	O&M EXPENSES	WATER CHARGES	SLDC CHARGES	INCOME TAX	TOTAL FIXED COST	LESS: NON-TARIFF INCOME	NET FIXED CHARGES
1	UKAI (3-5)	49.28	(0.00)	25.75	36.78	277.63	-	0.30	3.94	393.67	20.02	373.65
2	GANDHINAGAR (3-4)	38.11	(0.00)	26.34	28.14	160.80	68.96	0.20	2.71	325.26	35.35	289.91
3	GANDHINAGAR 5*	-	-	28.67	13.26	65.19	34.48	0.10	1.35	143.05	1.97	141.08
4	WANAKBORI 1-6 TPS	109.12	6.14	99.33	81.40	297.61	73.76	0.61	8.13	676.11	33.80	642.30
5	WANAKBORI 7*	-	-	26.16	12.90	22.54	15.23	0.10	1.35	78.28	2.13	76.16
6	SIKKA EXTENSION (3-4)*	166.78	72.27	132.67	70.87	155.12	4.86	0.24	3.23	606.03	5.46	600.57
7	KLTPS 3	31.43	0.00	55.41	5.58	54.66	0.25	0.04	0.48	147.85	5.25	142.60
8	KLTPS 4	17.89	1.03	29.65	4.28	22.17	-	0.04	0.48	75.54	0.18	75.36
9	BLTPS*	191.08	72.07	152.00	27.63	199.22	17.48	0.24	3.23	662.93	5.68	657.26
10	DHUVARAN CCPP 1*	10.10	0.00	10.65	11.36	54.56	0.89	0.05	0.69	88.30	16.99	71.31
11	DHUVARAN CCPP 2	13.12	0.21	14.56	9.42	55.33	0.89	0.05	0.73	94.31	3.65	90.66
12	DHUVARAN CCPP 3*	78.91	33.66	67.12	31.95	5.50	-	0.18	2.43	219.75	1.09	218.66
13	UTRAN EXTENSION*	37.84	12.30	57.71	36.08	58.05	2.32	0.18	2.42	206.91	3.22	203.69
14	UKAI 6*	157.24	42.11	126.85	30.72	60.83	-	0.24	3.23	421.22	4.27	416.95
15	WANAKBORI 8 TPS*	225.11	156.67	185.26	51.64	181.42	45.51	0.39	5.16	851.15	8.13	843.01
16	UKAI HYDRO	2.31	1.14	10.64	0.56	16.33	-	0.15	1.97	33.10	0.11	32.99
17	KADANA HYDRO	-	0.01	28.91	1.09	33.14	-	0.12	1.56	64.83	0.68	64.15
	TOTAL	1,128.34	397.60	1,077.67	453.65	1,720.11	264.62	3.24	43.08	5,088.30	147.98	4,940.32

* PPA based stations



6. DETERMINATION OF TARIFF FOR FY 2023-24

The Commission approves the station-wise energy charges for FY 2023-24 as outlined in the Table below:

Table 6.1: Energy Charges Approved for FY 2023-24 (Rs./kWh)

S. No.	POWER STATION	ENERGY CHARGES
1	UKAI (3-5)	3.95
2	GANDHINAGAR (3-4)	4.21
3	GANDHINAGAR 5*	3.92
4	WANAKBORI 1-6	4.25
5	WANAKBORI 7*	4.10
6	SIKKA EXTENSION (3-4)*	9.29
7	KLTPS-3	3.60
8	KLTPS 4	3.12
9	BLTPS*	2.83
10	DHUVARAN CCPP 1*	8.31
11	DHUVARAN CCPP 2	6.14
12	DHUVARAN CCPP 3*	6.70
13	UTRAN EXTENSION*	7.68
14	UKAI 6*	3.49
15	WANAKBORI 8*	3.54

* PPA based stations

The approved Energy Charges for FY 2023-24 are given in **Annexure B** of this Order.

The Commission approves the station-wise fixed charges for FY 2023-24 as approved in the Chapter on Determination of ARR for FY 2023-24, and as summarised in the Table below:

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Table 6.2: Approved Station-wise Fixed Charges for FY 2023-24 (Rs. Crore)

S. No.	POWER STATION	DEPRECIATION	INTEREST AND FINANCE CHARGES	RETURN ON EQUITY	INTEREST ON WORKING CAPITAL	O&M EXPENSES	WATER CHARGES	SLDC CHARGES	INCOME TAX	TOTAL FIXED COST	LESS: NON-TARIFF INCOME	NET FIXED CHARGES
1	UKAI (3-5)	49.28	(0.00)	25.75	36.78	277.63	-	0.30	3.94	393.67	20.02	373.65
2	GANDHINAGAR (3-4)	38.11	(0.00)	26.34	28.14	160.80	68.96	0.20	2.71	325.26	35.35	289.91
3	GANDHINAGAR 5*	-	-	28.67	13.26	65.19	34.48	0.10	1.35	143.05	1.97	141.08
4	WANAKBORI 1-6 TPS	109.12	6.14	99.33	81.40	297.61	73.76	0.61	8.13	676.11	33.80	642.30
5	WANAKBORI 7*	-	-	26.16	12.90	22.54	15.23	0.10	1.35	78.28	2.13	76.16
6	SIKKA EXTENSION (3-4)*	166.78	72.27	132.67	70.87	155.12	4.86	0.24	3.23	606.03	5.46	600.57
7	KLTPS 3	31.43	0.00	55.41	5.58	54.66	0.25	0.04	0.48	147.85	5.25	142.60
8	KLTPS 4	17.89	1.03	29.65	4.28	22.17	-	0.04	0.48	75.54	0.18	75.36
9	BLTPS*	191.08	72.07	152.00	27.63	199.22	17.48	0.24	3.23	662.93	5.68	657.26
10	DHUVARAN CCPP 1*	10.10	0.00	10.65	11.36	54.56	0.89	0.05	0.69	88.30	16.99	71.31
11	DHUVARAN CCPP 2	13.12	0.21	14.56	9.42	55.33	0.89	0.05	0.73	94.31	3.65	90.66
12	DHUVARAN CCPP 3*	78.91	33.66	67.12	31.95	5.50	-	0.18	2.43	219.75	1.09	218.66
13	UTRAN EXTENSION*	37.84	12.30	57.71	36.08	58.05	2.32	0.18	2.42	206.91	3.22	203.69
14	UKAI 6*	157.24	42.11	126.85	30.72	60.83	-	0.24	3.23	421.22	4.27	416.95
15	WANAKBORI 8 TPS*	225.11	156.67	185.26	51.64	181.42	45.51	0.39	5.16	851.15	8.13	843.01
16	UKAI HYDRO	2.31	1.14	10.64	0.56	16.33	-	0.15	1.97	33.10	0.11	32.99
17	KADANA HYDRO	-	0.01	28.91	1.09	33.14	-	0.12	1.56	64.83	0.68	64.15
	TOTAL	1,128.34	397.60	1,077.67	453.65	1,720.11	264.62	3.24	43.08	5,088.30	147.98	4,940.32

* 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 2021-22 along with the Petition and the same has also been uploaded on its website on 06/05/2022.

Commission's 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, 2023.

Commission's Comments:

The Commission has noted that GSECL has submitted the details of proposed capital expenditure for FY 2023-24 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.

Commission's 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, based on the experience of Low Load Operation of Ukai-4 (200MW) and Ukai-6 (500MW), the GSECL has successfully taken up similar trail runs in all other coal-based units. The units are run at low load of 55% in consultation with SLDC to minimize start/stop so that the damage to critical equipment's can be minimized to the extent possible. The GSECL has also planned major Renovation & Modernization of old LMZ



turbines of Ukai-3-5 and Wanakbori-1-2 as a part of efficiency improvement programme. In these units it is planned to bring down low load to 40% and so the proposed retrofitted turbines will be designed to operate accordingly for better RE integration. Moreover, required modifications in boilers of the said units are also planned for flexible operation of these units. It is to submit that the tender for Ukai-3-5 has been already invited and is yet alive. Moreover, as directed by Hon'ble Commission, the impact on performance parameters and subsequently on generation cost due to partial load operation is also provided along with the Petition.

Commission's Comments:

The Commission has noted the submission of the Petitioner.

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:

GSECL has furnished the action plan showing the plan for retirement of existing old stations, plan for capacity addition of Conventional Generating Stations and plan for capacity addition of Renewable Energy Plants along with the Petition. Moreover, the generation from efficient units UTPS-4 -6 and WTPS-3-8 is maximized by maintaining higher availability/reliability of these units. The major R&M of old LMZ units is also planned to reduce variable cost by Rs. 0.46-50 per unit which will further help in maximizing generation from these units.

Commission's Comments:

The Commission has studied the response submitted by GSECL. GSECL submitted that there is no plan for retirement of Ukai TPS Unit No 3 & 5 and Wanakbori TPS Unit No 1 & 2 units at present in view of the existing demand supply scenario prevailing in the State of Gujarat. Moreover, 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).

Further, GSECL has planned to add total 800 MW conventional indigenous coal based power plant in next 10 years.

GSECL submitted that Solar PV Projects at different locations having total capacity of 2500 MW on Government waste land around GETCO Sub stations have been envisaged. Out of this, 30 MW project at Chandarva has already been commissioned during F.Y. 2021-22. Moreover, another project of 35 MW at Khandiya has also been declared as commercially operational on 19/03/2022. Further, following RE capacities are likely to be added in phased manner during next ten years.

S. No.	Financial Year	Likely capacity to be added in RE (MW)	Details of Project
1	2022-23	537	Solar projects in Govt. Waste Land in the vicinity of GETCO S/s.
2	2023-24	3300	Solar projects in Govt. Waste Land in the vicinity of GETCO S/s- 1000 MW, 500 MW-Hybrid RE, 500 MW Floating Solar projects. 1300 MW Khavda Solar park
3	2024-25	1600	Solar projects in Govt. Waste Land in the vicinity of GETCO S/s- 900 MW and Khavda Solar Park- 700 MW.
4	2025-26	1325	Khavda Solar Park- 1325 MW
5	2026-27 2023-33	500 MW every year	Locations have not yet been identified

The Commission has accepted the response submitted by the Petitioner.

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 directives of Hon'ble Commission to take necessary measures for improvement of performance by improving the O&M practices so as to have better PLF and efficiency has



been noted and suitable actions in this regard are being taken. Moreover, following actions are initiated at BLTPS to achieve the rated load as per the installed capacity:

- Spares replacement of crusher, rectification in conveyor belt, manual provision of DFDS system. The target date for completion of this work is 31st May-2022. After completion of these jobs, total load up to 400 MW is likely to be achieved.
- Commissioning of second stream of mine conveyor to stack yard and DFDS system, commissioning of stacker A and conveyor belts of A stream. The target date for completion of this work 31st August-2022. After completion of these jobs, total load up to 500 MW is likely to be achieved.

Similarly, for improvement of performance of KLTPS-3-4, following actions are planned:

- KLTPS-3 is running at 60 MW, unit load is restricted due to poor vacuum due to CW flow & IDCT and deteriorated coal burner assembly. Both work will be carried out in coming Annual overhauling (June-2022).
- The KLTPS-4 is running at load of 65 MW. Unit load is restricted due to high vibrations in TG bearing no.4. same will be analysed and rectified in consultation with BHEL in nearby future.

Improvement in performance of lignite based stations is expected after carrying out the works as stated above.

Commission's Comments:

The Commission has noted the submission made by GSECL. During truing up for FY 2021-22, 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



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 shall submit the capital Spares capitalized for FY 2021-22 along with MYT Petition for the next control period commencing from 01/04/2023.

Commission's Comments:

The Commission has noted the 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 has submitted details of ESP retrofitting works necessary to meet SPM norms specified by MoEF & CC planned and implemented along with the Petition.

Commission's Comments:

The Commission has noted the submission made by GSECL.



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 shall submit the same along with the next MYT/Tariff Petition.

Commission's Comments:

The Commission has noted the submission made by GSECL.

7.2 Fresh Directives

Directive 1: Efficiency improvements in Normative Parameters

It is observed that most of GSECL's older stations have achieved a lower PLF as they are not part of the SLDC reported Merit Order Dispatch (MOD) schedule and have been ordered to back down. On the other hand, GSECL has commissioned new stations that qualify for MOD due to their lower energy charges but have higher fixed costs. The petitioner is instructed to improve its plant load factor for various generation plants in order to achieve operational efficiencies.



In addition to the above, it is noted that the availability of GSECL generating plants was affected due to various reasons listed in its Petition during FY 2021-22. The petitioner is therefore instructed to ensure the availability of his facilities.

Directive 2: Feasibility of Pump Storage

The Petitioner is directed to carry out the feasibility study to establish Pump Storage Station at its Hydro Plants and submit the same before the Commission.



8. COMMISSION'S ORDER

The Commission has determined tariff of GSECL for FY 2023-24 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 2023-24 as outlined in the Table below:

S. No.	POWER STATION	ANNUAL FIXED CHARGES FOR FY 2023-24 (RS. CRORE)	ENERGY CHARGES FOR FY 2023-24 (RS./KWH)
1	UKAI (3-5)	373.65	3.95
2	GANDHINAGAR (3-4)	289.91	4.21
3	GANDHINAGAR 5*	141.08	3.92
4	WANAKBORI 1-6	642.30	4.25
5	WANAKBORI 7*	76.16	4.10
6	SIKKA 3 & 4*	600.57	9.29
7	KLTPS 3	142.60	3.60
8	KLTPS 4	75.36	3.12
9	BLTPS*	657.26	2.83
10	DHUVARAN CCPP 1*	71.31	8.31
11	DHUVARAN CCPP 2	90.66	6.14
12	DHUVARAN CCPP 3*	218.66	6.70
13	UTRAN EXTENSION*	203.69	7.68
14	UKAI 6*	416.95	3.49
15	WANAKBORI 8*	843.01	3.54
16	UKAI HYDRO	32.99	
17	KADANA HYDRO	64.15	
	TOTAL	4,940.32	

* PPA based stations

The Annual Fixed Charges is Rs. 4,940.32 Crore.

There is net loss of Rs. 177.31 Crore after considering Consolidated (Fixed & Fuel Cost) Gains / (Losses) in True-up of FY 2021-22. This amount is to be passed on to four DISCOMs in Twelve (12) equal monthly instalments through GUVNL in FY 2023-24.

This order shall come into force with effect from 1st April, 2023.

Sd-

S.R. PANDEY
Member

-Sd-

MEHUL M. GANDHI
Member

-Sd-

ANIL MUKIM
Chairman

Place: Gandhinagar

Date: 31.03.2023

A-1: Ukai TPS 3 to 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

S. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,650
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	238.51
4	Net Generation	Y=A-B	MUs	2,412
5	Station Heat Rate	D	Kcal/kWh	2,625
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,594
8	Calorific value of oil	G	Kcal/l	10,353
9	Overall Heat	H= A x D	Gcal	6,956,476
10	Heat from Oil	I= (A x E x G)/1000	Gcal	27,435
11	Heat from Coal	J = H-I	Gcal	6,929,041
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	51.44%
15	(B) Washed Coal	X2	%	48.56%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2,650
18	Actual Coal consumption	M= (J x 1000)/F	MT	1,927,805
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	999,742
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	943,610
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,557
24	(B) Washed Coal	P2	Rs./MT	5,021
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	49,311
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10 ⁵	Rs.Lakh	45,556
29	(B) Washed Coal	N2=Q2 X P2/10 ⁵	Rs.Lakh	47,382
30	(C) Imported Coal	N3=Q3 X P3/10 ⁵	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	92,938
32	Oil Cost	N5=P4 x L/10 ⁵	Rs.Lakh	1,307
33	Total fuel cost	O= N4+N5	Rs.Lakh	94,245
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.56
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.91
36	Cost of fuel/G.Cal	R=(O/H)*10 ⁵	Rs./Gcal	1,355
37	Actual net generation	S	MUs	2,379
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	929.65



A-2: Gandhinagar 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,210
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	198.92
4	Net Generation	Y=A-B	MUs	2,011
5	Station Heat Rate	D	Kcal/kWh	2,625
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,722
8	Calorific value of oil	G	Kcal/l	10,452
9	Overall Heat	H= A x D	Gcal	5,801,917
10	Heat from Oil	I= (A x E x G)/1000	Gcal	23,102
11	Heat from Coal	J = H-I	Gcal	5,778,815
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	67.00%
15	(B) Washed Coal	X2	%	33.00%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2,210
18	Actual Coal consumption	M= (J x 1000)/F	MT	1,552,673
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,048,649
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	516,546
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	5,145
24	(B) Washed Coal	P2	Rs./MT	5,495
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	41,858
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	53,958
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	28,382
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	82,340
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	925
33	Total fuel cost	O= N4+N5	Rs.Lakh	83,265
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.77
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	4.14
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,435
37	Actual net generation	S	MUs	1,982
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	820.62



A-3: Gandhinagar 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	1,103
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	104.79
4	Net Generation	Y=A-B	MUs	998
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	3,871
8	Calorific value of oil	G	Kcal/l	10,468
9	Overall Heat	H= A x D	Gcal	2,713,432
10	Heat from Oil	I= (A x E x G)/1000	Gcal	40,411
11	Heat from Coal	J = H-I	Gcal	2,673,021
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	58.49%
15	(B) Washed Coal	X2	%	41.51%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	3,861
18	Actual Coal consumption	M= (J x 1000)/F	MT	690,601
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	407,207
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	288,964
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	5,124
24	(B) Washed Coal	P2	Rs./MT	5,573
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	41,341
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	20,864
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	16,103
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	36,967
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,596
33	Total fuel cost	O= N4+N5	Rs.Lakh	38,563
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.50
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.86
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,421
37	Actual net generation	S	MUs	988
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	381.74



A-4: Wanakbori 1-6- Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	5,339
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	480.50
4	Net Generation	Y=A-B	MUs	4,858
5	Station Heat Rate	D	kcal/kWh	2,575
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	kcal/Kg	3,507
8	Calorific value of oil	G	kcal/L	10,324
9	Overall Heat	H= A x D	Gcal	13,747,613
10	Heat from Oil	I= (A x E x G)/1000	Gcal	55,116
11	Heat from Coal	J = H-I	Gcal	13,692,497
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	47.59%
15	(B) Washed Coal	X2	%	52.41%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	Kl	5,339
18	Actual Coal consumption	M= (J x 1000)/F	MT	3,903,891
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,872,681
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	2,062,693
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,945
24	(B) Washed Coal	P2	Rs./MT	5,343
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	45,906
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	92,596
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	110,217
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	202,813
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	2,451
33	Total fuel cost	O= N4+N5	Rs.Lakh	205,264
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.84
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	4.22
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,493
37	Actual net generation	S	MUs	4,808
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	2,031.52



A-5: Wanakbori 7- Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	1,192
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	113.26
4	Net Generation	Y=A-B	MUs	1,079
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	3,570
8	Calorific value of oil	G	Kcal/l	10,316
9	Overall Heat	H= A x D	Gcal	2,932,935
10	Heat from Oil	I= (A x E x G)/1000	Gcal	43,047
11	Heat from Coal	J = H-I	Gcal	2,889,888
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	41.01%
15	(B) Washed Coal	X2	%	58.99%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	4,173
18	Actual Coal consumption	M= (J x 1000)/F	MT	809,473
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	334,668
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	481,333
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,828
24	(B) Washed Coal	P2	Rs./MT	5,461
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	42,859
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	16,156
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	26,286
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	42,443
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,788
33	Total fuel cost	O= N4+N5	Rs.Lakh	44,231
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.71
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	4.10
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,508
37	Actual net generation	S	MUs	1,072
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	439.47



A-6: Sikka Extension 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	962
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	86.59
4	Net Generation	Y=A-B	MUs	876
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	10,424
9	Overall Heat	H= A x D	Gcal	2,307,139
10	Heat from Oil	I= (A x E x G)/1000	Gcal	10,029
11	Heat from Coal	J = H-I	Gcal	2,297,110
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	962
18	Actual Coal consumption	M= (J x 1000)/F	MT	464,581
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	464,580.86
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	7,275
26	Price of oil	P4	Rs./Kl	41,946
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	33,799
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	33,799
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	404
33	Total fuel cost	O= N4+N5	Rs.Lakh	34,203
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.55
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.91
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,482
37	Actual net generation	S	MUs	861
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	336.29



A-7: KLTPS3 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	460
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	55
4	Net Generation	Y=A-B	MUs	405
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	2,413
8	Calorific value of oil	G	kcal/l	10,461
9	Overall Heat	H= A x D	Gcal	1,486,325
10	Heat from Oil	I= (A x E x G)/1000	Gcal	14,437
11	Heat from Lignite	J = H-I	Gcal	1,471,888
12	Transit losses	K	%	0.20%
13	Actual oil consumption	L= A x E	KL	1,380
14	Actual lignite consumption	M= (J x 1000)/F	MT	609,983
15	Actual lignite consumption including transit losses	N=M/(1-k)	MT	611,205
16	Price of Lignite	P1	Rs/MT	2,266
17	Price of Oil	P2	Rs/KL	51,339
18	Cost of Lignite	N1=MxP1	Rs.Lakh	13,850
19	Oil Cost	N2=LxP2	Rs.Lakh	709
20	Total Fuel Cost	O=N1+N2	Rs.Lakh	14,558
21	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.16
22	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.60
23	Cost of fuel/G.Cal	R=(O/H)*10 ⁵	Rs./Gcal	979
24	Actual net generation	S	MUs	398
25	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	143.05



A-8: KLTPS 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	49
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	6
4	Net Generation	Y=A-B	MUs	43
5	Station Heat Rate	D	Kcal/kWh	3,000
6	Sp. Oil Consumption	E	ml/kWh	3.00
7	Gross calorific value of Lignite	F	Kcal/Kg	2,413
8	Calorific value of oil	G	Kcal/l	10,666
9	Overall Heat	H= A x D	Gcal	147,165
10	Heat from Oil	I= (A x E x G)/1000	Gcal	1,570
11	Heat from Lignite	J = H-I	Gcal	145,595
12	Transit losses	K	%	0.20%
13	Actual oil consumption	L= A x E	KL	147
14	Actual lignite consumption	M= (J x 1000)/F	MT	60,338
15	Actual lignite consumption including transit losses	N=M/(1-k)	MT	60,459
16	Price of Lignite	P1	Rs/MT	2,043
17	Price of Oil	P2	Rs/KL	57,087
18	Cost of Lignite	N1=MxP1	Rs.Lakh	1,235
19	Oil Cost	N2=LxP2	Rs.Lakh	84
20	Total Fuel Cost	O=N1+N2	Rs.Lakh	1,319
21	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	2.69
22	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.06
23	Cost of fuel/G.Cal	R=(O/H)*10 ⁵	Rs./Gcal	896
24	Actual net generation	S	MUs	30
25	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	9.09



A-9: BLTPS - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	1,657
2	Auxiliary Consumption	C	%	11.00%
3	Auxiliary Consumption	B	MUs	182
4	Net Generation	Y=A-B	MUs	1,474
5	Station Heat Rate	D	Kcal/kWh	2,623
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of Lignite	F	Kcal/Kg	2,733
8	Calorific value of oil	G	Kcal/l	10,376
9	Overall Heat	H= A x D	Gcal	4,345,456
10	Heat from Oil	I= (A x E x G)/1000	Gcal	17,190
11	Heat from Lignite	J = H-I	Gcal	4,328,266
12	Transit losses	K	%	0.80%
13	Actual oil consumption	L= A x E	KL	1,657
14	Actual lignite consumption	M= (J x 1000)/F	MT	1,583,933
15	Actual lignite consumption including transit losses	N=M/(1-k)	MT	1,596,706
16	Price of Lignite	P1	Rs/MT	2564.14
17	Price of Oil	P2	Rs/KL	58,369
18	Cost of Lignite	N1=MxP1	Rs.Lakh	40942
19	Oil Cost	N2=LxP2	Rs.Lakh	967
20	Total Fuel Cost	O=N1+N2	Rs.Lakh	41909
21	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	2.53
22	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	2.84
23	Cost of fuel/G.Cal	R=(O/H)*10 ⁵	Rs./Gcal	964
24	Actual net generation	S	MUs	1,341
25	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	381.21



A-10: Dhuvaran CCPP 1 - Approved Fuel Costs (Gas) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	69
2	Auxiliary Consumption	B	%	4.00%
3	Auxiliary Consumption	C	MUs	3
4	Net Generation	Y=A-C	MUs	66
5	Station Heat Rate	D	Kcal/kWh	1,950
6	Calorific value of gas	E	Kcal/Scm	9,711
7	Overall heat from gas	F= A x D	Gcal	134,868
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	14
9	Price of gas	H	Rs/scm	40
10	Cost of gas	I = G x H *10	Rs. Lakh	5,519
11	Total fuel cost	J= I	Rs. Lakh	5,519
12	Fuel cost/unit (Gross)	K=J/(A*10)	Rs/kWh	7.98
13	Fuel cost/unit (Net)	L=J/(Y*10)	Rs/kWh	8.31
14	Cost of fuel/G.Cal	M=(J / F)*10 ⁵	Rs/Gcal	4,092
15	Actual net generation	N	Mus	62
16	Normative Fuel Cost for actual Net Generation	O=L x N/10	Rs. Crore	51.39

A-11: Dhuvaran CCPP 2 - Approved Fuel Costs (Gas) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	60
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	2
4	Net Generation	Y=A-C	MUs	58
5	Station Heat Rate	D	Kcal/kWh	1,950
6	Calorific value of gas	E	Kcal/Scm	9,723
7	Overall heat from gas	F= A x D	Gcal	116,284
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	12
9	Price of gas	H	Rs/scm	30
10	Cost of gas	I = G x H *10	Rs. Lakh	3,554
11	Total fuel cost	J= I	Rs. Lakh	3,554
12	Fuel cost/unit (Gross)	K=J/(A*10)	Rs/kWh	5.96
13	Fuel cost/unit (Net)	L=J/(Y*10)	Rs/kWh	6.14
14	Cost of fuel/G.Cal	M=(J / F)*10 ⁵	Rs/Gcal	3,056
15	Actual net generation	N	Mus	51
16	Normative Fuel Cost for actual Net Generation	O=L x N/10	Rs. Crore	31.57



A-12: Dhuvaran CCPP 3 - Approved Fuel Costs (Gas) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	147
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	4
4	Net Generation	Y=A-C	MUs	142
5	Station Heat Rate	D	Kcal/kWh	1,850
6	Calorific value of gas	E	Kcal/Scm	9,754
7	Overall heat from gas	F= A x D	Gcal	271,132
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	28
9	Price of gas	H	Rs/scm	34
10	Cost of gas	I = G x H *10	Rs.Lakh	9,524
11	Total fuel cost	J= I	Rs. Lakh	9,524
12	Fuel cost/unit (Gross)	K=J/(A*10)	Rs/kWh	6.50
13	Fuel cost/unit (Net)	L=J/(Y*10)	Rs/kWh	6.70
14	Cost of fuel/G.Cal	M=(J / F)*10 ⁵	Rs/Gcal	3,513
15	Actual net generation	N	Mus	135
16	Normative Fuel Cost for actual Net Generation	O=L x N/10	Rs. Crore	90.65

A-13: Utran Extension - Approved Fuel Costs (Gas) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	280
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	8
4	Net Generation	Y=A-C	MUs	272
5	Station Heat Rate	D	Kcal/kWh	1,850
6	Calorific value of gas	E	Kcal/Scm	9,181
7	Overall heat from gas	F= A x D	Gcal	517,883
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	56
9	Price of gas	H	Rs/scm	37
10	Cost of gas	I = G x H *10	Rs.Lakh	20,851
11	Total fuel cost	J= I	Rs. Lakh	20,851
12	Fuel cost/unit (Gross)	K=J/(A*10)	Rs/kWh	7.45
13	Fuel cost/unit (Net)	L=J/(Y*10)	Rs/kWh	7.68
14	Cost of fuel/G.Cal	M=(J / F)*10 ⁵	Rs/Gcal	4,026
15	Actual net generation	N	Mus	264
16	Normative Fuel Cost for actual Net Generation	O=L x N/10	Rs. Crore	202.70



A-14: Ukai 6 - Approved Fuel Costs (Coal, Lignite & Secondary oil) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,378
2	Auxiliary Consumption	C	%	6.00%
3	Auxiliary Consumption	B	MUs	142.67
4	Net Generation	Y=A-B	MUs	2,235
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	3,632
8	Calorific value of oil	G	Kcal/l	10,378
9	Overall Heat	H= A x D	Gcal	5,671,115
10	Heat from Oil	I= (A x E x G)/1000	Gcal	24,678
11	Heat from Coal	J = H-I	Gcal	5,646,437
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	39.85%
15	(B) Washed Coal	X2	%	60.15%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2,378
18	Actual Coal consumption	M= (J x 1000)/F	MT	1,554,458
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	624,521
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	942,473
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,485
24	(B) Washed Coal	P2	Rs./MT	5,182
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	48,128
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	28,012
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	48,842
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	76,854
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,144
33	Total fuel cost	O= N4+N5	Rs.Lakh	77,999
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.28
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.49
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,375
37	Actual net generation	S	MUs	2,206
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	769.79



A-15: Wanakbori 8 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	4,563
2	Auxiliary Consumption	C	%	5.25%
3	Auxiliary Consumption	B	MUs	239.54
4	Net Generation	Y=A-B	MUs	4,323
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	3,526
8	Calorific value of oil	G	Kcal/l	10,356
9	Overall Heat	H= A x D	Gcal	10,256,968
10	Heat from Oil	I= (A x E x G)/1000	Gcal	23,626
11	Heat from Coal	J = H-I	Gcal	10,233,342
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	42.28%
15	(B) Washed Coal	X2	%	57.72%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	2,281
18	Actual Coal consumption	M= (J x 1000)/F	MT	2,902,266
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,236,978
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1,688,693
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,804
24	(B) Washed Coal	P2	Rs./MT	5,463
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	44,586
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	59,428
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	92,252
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	151,679
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,017
33	Total fuel cost	O= N4+N5	Rs.Lakh	152,696
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.35
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.53
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,489
37	Actual net generation	S	MUs	4,325
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	1,527.46



Annexure B

B-1: Ukai TPS 3 to 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	4,287
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	385.79
4	Net Generation	Y=A-B	MUs	3,901
5	Station Heat Rate	D	Kcal/kWh	2,625
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,594
8	Calorific value of oil	G	Kcal/l	10,353
9	Overall Heat	H= A x D	Gcal	11,252,304
10	Heat from Oil	I= (A x E x G)/1000	Gcal	44,377
11	Heat from Coal	J = H-I	Gcal	11,207,927
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	4,287
18	Actual Coal consumption	M= (J x 1000)/F	MT	3,118,282
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,257,372
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1,886,058
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,557
24	(B) Washed Coal	P2	Rs./MT	5,021
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	49,311
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10 ^{^5}	Rs.Lakh	57,295
29	(B) Washed Coal	N2=Q2 X P2/10 ^{^5}	Rs.Lakh	94,706
30	(C) Imported Coal	N3=Q3 X P3/10 ^{^5}	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	152,001
32	Oil Cost	N5=P4 x L/10 ^{^5}	Rs.Lakh	2,114
33	Total fuel cost	O= N4+N5	Rs.Lakh	154,115
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.60
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.95
36	Cost of fuel/G.Cal	R=(O/H)*10^{^5}	Rs./Gcal	1,370



B-2: Gandhinagar 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,200
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	198.01
4	Net Generation	Y=A-B	MUs	2,002
5	Station Heat Rate	D	Kcal/kWh	2,625
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,722
8	Calorific value of oil	G	Kcal/l	10,452
9	Overall Heat	H= A x D	Gcal	5,775,280
10	Heat from Oil	I= (A x E x G)/1000	Gcal	22,996
11	Heat from Coal	J = H-I	Gcal	5,752,284
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	2,200
18	Actual Coal consumption	M= (J x 1000)/F	MT	1,545,545
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	623,204
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	934,805
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	5,145
24	(B) Washed Coal	P2	Rs./MT	5,495
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	41,858
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	32,067
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	51,364
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	83,431
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	921
33	Total fuel cost	O= N4+N5	Rs.Lakh	84,352
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.83
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	4.21
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,461



B-3: Gandhinagar 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	1,568
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	148.95
4	Net Generation	Y=A-B	MUs	1,419
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	3,871
8	Calorific value of oil	G	Kcal/l	10,468
9	Overall Heat	H= A x D	Gcal	3,857,142
10	Heat from Oil	I= (A x E x G)/1000	Gcal	57,444
11	Heat from Coal	J = H-I	Gcal	3,799,698
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	5,488
18	Actual Coal consumption	M= (J x 1000)/F	MT	981,689
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	395,842
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	593,764
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	5,124
24	(B) Washed Coal	P2	Rs./MT	5,573
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	41,341
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	20,282
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	33,088
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	53,370
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	2,269
33	Total fuel cost	O= N4+N5	Rs.Lakh	55,638
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.55
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.92
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,442



B-4: Wanakbori 1-6- Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	5,321.03
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	478.89
4	Net Generation	Y=A-B	MUs	4,842.14
5	Station Heat Rate	D	Kcal/kWh	2,575
6	Sp. Oil Consumption	E	ml/kWh	1.00
7	Gross calorific value of coal	F	Kcal/Kg	3,507
8	Calorific value of oil	G	Kcal/l	10,324
9	Overall Heat	H= A x D	Gcal	13,701,646
10	Heat from Oil	I= (A x E x G)/1000	Gcal	54,932
11	Heat from Coal	J = H-I	Gcal	13,646,714
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	5,321
18	Actual Coal consumption	M= (J x 1000)/F	MT	3,890,838
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,568,886
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	2,353,329
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,945
24	(B) Washed Coal	P2	Rs./MT	5,343
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	45,906
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	77,575
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	125,746
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	203,321
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	2,443
33	Total fuel cost	O= N4+N5	Rs.Lakh	205,764
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.87
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	4.25
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,502



B-5: Wanakbori 7- Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	1,237.47
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	117.56
4	Net Generation	Y=A-B	MUs	1,119.91
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	3,570
8	Calorific value of oil	G	Kcal/l	10,316
9	Overall Heat	H= A x D	Gcal	3,044,168
10	Heat from Oil	I= (A x E x G)/1000	Gcal	44,679
11	Heat from Coal	J = H-I	Gcal	2,999,488
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	4,331
18	Actual Coal consumption	M= (J x 1000)/F	MT	840,173
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	338,779
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	508,169
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,828
24	(B) Washed Coal	P2	Rs./MT	5,461
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./Kl	42,859
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10 ⁵	Rs.Lakh	16,355
29	(B) Washed Coal	N2=Q2 X P2/10 ⁵	Rs.Lakh	27,752
30	(C) Imported Coal	N3=Q3 X P3/10 ⁵	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	44,107
32	Oil Cost	N5=P4 x L/10 ⁵	Rs.Lakh	1,856
33	Total fuel cost	O= N4+N5	Rs.Lakh	45,963
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.71
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	4.10
36	Cost of fuel/G.Cal	R=(O/H)*10⁵	Rs./Gcal	1,510



B-6: Sikka Extension 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	3,074.40
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	276.70
4	Net Generation	Y=A-B	MUs	2,797.70
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	4,992
8	Calorific value of oil	G	Kcal/l	10,424
9	Overall Heat	H= A x D	Gcal	7,372,411
10	Heat from Oil	I= (A x E x G)/1000	Gcal	32,047
11	Heat from Coal	J = H-I	Gcal	7,340,364
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	3,074
18	Actual Coal consumption	M= (J x 1000)/F	MT	1,470,425
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	1,470,425.43
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	17,580
26	Price of oil	P4	Rs./Kl	41,946
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	258,501
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	258,501
32	Oil Cost	N5=P4 x L/10 ⁵	Rs.Lakh	1,290
33	Total fuel cost	O= N4+N5	Rs.Lakh	259,790
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	8.45
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	9.29
36	Cost of fuel/G.Cal	R=(O/H)*10⁵	Rs./Gcal	3,524



B-7: KLTPS 3 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	454.50
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	54.54
4	Net Generation	Y=A-B	MUs	399.96
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	2,413
8	Calorific value of oil	G	kcal/l	10,461
9	Overall Heat	H= A x D	Gcal	1,468,491
10	Heat from Oil	I= (A x E x G)/1000	Gcal	14,264
11	Heat from Lignite	J = H-I	Gcal	1,454,227
12	Transit losses	K	%	0.20%
13	Actual oil consumption	L= A x E	KL	1,364
14	Actual lignite consumption including transit losses	M=(J x 1000)/F/(1-K)	MT	603,871
15	Price of Lignite	P1	Rs/MT	2,266
16	Price of Oil	P2	Rs/KL	51,339
17	Cost of Lignite	N1=MxP1	Rs.Lakh	13,684
18	Oil Cost	N2=LxP2	Rs.Lakh	700
19	Total Fuel Cost	O=N1+N2	Rs.Lakh	14,384
20	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.16
21	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.60
22	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	979



B-8: KLTPS 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	527.04
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	63.24
4	Net Generation	Y=A-B	MUs	463.80
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	2,413
9	Calorific value of oil	G	kcal/l	10,666
10	Overall Heat	H= A x D	Gcal	1,581,120
11	Heat from Oil	I= (A x E x G)/1000	Gcal	16,864
12	Heat from Lignite	J = H-I	Gcal	1,564,256
13	Transit losses	K	%	0.20%
14	Actual oil consumption	L= A x E	KL	1,581
15	Actual lignite consumption including transit losses	M=(J x 1000)/F/(1-K)	MT	649,561
16	Actual Lime Consumption	LM2 = LM1*A*1000	MT	137,030
17	Price of Lignite	P1	Rs/MT	2,043
18	Price of Oil	P2	Rs/KL	57,087
19	Price of Lime	P3	Rs/MT	217
20	Cost of Lignite	N1=MxP1	Rs.Lakh	13,269
21	Oil Cost	N2=LxP2	Rs.Lakh	903
22	Cost of Lime	N3=LM2 X P3/10^5	Rs.Lakh	297
23	Total Fuel Cost	O=N1+N2+N3	Rs.Lakh	14,469
24	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	2.75
25	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.12
26	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	915



B-9: BLTPS - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,635.20
2	Auxiliary Consumption	C	%	11.00%
3	Auxiliary Consumption	B	MUs	289.87
4	Net Generation	Y=A-B	MUs	2,345.33
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	2,733
9	Calorific value of oil	G	kcal/l	10,376
10	Overall Heat	H= A x D	Gcal	6,912,130
11	Heat from Oil	I= (A x E x G)/1000	Gcal	27,343
12	Heat from Lignite	J = H-I	Gcal	6,884,787
13	Transit losses	K	%	0.20%
14	Actual oil consumption	L= A x E	KL	2,635
15	Actual lignite consumption including transit losses	M=(J x 1000)/F/(1-K)	MT	25,24,542
16	Actual Lime Consumption	LM2 = LM1*A*1000	MT	6,85,152
17	Price of Lignite	P1	Rs/MT	2,564.14
18	Price of Oil	P2	Rs/KL	58,369
19	Price of Lime	P3	Rs/MT	-
20	Cost of Lignite	N1=MxP1	Rs.Lakh	64,733
21	Oil Cost	N2=LxP2	Rs.Lakh	1,538
22	Cost of Lime	N3=LM2 X P3/10^5	Rs.Lakh	-
23	Total Fuel Cost	O=N1+N2+N3	Rs.Lakh	66,271
24	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	2.51
25	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	2.83
26	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	959



B-10: Dhuvaran CCPP 1 - Approved Fuel Costs (Gas) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	9.37
2	Auxiliary Consumption	B	%	4.00%
3	Auxiliary Consumption	C	MUs	0.37
4	Net Generation	Y=A-C	MUs	8.99
5	Station Heat Rate	D	Kcal/kWh	1,950
6	Calorific value of gas	E	Kcal/Scm	9,711
7	Overall heat from gas	F= A x D	Gcal	18,262
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	2
9	Price of gas	H	Rs/scm	39.74
10	Cost of gas	I = G x H *10	Rs. Lakh	747
11	Total fuel cost	J= I	Rs. Lakh	747
12	Fuel cost/unit (Gross)	K=J/(A*10)	Rs/kWh	7.98
13	Fuel cost/unit (Net)	L=J/(Y*10)	Rs/kWh	8.31
14	Cost of fuel/G.Cal	M=(J / F)*10 ⁵	Rs/Gcal	4,092

B-11: Dhuvaran CCPP 2 - Approved Fuel Costs (Gas) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	9.88
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	0.30
4	Net Generation	Y=A-C	MUs	9.58
5	Station Heat Rate	D	Kcal/kWh	1,950
6	Calorific value of gas	E	Kcal/Scm	9,723
7	Overall heat from gas	F= A x D	Gcal	19,261
8	Actual gas consumption	G= (Fx 1000)/E	M. scm	2
9	Price of gas	H	Rs/scm	30
10	Cost of gas	I = G x H *10	Rs. Lakh	589
11	Total fuel cost	J= I	Rs. Lakh	589
12	Fuel cost/unit (Gross)	K=J/(A*10)	Rs/kWh	5.96
13	Fuel cost/unit (Net)	L=J/(Y*10)	Rs/kWh	6.14
14	Cost of fuel/G.Cal	M=(J / F)*10⁵	Rs/Gcal	3,056

B-12: Dhuvaran CCPP 3 - Approved Fuel Costs (Gas) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	33.04
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	0.99
4	Net Generation	Y=A-C	MUs	32.05
5	Station Heat Rate	D	Kcal/kWh	1,850
6	Calorific value of gas	E	Kcal/Scm	9,754
7	Overall heat from gas	F= A x D	Gcal	61,118



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Sl. No.	Item	Derivation	Unit	Approved
8	Actual gas consumption	$G = (Fx 1000)/E$	M. scm	6
9	Price of gas	H	Rs/scm	34
10	Cost of gas	$I = G \times H * 10$	Rs. Lakh	2,147
11	Total fuel cost	$J = I$	Rs. Lakh	2,147
12	Fuel cost/unit (Gross)	$K = J / (A * 10)$	Rs/kWh	6.50
13	Fuel cost/unit (Net)	$L = J / (Y * 10)$	Rs/kWh	6.70
14	Cost of fuel/G.Cal	$M = (J / F) * 10^5$	Rs/Gcal	3,513

B-13: Utran Extension - Approved Fuel Costs (Gas) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	32.90
2	Auxiliary Consumption	B	%	3.00%
3	Auxiliary Consumption	C	MUs	0.99
4	Net Generation	$Y = A - C$	MUs	31.92
5	Station Heat Rate	D	Kcal/kWh	1,850
6	Calorific value of gas	E	Kcal/Scm	9,181
7	Overall heat from gas	$F = A \times D$	Gcal	60,869
8	Actual gas consumption	$G = (Fx 1000)/E$	M. scm	7
9	Price of gas	H	Rs/scm	37
10	Cost of gas	$I = G \times H * 10$	Rs. Lakh	2,451
11	Total fuel cost	$J = I$	Rs. Lakh	2,451
12	Fuel cost/unit (Gross)	$K = J / (A * 10)$	Rs/kWh	7.45
13	Fuel cost/unit (Net)	$L = J / (Y * 10)$	Rs/kWh	7.68
14	Cost of fuel/G.Cal	$M = (J / F) * 10^5$	Rs/Gcal	4,026



B-14: Ukai 6 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	2,362.83
2	Auxiliary Consumption	C	%	6.00%
3	Auxiliary Consumption	B	MUs	141.77
4	Net Generation	Y=A-B	MUs	2,221.06
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	3,632
8	Calorific value of oil	G	Kcal/l	10,378
9	Overall Heat	H= A x D	Gcal	5,635,356
10	Heat from Oil	I= (A x E x G)/1000	Gcal	24,522
11	Heat from Coal	J = H-I	Gcal	5,610,834
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	2,363
18	Actual Coal consumption	M= (J x 1000)/F	MT	1,544,656
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	622,845
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	934,268
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,485
24	(B) Washed Coal	P2	Rs./MT	5,182
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	48,128
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs.Lakh	27,937
29	(B) Washed Coal	N2=Q2 X P2/10^5	Rs.Lakh	48,417
30	(C) Imported Coal	N3=Q3 X P3/10^5	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	76,354
32	Oil Cost	N5=P4 x L/10^5	Rs.Lakh	1,137
33	Total fuel cost	O= N4+N5	Rs.Lakh	77,491
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.28
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.49
36	Cost of fuel/G.Cal	R=(O/H)*10^5	Rs./Gcal	1,375



B-15: Wanakbori 8 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2023-24

Sl. No.	Item	Derivation	Unit	Approved
1	Gross Generation	A	MUs	4,604.64
2	Auxiliary Consumption	C	%	5.25%
3	Auxiliary Consumption	B	MUs	241.74
4	Net Generation	Y=A-B	MUs	4,362.89
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	3,526
8	Calorific value of oil	G	Kcal/l	10,356
9	Overall Heat	H= A x D	Gcal	10,351,223
10	Heat from Oil	I= (A x E x G)/1000	Gcal	23,843
11	Heat from Coal	J = H-I	Gcal	10,327,380
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	2,302
18	Actual Coal consumption	M= (J x 1000)/F	MT	2,928,936
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,181,023
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1,771,534
21	(C) Imported Coal	Q3=M* X X3	MT	-
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,804
24	(B) Washed Coal	P2	Rs./MT	5,463
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	44,586
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10 ⁵	Rs.Lakh	56,739
29	(B) Washed Coal	N2=Q2 X P2/10 ⁵	Rs.Lakh	96,777
30	(C) Imported Coal	N3=Q3 X P3/10 ⁵	Rs.Lakh	-
31	Total coal cost	N4= N1+N2+N3	Rs.Lakh	153,516
32	Oil Cost	N5=P4 x L/10 ⁵	Rs.Lakh	1,027
33	Total fuel cost	O= N4+N5	Rs.Lakh	154,543
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs/kWh	3.36
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs/kWh	3.54
36	Cost of fuel/G.Cal	R=(O/H)*10⁵	Rs./Gcal	1,493

