GUJARAT ELECTRICITY REGULATORY COMMISSION

Tariff Order

Truing up for FY 2019-20

and

Determination of ARR and Tariff for FY 2021-22

For

Gujarat State Electricity Corporation Limited (GSECL)

Case No. 1908 of 2020

30th March, 2021

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GUJARAT ELECTRICITY REGULATORY COMMISSION
(GERC)

GANDHINAGAR

Tariff Order

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ABBREVIATIONS

ABT	Availability Based Tariff
AOH	Annual Overhauling
ARR	Aggregate Revenue Requirement
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CoD	Commercial Operation Date
COH	Capital Overhauling
CV	Calorific Value
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
IPP	Independent Power Producer
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. 1908 of 2020

Date of the Order: 30th March, 2021

CORAM

Shri Anand Kumar, Chairman

Shri Mehul M. Gandhi, Member

Shri S.R. Pandey, Member

ORDER

1 Background and Brief History

1.1 Background

Gujarat State Electricity Corporation Limited (hereinafter referred to as "GSECL" or the "Petitioner") has filed the present Petition on 27th November, 2020 for the Truing up for FY 2019-20 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. The Commission, vide Suo-Motu Order No. 7 of 2020 dated 22nd December, 2020, extended the time of applicability of the same from 31st March, 2021 to 31st March, 2022 and directed all the concerned Utilities to file the Tariff Petition for FY 2021-22 based on the principles and methodology specified in the GERC (MYT) Regulations, 2016 on or before 8th January, 2021.

Thus, Regulation 17.2 (b) of the GERC (MYT) Regulations, 2016 provides for submission of Petition comprising of Truing up for FY 2019-20, Aggregate Revenue Requirement (ARR) for FY 2021-22, revenue from the sale of power at existing tariffs and charges for FY 2021-22, and Revenue Gap or Revenue Surplus for FY 2021-22.

After technical validation of the Petition, it was registered on 9th December, 2020 as Case No. 1908/2020. GSECL submitted the Petition for approval of ARR and determination of Tariff for FY 2021-22 on 7th January, 2021. This Petition has been considered as Addendum Petition to the original Petition of Case No. 1908/2020. As provided under Regulation 29.1 of the GERC (MYT) Regulations, 2016, the Commission has proceeded with this Tariff Order.

1.2 Gujarat State Electricity Corporation Limited (GSECL)

Government of Gujarat unbundled and restructured Gujarat Electricity Board with effect from 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 3rdOctober, 2006 notified the final opening balance sheets of the transferee Companies as on 1stApril, 2005, containing the value of assets and liabilities, which stand transferred from the erstwhile Gujarat Electricity Board to the transferee companies including Gujarat State Electricity Corporation Limited (GSECL). Assets and liabilities (gross block, loans and equity) as on the date mentioned in the notification have been considered by the Commission in line with the Financial Restructuring Plan (FRP) as approved by Government of Gujarat.

1.3 Commission's Order for Approval of final ARR FY 2016-17 and Approval of Multi-Year ARR for FY 2016-17 to FY 2020-21

The Petitioner filed its Petition for Truing up for FY 2015-16, Approval of Final ARR for FY 2016-17, Approval of Multi-Year ARR for FY 2016-17 to FY 2020-21 and Determination of tariff for FY 2017-18 on 30th November, 2016. The Petition was registered on 3rd December, 2016 (Case No. 1619 of 2016). The Commission vide Order dated 31st March, 2017 approved the Truing up for FY 2015-16, Final ARR for FY 2016-17, Multi-Year ARR for FY 2016-17 to FY 2020-21, and determined the tariff for FY 2017-18.

1.4 Commission's Order for approval of True up of FY 2017-18 and Determination of Tariff for FY 2019-20

The Petitioner filed its Petition for Truing up for FY 2017-18 and determination of tariff for FY 2019-20 on 29th November, 2018. The Petition was registered on 4th December, 2018 (Case No. 1756 of 2018). The Commission vide Order dated 24th April, 2019 approved the Truing up for FY 2017-18 and determined the Tariff for FY 2019-20.

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

The Petitioner filed its Petition for Truing up for FY 2018-19 and determination of tariff for FY 2020-21 on 29th November, 2019. The Petition was registered on 4th December, 2019 (Case

No. 1836 of 2019). The Commission vide Order dated 26th March, 2020 approved the Truing up for FY 2018-19 and determined the Tariff for FY 2020-21.

1.6 Background of the present Petition

The Commission has notified the GERC (MYT) Regulations, 2016 for the Control Period from FY 2016-17 to FY 2020-21. Regulation 16.2 (iii) of the GERC (MYT) Regulations, 2016 provides for the truing up of previous year's expenses and revenue based on audited accounts vis-à-vis the approved forecast and categorization of variation in performance as those caused by factors within the control of the applicant (controllable factors) and those caused by factors beyond the control of the applicant (uncontrollable factors).

Regulation 16.2 (ii) of the GERC (MYT) Regulations, 2016 provides for Determination of Aggregate Revenue Requirement by the Commission for the entire Control Period. The Commission, vide Suo-Motu Order dated 22nd December 2020 in Case No, 07 of 2020 in the matter of "Filing of application for determination of Aggregate Revenue Requirement (ARR) and Tariff for FY 2021-22, has decided to determine the ARR for FY 2021-22 based on the principles and methodology as provided in the GERC (Multi-Year Tariff) Regulations, 2016 and defer the next MYT Control Period by one year.

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

1.7 Registration of the Current Petition and Public Hearing Process

The Petitioner submitted the Current Petition for Truing up for FY 2019-20 on 27th November, 2020. After Technical Validation of the Petition, it was registered on 9th December, 2020 (Case No. 1908 of 2020).

The Commission vide Suo-Motu Order No. 7 of 2020 dated 22nd December, 2020 directed all the concerned Utilities to file the Tariff Petition for FY 2021-22 based on principles and methodology specified in the GERC (MYT) Regulations, 2016 on or before 8th January 2021.

Accordingly, GSECL has filed the Petition for approval of ARR and Determination of Tariff for FY 2021-22 on 7th January, 2021. This Petition has been considered as Addendum Petition to the original Petition of Case No. 1908/2020. As provided under Regulation 29.1 of the GERC (MYT) Regulations, 2016, the Commission has proceeded with the Tariff Order

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

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

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

Sr. No.	Name of the Newspaper	Language	Date of publication
1.	The Indian Express	English	13/01/2021
2.	Gujarat Samachar	Gujarati	13/01/2021

The Petitioner also placed the Public Notice and the Petition on its website (www.gsecl.in) for inviting objections and suggestions on the Petition. The interested parties/stakeholders were asked to file their objections/suggestions on the Petition on or before 15th February, 2021.

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

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

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

Sr. No.	Name of the Newspaper	Language	Date of publication
1.	Indian Express	English	20/02/2021
2.	Divya Bhaskar	Gujarati	20/02/2021
3.	Sandesh	Gujarati	20/02/2021

The Commission received objections/suggestions from the consumers/consumer organizations as shown in the Table below. The Commission examined the objections / suggestions received from the stakeholders and fixed the date for e-Public Hearing through video conferencing for the Petition on 4th March, 2021.

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

Table 1.3: List of Stakeholders

Sr. No.	Name of Stakeholders	Written Submission	Oral Submission	Present on the day of Public Hearing
1.	Shri K.K. Bajaj	Yes	Yes	Yes
2.	Utility Users' Welfare Association (UUWA)	Yes	Yes	Yes
3.	Shri Raj Kumar Tillan	No	Yes	Yes

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

1.8 Contents of this Order

This Order is divided into **Eight 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 2019-20;

(5) The **Fifth Chapter** deals with Unabsorbed depreciation for Ukai TPS Units 1 & 2;

(6) The **Sixth Chapter** deals with the Aggregate Revenue Requirement (ARR) for FY 2021-22;

(7) The **Seventh Chapter** deals with Tariff Determination for FY 2021-22;

(8) The **Eight Chapter** deals with the Compliance of directives.

1.9 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 2019-20 vide Order dated 24th April 2019. The Commission, in this Order, revised the energy charges approved for FY 2019-20 for Ukai (3-5) and Wanakbori TPS (1-6) by revising the SHR to 2,625 kcal/kWh and 2,575 kcal/kWh, respectively, due to completion of Renovation and Modernisation activity.

However, the Net Fixed Charges approved in Tariff Order dated 24th April 2019 for FY 2019-20 were the same as that approved in MYT Order dated 31st March, 2017.

Further, the Commission had separately approved Fixed and Energy charges for BLTPS in Tariff Order dated 24th April 2019, which were not approved in MYT Order dated 31st March, 2017.

In view of the above, the Commission has considered the Tariff Order dated 24th April 2019 for Truing-up of FY 2019-20.

The Commission vide Suo-Motu order dated 22nd December, 2020 in Case No. 07 of 2020 decided to defer the next MYT Control Period by one year. The Commission also directed all Generating Companies, Transmission Licensees and Distribution Companies to file the Tariff Petition based on principles and methodology specified in the GERC (MYT) Regulations, 2016.

GSECL has approached the Commission with the present Petition for Truing up of FY 2019-20 and determination of ARR and tariff for FY 2021-22.

GSECL has also claimed unabsorbed depreciation for Ukai TPS Units 1 and 2, which were decommissioned on 1st April, 2017.

The Commission has undertaken Truing up for FY 2019-20, based on the submissions of the Petitioner and based on the values approved in Tariff Order dated 24th April, 2019. The Commission has undertaken the computation of Gains and Losses for FY 2019-20, based on the audited annual accounts and prudence check.

While Truing up of FY 2019-20, the Commission has been primarily guided by the following principles:

- Controllable parameters have been considered at the level approved under the Tariff Order dated 24th April, 2019, 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 2019-20 has been considered based on the GERC (MYT) Regulations, 2016.

The Commission has undertaken Determination of ARR and Tariff for FY 2021-22 as per the GERC (MYT) Regulations, 2016 and its amendment thereof as the base. Truing up of FY 2021-22 shall be carried out based on the principles and methodology adopted in GERC (MYT) Regulations, 2016.

2 Summary of GSECL Tariff Petition

2.1 Summary of GSECL's Petition

This Chapter highlights the summary of the Petition for True-Up for FY 2019-20 and Determination of ARR Tariff for FY 2021-22.

2.2 True-Up of FY 2019-20

GSECL submitted the Petition on 27th November, 2020 seeking approval of Truing up of ARR for FY 2019-20. GSECL has worked out its Aggregate Revenue Requirement (ARR) for FY 2019-20 as a part of the True-Up for FY 2019-20. GSECL has presented the actual cost components based on the audited annual accounts for FY 2019-20.

Tables below summarize the results of the True-up of FY 2019-20 of GSECL Stations. For the purpose of True-Up, GSECL has compared the actual cost for FY 2019-20 with the cost approved by the Commission in the Tariff Order dated 24th April, 2019.

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

Table 2.1: Actual Fixed Cost for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest & Finance Charges	Return on Equity	O&M Expenses	Water Charges	SLDC Charges	Income Tax	Interest on Working Capital	Total Fixed Cost	Less: Non-Tariff Income	Net Fixed Charges
1	Ukai (3-5)	42.80	-	22.18	213.19	-	0.38	3.46	35.37	317.37	33.46	283.91
2	Gandhinagar (3-4)	33.04	-	23.19	109.37	42.10	0.26	2.38	27.48	237.82	10.18	227.64
3	Gandhinagar 5*	2.16	-	28.67	54.69	21.05	0.13	1.19	13.64	121.54	9.96	111.58
4	Wanakbori 1-6 TPS	89.63	24.15	88.70	218.05	38.46	0.78	7.14	78.25	545.16	43.02	502.14
5	Wanakbori 7*	2.15	-	26.16	14.64	10.17	0.13	1.19	12.70	67.14	14.44	52.70
6	Sikka Extension (3-4)*	179.58	132.82	135.93	130.73	5.11	0.31	2.83	32.43	619.75	5.17	614.58
7	KLTPS 1-3	35.87	1.34	52.91	109.38	0.25	0.13	1.22	9.60	210.71	7.12	203.59
8	KLTPS 4	36.32	10.89	29.63	19.81	0.15	0.05	0.42	3.60	100.88	4.51	96.37
9	BLTPS*	238.62	152.02	151.97	75.58	6.32	0.32	-	28.40	653.22	14.84	638.38
10	Dhuvaran CCPP 1*	9.73	-	10.45	52.24	0.19	0.07	0.60	5.18	78.47	0.73	77.74
11	Dhuvaran CCPP 2	12.92	3.88	14.37	51.98	0.20	0.07	0.64	5.79	89.84	0.73	89.11
12	Dhuvaran CCPP 3*	78.77	65.56	67.01	7.01	0.66	0.23	2.13	19.58	240.98	0.95	240.03
13	Utran Extension*	68.22	32.43	57.49	44.68	2.40	0.23	2.12	19.32	226.89	0.47	226.42
14	Ukai 6*	155.11	96.41	125.18	38.05	-	0.31	2.83	28.68	446.57	15.43	431.14
15	Wanakbori 8 TPS*	102.58	113.32	83.77	12.36	5.95	0.03	-	22.18	340.19	0.40	339.79
16	Ukai Hydro	2.31	2.07	10.62	13.67	-	0.19	1.73	0.61	31.20	0.15	31.05
17	Kadana Hydro	5.44	-	28.82	21.49	-	0.15	1.37	1.17	58.44	0.39	58.04
	Total	**1095.25**	**634.89**	**957.06**	**1186.92**	**133.00**	**3.77**	**31.26**	**344.00**	**4386.16**	**161.95**	**4224.21**

** PPA based stations*

Based on actual operating and fuel related parameters during FY 2019-20, the Table below indicates actual audited energy charges for GSECL's stations for FY 2019-20 along with the approved energy charges:

Table 2.2: Energy Charges for GSECL's Plants for FY 2019-20

Sr. No.	Power Station	Approved in Tariff Order (Rs./kWh)	Actual claimed (Rs./kWh)
1	Ukai (3-5)	3.73	3.72
2	Gandhinagar (3-4)	4.09	4.20
3	Gandhinagar 5*	3.94	4.05
4	Wanakbori 1-6 TPS	3.93	3.91
5	Wanakbori 7*	3.84	3.77
6	Sikka Extension (3-4)*	3.58	3.73
7	KLTPS 1-3	2.77	3.20
8	KLTPS 4	2.56	2.98
9	BLTPS*	2.88	4.51
10	Dhuvaran CCPP 1*	3.03	3.44
11	Dhuvaran CCPP 2	3.22	3.82
12	Dhuvaran CCPP 3*	3.57	3.83
13	Utran Extension*	3.64	3.65
14	Ukai 6*	3.26	3.19
15	Wanakbori 8 TPS*	3.36	3.47

** 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 2019-20

(Rs. Crore)

Sr. No.	Power Station	Gain/(Loss) due to Controllable Factors		Total Gains/ (Losses) due to Controllable factors	Total Gains/ (Losses) to be passed through (1/3rd of gains/ losses)
		O&M Expenses	Fuel Cost		
1	Ukai (3-5)	(39.06)	2.46	(36.60)	(12.20)
2	Gandhinagar (3-4)	(12.52)	(7.57)	(20.09)	(6.70)
3	Gandhinagar 5*	-	-	-	-
4	Wanakbori 1-6 TPS	35.36	7.06	42.42	14.14
5	Wanakbori 7*	-	-	-	-
6	Sikka Extension (3-4)*	-	-	-	-
7	KLTPS 1-3	12.00	(20.26)	(8.26)	(2.75)
8	KLTPS 4	0.98	(10.56)	(9.58)	(3.19)
9	BLTPS*	-	-	-	-
10	Dhuvaran CCPP 1*	-	-	-	-
11	Dhuvaran CCPP 2	(16.53)	(5.05)	(21.57)	(7.19)
12	Dhuvaran CCPP 3*	-	-	-	-
13	Utran Extension*	-	-	-	-
14	Ukai 6*	-	-	-	-
15	Wanakbori 8 TPS*	-	-	-	-
16	Ukai Hydro	7.70	-	7.70	2.57
17	Kadana Hydro	4.24	-	4.24	1.41
	Total	**(7.83)**	**(33.92)**	**(41.75)**	**(13.92)**

** PPA based stations*

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

Table 2.4: Gains/(Losses) on account of Uncontrollable Factors for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Gain/(Loss) due to Uncontrollable Factors								Total Gains/ (Losses) to be passed through
		Depreciation	Interest & Finance Charges	ROE	Water Charges	SLDC Charges	MAT	Interest on working Capital	Non-Tariff Income	
1	Ukai (3-5)	31.43	35.79	5.29	0.10	0.22	0.01	(5.44)	17.59	85.00
2	Gandhinagar (3-4)	23.11	2.07	(5.61)	(35.09)	0.24	0.01	(5.01)	(2.32)	(22.60)
3	Gandhinagr 5*	-	-	-	-	-	-	-	-	-
4	Wanakbori 1-6 TPS	33.09	(0.27)	3.08	(2.70)	0.03	0.03	(11.01)	(3.27)	18.98
5	Wanakbori 7*	-	-	-	-	-	-	-	-	-
6	Sikka Extension (3-4)*	-	-	-	-	-	-	-	-	-
7	KLTPS 1-3	30.63	(1.33)	(3.88)	0.18	0.04	0.00	(0.80)	2.28	27.11
8	KLTPS 4	(0.04)	1.50	(0.23)	(0.02)	(0.03)	0.01	(0.25)	2.86	3.79
9	BLTPS*	-	-	-	-	-	-	-	-	-
10	Dhuvaran CCPP 1*	-	-	-	-	-	-	-	-	-
11	Dhuvaran CCPP 2	10.22	4.02	2.55	0.56	(0.02)	0.00	0.11	(1.08)	16.37
12	Dhuvaran CCPP 3*	-	-	-	-	-	-	-	-	-
13	Utran Extension*	-	-	-	-	-	-	-	-	-
14	Ukai 6*	-	-	-	-	-	-	-	-	-
15	Wanakbori 8 TPS*	-	-	-	-	-	-	-	-	-
16	Ukai Hydro	(2.31)	0.46	(0.20)	-	(0.02)	0.00	0.13	(3.36)	(5.30)
17	Kadana Hydro	10.37	-	(0.06)	-	(0.00)	0.01	0.15	(2.67)	7.81
	Total	**136.52**	**42.24**	**0.94**	**(36.96)**	**0.46**	**0.07**	**(22.13)**	**10.03**	**131.16**

** PPA based stations*

Based on the above estimated gains/(losses) on account of controllable and uncontrollable factors, GSECL has worked out the gains/(losses) of FY 2019-20 to be passed through in FY 2021-22, as given below:

Table 2.5: Net Entitlement calculated by GSECL for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Gains/(Losses) due to controllable factor	Gains/(Losses) due to uncontrollable factor	Total Gains/(Losses) to be passed through
a	b	c	d	e = (c/3) + d
1.	Ukai (3-5)	(36.60)	85.00	72.80
2.	Gandhinagar (3-4)	(20.09)	(22.60)	(29.30)
3.	Gandhinagar 5*	-	-	-
4.	Wanakbori 1-6 TPS	42.42	18.98	33.12
5.	Wanakbori 7*	-	-	-
6.	Sikka Extension (3-4)*	-	-	-
7.	KLTPS 1-3	(8.26)	27.11	24.36
8.	KLTPS 4	(9.58)	3.79	0.60
9.	BLTPS*	-	-	-
10.	Dhuvaran CCPP 1*	-	-	-
11.	Dhuvaran CCPP 2	(21.57)	16.37	9.18
12.	Dhuvaran CCPP 3*	-	-	-
13.	Utran Extension*	-	-	-
14.	Ukai 6*	-	-	-
15.	Wanakbori 8 TPS*	-	-	-
16.	Ukai Hydro	7.70	(5.30)	(2.73)
17.	Kadana Hydro	4.24	7.81	9.22
	Total	**(41.75)**	**131.16**	**117.24**

** PPA based stations*

GSECL has proposed Fixed Cost for its Generating Stations for FY 2021-22 as shown in the following Table:

Table 2.6: Proposed Fixed Cost of GSECL plants for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Fixed Charges for FY 2021-22	Total Gains/(Losses) to be passed through	Net Fixed Charges for FY 2021-22
1	Ukai (3-5)	269.88	72.80	342.68
2	Gandhinagar (3-4)	231.82	(29.30)	202.52
3	Gandhinagr 5*	84.45	-	84.45
4	Wanakbori 1-6 TPS	579.89	33.12	613.01
5	Wanakbori 7*	61.66	-	61.66
6	Sikka Extn. (3-4)*	576.11	-	576.11
7	KLTPS 3	116.44	24.36	140.80
8	KLTPS 4	94.53	0.60	95.13

Sr. No.	Power Station	Fixed Charges for FY 2021-22	Total Gains/(Losses) to be passed through	Net Fixed Charges for FY 2021-22
9	BLTPS*	670.21	-	670.21
10	Dhuvaran CCPP 1*	65.10	-	65.10
11	Dhuvaran CCPP 2	75.17	9.18	84.35
12	Dhuvaran CCPP 3*	304.11	-	304.11
13	Utran Extension*	237.53	-	237.53
14	Ukai 6*	495.59	-	495.59
15	Wanakbori 8 TPS*	837.91	-	837.91
16	Ukai Hydro	41.54	(2.73)	38.81
17	Kadana Hydro	65.66	9.22	74.88
	Total	**4807.61**	**117.24**	**4924.85**

** PPA based stations*

GSECL has proposed Energy Charges for FY 2021-22 as shown in the following Table:

Table 2.7: Proposed Energy Charges of GSECL plants for FY 2021-22

Sr. No.	Power Station	Energy Charges (Rs/kWh)
1	Ukai (3-5)	3.73
2	Gandhinagar (3-4)	4.09
3	Gandhinagr 5*	3.97
4	Wanakbori 1-6 TPS	3.93
5	Wanakbori 7*	3.84
6	Sikka Extension (3-4)*	3.58
7	KLTPS 3	2.77
8	KLTPS 4	2.56
9	BLTPS*	2.88
10	Dhuvaran CCPP 1*	3.03
11	Dhuvaran CCPP 2	3.22
12	Dhuvaran CCPP 3*	3.57
13	Utran Extension*	3.64
14	Ukai 6*	3.26
15	Wanakbori 8 TPS*	3.36

** PPA based stations*

2.3 Unabsorbed Depreciation for Ukai TPS Units 1 and 2

GSECL submitted that that its Ukai TPS generating Units 1 and 2 have completed their useful life and have been decommissioned on 1st April, 2017. Accordingly, there was a depreciation amounting to Rs. 102.18 Crore that has not been claimed/charged by GSECL and the same was not approved by the Commission in the Tariff. GSECL requested to approve the aforesaid unabsorbed depreciation in FY 2021-22.

2.4 Request of GSECL

Petitioner's Prayer:

1. To admit this Petition for True Up of FY 2019-20;
2. To admit this Petition for Determination of Aggregate Revenue Requirement (ARR) and Tariff for FY 2021-22 as an addendum to True up Petition for FY 2019-20 already filed to the Hon'ble Commission;
3. To approve the gains/ losses for the True Up of FY 2019-20 and allow sharing of such gains/ losses as prescribed in the GERC (MYT) Regulations, 2016;
4. To approve unabsorbed depreciation of Ukai unit 1 and 2 as prayed;
5. To allow recovery of Revenue Gap/pass on Surplus of FY 2019-20 as part of Tariff determination for FY 2021-22;
6. Allow recovery of revenue for all stations of GSECL including BLTPS as per existing tariff of FY 2020-21 as approved in Tariff Order Case No. 1836 of 2019 dated 26th March, 2020 till Tariff Order for FY 2021-22 is approved;
7. To approve the Station operating parameters, viz., PAF, Auxiliary Consumption, Station Heat Rate, Transit Loss, Specific Oil Consumption, and actual fuel rate for each of the stations of GSECL for FY 2021-22 for recovery of variable cost;
8. To approve Aggregate Revenue Requirement and Tariff for FY 2021-22;
9. To grant any other relief as the Hon'ble Commission may consider appropriate;
10. To allow further submissions, addition and alteration to this Petition as may be necessary from time to time;
11. Pass any other order as the Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice.

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

In response to the public notice inviting objections / suggestions on the Petition filed by GSECL for Truing up of FY 2019-20 and determination of ARR for FY 2021-22 under the GERC (MYT) Regulations, 2016 from the stakeholders, some consumers/consumer organizations filed their objections/suggestions in writing. Some of these objectors participated in the Public Hearing also. The Commission has considered objections connected with this Petition in this Chapter. The objections/suggestions by the consumers/consumer organizations, the response from the Petitioner and the views of the Commission are given below:

3.1 Objections related to Performance of the Plants

3.1.1 Retirement of Old Coal Based Plants

Shri K.K. Bajaj submitted that the Petitioner has nearly 13 old plants commissioned during 1979 to 1991, which are due for retirement, and put heavy burden on consumers as they remain under Reserve Shut Down (RSD) most of the time during the year. There is heavy expenditure when these plants are kept under RSD as Petitioner has to maintain the parameters like Pressure and Temperature for restarting the plant as early as possible by involving huge manpower. If these 13 old plants with capacity of 2430 MW are scrapped it will discontinue payment of fixed cost amounting to Rs.1192 crore per year. The Objector also requested the Commission to direct GSECL to submit the Action Plan to scrap these plants in a phased manner without affecting supply of power to consumers and ensure to operate its plants in most efficient and economical manner.

UUWA also submitted that most of the plants have already completed their life of 25 years and more. Such plants should be decommissioned as they are not efficient in performance parameters like Station Heat Rate (SHR), auxiliary consumption, Secondary Fuel Oil Consumption (SFOC), etc., and are not viable and do not even qualify for the Merit Order Dispatch.

Shri Rajkumar Tillan questioned about the contracted capacity being double the requirement. Also, despite having very poor performance, the older power plants continue to operate. He requested that the old power plants should be scrapped as soon as possible.

Response of GSECL

The Ukai 3-5, Gandhinagar TPS Unit No 3 – 4, and Wanakbori TPS Unit No. 1 - 6 of GSECL were kept available to supply power to GUVNL as per provision of PPA, thus, these plants are having PAF of 85.58%, 94.41% and 93.94%, respectively. These power plants were available and taken into operation as per Grid requirement. Moreover, in Ukai TPS Unit 4 and Wanakbori TPS Unit 3, major Renovation & Modernisation for efficiency improvement has been implemented in the recent past. Based on the improvement achieved GSECL is planning for similar Renovation & Modernisation work in other Units also. In view of the above, the contention of the respondent cannot be accepted. Moreover, GSECL has also passed on the gain achieved through improvement in SHR on account of Renovation & Modernisation, to the consumers of the State. The RSD may be due to lower scheduling of above said plants due to aggressive RE capacity addition in the State and must-run status of RE generation. The wind generation is highly erratic and fluctuations to the tune of 3917 MW were observed in a single day during FY 2019-20. This results in usage of coal-based plants for supplying balancing power to absorb drastic fluctuations in wind generation many times.

The lower scheduling may also be due to very limited hydro potential and less availability of cheaper domestic gas, which are the better options for using as peaking/balancing power /flexible power.

Further, KLTPS Units 1 and 2 are decommissioned w.e.f. 01.01.2020.

As regards contracted capacity being double the requirement, it is submitted that redundancy is required to maintain the system. The capacity is required to balance out sudden requirements of the Grid. GSECL is not purely running in a commercial manner but it is also keeping in mind the interest of the State. Moreover, these plants are maintaining PAF at 80-85% each year. According to CEA and CERC recommendations, GSECL has regularly decommissioned its plants. In FY 2019-20, GSECL phased out old plants with capacity 1300 MW. The remaining plants in recent months have showcased very good PLF.

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 April 1, 2021, along with details of retirement of existing Unit/stations, generation capacity availability, capacity addition from Conventional Generating station and Renewable Energy, plan for optimum utilisation of existing generating stations and plan for achieving operational efficiency in economical manner.

In this regard, GSECL has submitted the following details as a part of compliance to directives

- ✓ Plan for retirement of existing old Units
- ✓ Plan for Capacity Addition (Conventional as well as Renewable Energy)
- ✓ Status of the Projects to be commissioned
- ✓ Plan for optimum utilisation of existing Generating stations and plan for achieving operational and economic efficiency

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

Further, no details were provided for existing non-performing power stations (excluding the ones proposed to 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 April 1, 2022, along with details of retirement of existing Units/stations, generation capacity availability, capacity addition from Conventional Generating station and Renewable Energy, plan for optimum utilisation of existing generating stations and plan for achieving operational efficiency in economical manner, as directed in previous Tariff Order, in the form of a report within 45 days of the issuance of this Tariff Order. The Commission has also issued a fresh directive in this regard to GSECL to undertake a comprehensive assessment of the rate of its existing power plants with respect to the power purchase rate prevailing in the State and overall power supply scenario before proposing additional capital expenditure for its existing plants.

3.1.2 Poor Performance of Petitioner's New Power Plants

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

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

PLF of new plants remained as low as 14.00% for BLTPS and 16.00% for Wanakbori-8 during FY 2019-20, which is lowest till date and a record in Government-owned power sector of India.

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

Response of GSECL

Wanakbori TPS Unit 8: The Wanakbori TPS Unit 8 was taken under Commercial Operation from 13.10.2019. Unfortunately, the Unit faced major forced outage for 104 days from 22.11.2019 to 4.03.2020 due to damage to HP rotor as one of the balance weight of HP rotor was detached. The damage was accidental and forced outage was unforeseen. This has resulted into substantial loss of availability / PLF of Wanakbori TPS Unit 8. The PAF of Wanakbori TPS Unit 8 during 2020-21 (up to January 2021) is 95.71% and the generation from this Unit is scheduled as per SLDC requirement.

Bhavnagar Lignite TPS: The lower PLF at BLTPS for FY 2019-20 was attributable to major fire occurrence on bunker floor in March 19 leading to forced outage of both the Units for 7 days and heavy damage to main supporting structural girder of boiler unit 1 (which was required to be attended in view of structural safety of boiler at large). Further, there were frequent lignite feeding problems on account of various conveyor systems of lignite handling plant. There were also chronic issues related to frequent breakdown of lignite feeders' chains.

The PAF of 2019-20 for BLTPS is 12.80% and for Wanakbori Unit 8, it is 28.71% and the Company has recovered fixed charges at very low PAF and not put the burden on consumers of the State.

Commission’s View

The Commission has taken note of the detailed reasons provided by the Petitioner for poor performance of Wanakbori Unit 8 TPS and BLTPS. The Merit Order Despatch (MOD) principle is being followed in the State for scheduling of power. Hence, an older plant may still have a higher PLF, if it is cheaper than the other power plant, which is newly commissioned. Therefore, the suggestion of stakeholder to give directions to GSECL to run newer power plants at more than 75% capacity is not practical.

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

3.1.3 Poor Performance of Gas based Plants due to non-availability of Gas

Shri K.K. Bajaj submitted that the non-working of gas-based power plants at Dhuvaran and Utran is a major concern for consumers of Gujarat as they remain idle during major part of the year. The consumers are burdened due to payment of Fixed Costs as per terms and conditions of Power Purchase Agreement (PPA), which is collected under the heading of FPPPA Charges.

It is unfortunate that the Petitioner has not made any efforts to procure gas from any other alternative sources. The Petitioner has failed to achieve the lowest target of 25 % PLF approved by Commission. It is the duty of the Commission to make sure that any inefficiency or uneconomical expenditures are not transferred to consumers. However, unfortunately, these unwarranted expenditures due to negligence of Petitioner are transferred to consumers of Gujarat, who are paying very high FPPPA Charges, which are at present Rs.1.81 per unit and highest in India.

Response of GSECL

Due to limited availability of cheaper domestic gas, the gas-based plants were used as peaking power majority of times during FY 2019-20. The gas-based plants of GSECL were declared available on Spot gas, however, the generation was scheduled as per Merit Order Dispatch System by SLDC to meet the grid demand. As an alternative arrangement for running the gas plants, the Company has also purchased natural gas on high seas Agreement in 2019-20 and being relatively cheaper gas, the energy charges were reduced up to Rs. 2.85/kWh.

Accordingly, the Company has catered the power from Utran Gas Based Power Station at very low variable cost to the consumers of the State.

Commission's View

The Commission has taken note of the submission made by GSECL. The Commission is of the view that it is the duty of the Generator to arrange for gas so as to achieve the normative PAF as specified in the Regulations. Non-availability of gas shall result in lower PAF than normative and correspondingly proportionate reduction in Fixed Cost recovery of these stations. GSECL in the past has already failed to recover entire fixed charges of these gas-based stations owing to lower PAF. Hence, the burden of entire fixed cost of these gas-based stations is not passed on to the consumers.

The Commission also takes note of the efforts made by GSECL to arrange gas from cheaper sources. The Commission is of the opinion that GSECL should continue its efforts concretely to arrange gas from alternate sources, so as to achieve normative PAF as provided in the Regulations.

3.1.4 Effect of RSD on Plants and Burden on Consumers

Shri K.K. Bajaj submitted that the Petitioner must not keep large number of power plants under RSD as it is not a good practice and it puts heavy burden on consumers. The Petitioner must run these plants frequently to maintain steam parameters like Boiler pressure and Temperature so that these plants can be loaded as early as possible. It has been observed that the Petitioner has been keeping large number of plants under RSD, which is not required but limit this to 50% of existing plants, which are more efficient and can be loaded at the earliest.

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

Response of GSECL

As regards the respondent’s submission on effect of RSD on plants and burden on consumers, it is clarified that the said power plants were kept available as per provisions of PPA and taken into operation as per Grid requirement based on Merit Order Dispatch System.

The RSD may be due to lower scheduling, which is a result of aggressive RE capacity addition in the State and must-run status of RE generation. The wind generation is highly erratic and the fluctuations to the tune of 3917 MW in a single day were observed in FY 2019-20. This necessitates for usage of coal-based plants in supplying balancing power to absorb drastic fluctuations in wind generation.

Commission’s View

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

3.1.5 Poor Performance of Lignite based power plants

Shri K.K. Bajaj submitted that the Petitioner has miserably failed to operate its lignite-based power plants at Panandro and Bhavnagar since last couple of years. Justification given by Petitioner is that quality of lignite available is inadequate and of inferior quality, which causes frequent shutdown of lignite plants affecting its life cycle.

The number of forced shutdowns is also very high due to inadequate and poor quality of lignite and frequent Boiler Tube Leakages. KLTPS 1-2-3 had highest number of forced shutdowns at 58, followed by BLTPS – 1 and 2 at 24, and lastly 17 shutdowns at KLTPS -4. The consumers of Gujarat are concerned about failure of the Petitioner to generate minimum power from lignite-based plants, which generate electricity at cheapest rate. The Respondent requests the Commission to appoint An Investigating Authority under Section 128 of the Electricity Act to monitor the performance of Petitioner's power plants, mainly lignite based. The Electricity Act mandates that Generating Companies cannot transfer their inefficiencies to consumers and therefore, the Commission has to play an important role to protect interest of consumers of Gujarat.

Response of GSECL

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

KLTPS Unit No. 1- 4

From last few years, the source of lignite had been shifted from Panandhro to Mata-na-madh mines from August 2016 due to unavailability of lignite from Panandhro mines. The lignite available from Mata-na-madh mines is very poor in quality and pyrite laden. The poor quality of lignite had led to increased breakdown of lignite mills and reduction in operating life of the mill internals. All these have resulted into poor performance and partial operation of Units resulting into higher SHR and APC. This has compelled to keep the Units under shutdown frequently. Also, the receipt of Lignite was hardly sufficient to run even two Units at rated load.

Further, the KLTPS Units 1 and 2 are decommissioned w.e.f. 01.01.2020. The PLF of KLTPS Unit 3 was 62.33% during FY 2019-20 and the PLF during FY 2021-22 (up Dec 20) is 77.36%, which shows the improvement in performance of KLTPS Unit 3.

KLTPS 4: The major reasons for deteriorated performance of KLTPS Unit 4 are as under:

- Frequent problems of FBHE evaporator and superheater

- Frequent Drag link feeders problems

- Load restriction due to high APH leakages

- Lignite feeding problems due to extremely wet lignite during monsoon

Necessary steps to improve the performance, i.e., procurement of additional spare chain for DLF and new APH blocks, etc., are undertaken by the Company and the improvement expected after replacement of the same in ensuing Overhauling.

Bhavnagar Lignite TPS Unit No. 1 - 2

The lower PLF at BLTPS for FY 2019-20 was attributable to major fire occurrence on bunker floor in March 19 leading to forced outage of both the Units for 70 days and heavy damage to main supporting structural girder of boiler Unit 1 (which was required to be attended in view of structural safety of boiler at large). Further, there were frequent lignite feeding problems on account of various conveyor systems of lignite handling plant. There were also chronic issues related to frequent breakdown of lignite feeders' chains.

To avoid similar failure in Unit 2, M/s BHEL suggested to provide additional insulation in the penthouse area of 2nd pass of boiler and the same was completed by GSECL. Moreover, to minimize frequent boiler tube leakages in Unit-2, 100% radiography of dissimilar metal joints in convective zone was carried out and the defects were rectified. Moreover, GSECL is taking adequate steps to enhance reliability of different sub-systems so as to attain generation on sustainable basis.

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. Regarding the KLTPS (1-4), the analysis of Performance has been discussed in Truing up Chapter of this Order.

In this regard, the Commission had directed GSECL to submit roadmap for improvement of the performance of Lignite based power stations in last Tariff Order. GSECL submitted that the preparation of roadmap is under discussion.

The Commission is of the view that GSECL has failed to comply with the directive given by the Commission in past Tariff Order. The Commission hence, directs GSECL to submit within 45 days from the date of issuance of this Order, roadmap for improvement in the performance of Lignite based power stations, in economical manner.

3.1.6 Poor Performance of Plants

Shri K.K. Bajaj submitted that the performance of Petitioner's power plants has been deteriorating year after year. The Petitioner has stated that Gujarat is a power surplus State and hence, its plants are in partial operation. This explanation cannot be accepted by consumers of Gujarat when GUVNL is tendering to source electricity from the market. GSECL should improve its performance by approaching relevant authorities and demonstrate efficient operation of its plants.

Response of GSECL

The Petitioner submitted the detailed reasons for poor performance of plants as under:

- Ukai Unit 6 and Sikka TPS Units 3 and 4: The major reason for deterioration in performance of coal-based plants is partial operation of Units due to backing down as advised by SLDC.
- Moreover, the increase in SFOC of Sikka TPS Unit 3 and 4 was due to start/stop of Units due to RSD. The start/stop for Sikka TPS Units 3 and 4 during FY 2019-20 were undertaken 26 no. of times and Incremental SFOC was 0.46 ml/kWh due to the same.
- WTPS Unit 8: The reason for increase in APC of Wanakbori TPS Unit 8 was frequent part load operation of Unit and teething problems during trial run to achieve rated load.
- Dhuvaran Units 1 to 3: The Dhuvaran Gas Based Unit 1 & 2 were used as peaking plants and due to daily start stop of Units, the gas consumption and SHR/APC has increased. In FY 2019-20, total no. of start/stop of both the Units was 211.
- Utran GBPS Unit 2: The reason for increase in APC of Utran 2 was partial operation of Unit due to backing down and frequent start/stop. During the year, total number of start/stops were 154 nos.
- KLTPS Units 1-3: Due to very inferior quality of lignite received from Mata na madh mines, frequent forced outages of Units and consistent partial operation due to damage to mill internals and non-availability of adequate mills to achieve rated load. All these has resulted into higher APC and SHR of Units. Further, KLTPS Units 1 and 2 are decommissioned w.e.f. 01.01.2020.
- The SHR of KLTPS Unit 3 during FY 2020-21 is 3217 kcal/kWh and APC is 12.42% (up to Jan 21)
- KLTPS Unit 4: Petitioner submitted that the design APC of KLTPS 4 is 16% whereas the Commission has approved 12% The major reasons for deteriorated performance of KLTPS Unit 4 during FY 2019-20 were as under:

  - Frequent problems of the evaporator and superheater

  - Frequent Drag link feeder’s problems

- Load restriction due to high APH leakage

- Lignite feeding problems due to extremely wet lignite during monsoon

- Due to partial operation of Unit owing to above issues, the APC of the Unit has increased. Necessary steps to improve the performance and procurement of additional spare chain for DLF and new APH blocks, etc., are undertaken by the Petitioner and the improvement is expected after replacement of the same in ensuing Overhauling. The Company receives the energy charges based on actual landed cost computed at normative parameters, i.e., SHR, Auxiliary Consumption and SFOC approved by the Commission. Therefore, if SHR or Auxiliary Consumption or SFOC is higher than the normative parameters approved by the Commission, the cost of such inefficiency is borne by GSECL and is not passed on to the electricity consumers of Gujarat.

Commission's View

The Commission has noted detailed reasons provided by the Petitioner for poor performance of Ukai Unit 6 and Sikka TPS Units 3 and 4, WTPS Unit 8, Dhuvaran Units 1 to 3, Utran GBPS Unit 2, KLTPS Units 1-3, and KLTPS 4. The Commission has undertaken truing up as per GERC (MYT) Regulations, 2016. The sharing of efficiency gains and losses are being undertaken for controllable parameters, including all performance parameters. 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

3.2.1 High Energy Charges due to inefficient operation by Petitioner

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

Response of GSECL

The energy charges are based on actual landed fuel cost. 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 parameters and cost parameters. Plant parameters being controllable in nature are allowed on normative basis, while cost parameters being uncontrollable in nature are allowed on actual basis. Inefficiency of plant parameter is not passed through to the consumers through energy charges or FPPPA Charges.

3.2.2 Poor Performance has increased cost of Generation

Shri K.K. Bajaj submitted that due to increase in Auxiliary Consumption, SHR and SFOC, the generation cost of these plants is very high.

Response of GSECL

Increased cost of generation as stated by the respondent is not attributable only to the poor performance of GSECL's plants. This may be due to increased landed cost of fuel.

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 parameters and cost parameters. Plant parameters being controllable in nature are allowed on normative basis, while cost parameters being uncontrollable in nature are allowed on actual basis. Inefficiency of plant parameter is not passed through to the consumers through energy charges or FPPPA Charges.

3.2.3 Discrepancy in Coal, Lignite and Oil Prices

Shri K.K. Bajaj submitted that the Petitioner has provided details of fuel which includes coal, lignite, and oil along with their heating value and price. The Respondent has observed few discrepancies in them and would like clarification from the Petitioner. The discrepancies in price are as follows:

Type of Fuel	Minimum Cost		Maximum Cost	
	Rs. /MT	Plant	Rs. /MT	Plant
Indigenous Coal	3756	Ukai TPS	4371	Gandhinagar
Washed Coal	4990	Ukai TPS	5533	Wanakbori
Imported Coal	6917	Sikka TPS	7854	Ukai TPS
Residual Oil	37178	Wanakbori	48207	KLTPS 4

There is also difference in quality or heating value of coal used even at same power stations of Petitioner, as under:

Power Station	GCV – kcal/kg
Ukai 3-5	3788
Ukai -6	3830
Wanakbori 1-6	3882
Wanakbori 7	3861

The Petitioner should explain this difference in GCV of coal used at different Power Stations.

Response of GSECL

The difference in rate of fuel, i.e., Coal, Lignite and Oil is on account of below mentioned reasons:

Type of Fuel	Minimum Cost		Maximum Cost		Remarks
	Rs. /MT	Plant	Rs. /MT	Plant	
Indigenous Coal	3756	Ukai TPS	4371	Gandhinagar 3&4	The difference in rate is due to difference in Freight charges on account of distance of power plant from coal mine. Further, coal is allocated from various mines having different grades due to

Type of Fuel	Minimum Cost		Maximum Cost		Remarks
	Rs. /MT	Plant	Rs. /MT	Plant	
					which the cost varies. Average rate of freight for Indigenous coal for Ukai TPS is Rs. 1643/MT and for Gandhinagar TPS, it is Rs. 2322/ MT.
Washed Coal	4990	Ukai TPS	5533	WTPS 8	The difference in rate is due to difference in Freight charges on account of distance of power plant from coal mine and due to utilisation of Korea Rewa Coal after washing at Wanakbori. Average rate of freight of washed coal for Wanakbori TPS is Rs. 277 MT and for Ukai TPS it is Rs. 2341/ MT
Imported Coal	6917	Sikka TPS	7854	Ukai TPS	The difference in rate is due to difference in Freight charges on account of difference in distance of power plant from Port and due to fluctuations in CIF rate as per CERC Index and Exchange rate prevailing at the time of purchase of vessel of Import coal.
Residual Oil	37178	WTPS 8	48207	KLTPS 4	The consumption of LDO is very high at KLTPS compared to WTPS 8. The cost of LDO is higher than FO and the freight charges are higher at KLTPS compared to WTPS as the transportation of FOX carried out through road at KLTPS, whereas in WTPS it is transported through Rail mode

Further, the GCV of Ukai 3-5, Ukai 6, WTPS 1-6, WTPS 7 is different on account of different blending ratio of indigenous, washed and imported coal. The ratio is shown in Petition Table No. 14 and part of table for these power stations is as under:

Name of Power Station	% Blending			Weighted Average GCV
	Indigenous	Washed	Imported	
Ukai 3-5	20.25%	79.40%	0.34%	3788
Ukai 6	13.06%	86.74%	0.21%	3830
Wanakbori 1-6	15.23%	84.09%	0.68%	3882
Wanakbori 7	15.30%	84.09%	0.61%	3861

Commission's View

The Commission noted the response of the Petitioner. GSECL submits the information of cost and quantity of fuel consumption to the Commission and the Commission carries out the necessary prudence check in this regard.

3.2.4 Abrupt Increase in Proposed Energy Charge for FY 2021-22

Shri K.K. Bajaj submitted that the Petitioner has been operating its power plants at less than 50% PLF, which is most uneconomical operation, as it increases cost of generation per unit due to increase in SHR, Auxiliary Consumption, and SFOC, which puts unwarranted burden on the consumers of Gujarat. Therefore, the Commission should look at the performance of Petitioner before approving any increase in Energy Charges as proposed by Petitioner for FY 2021-22.

Response of GSECL

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

Energy charges proposed by the Petitioner for FY 2021-22 are based on actual energy charges of FY 2019-20, considering the actual landed cost of fuel and normative parameters approved by the Commission for FY 2019-20.

Commission's View

The Commission noted the response of the Petitioner. The energy charges approved for FY 2021-22 are based on the normative performance parameters and actual fuel cost submitted in FY 2019-20.

3.3 Objections related to other topics

3.3.1 Capex for Emission Control

Shri K.K. Bajaj submitted that the Petitioner on one hand has operated its plants during FY 2019-20 at low PLF, thereby resulting in burden to the consumers whereas on other side it has sought approval of capital expenditure for carrying out various emission control works on its plants considering emission norms.

During FY 2021-22, Petitioner has proposed major Renovation & Modernisation for ESP Retrofitting of 200/210 MW old Units of Wanakbori TPS and Ukai TPS. Further, there are media articles stating that MoP has recommended to extend timelines for compliance to the environmental norms. In this background, Petitioner should be directed to avoid incurring such expenses.

Response of GSECL

In this regard, major Renovation & Modernisation for ESP retrofitting of 200/210 MW old Units has been undertaken for meeting the New Environment Norms notified by the MoEF&CC. The ESP retrofitting work of Ukai TPS Units 3, 4 and 5 and Wanakbori TPS Units 1,2 and 3 is completed.

The work of ESP retrofitting of WTPS Units 4, 5 and 6 is planned. The EPC contracts are already placed and supply of material is also under progress.

It is pertinent to mention that after ESP retrofitting of WTPS 1,2 and 3 and UTPS 3, 4 and 5, considerable reduction in SPM emission is observed.

Commission's View

The Commission is of the opinion that ESP retrofitting works are necessary for commercially viable older Units in order to meet the SPM norms specified by MoEF&CC. The Petitioner has proposed capitalisation for FY 2021-22 considering the ESP retrofitting works. The Commission has taken an appropriate view in this regard in the Section of capitalisation for FY 2021-22 of this Order.

3.3.2 Reduction of Expenses on pro-rata-basis

UUWA submitted that there is drastic reduction in the net generation of GSECL for FY 2019-20, as shown in the Table below (Projected, approved and actual in MUs):

Projected	Projected	Approved	Approved	Actual	Actual
Gross Gen.	**Net Gen.**	**Gross Gen.**	**Net Gen.**	**Gross Gen.**	**Net Gen.**
29770.03	27373.15	29851.59	27584.42	20129.77	18264.78

The Petitioner has not mentioned any reasons for such drastic reduction in the net generation.

The expenses including fuel charges when calculated on the generation projected and approved by the Commission, should be reduced and allowed on pro-rata basis to respect the MYT principles and Regulations.

Also, it is found that the generation capacity has been increased in terms of installed capacity in MW and the generation is lower and lower year by year. The fixed cost recovery has led to the situation that the fixed cost per unit is Rs.1.76 per unit and variable cost is Rs.3.34 per unit for FY 2019-20 which is almost 50 % of the variable cost. The fixed cost recovery should be on pro-rata basis of approved targeted generation and achieved generation.

Response of GSECL

Petitioner submitted that the actual generation from Power Stations depends upon energy scheduled by SLDC in line with the guidelines of Merit Order Despatch System during real time operation. Hence, the actual generation differs from the projected generation. Further, GSECL claims fuel expenses on actual energy scheduled and not on the projected generation.

Commission's View

The Commission has taken note of the submission of the Petitioner. The Commission agrees with the Petitioner that actual generation is uncontrollable in nature and depends upon the energy scheduled by SLDC in line with the guidelines of Merit Order Despatch System during real time operation. The energy charges are therefore charged accordingly.

3.3.3 Illegal recovery of fixed cost on 30.58 % PLF

UUWA objected to the low PLF of the GSECL power plants. UUWA added that the actual generation shown by GSECL is 18264.77 Mus, while actual shown by DGVCL and PGVCL is 18,355 MUs. The difference of 91 MUs is not justified, and GSECL may be asked to clarify the same.

It is found that the installed capacity of GSECL is 6817 MW and actual energy generated is 18264.77 Mus, which is only 30.58 % PLF. In fact, the generation at 80 % PLF works out to 47774 MUs.

Thus, the approved PLF and generation is not achieved by the GSECL. Lower generation attracts disincentives and therefore, GSECL may be directed to provide reasons for not achieving the approved generation. If the generation does not qualify under merit order principle and if SLDC has not allowed the power generation, then such generation should have been excluded while projecting and giving approval for FY 2019-20.

In fact, the generation, transmission, distribution and trading are required to be carried out on commercial principles. Recovery of 100% fixed cost on 30% production from the generating plants that are older than 25 years and whose value is its salvage value, is not based on commercial principles. GUVNL and GSECL and Discoms should be requested to produce the evidence of a buyer who is ready to pay entire fixed cost for plants remaining closed for 70 % of the time. Such recovery only burdens the consumers by paying higher power purchase cost and it should not be allowed.

Also, the approved fixed cost for FY 2019-20 is Rs.4,574.87 Crore for the approved generation of 29851.59 MUs. The achieved generation is only 18264 MUs and GSECL has shown actual fixed cost of Rs.4,224.21 Crore. The fixed cost recovery if considered on prorata basis, comes out to only Rs.2798.49 Crore and the same should only be allowed. It is found that GUVNL has paid Rs.3,232 Crore towards fixed cost to GSECL. The difference may be asked to be clarified by GUVNL, GSECL, and Discoms.

Response of GSECL

The actual PLF depends on the actual generation scheduled by SLDC in line with the guidelines of Merit Order Dispatch System during real time operation depending on the system requirement.

As regards DGVCL and PGVCL showing different actual energy generation by GSECL, GSECL has shown actual energy generated from its different generating stations whereas the energy shown by DGVCL and PGVCL in their respective tariff petitions may be in different context and the clarifications regarding the same may be sought from DGVCL and PGVCL.

The Petitioner submitted that the recovery of the fixed cost is based on the declared available capacity by GSECL Power Stations. The actual PLF/generation of energy by GSECL Power Stations and fixed cost recovery are mutually exclusive terms. Moreover, the Company recovers the fixed cost as per GERC (MYT) Regulations, 2016.

Commission's View

The Commission noted the response of the Petitioner. The concerns of the stakeholder are also noted. However, the scheduling of energy is decided on real time basis for each 15-minute time block based on the principles of Merit Order Dispatch (MoD). Different power stations qualify for MoD at different time intervals, depending on the peak and off-peak demand. Therefore, there is always a difference not just in the projected quantum of energy but also in the approved generation by stations approved as compared to actual injection during the year.

Further, fixed charges recovery is linked to declared available capacity during the year as specified in the GERC (MYT) Regulations, 2016. Linking the fixed cost recovery with actual generation is against the principle of existing GERC (MYT) Regulations, 2016.

3.3.4 Cost of the Fuel

UUWA submitted that in FY 2019-20, the international coal price has dropped drastically and Indonesian coal has come to the lowest of 25 USD per M.T. The evidence is that Govt. of Gujarat has cancelled the G.R. of rehabilitation of Mega Power Plants of Adani, Essar, and Tata for which High Power Committee was formed, where in USD 110 per M.T. was considered as ceiling price of imported coal and even by GERC and CERC. The price of imported coal shown in truing up by GSECL is Rs.6917 to 7854 per MT. This requires prudence check and the Commission is requested to direct GSECL or GUVNL to purchase the imported coal only by global competitive bidding to save the consumers from paying high fuel cost.

Response of GSECL

The Petitioner submitted that imported coal is being procured by GSECL through global competitive bidding process only.

Commission's View

The Commission has verified the actual details submitted for procurement of coal through various sources under FPPPA mechanism. The Commission has therefore, conducted prudence check of fuel prices submitted by GSECL in its Petition and has accordingly approved the same in the True-up of FY 2019-20.

3.3.5 Huge Capital Expenditure

UUWA has submitted that Rs.4,495 Crore are invested by GSECL. There is no cost benefit analysis to justify the capitalization as to how it is going to benefit the consumers, in what terms it will lower the cost of generation, will increase the generation, or in what way it is in benefit of the consumers. GSECL may be asked to clarify and justify the capitalization of such huge amount of Rs.4,495.31 Crore.

Response of GSECL

The Petitioner submitted that out of total Capital expenditure of Rs 4495,31 crore, capital expenditure amounting to Rs. 4269.13 crore has been incurred towards the construction of 800 MW new power plant at Wanakbori. Wanakbori 8 TPS has been successfully commissioned and declared commercially operational w.e.f. 13-10-2019. At present the Unit is available for generation and is being scheduled as per system demand.

Moreover, balance expenditure of Rs. 226.18 crore have been incurred towards procurement of capital spares to maintain the generating stations in effective working condition and meeting of environment norms.

Commission's View

The Commission has noted the response of the Petitioner. It is also noted that there is a separate Petition for final approval of the capital cost of Wanakbori-8 TPS pending before the Commission. This Petition and other related issues shall be subsequently brought to their logical conclusion.

3.3.6 Treatment of Revenue Surplus

UUWA submitted that GSECL has requested the Commission to approve the Revenue Surplus of Rs. 117.24 Crore for FY 2019-20. The same amount is shown and requested to be considered as Revenue Gap in the tariff determination of FY 2021-22. The Commission may get it clarified from GSECL.

Response of GSECL

Petitioner submitted that GSECL has requested the Commission to approve the Revenue Surplus of Rs. 117.24 crore on account of the gains/losses due to controllable and uncontrollable factors to be passed on in the fixed charges of FY 2021-22. It is also submitted that if approved by Commission, the said surplus shall be passed on to GUVNL in the fixed charges during FY 2021-22 and subsequently benefit the consumers of the State of Gujarat.

Commission's View

The Commission noted the response of the Petitioner. The computation of Revenue Surplus after truing up for FY 2019-20, and the adjustment of the same in the tariff of FY 2021-22 is elaborated in the respective Chapters of this Order.

3.3.7 Depreciation

UUWA submitted that GSECL has claimed depreciation of Rs.102 Crore for Sikka Plant, which were the most expensive power generating plants, and whose cost were borne by the consumers right from its inception to its decommissioning. It is surprising that GSECL is still demanding the depreciation of past years.

The depreciation of other old plants is required to be reconsidered looking into its valuation in context with the value received by GSECL for the recent plants sold as scrap. For the plants whose life is already finished and are older than 25 years, the proposal for depreciation and approval of depreciation will be an economic unfair action on the consumers.

Response of GSECL

Petitioner submitted that GSECL has claimed unabsorbed depreciation amounting to Rs.102.18 crore for Ukai TPS Units 1 and 2. GSECL also submitted that Units 1 and 2 of Ukai TPS have been decommissioned on 1 April, 2017. The accumulated depreciation charged by GSECL as on 1 April, 2017 stood at Rs. 354.90 Crore. The salvage value of the plant has been assessed at 10% of capital cost in line with the GERC (MYT) Regulations, 2016. Based on above, there is a depreciation amounting to Rs. 167.79 Crore that has not been charged/ claimed by GSECL.

GSECL further submitted that it has now completed the sale process of the assets pertaining to Ukai Units 1 and 2 and has received an amount of Rs 65.61 Crore as total sales proceeds. As the salvage/residual value of Ukai 1 and 2 has been assessed at Rs. 33.66 Crore, there is an excess recovery or profit amounting to Rs. 31.95 Crore (i.e., Rs. 65.61 Cr- Rs. 33.66 Cr) on account of sales proceeds. GSECL has adjusted this excess recovery from the remaining depreciation to be charged and accordingly, has claimed an unabsorbed depreciation of Rs. 102.18 Crore. Hence, it is clarified that there is no claim of Rs.102.00 crore towards depreciation of Sikka Plant.

As regards depreciation of old plants, the Petitioner submitted that GSECL claims the depreciation of all plants is in accordance with the Terms & conditions of Tariff issued and amended by the Commission from time to time and the same is allowed by the Commission.

The contention of the respondent regarding reconsideration of the depreciation looking to the valuation as per the salvage value is not in accordance with the Regulations.

Commission's View

The Commission has noted the response of the Petitioner.

3.3.8 Procurement of power through Competitive Bidding

UUWA submitted that GUVNL should be directed to terminate the PPA with GSECL and other gas based generating units whose performance is bad and generation cost is very high with reference to the market rate. GUVNL may be directed to submit the amendment to the PPA of such high-cost power generators as they have done in case of Adani and Essar where rate is discovered under Section 63 of EA 2003 by competitive bidding.

UUWA further submitted that the Discoms should be directed to procure their power only by competitive bidding as per the Tariff Policy, preamble of EA 2003, Competition Act, 2000, and as per statutory advice by CERC to Govt. of India that all power procurement by Distribution Licensee should be done only by competitive bidding and not on cost plus basis under Section 62, 61 and 64 of EA 2003. This is made clear by Hon'ble APTEL in its Order in Appeal No.106 and 107 of 2010.

Response of GSECL

Petitioner submitted that GSECL has no comments to offer in this regard.

Commission's View

The APTEL has ruled that both Section 62 and Section 63 of the EA are available to the Commission, vide its Judgment dated 31 March, 2010 in Appeal Nos. 106 and 107 of 2009. The relevant extracts of this Judgment are reproduced below:

> *"18. Thus these Sections provide for 2 alternatives to the concerned parties to procure power with the approval of tariff by the Appropriate Commission. These 2 alternatives are as follows:*
>
> *(i) Under Section 62(1)(a), the Appropriate Commission shall determine the tariff for the supply of electricity by a generating company to a distribution licensee.*
>
> *(ii) Under Section 63, when the tariff has been determined by the Competitive Bidding Process, the Appropriate Commission shall adopt such tariff. The wording contained in Sections 62 and 63 of the Act would make it clear that Section 63 is not couched as*

a non-obstante clause being an exception carved out from Section 62. Section 62 is a substantive provision. Section 63 is an exception. So the exception contained in Section 63 cannot override the scope of the substantive namely Section 62. In other words, Section 62 provides substantive power to the Appropriate Commission for determination of tariff with the sole exception of price discovery through the Competitive Bidding Process under Section 63.

…

20. … Therefore, the power under Section 62(1)(a) and Section 86(1)(b) conferred on the State Commission cannot in any manner be restricted or whittled down by way of a policy document or a subordinate legislation or notification issued by the Government/Executive. Any rules, or executive instructions or notification which are contrary to any provisions of the tariff statute shall be read down as ultra vires of the parent statute. This is a settled law as laid down by the Supreme Court in (2006) 4 SCC 327 in Kerala Samasthana Chethu Thozhilali Union versus State of Kerala and Ors.

…

22. In the light of the above rationale laid down by the Supreme Court, clause 5.1 of the NTP which is a subordinate legislation would not restrict or whittle down the scope of the statutory powers conferred to a State Commission under Section 62(1)(a) especially when it is noticed that clause 5.1 of NTP would apply to Section 63 only and not to Section 62 which is a substantive provision. As stated above, Section 63 is an exception to Section 62 and the same cannot be taken away by way of a policy document like guidelines – clause 5.1 of NTP.

…

32. …it is always open to the State Commission to direct the distribution licensee to carry out power procurement through Competitive Bidding Process only in case where the rates under the negotiated agreement are high. In other words, the State Commissions have been given discretionary powers either to chose Section 62, 62(1)(a) to give approval for the PPA or to direct the distribution licensee to resort to the Competitive Bidding Process as per clause 5.1 of the NTP read with Section 63 of the Act. …"(emphasis added)

The APTEL has thus, specially ruled that Section 62 of the EA 2003 is a substantive provision, while Section 63 is an exception. Hence, the exception contained in Section 63 cannot override the scope of the substantive Section 62. In other words, Section 62 of the EA provides substantive power to the Commission for determination of tariff with the sole exception of price discovery through the Competitive Bidding Process under Section 63 of the EA. Further, the discretionary powers to direct Discoms to procure power under Section 63 of the EA 2003, can be applicable only to future procurement of power, and cannot be interpreted to mean that all existing PPAs under Section 62 of the EA 2003 be cancelled and replaced by PPAs entered into under Section 63 of the EA 2003.

4 Truing up of FY 2019-20

4.1 Generating Stations of GSECL

This Chapter deals with the truing up of FY 2019-20.

GSECL owned and operated the following generating stations as on 1st April, 2019:

- 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, 2019 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, 2019

Name of Station	Unit No.	Capacity of the Unit (MW)	Date of Commissioning
Ukai	3	200	21/01/1979
	4	200	11/09/1979
	5	210	30/01/1985
	Sub Total	**610**	
Gandhinagar	3	210	20/03/1990
	4	210	20/07/1991
	5	210	17/03/1998
	Sub Total	**630**	
Wanakbori	1	210	23/03/1982
	2	210	15/01/1983
	3	210	15/03/1984
	4	210	09/03/1986
	5	210	23/09/1986
	6	210	18/11/1987
	7	210	31/12/1998
	Sub Total	**1,470**	
KLTPS	1	70	29/03/1990
	2	70	25/03/1991
	3	75	31/03/1997
	4	75	20/12/2009
	Sub Total	**290**	
Dhuvaran	7 – Gas	106.617	28/01/2004
	8 – Gas	112.45	01/11/2007

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
BLTPS	1 2 Sub Total	250 250 500	16/05/2016 27/03/2017
Wanakbori 8 TPS	1	800	13/10/2019
SUB TOTAL GSECL (Coal + Lignite)		**5,300**	
SUB TOTAL GSECL (Gas)		**970**	
TOTAL GSECL (Thermal)		**6270**	
Ukai Hydro	1	75	08/07/1974
	2	75	13/12/1974
	3	75	22/4/1975
	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
	2	1	31/03/1994
	Sub Total	2	
SUB TOTAL GSECL (Hydro)		**547**	
Wind Mills		10	04/01/2009
Solar	Plant at GTPS Yard	1	27/03/2012
	Plant at Sanand Br. Canal	1	29/03/2012
	Charanka	10	23/03/2015
	KLTPS	1	02/05/2016
	Sikka TPS Dhuvaran	1 75	02/05/2016 05/02/2019
TOTAL GSECL as a Whole		**6,916**	

4.2 Operating Performance Parameters

The fuel cost of a generation station depends on:

(i) the performance parameters, such as Plant Availability Factor (PAF), Plant Load Factor (PLF), Station Heat Rate, Auxiliary Consumption, Specific Fuel Oil Consumption, and Transit Loss of Coal (in case of Coal stations), which are controllable and;

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

GSECL has submitted the actual operating performance on these parameters for FY 2019-20 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 2019-20, 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 2019-20. The PAF (i) approved in the Tariff Order dated 24th April, 2019; and (ii) the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.2: Plant Availability Factor for FY 2019-20

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	80%	85.58%
2.	Gandhinagar (3-4)	84%	94.41%
3.	Gandhinagar 5*	85%	92.01%
4.	Wanakbori 1-6 TPS	85%	93.94%
5.	Wanakbori 7*	85%	98.00%
6.	Sikka Extension (3-4)*	85%	93.42%
7.	KLTPS 1-3	75%	35.22%
8.	KLTPS 4	80%	45.16%
9.	BLTPS*	80%	12.80%
10.	Dhuvaran CCPP 1*	85%	58.48%
11.	Dhuvaran CCPP 2	85%	24.97%
12.	Dhuvaran CCPP 3*	85%	68.06%
13.	Utran Extension*	85%	91.13%
14.	Ukai 6*	85%	83.34%
15.	Wanakbori 8 TPS*	85%	28.71%
16.	Ukai Hydro	80%	87.12%
17.	Kadana Hydro	80%	88.92%

** PPA based stations*

It is observed from the above Table that KLTPS 1-3, KLTPS 4, BLTPS, Dhuvaran CCPP 1, Dhuvaran CCPP 2, Dhuvaran CCPP 3, Ukai 6 and Wanakbori 8 TPS have achieved lower PAF than that approved by the Commission for FY 2019-20 in the Tariff Order.

GSECL has submitted the reasons for deviation, in respect of the stations where the actual PAF was lower as compared to approved PAF for FY 2019-20, as given below:

- KLPTS (1 -3): Inadequate and Poor lignite quality and frequent forced outages/partial operation of Units due to non-availability of milling system (heavy damages to mill internals due to pyrite laden lignite) (38.66%);
- KLTPS 4: Partial Operation due to problems of FBHE Evaporator and Superheater and Forced Outages (24.73%);
- BLTPS 1-2: Partial Operation due to Unit Constraints and fuel feeding problems (16%), Frequent forced outages due to boiler tube leakages (12.83%), APH problem and fuel feeding problems (56.93%);
- Dhuvaran CCPP 1: Unforeseen forced outage due to high vibrations of GT bearings (outage for 311 days (124 days in 2019-20) taken for replacement of both bearings of GT bearings) (35.75 %);
- Dhuvaran CCPP 2: Unforeseen forced outage for 210 days as GT fuel nozzle choked up (63.54%) due to condensate from gas pipeline carried up to GT nozzles in Gas turbine;
- Dhuvaran CCPP 3: Unforeseen forced outage due to massive Fire in GT exhaust compartment (29.02%);
- Ukai 6: AOH extended due to work in APH (12 Days @ 3.28%) - the time taken for replacement of APH baskets was prolonged as the damage to APH baskets was found substantially higher than anticipated;
- Wanakbori 8 TPS: Unforeseen forced outage due to LP rotor damage (balance weight detached) (104 Days @ 60.82%) and Boiler tube leakage (BTL) in spiral Water wall (10 Days @ 5.85%).

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 submitted by GSECL in reply to data gaps. The Commission observed that there were some variations in the PAF as per SLDC certificate and PAF as submitted by GSECL in the Petition for few of the power stations. The Commission has considered the actual PAF as per SLDC certificate for True-up of FY 2019-20.

The Commission has noted that the submissions made by the Petitioner for the actual PAF being lower than the approved PAF in case of KLTPS 1-3, KLTPS 4, BLTPS, Dhuvaran CCPP 1, Dhuvaran CCPP 2, Dhuvaran CCPP 3, Ukai 6 and Wanakbori 8 TPS. However, as the PAF is controllable, for truing up purpose, the PAF approved for FY 2019-20 in the Tariff Order dated 24th April, 2019 has been considered.

The station-wise PAF approved for truing up purpose for FY 2019-20 is given in the Table below:

Table 4.3: Plant Availability Factors approved for truing up for FY 2019-20

Sr. No.	Particulars	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	80%	88.90%	80.00%
2.	Gandhinagar (3-4)	84%	94.41%	84.00%
3.	Gandhinagar 5*	85%	92.01%	85.00%
4.	Wanakbori 1-6 TPS	85%	92.99%	85.00%
5.	Wanakbori 7*	85%	98.00%	85.00%
6.	Sikka Extension (3-4)*	85%	93.42%	85.00%
7.	KLTPS 1-3	75%	29.52%	75.00%
8.	KLTPS 4	80%	45.16%	80.00%
9.	BLTPS*	80%	12.80%	80.00%
10.	Dhuvaran CCPP 1*	85%	58.48%	85.00%
11.	Dhuvaran CCPP 2	85%	24.97%	85.00%
12.	Dhuvaran CCPP 3*	85%	68.06%	85.00%
13.	Utran Extension*	85%	91.13%	85.00%
14.	Ukai 6*	85%	83.34%	85.00%
15.	Wanakbori 8 TPS*	85%	28.71%	85.00%
16.	Ukai Hydro	80%	87.12%	80.00%
17.	Kadana Hydro	80%	88.92%	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 2019-20. The PLF (i) approved in the Tariff Order dated 24th April, 2019 and (ii) the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.4: Plant Load Factor for FY 2019-20

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	56%	55.03%
2.	Gandhinagar (3-4)	45%	20.00%
3.	Gandhinagar 5*	77%	52.65%
4.	Wanakbori 1-6 TPS	50%	35.91%
5.	Wanakbori 7*	70%	58.15%
6.	Sikka Extension (3-4)*	70%	61.73%
7.	KLTPS 1-3	75%	35.28%
8.	KLTPS 4	75%	49.31%
9.	BLTPS*	80%	13.91%
10.	Dhuvaran CCPP 1*	25%	20.34%
11.	Dhuvaran CCPP 2	25%	9.33%
12.	Dhuvaran CCPP 3*	25%	16.83%
13.	Utran Extension*	25%	22.70%
14.	Ukai 6*	77%	64.47%
15.	Wanakbori 8 TPS*	85%	16.26%
16.	Ukai Hydro	13%	29.66%
17.	Kadana Hydro	6%	22.28%

** PPA based stations*

GSECL submitted that the actual PLF is lower due to reduction in gross generation for FY 2019-20.

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 Ukai Hydro and Kadana Hydro stations have achieved lower PLF for FY 2019-20 than that approved in the Tariff Order. The Commission has taken note of the submissions made by the Petitioner and approved the PLF for FY 2019-20 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 2019-20 for truing up purpose

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	56%	55.03%	55.03%
2.	Gandhinagar (3-4)	45%	20.00%	20.00%
3.	Gandhinagar 5*	77%	52.65%	52.65%
4.	Wanakbori 1-6 TPS	50%	35.91%	35.91%
5.	Wanakbori 7*	70%	58.15%	58.15%
6.	Sikka Extension (3-4)*	70%	61.73%	61.73%
7.	KLTPS 1-3	75%	35.28%	35.28%
8.	KLTPS 4	75%	49.31%	49.31%
9.	BLTPS*	80%	13.91%	13.91%

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
10.	Dhuvaran CCPP 1*	25%	20.34%	20.34%
11.	Dhuvaran CCPP 2	25%	9.33%	9.33%
12.	Dhuvaran CCPP 3*	25%	16.83%	16.83%
13.	Utran Extension*	25%	22.70%	22.70%
14.	Ukai 6*	77%	64.47%	64.47%
15.	Wanakbori 8 TPS*	85%	16.26%	16.26%
16.	Ukai Hydro	13%	29.66%	29.66%
17.	Kadana Hydro	6%	22.28%	22.28%

** PPA based stations*

4.2.3 Auxiliary Consumption

Petitioner's Submission

GSECL has submitted the actual auxiliary consumption of different stations for FY 2019-20. The auxiliary consumption (i) approved in the Tariff Order dated 24th April, 2019 and (ii) the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.6: Auxiliary consumption for FY 2019-20

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	9.00%	9.90%
2.	Gandhinagar (3-4)	9.00%	12.75%
3.	Gandhinagar 5*	9.50%	10.71%
4.	Wanakbori 1-6 TPS	9.00%	9.90%
5.	Wanakbori 7*	9.50%	9.92%
6.	Sikka Extension (3-4)*	9.00%	9.47%
7.	KLTPS 1-3	12.00%	15.42%
8.	KLTPS 4	12.00%	21.96%
9.	BLTPS*	11.00%	23.97%
10.	Dhuvaran CCPP 1*	4.00%	7.35%
11.	Dhuvaran CCPP 2	3.00%	9.81%
12.	Dhuvaran CCPP 3*	3.00%	4.36%
13.	Utran Extension*	3.00%	3.96%
14.	Ukai 6*	6.00%	6.42%
15.	Wanakbori 8 TPS*	5.25%	8.81%
16.	Ukai Hydro	0.60%	0.73%
17.	Kadana Hydro	1.00%	0.65%

** 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 - 72.95%) and APC consumption during RSD - 0.24%;
- Gandhinagar 3-4: Partial Operation due to backing down (Partial Operation - 77.64%) and APC consumption during RSD - 2.64%;
- Gandhinagar 5: Partial Operation due to backing down (Partial Operation – 72.30%) and APC consumption during RSD – 0.78%;
- Wanakbori 1-6: Partial Operation due to backing down (Partial Operation - 81.34%) and APC consumption during RSD - 0.78%;
- Wanakbori 7: Partial Operation due to backing down (Partial Operation – 77.86%) and APC consumption during RSD – 0.48%;
- Sikka 3 & 4: Partial Operation due to backing down (Partial Operation - 74.26%) and APC consumption during RSD - 0.30%;
- KLTPS 1-3: Partial Operation due to poor lignite quality and Unit constraints (Partial Operation);
- KLTPS 4: Partial Operation due to poor lignite quality and Unit constraints (Partial Operation);
- BLTPS 1-2: Partial Operation due to unit constraints (Partial Operation – 100%), Forced outages;
- Dhuvaran CCPP1: Partial Operation due to backing down (Partial Operation - 71.79%), APC consumption during RSD - 2.98%;
- Dhuvaran CCPP2: Partial Operation due to backing down (Partial Operation - 69.91%), APC consumption during RSD - 2.46%;
- Dhuvaran CCPP3: Partial Operation due to backing down (Partial Operation - 75.53%), APC consumption during RSD – 1.57%;
- Utran Extension: Partial Operation due to backing down (Partial Operation - 67.52%), APC consumption during RSD - 0.84%;
- Ukai 6: Partial Operation due to backing down (Partial Operation - 63.97%);
- Wanakbori 8: Partial Operation due to backing down (Partial Operation - 64.53%) and APC consumption during RSD - 0.78%;
- Ukai Hydro: Low reservoir level due to Irrigation dependency.

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 24th April, 2019 for FY 2019-20. The actual auxiliary consumption in all plants is higher than approved in the Tariff Order dated 24th April, 2019 for FY 2019-20 except Kadana hydro station, where the actual auxiliary consumption is less than that approved in the Tariff Order.

GSECL has submitted the reason for higher Auxiliary consumption for almost all plants as partial operation due to backing down and reserve shutdown of plants. Though GSECL has indicated the reasons for higher auxiliary consumption, the Commission is of the view that the reasons are not acceptable as the Commission had taken all the factors into consideration while approving the auxiliary consumption in the Tariff Order dated 24th April, 2019 for FY 2019-20, and the auxiliary consumption is also a controllable parameter as described in the GERC (MYT) Regulations, 2016.

The Commission approves the auxiliary consumption for various stations as approved in the Tariff Order dated 24th April, 2019 for FY 2019-20, 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 2019-20 is given in the Table below:

Table 4.7: Auxiliary consumption (%) approved for FY 2019-20 for truing up

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	9.00%	9.90%	9.00%
2.	Gandhinagar (3-4)	9.00%	12.75%	9.00%
3.	Gandhinagar 5*	9.50%	10.71%	9.50%
4.	Wanakbori 1-6 TPS	9.00%	9.90%	9.00%
5.	Wanakbori 7*	9.50%	9.92%	9.50%
6.	Sikka Extension (3-4)*	9.00%	9.47%	9.00%
7.	KLTPS 1-3	12.00%	15.42%	12.00%
8.	KLTPS 4	12.00%	21.96%	12.00%
9.	BLTPS*	11.00%	23.97%	11.00%

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
10.	Dhuvaran CCPP 1*	4.00%	7.35%	4.00%
11.	Dhuvaran CCPP 2	3.00%	9.81%	3.00%
12.	Dhuvaran CCPP 3*	3.00%	4.36%	3.00%
13.	Utran Extension*	3.00%	3.96%	3.00%
14.	Ukai 6*	6.00%	6.42%	6.00%
15.	Wanakbori 8 TPS*	5.25%	8.81%	5.25%
16.	Ukai Hydro	0.60%	0.73%	0.60%
17.	Kadana Hydro	1.00%	0.65%	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 2019-20. The SHR (i) approved by the Commission in the Tariff Order dated 24th April, 2019 and (ii) the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.8: Station Heat Rate for FY 2019-20

(kcal/kWh)

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	2,625	2,596
2.	Gandhinagar (3-4)	2,625	2,581
3.	Gandhinagar 5*	2,460	2,538
4.	Wanakbori 1-6 TPS	2,575	2,539
5.	Wanakbori 7*	2,460	2,463
6.	Sikka Extension (3-4)*	2,398	2,479
7.	KLTPS 1-3	3,231	3,303
8.	KLTPS 4	3,000	3,121
9.	BLTPS*	2,623	3,365
10.	Dhuvaran CCPP 1*	1,950	2,138
11.	Dhuvaran CCPP 2	1,950	2,156
12.	Dhuvaran CCPP 3*	1,850	1,956
13.	Utran Extension*	1,850	1,839
14.	Ukai 6*	2,385	2,340
15.	Wanakbori 8 TPS*	2,248	2,189

** 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 2019-20:

- Gandhinagar 5: Partial load operation due to backing down and Frequent start stop due to RSD (11 No.s)
- Wanakbori 7: Partial load operation due to backing down and frequent start stop due to RSD (17 No.s)
- Sikka 3-4: Partial Operation due to backing down and frequent start stop due to RSD (26 No.s).
- KLTPS 1-3: Partial Operation due to poor lignite quality and constraints, start stop due to forced Outages (58 No.s)
- KLTPS 4: Partial Operation due to problems of FBHE Evaporator and Super heater, and frequent start stop due to forced outages (17 No.s)
- BLTPS 1-2: Partial Operation due to unit constraints and frequent start stop due to forced outages (24 No.s)
- Dhuvaran CCPP1: Partial load operation due to backing down and frequent start stop due to RSD (166 No.s)
- Dhuvaran CCPP2: Partial load operation due to backing down and frequent start stop due to RSD (45 No.s)
- Dhuvaran CCPP3: Partial load operation due to backing down and frequent start stop due to RSD (40 No.s).

Commission's Analysis

For PPA governed stations, the SHR is approved as per the respective PPA terms. However, the Generation Stations of Gandhinagar 5, Wanakbori 7, Sikka Extn 3-4, KLTPS 1-3, KLTPS 4, BLTPS 1-2, Dhuvaran CCPP 1, Dhuvaran CCPP 2 and Dhuvaran CCPP 3 have SHR higher than normative SHR for FY 2019-20. The Commission has analysed the reasons submitted by the Petitioner for these stations and is of the view that the reasons put forward are not acceptable because SHR is considered as a controllable parameter for Truing up as prescribed in the GERC (MYT) Regulations, 2016.

For the purpose of truing up for FY 2019-20, the Commission approves the SHR as considered in the Tariff Order for FY 2019-20, as given in the Table below:

Table 4.9: Station Heat Rate approved for FY 2019-20 for truing up

(kcal/kWh)

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	2,625	2,596	2,625
2.	Gandhinagar (3-4)	2,625	2,581	2,625
3.	Gandhinagar 5*	2,460	2,538	2,460
4.	Wanakbori 1-6 TPS	2,575	2,539	2,575
5.	Wanakbori 7*	2,460	2,463	2,460
6.	Sikka Extension (3-4)*	2,398	2,479	2,398
7.	KLTPS 1-3	3,231	3,303	3,231
8.	KLTPS 4	3,000	3,121	3,000
9.	BLTPS*	2,623	3,365	2,623
10.	Dhuvaran CCPP 1*	1,950	2,138	1,950
11.	Dhuvaran CCPP 2	1,950	2,156	1,950
12.	Dhuvaran CCPP 3*	1,850	1,956	1,850
13.	Utran Extension*	1,850	1,839	1,850
14.	Ukai 6*	2,385	2,340	2,385
15.	Wanakbori 8 TPS*	2,248	2,189	2,248

** 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 2019-20. The SFOC (i) approved by the Commission in the Tariff Order dated 24th April, 2019 and (ii) the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.10: Secondary Fuel Oil Consumption for FY 2019-20

(ml/kWh)

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	1.00	1.32
2.	Gandhinagar (3-4)	1.00	2.59
3.	Gandhinagar 5*	3.50	0.83
4.	Wanakbori 1-6 TPS	1.00	1.51
5.	Wanakbori 7*	3.50	0.83
6.	Sikka Extension (3-4)*	1.00	1.25
7.	KLTPS 1-3	3.00	9.21
8.	KLTPS 4	3.00	2.61
9.	BLTPS*	1.00	5.09
10.	Ukai 6*	1.00	0.66
11.	Wanakbori 8 TPS*	0.50	3.67

** 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 following reasons for higher SFOC in respective stations for FY 2019-20:

- Ukai (3-5): Start/stop due to RSD (35 no.s; 0.35 ml/kWh)
- Gandhinagar 3-4: Start stop due to RSD (33 no.s; 2.18 ml/kWh)
- Wanakbori 1-6: Start stop due to RSD (122 no.s; 0.70 ml/kWh)
- Sikka 3-4: Start stop due to RSD (26 no.s; 0.46 ml/kWh)
- KLTPS 1-3: Higher forced outages (58 No.s) and non-availability of coal mills due to poor lignite quality
- KLTPS 4: Higher forced outages (17 No.s) and non-availability of coal mills due to poor lignite quality
- BLTPS 1-2: higher forced outages (24 No.s) and Partial Operation due to Unit constraints
- Wanakbori 8: Start stop due to RSD (3 no.s and 0.30 ml/kWh) and forced Outages (4 no.s; 2.46 ml/kWh)

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 2019-20 for all non-PPA stations, the Commission approves SFOC as considered in the Tariff Order for FY 2019-20.

Accordingly, the SFOC approved for FY 2019-20 for various stations is given in the Table below:

Table 4.11: Secondary Fuel Oil Consumption approved for FY 2019-20 for Truing up

(ml/kWh)

Sr. No.	Power Station	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	1.00	1.32	1.00
2.	Gandhinagar (3-4)	1.00	2.59	1.00
3.	Gandhinagar 5*	3.50	0.83	3.50
4.	Wanakbori 1-6 TPS	1.00	1.51	1.00
5.	Wanakbori 7*	3.50	0.83	3.50
6.	Sikka Extension (3-4)*	1.00	1.25	1.00
7.	KLTPS 1-3	3.00	9.21	3.00
8.	KLTPS 4	3.00	2.61	3.00
9.	BLTPS*	1.00	5.09	1.00
10.	Ukai 6*	1.00	0.66	1.00
11.	Wanakbori 8 TPS*	0.50	3.67	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 2019-20. The transit loss (i) approved by the Commission in the Tariff Order dated 24th April, 2019 and (ii) the actuals as furnished by GSECL in the Petition are given in the Table below:

Table 4.12: Transit Loss for FY 2019-20

Sr. No.	Power Station	Approved as per Tariff Order	Actual
1.	Ukai (3-5)	0.80%	0.39%
2.	Gandhinagar (3-4)	0.80%	0.10%
3.	Gandhinagar 5*	0.80%	0.10%
4.	Wanakbori 1-6 TPS	0.80%	0.35%
5.	Wanakbori 7*	0.80%	0.35%
6.	Sikka Extension (3-4)*	0.00%	0.00%
7.	KLTPS 1-3	0.20%	0.20%
8.	KLTPS 4	0.20%	0.20%
9.	BLTPS*	0.80%	0.24%
10.	Ukai 6*	0.80%	0.39%
11.	Wanakbori 8 TPS*	0.80%	0.35%

** PPA based stations*

Commission's Analysis

The actual transit loss is lower than that approved in the Tariff Order dated 24th April, 2019 for FY 2019-20. 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 2019-20 as given in the Table below:

Table 4.13: Transit Loss approved for FY 2019-20 for truing up (%)

Sr. No.	Power Stations	Approved as per Tariff Order	Actual	Approved in truing up
1.	Ukai (3-5)	0.80%	0.39%	0.80%
2.	Gandhinagar (3-4)	0.80%	0.10%	0.80%
3.	Gandhinagar 5*	0.80%	0.10%	0.80%
4.	Wanakbori 1-6 TPS	0.80%	0.35%	0.80%
5.	Wanakbori 7*	0.80%	0.35%	0.80%
6.	Sikka Extension (3-4)*	0.00%	0.00%	0.00%
7.	KLTPS 1-3	0.20%	0.20%	0.20%
8.	KLTPS 4	0.20%	0.20%	0.20%
9.	BLTPS*	0.80%	0.24%	0.80%
10.	Ukai 6*	0.80%	0.39%	0.80%
11.	Wanakbori 8 TPS*	0.80%	0.35%	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 2019-20

The performance parameters, approved for different stations for FY 2019-20 after the analysis in the preceding paras for the purpose of truing up of FY 2019-20, are listed in the Table below:

Table 4.14: Performance parameters approved for truing up purpose for FY 2019-20

Sr. No.	Power Stations	PAF (%)	PLF (%)	Auxiliary consumption (%)	SHR (kcal / kWh)	SFO consumption (ml / kWh)	Transit Loss (%)
1.	Ukai (3-5)	80.00%	55.03%	9.00%	2,625	1.00	0.80%
2.	Gandhinagar (3-4)	84.00%	20.00%	9.00%	2,625	1.00	0.80%
3.	Gandhinagar 5*	85.00%	52.65%	9.50%	2,460	3.50	0.80%
4.	Wanakbori 1-6 TPS	85.00%	35.91%	9.00%	2,575	1.00	0.80%
5.	Wanakbori 7*	85.00%	58.15%	9.50%	2,460	3.50	0.80%
6.	Sikka Extension (3-4)*	85.00%	61.73%	9.00%	2,398	1.00	0.00%
7.	KLTPS 1-3	75.00%	29.56%	12.00%	3,231	3.00	0.20%
8.	KLTPS 4	80.00%	49.31%	12.00%	3,000	3.00	0.20%
9.	BLTPS*	80.00%	13.91%	11.00%	2,623	1.00	0.80%
10.	Dhuvaran CCPP 1*	85.00%	20.34%	4.00%	1,950	-	-
11.	Dhuvaran CCPP 2	85.00%	9.33%	3.00%	1,950	-	-
12.	Dhuvaran CCPP 3*	85.00%	16.83%	3.00%	1,850	-	-
13.	Utran Extension*	85.00%	22.70%	3.00%	1,850	-	-
14.	Ukai 6*	85.00%	64.47%	6.00%	2,385	1.00	0.80%
15.	Wanakbori 8 TPS*	85.00%	16.26%	5.25%	2,248	0.50	0.80%
16.	Ukai Hydro	80.00%	29.66%	0.60%	**-**	-	-
17.	Kadana Hydro	80.00%	22.28%	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 2019-20, are given in the Table below:

Table 4.15: Gross and net generation for FY 2019-20 for truing up purpose

Sr. No.	Power Stations	As per actuals submitted by GSECL				As approved by the Commission			
		Gross Generation (MU)	Aux. Cons. (%)	Aux. Cons. (MU)	Net Generation (MU)	Gross Generation (MU)	Aux. Cons. (%)	Aux. Cons. (MU)	Net Generation (MU)
1.	Ukai (3-5)	2,948.91	9.90%	291.85	2,657.06	2,948.91	9.00%	265.40	2,683.50
2.	Gandhinagar (3-4)	737.91	12.75%	94.05	643.86	737.91	9.00%	66.41	671.50
3.	Gandhinagar 5*	971.12	10.71%	104.03	867.09	971.12	9.50%	92.26	878.86
4.	Wanakbori 1-6 TPS	3,974.74	9.90%	393.52	3,581.22	3,974.74	9.00%	357.73	3,617.01
5.	Wanakbori 7*	1,072.59	9.92%	106.43	966.17	1,072.59	9.50%	101.90	970.70
6.	Sikka Extension (3-4)*	2,711.21	9.47%	256.63	2,454.58	2,711.21	9.00%	244.01	2,467.20
7.	KLTPS 1-3	558.35	15.42%	86.09	472.26	558.35	12.00%	67.00	491.35
8.	KLTPS 4	324.84	21.96%	71.32	253.52	324.84	12.00%	38.98	285.86
9.	BLTPS*	610.99	23.97%	146.45	464.55	610.99	11.00%	67.21	543.78
10.	Dhuvaran CCPP 1*	190.50	7.35%	14.01	176.49	190.50	4.00%	7.62	182.88
11.	Dhuvaran CCPP 2	92.12	9.81%	9.04	83.08	92.12	3.00%	2.76	89.36
12.	Dhuvaran CCPP 3*	556.16	4.36%	24.27	531.89	556.16	3.00%	16.68	539.47
13.	Utran Extension*	746.86	3.96%	29.54	717.32	746.86	3.00%	22.41	724.46
14.	Ukai 6*	2,831.37	6.42%	181.86	2,649.51	2,831.37	6.00%	169.88	2,661.49
15.	Wanakbori 8 TPS*	533.98	8.81%	47.03	486.94	533.98	5.25%	28.03	505.94
16.	Ukai Hydro	794.55	0.73%	5.82	788.73	794.55	0.60%	4.77	789.78
17.	Kadana Hydro	473.57	0.65%	3.07	470.51	473.57	1.00%	4.74	468.84
	Total	**20,129.77**		**1,865.01**	**18,264.78**	**20,129.77**		**1,557.79**	**18,571.99**

** 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 2019-20 as given in the Table below:

Table 4.16: Wt. Avg. Gross Calorific Value (GCV) of fuels for different stations for FY 2019-20

Sr. No.	Power Stations	Wt. Avg. GCV of Coal (kcal/kg)	Wt. Avg. GCV of Lignite (kcal/kg)	Wt. Avg. GCV of Gas (kcal/SCM)	Wt. Avg. GCV of Oil (kcal/kl)
1.	Ukai (3-5)	3,788			10,461
2.	Gandhinagar (3-4)	3,755			10,440
3.	Gandhinagar 5*	3,755			10,482
4.	Wanakbori 1-6 TPS	3,882			10,350
5.	Wanakbori 7 TPS*	3,861			10,371
6.	Sikka Extension (3-4)*	5,129			10,285
7.	KLTPS 1-3		2,282		10,311
8.	KLTPS 4		2,282		10,311
9.	BLTPS*		2,753		10,807
10.	Dhuvaran CCPP 1*			9,544	
11.	Dhuvaran CCPP 2			9,393	
12.	Dhuvaran CCPP 3*			9,268	
13.	Utran Extension*			9,327	
14.	Ukai 6*	3,830			10,479
15.	Wanakbori 8 TPS*	3,807			10,363

** 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 2019-20 as given in the Table below:

Table 4.17: The Mix of Different Types of Coal for FY 2019-20

Sr. No.	Power Station	Mix of coal (%)		
		Indigenous	Washed	Imported
1.	Ukai (3-5)	20.25%	79.40%	0.34%
2.	Gandhinagar (3-4)	26.03%	73.07%	0.90%

Sr. No.	Power Station	Mix of coal (%)		
		Indigenous	Washed	Imported
3.	Gandhinagar 5*	17.34%	79.90%	2.77%
4.	Wanakbori 1-6 TPS	15.23%	84.09%	0.68%
5.	Wanakbori 7*	15.30%	84.09%	0.61%
6.	Sikka Extension (3-4)*	0.00%	0.12%	99.88%
7.	Ukai 6*	13.06%	86.74%	0.21%
8.	Wanakbori 8 TPS*	13.14%	86.86%	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 2019-20, as given in the Table below:

Table 4.18: Wt. Avg. Price / Unit of Fuels for FY 2019-20 (Actual)

Sr. No.	Station	Wt. Avg. Cost of Indigenous Coal (Rs./MT)	Wt. Avg. Cost of Washed Coal (Rs./MT)	Wt. Avg. Cost of Imported Coal (Rs./MT)	Wt. Avg. Cost of Coal (Rs./MT)	Wt. Avg. Cost of Lignite (Rs./MT)	Wt. Avg. Cost of Gas (Rs./SCM)	Wt. Avg. Cost of Oil (Rs./Kl)
1.	Ukai (3-5)	3,845	5,064	7,854	4,827			39,186
2.	Gandhinagar (3-4)	4,371	5,524	7,756	5,244			37,442
3.	Gandhinagar 5*	4,052	5,495	7,752	5,307			39,596
4.	Wanakbori 1-6 TPS	4,270	5,479	7,542	5,309			38,244
5.	Wanakbori 7*	4,188	5,459	7,512	5,277			38,619
6.	Sikka Extension (3-4)*		5,181	6,917	6,915			42,343
7.	KLTPS 1-3					1,649		42,217
8.	KLTPS 4					1,621		48,207
9.	BLTPS*					2,652		47,992
10.	Dhuvaran CCPP 1*						14.22	
11.	Dhuvaran CCPP 2						15.03	
12.	Dhuvaran CCPP 3*						17.35	
13.	Utran Extension*						17.79	
14.	Ukai 6*	3,756	4,990	7,757	4,835			39,328
15.	Wanakbori 8 TPS*	4,041	5,533		5,337			37,178

** 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. 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.

In response to the query, GSECL clarified that fuel cost and fuel prices submitted in the Petition are based on audited accounts. The difference is on account of the following:

(a) Cost of Station Supply, Lubricants and Chemicals of Rs. 23.62 Crore is included in the Balance Sheet Note No-31. However, the same has not been included in the monthly coal rate.

(b) Up to FY 2017-18, revenue from sale of reject coal was considered in the cost of fuel consumed and coal rate was reduced accordingly by netting to the tune of amount received from sale of reject coal. Further, because of adoption of Indian Accounting Standards (IND AS) and as suggested by Statutory Auditors, the income from sale of reject coal is shown under the head of Income from Other Operating Activity as Note No-29 (a) in FY 2019-20. Accordingly, income from sale of reject coal of Rs. 27.41 Crore is utilized for reduction of monthly coal rate as per old practice by netting of income with coal expenditure, but not considered/accounted in Cost of Fuel Consumed, so the rate as per Petition is increased to that extent as compared to FPPPA monthly data.

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 2019-20, 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 2019-20 for truing up purpose, along with the actuals furnished by GSECL, are given in the Table below:

Table 4.19: Fuel Cost of different stations for Truing up for FY 2019-20

Sr. No.	Power Stations	As per actuals submitted by GSECL				As approved by the Commission			
		Gross Generation (MU)	Net Generation (MU)	Fuel Cost (Rs. Crore)	Fuel Cost per unit (Rs./kWh)	Gross Generation (MU)	Net Generation (MU)	Fuel Cost (Rs. Crore)	Fuel Cost per unit (Rs./kWh)
1	**2**	**3**	**4**	**5**	**6=5/4**	**7**	**8**	**9**	**10=9/8**
1.	Ukai (3-5)	2,948.91	2,657.06	989.62	3.72	2,948.91	2,683.50	992.08	3.73
2.	Gandhinagar (3-4)	737.91	643.86	270.62	4.20	737.91	671.50	263.05	4.09
3.	Gandhinagar 5*	971.12	867.09	350.75	4.05	971.12	878.86	344.00	3.97
4.	Wanakbori 1-6 TPS	3,974.74	3,581.22	1,399.31	3.91	3,974.74	3,617.01	1,406.37	3.93
5.	Wanakbori 7*	1,072.59	966.17	364.51	3.77	1,072.59	970.70	370.91	3.84
6.	Sikka Extension (3-4)*	2,711.21	2,454.58	915.86	3.73	2,711.21	2,467.20	879.84	3.58
7.	KLTPS 1-3	558.35	472.26	151.16	3.20	558.35	491.35	130.90	2.77
8.	KLTPS 4	324.84	253.52	75.48	2.98	324.84	285.86	64.92	2.56
9.	BLTPS*	610.99	464.55	209.74	4.51	610.99	543.78	133.83	2.88
10.	Dhuvaran CCPP 1*	190.50	176.49	60.69	3.44	190.50	182.88	53.42	3.03
11.	Dhuvaran CCPP 2	92.12	83.08	31.77	3.82	92.12	89.36	26.73	3.22
12.	Dhuvaran CCPP 3*	556.16	531.89	203.61	3.83	556.16	539.47	189.90	3.57
13.	Utran Extension*	746.86	717.32	261.96	3.65	746.86	724.46	260.87	3.64
14.	Ukai 6*	2,831.37	2,649.51	844.70	3.19	2,831.37	2,661.49	862.85	3.26
15.	Wanakbori 8 TPS*	533.98	486.94	168.85	3.47	533.98	505.94	163.85	3.36
16.	**Grand Total**	**18,861.65**	**17,005.54**	**6,298.64**	**3.704**	**18,861.65**	**17,313.36**	**6,143.51**	**3.548**

** PPA based stations*

The detailed calculations for each station for arriving at the above costs 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 2019-20 and the cost approved for truing up purpose is given in the Table below:

Table 4.20: Cost of different fuels as per audited annual accounts and as approved for Truing up for FY 2019-20

(Rs. Crore)

Sr. No.	Particulars	Cost as per Annual Accounts	Cost as approved
1.	Fuel Cost	6,298.64	6,143.51
2.	Water Charges	133.00	
3.	Cost of Trading Activity	307.06	
4.	Total Fuel Cost as per Accounts	6,738.70	

Total fuel cost as per annual accounts is Rs. 6,738.70 Crore. While, the Commission has dealt with the Water Charges separately, the other elements are not considered in the Truing up exercise.

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

4.5.2 Gains and Losses in fuel costs due to controllable factors

Petitioner's Submission

GSECL has submitted that it has derived the fuel expenses for truing up of FY 2019-20 considering the performance parameters such as auxiliary consumption, SHR, SFOC and transit loss, as approved in the Tariff Order dated 24th April, 2019 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. 33.92 Crore due to controllable factors on account of operational efficiencies during FY 2019-20. 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 4.21: Approved Gains / (losses) from Fuel Expenses for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Fuel cost arrived with approved parameters for Actual Net generation for FY 2019-20	Actual Fuel cost incurred by GSECL	Gain /(Loss) due to Controllable Factors
1.	Ukai (3-5)	992.08	989.62	2.46
2.	Gandhinagar (3-4)	263.05	270.62	(7.57)
3.	Wanakbori 1-6 TPS	1,406.37	1,399.31	7.06
4.	KLTPS 1-3	130.90	151.16	(20.26)
5.	KLTPS 4	64.92	75.48	(10.56)
6.	Dhuvaran CCPP 2	26.73	31.77	(5.05)
7.	Ukai Hydro	-	-	-
8.	Kadana Hydro	-	-	-
	Sub Total A	**2,884.04**	**2,917.96**	**(33.92)**
9.	Gandhinagar 5*	344.00	350.75	
10.	Wanakbori 7* TPS	370.91	364.51	
11.	Sikka Extn.(3-4)*	879.84	915.86	
12.	BLTPS*	133.83	209.74	
13.	Dhuvaran CCPP 1*	53.42	60.69	
14.	Dhuvaran CCPP 3*	189.90	203.61	
15.	Utran Extension*	260.87	261.96	
16.	Ukai 6*	862.85	844.70	
17.	Wanakbori 8 TPS*	163.85	168.85	
18.	**Sub Total B**	**3,259.47**	**3,380.68**	
	Total (A+B)	**6,143.51**	**6,298.64**	**(33.92)**

** PPA based stations*

4.6 Capital Expenditure and Capitalisation

Petitioner's Submission

GSECL submitted the actual Capitalisation of Rs. 4,495.31 Crore for FY 2019-20. 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 4.22: Actual Capitalisation for FY 2019-20 as submitted by GSECL

(Rs. Crore)

Sr. No.	Power Station	Actual Capitalisation	Funding of Capitalisation	
			Debt amount	Equity amount
1.	Ukai (3-5)	23.26	16.28	6.98
2.	Gandhinagar (3-4)	32.83	22.98	9.85
3.	Gandhinagar 5*	-	-	-
4.	Wanakbori 1-6 TPS	61.18	42.83	18.35
5.	Wanakbori 7*	-	-	-
6.	Sikka Extension (3-4)*	26.40	18.48	7.92
7.	KLTPS 1-3	47.90	33.53	14.37
8.	KLTPS 4	0.96	0.67	0.29
9.	BLTPS*	6.80	4.76	2.04
10.	Dhuvaran CCPP 1*	0.04	0.03	0.01
11.	Dhuvaran CCPP 2	7.14	5.00	2.14
12.	Dhuvaran CCPP 3*	-	-	-
13.	Utran Extension*	0.35	0.25	0.11
14.	Ukai 6*	16.13	11.29	4.84
15.	Wanakbori 8 TPS*	4,269.13	2,988.39	1,280.74
16.	Ukai Hydro	0.82	0.57	0.25
17.	Kadana Hydro	2.35	1.65	0.71
	Total	**4,495.31**	**3,146.71**	**1,348.59**

** PPA based stations*

Commission's Analysis

The Commission observed that the total capitalisation claimed by GSECL for FY 2019-20 includes capitalisation of Wanakbori 8 TPS of Rs. 4269.13 Crore. The Commission provisionally approves the capital cost of Rs. 4269.13 Crore as submitted by GSECL, subject to final approval of Capital Cost Petition pending for approval.

The Commission further notes that GSECL has submitted the actual capitalisation of Rs. 226.18 Crore for its balance power stations as against the capitalisation of Rs. 354.56 Crore approved for these plants in the Tariff Order dated 24th April, 2019. The Commission has analysed the details of works completed by GSECL during FY 2019-20. Majority of the works claimed for power plants other than Wanakbori 8 TPS are with respect to capital spares.

For the purpose of Truing up, the Commission approves the Capitalisation of Rs. 4,495.31 Crore, which includes the Capital Cost of Rs. 4,269.13 Crore for Wanakbori 8 TPS as submitted by GSECL for FY 2019-20.

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.

4.7.1 Depreciation for FY 2019-20

Petitioner's Submission

GSECL has claimed Rs. 1,095.25 Crore towards depreciation charges in the Truing up for FY 2019-20. The depreciation approved for FY 2019-20 by the Commission in the Tariff Order dated 24th April, 2019 and now claimed by GSECL are as given in the Table below:

Table 4.23: Depreciation for FY 2019-20

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Depreciation	1,174.09	1,095.25

The closing GFA for all generating stations during FY 2019-20 has been computing by adding the assets capitalized during FY 2019-20 and deducting the assets retired or transferred from the opening balance of GFA.

GSECL has calculated the Depreciation for FY 2019-20 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 2019-20 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 4.24: Gains / Losses from Depreciation for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved	Actual claimed	Gain/(Loss) Due To Controllable Factors	Gain/(Loss) Due To Uncontrollable Factors
1.	Ukai (3-5)	74.23	42.80		31.43
2.	Gandhinagar (3-4)	56.15	33.04		23.11
3.	Gandhinagar 5*	-	2.16		
4.	Wanakbori 1-6 TPS	122.72	89.63		33.09
5.	Wanakbori 7*	-	2.15		
6.	Sikka Extension (3-4)*	172.90	179.58		
7.	KLTPS 1-3	66.50	35.87		30.63
8.	KLTPS 4	36.28	36.32		(0.04)
9.	BLTPS*	190.87	238.62		
10.	Dhuvaran CCPP 1*	21.24	9.73		
11.	Dhuvaran CCPP 2	23.14	12.92		10.22
12.	Dhuvaran CCPP 3*	76.43	78.77		
13.	Utran Extension*	66.54	68.22		
14.	Ukai 6*	141.13	155.11		
15.	Wanakbori 8 TPS*	110.15	102.58		
16.	Ukai Hydro	-	2.31		(2.31)
17.	Kadana Hydro	15.81	5.44		10.37
18.	**Total**	**1,174.09**	**1,095.25**		**136.52**

** PPA based stations*

Commission's Analysis

The Commission observed that at the time of Truing-up of FY 2018-19, GSECL had submitted that it has not considered the depreciation pertaining to Gandhinagar-5 and Wanakbori 7 as these two stations have been depreciated up to 90% of its GFA value, in line with the approach adopted by the Commission in its previous true-up Order of FY 2017-18 dated 24th April, 2019. The Commission accordingly had not allowed depreciation for Gandhinagar-5 and Wanakbori 7 in the True-up of FY 2018-19. However, in Truing-up of FY 2019-20, GSECL has claimed the depreciation against these stations. The Commission has continued with the approach adopted in true-up for FY 2018-19 and has not considered any depreciation for Gandhinagar-5 and Wanakbori 7 in the True-up of FY 2019-20.

The Commission has computed the depreciation for all the stations, taking into consideration the closing GFA of FY 2018-19 as the opening GFA for FY 2019-20, and adding the assets capitalized and deduction during FY 2019-20. The Commission in earlier Section of this Order has approved capitalisation of Rs. 4,495.31 Crore, which includes capital cost of Wanakbori 8 TPS of Rs. 4,269.13 Crore.

GSECL submitted that KLTPS Unit 1 and 2 were decommissioned with effect from 1st January, 2020. Accordingly, GSECL has claimed retirement of asset worth Rs. 485.25 Crore in FY 2019-20. The Commission has considered the retirement of assets as claimed by GSECL for KLTPS Unit 1 and Unit 2. Further, retirement of assets of Rs. 0.31 Crore has also been considered for other power stations in line with the submission of GSECL. The Gross Fixed assets approved is given in the Table below:

Table 4.25: Approved Gross Fixed Assets

(Rs. Crore)

Sr. No.	Particulars	Opening GFA	Additions	Deductions	Closing GFA
1.	Ukai (3-5)	1,303.61	23.26	0.02	1,326.85
2.	Gandhinagar (3-4)	1,207.49	32.83	0.07	1,240.25
3.	Gandhinagar 5*	657.84	-		657.84
4.	Wanakbori 1-6 TPS	2,330.80	61.18		2,391.98
5.	Wanakbori 7*	638.97	-		638.97
6.	Sikka Extension (3-4)*	3,223.10	26.40	0.02	3,249.48
7.	KLTPS 1-3	1,375.07	47.90	485.25	937.72
8.	KLTPS 4	706.88	0.96		707.84
9.	BLTPS*	3,615.00	6.80		3,621.80
10.	Dhuvaran CCPP 1*	406.82	0.04		406.86
11.	Dhuvaran CCPP 2	423.63	7.14		430.77
12.	Dhuvaran CCPP 3*	1,595.56	-		1,595.56
13.	Utran Extension*	1,358.95	0.35	0.19	1,359.11
14.	Ukai 6*	2,972.43	16.13		2,988.56
15.	Wanakbori 8 TPS*	-	4,269.13		4,269.13
16.	Ukai Hydro	179.37	0.82		180.19
17.	Kadana Hydro	330.92	2.35		333.27
	Total	**22,326.44**	**4,495.31**	**485.56**	**26,336.19**

** 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.

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 2019-20 as detailed in the Table below:

Table 4.26: Approved station-wise depreciation charges and gains/(losses) from Depreciation for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual as claimed by GSECL	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	74.23	42.80	42.80		31.43
2.	Gandhinagar (3-4)	56.15	33.04	33.04		23.11
3.	Wanakbori 1-6 TPS	122.72	89.63	89.62		33.10
4.	KLTPS 1-3	66.50	35.87	35.87		30.63
5.	KLTPS 4	36.28	36.32	36.32		(0.04)
6.	Dhuvaran CCPP 2	23.14	12.92	12.92		10.22
7.	Ukai Hydro	-	2.31	2.31		(2.31)
8.	Kadana Hydro	15.81	5.44	5.44		10.37
	Sub Total A	**394.83**	**258.31**	**258.31**		**136.52**
9.	Gandhinagar 5*	-	2.16	-		-
10.	Wanakbori 7* TPS	-	2.15	-		-
11.	Sikka Extn.(3-4)*	172.90	179.58	179.58		-
12.	BLTPS*	190.87	238.62	238.62		-
13.	Dhuvaran CCPP 1*	21.24	9.73	9.73		-
14.	Dhuvaran CCPP 3*	76.43	78.77	78.77		-
15.	Utran Extension*	66.54	68.22	68.22		-
16.	Ukai 6*	141.13	155.11	155.11		-
17.	Wanakbori 8 TPS*	110.15**	102.58	102.58		-
	Sub Total B	**779.26**	**836.93**	**832.62**		
	Total (A+B)	**1,174.09**	**1,095.25**	**1,090.93**		**136.52**

** PPA based stations*

*** Proportionate reduction in approved Fixed Charges with respect to the date of commissioning*

4.7.2 Interest and Finance charges for FY 2019-20

Petitioner's Submission

GSECL has claimed Rs. 634.89 Crore towards interest and finance charges in the Truing up for FY 2019-20. The repayment has been considered as minimum of depreciation computed or opening loan plus addition in loan for the FY 2019-20 in line with the approach as adopted by the Commission. The interest and finance charges approved for FY 2019-20 by the

Commission in the Tariff Order, and now claimed by GSECL as actual, are given in the Table below:

Table 4.27: Interest and Finance Charges claimed in truing up for FY 2019-20

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Interest and Finance charges	753.62	634.89

GSECL has claimed Rs. 42.24 Crore towards gain attributed to uncontrollable factors against interest and finance charges. The station-wise interest and finance charges claimed by GSECL in the truing for FY 2019-20 and the gains/losses are given in the Table below:

Table 4.28: Gains / Losses from Interest & Finance charges claimed for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	35.79	-		35.79
2.	Gandhinagar (3-4)	2.07	-		2.07
3.	Gandhinagar 5*	-	-		
4.	Wanakbori 1-6 TPS	23.88	24.15		(0.27)
5.	Wanakbori 7*	-	-		
6.	Sikka Extension (3-4)*	161.10	132.82		
7.	KLTPS 1-3	0.01	1.34		(1.33)
8.	KLTPS 4	12.39	10.89		1.50
9.	BLTPS*	158.31	152.02		
10.	Dhuvaran CCPP 1*	-	-		
11.	Dhuvaran CCPP 2	7.90	3.88		4.02
12.	Dhuvaran CCPP 3*	71.64	65.56		
13.	Utran Extension*	37.58	32.43		
14.	Ukai 6*	112.02	96.41		
15.	Wanakbori 8 TPS*	128.40	113.32		
16.	Ukai Hydro	2.53	2.07		0.46
17.	Kadana Hydro	-	-		-
	Total	**753.62**	**634.89**		**42.24**

** PPA based stations*

Commission's Analysis

The Commission has analysed the audited annual accounts of GSECL for FY 2019-20 and obtained the details of loans outstanding and the rate of interest for different stations. The

Commission has considered the Closing Loans of FY 2018-19 as approved in FY 2018-19 true-up order as Opening Loans for FY 2019-20 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 2019-20 and for the stations for which depreciation is higher than the Opening Loan plus addition in Loan for FY 2018-19, 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 4.29: Details of Approved Loan for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Opening Loan	Additions	Repayment	Closing Loan
1.	Ukai (3-5)	-	16.28	16.28	-
2.	Gandhinagar (3-4)	-	22.98	22.98	-
3.	Gandhinagar 5*	-	-	-	-
4.	Wanakbori 1-6 TPS	315.90	42.83	89.63	269.10
5.	Wanakbori 7*	-	-	-	-
6.	Sikka Extension (3-4)*	1,688.96	18.48	179.58	1,527.86
7.	KLTPS 1-3	17.39	33.53	35.87	15.05
8.	KLTPS 4	149.71	0.67	36.32	114.06
9.	BLTPS*	1,957.88	4.76	238.62	1,724.02
10.	Dhuvaran CCPP 1*	-	0.03	0.03	-
11.	Dhuvaran CCPP 2	50.91	5.00	12.92	42.99
12.	Dhuvaran CCPP 3*	833.33	-	78.77	754.56
13.	Utran Extension*	426.71	0.25	68.22	358.74
14.	Ukai 6*	1,239.43	11.29	155.11	1,095.60
15.	Wanakbori 8 TPS*	-	2,988.39	102.58	2,885.81
16.	Ukai Hydro	25.96	0.57	2.31	24.23
17.	Kadana Hydro	-	1.65	1.65	-
	Total	**6,706.18**	**3,146.71**	**1,040.87**	**8,812.03**

** PPA based stations*

The Commission notes that GSECL has submitted the weighted average rate of interest of 8.26%. The Commission has analysed the reconciliation of actual interest charges considered for computation of this rate of interest vis-à-vis audited accounts.

Accordingly, the weighted average rate of interest of 8.26% is worked out by the Commission as per the details submitted by the Petitioner.

Gains / Losses

The GERC (MYT) Regulations, 2016 consider variation in the interest rates as an uncontrollable parameter but variation in Interest and Finance charges as controllable. However, the Commission is of the view that the amount of interest and finance charges are dependent on the quantum of capitalization, and the extent of borrowing considered during the financial year. The Commission is, therefore, of the view that the parameters which impact interest and finance charges should be treated as uncontrollable.

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

The Commission, accordingly, approves the station-wise interest and finance charges and the gain / (loss) on account of interest and finance charges in the Truing up for FY 2019-20 as detailed in the Table below:

Table 4.30: Approved Interest and Finance charges and gain/ (loss) for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual as claimed by GSECL	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	35.79	-	-		35.79
2.	Gandhinagar (3-4)	2.07	-	-		2.07
3.	Wanakbori 1-6 TPS	23.88	24.15	24.15		(0.27)
4.	KLTPS 1-3	0.01	1.34	1.34		(1.33)
5.	KLTPS 4	12.39	10.89	10.89		1.50
6.	Dhuvaran CCPP 2	7.90	3.88	3.88		4.02
7.	Ukai Hydro	2.53	2.07	2.07		0.46
8.	Kadana Hydro	-	-	-		-
	Sub Total A	**84.57**	**42.33**	**42.33**		**42.24**
9.	Gandhinagar 5*	-		-		
10.	Wanakbori 7* TPS	-		-		
11.	Sikka Extn.(3-4)*	161.10	132.82	132.82		
12.	BLTPS*	158.31	152.02	152.02		
13.	Dhuvaran CCPP 1*	-	-	-		
14.	Dhuvaran CCPP 3*	71.64	65.56	65.56		
15.	Utran Extension*	37.58	32.43	32.43		
16.	Ukai 6*	112.02	96.41	96.41		
17.	Wanakbori 8 TPS*	128.40**	113.32	55.67		
	Sub Total B	**669.05**	**592.56**	**534.91**		
	Total (A+B)	**753.62**	**634.90**	**577.24**		**42.24**

** PPA based stations*

*** Proportionate reduction in approved Fixed Charges with respect to the date of commissioning*

4.7.3 Return on Equity for FY 2019-20

Petitioner's Submission

GSECL has claimed Rs. 957.06 Crore towards RoE in the Truing up for FY 2019-20. The RoE approved for FY 2019-20 by the Commission in Tariff Order dated 24th April, 2019 for FY 2019-20, and now claimed by GSECL as actual are given in the Table below:

Table 4.31: Return on Equity for FY 2019-20 (Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Return on Equity	963.74	957.06

GSECL has submitted that the comparison of actual value for RoE computed based on Opening Equity for FY 2019-20 and addition to Equity during the year on account of funding of capital expenditure against the RoE approved in the Tariff Order dated 24th April, 2019 resulted in a gain of Rs. 0.94 Crore attributed to uncontrollable factors. The station-wise RoE claimed by GSECL in the truing for FY 2019-20 and the gains/(losses) are given in the Table below:

Table 4.32: Gains / Losses from Return on Equity claimed for FY 2019-20 (Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	27.47	22.18		5.29
2.	Gandhinagar (3-4)	17.58	23.19		(5.61)
3.	Gandhinagar 5*	30.88	28.67		
4.	Wanakbori 1-6 TPS	91.78	88.70		3.08
5.	Wanakbori 7*	28.03	26.16		
6.	Sikka Extension (3-4)*	137.53	135.93		
7.	KLTPS 1-3	49.03	52.91		(3.88)
8.	KLTPS 4	29.40	29.63		(0.23)
9.	BLTPS*	151.83	151.97		
10.	Dhuvaran CCPP 1*	11.07	10.45		
11.	Dhuvaran CCPP 2	16.92	14.37		2.55
12.	Dhuvaran CCPP 3*	65.36	67.01		
13.	Utran Extension*	57.60	57.49		
14.	Ukai 6*	122.46	125.18		
15.	Wanakbori 8 TPS*	87.62	83.77		
16.	Ukai Hydro	10.42	10.62		(0.20)
17.	Kadana Hydro	28.76	28.82		(0.06)
18.	**Total**	**963.74**	**957.06**		**0.94**

** PPA based stations*

Commission's Analysis

The Commission has observed that GSECL has compared the actual RoE of Rs. 957.06 Crore for FY 2019-20 with the RoE of Rs. 963.74 Crore approved in the Tariff Order dated 24th April, 2019 and arrived at a gain of Rs. 0.94 Crore.

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 has taken the closing equity of FY 2018-19 as the opening equity of FY 2019-20, further 30% of net addition has been considered as equity addition during the year as given in the Table below:

Table 4.33: Approved Equity for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Opening Equity	Addition	Closing Equity
1.	Ukai (3-5)	154.91	6.98	161.89
2.	Gandhinagar (3-4)	160.70	9.85	170.55
3.	Gandhinagar 5*	220.57	-	220.57
4.	Wanakbori 1-6 TPS	624.39	18.35	642.74
5.	Wanakbori 7*	201.22	-	201.22
6.	Sikka Extension (3-4)*	966.94	7.92	974.86
7.	KLTPS 1-3	370.76	14.37	385.13
8.	KLTPS 4	211.49	0.29	211.78
9.	BLTPS*	1,084.50	2.04	1,086.54
10.	Dhuvaran CCPP 1*	80.41	0.01	80.42
11.	Dhuvaran CCPP 2	101.58	2.14	103.72
12.	Dhuvaran CCPP 3*	478.67	-	478.67
13.	Utran Extension*	410.60	0.11	410.71
14.	Ukai 6*	891.73	4.84	896.57
15.	Wanakbori 8 TPS*	-	1,280.74	1,280.74
16.	Ukai Hydro	75.76	0.25	76.01
17.	Kadana Hydro	205.49	0.71	206.20
	Total	**6,239.72**	**1,348.59**	**7.588.31**

** PPA based stations*

Gains / (Losses)

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

The Commission, accordingly, approves the station-wise return on equity and gain / (loss) on account of variation in RoE in the truing up for FY 2019-20 as detailed in the Table below:

Table 4.34: Approved Return on Equity and gain/ (loss) for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (1-5)	27,47	22.18	22.18		5.29
2.	Gandhinagar (1-4)	17.58	23.19	23.19		(5.61)
3.	Wanakbori 1-6 TPS	91.78	88.70	88.70		3.08
4.	KLTPS 1-3	49.03	52.91	52.91		(3.88)
5.	KLTPS 4	29.40	29.63	29.63		(0.23)
6.	Dhuvaran CCPP 2	16.92	14.37	14.37		2.55
7.	Ukai Hydro	10.42	10.62	10.62		(0.20)
8.	Kadana Hydro	28.76	28.82	28.82		(0.06)
	Subtotal A	**271.36**	**270.42**	**270.42**		**0.94**
9.	Gandhinagar 5*	30.88	28.67	28.67		
10.	Wanakbori 7* TPS	28.03	26.16	26.16		
11.	Sikka Extn.(3-4)*	137.53	135.93	135.93		
12.	BLTPS*	151.83	151.97	151.97		
13.	Dhuvaran CCPP 1*	11.07	10.45	10.45		
14.	Dhuvaran CCPP 3*	65.36	67.01	67.01		
15.	Utran Extension*	57.60	57.49	57.49		
16.	Ukai 6*	122.46	125.18	125.18		
17.	Wanakbori 8 TPS*	87.62**	83.77	41.89		
	Subtotal B	**692.38**	**686.64**	**644.76**		
	Total (A+B)	**963.74**	**957.06**	**915.17**		**0.94**

** PPA based stations*

*** Proportionate reduction in approved Fixed Charges with respect to the date of commissioning*

4.7.4 O&M Expenses for FY 2019-20

Petitioner's Submission

GSECL has claimed Rs. 1,186.92 Crore towards actual O&M expenses in the truing up for FY 2019-20. The O&M charges approved for FY 2019-20 by the Commission in the Tariff Order dated 24th April 2019, and now claimed by GSECL are given in the Table below:

Table 4.35: O&M expenses for FY 2019-20

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
O&M Expenses	1,402.92	1,186.92

As the O&M expenses have been classified as "Controllable", GSECL has worked out a loss of Rs. 7.83 Crore. The station-wise O&M expenses approved by the Commission in the Tariff Order dated 24th April, 2019 and now claimed by GSECL after revision in the truing for FY 2019-20 are given in the Table below:

Table 4.36: Gains / Losses from O&M expenses for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	174.13	213.19	(39.06)	
2.	Gandhinagar (3-4)	96.85	109.37	(12.52)	
3.	Gandhinagar 5*	24.68	54.69		
4.	Wanakbori 1-6 TPS	253.41	218.05	35.36	
5.	Wanakbori 7*	20.48	14.64		
6.	Sikka Extension (3-4)*	106.80	130.73		
7.	KLTPS 1-3	121.38	109.38	12.00	
8.	KLTPS 4	20.79	19.81	0.98	
9.	BLTPS*	159.50	75.58		
10.	Dhuvaran CCPP 1*	35.37	52.24		
11.	Dhuvaran CCPP 2	35.45	51.98	(16.53)	
12.	Dhuvaran CCPP 3*	73.64	7.01		
13.	Utran Extension*	58.68	44.68		
14.	Ukai 6*	106.80	38.05		
15.	Wanakbori 8 TPS*	67.86	12.36		
16.	Ukai Hydro	21.37	13.67	7.70	
17.	Kadana Hydro	25.73	21.49	4.24	
18.	**Total**	**1,402.92**	**1,186.92**	**(7.83)**	

** PPA based stations*

Commission's Analysis

The O&M expenses consist of following elements:

(i) Employees expenses;

(ii) Repairs & Maintenance expenses;

(iii) Administration & General expenses.

These elements are discussed hereunder:

(i) Employee expenses

The Employees expenses as per the audited Annual Accounts (Note No. 32) is Rs. 691.67 Crore net of expenses capitalised. It is further observed that these expenses include provision of Rs. 55.58 Crore towards impact of 7th Pay Commission and Rs. 23.70 Crore towards SSNNL and SPS and Rs. 0.70 towards RE.

As the Commission had decided to consider only the actual expenses towards the impact of 7th Pay Commission, the Commission has excluded the provision of Rs. 55.58 Crore on this account from the Employees expenses. Further, the Commission has also excluded Employees cost towards SSNNL, SPS, and RE. The net actual Employees expenses works out to Rs. 640.53 Crore, including HO Expenses of Rs. 71.37 Crore.

GSECL also submitted that there is no arrears payment related to 7th Pay Commission for Employee Cost during FY 2019-20. The Commission accordingly has not considered any arrears payment during FY 2019-20.

(ii) Repairs & Maintenance expenses

As per the audited Annual Accounts (Note No. 34), the R&M expenses are to the tune of Rs. 416.76 Crore. The Commission has excluded R&M expenses of Rs. 13.35 Crore towards SSNNL and SPS and Rs. 3.17 Crore towards RE. The net R&M expenses works out to Rs. 400.25 Crore, including HO Expenses of Rs. 3.73 Crore.

(iii) Administration & General expenses

As per the audited Annual Accounts, the A&G expenses are Rs. 163.77 Crore net of capitalised expenses of Rs. 4.37 Crore. It is observed that these A&G expenses include expenses of Rs. 4.81 Crore towards Corporate Social Responsibility, Rs. 0.75 Crore towards provision on Loan to joint Venture, Rs. 2.06 Crore towards O&M contract of SSNNL and SPS, and Rs. 0.63 Crore towards RE assets. 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. A&G Expenses works out to Rs. 146.14 Crore, including HO Expenses of Rs. 12.17 Crore.

The Commission had asked GSECL to provide break-up of Miscellaneous expenses falling under A&G Expenses. The Commission observed that CSR expense of Rs. 1.70 Crore against BLTPS is reflecting under Miscellaneous expenses, which is over and above the CSR expenses of Rs. 4.81 Crore disallowed earlier. The Commission has excluded Rs. 1.70 Crore from the A&G expenses of BLTPS. The allowable A&G Expenses, hence, works out to be Rs.144.44 Crore for FY 2019-20.

(iv) Allocation of HO expenses

The Commission notes that GSECL has incurred actual O&M Expenses of Rs. 87.28 Crore towards Head Office, including Employee Cost of Rs. 71.37 Crore, A&G Expenses of Rs. 12.17 Crore and R&M Expenses of Rs. 3.73 Crore. GSECL has allocated these expenses amongst the Stations in proportion to their actual expenses. However, the Commission notes that GSECL has allocated these expenses towards Generating Stations, which are submitted in the present Petition. The said expenses have not been allocated by GSECL to SSNNL & SPS and RE Assets, even though part of expenses of Head Office are also incurred for activities of these plants. Hence, for the purpose of truing up, the Commission has allocated the HO Expenses amongst Generating Stations, including SSNNL & SPS and RE, and then excluded the expenses of Rs. 3.79 Crore corresponding to these three stations.

In view of the above, the total actual O&M Expenses approved by the Commission for FY 2019-20 are Rs. 1,181.43 Crore, including Employee Cost of Rs. 637.60 Crore, A&G Expenses of Rs. 143.73 Crore and R&M Expenses of Rs. 400.10 Crore.

Gains / (Loss)

The Commission observed that there is a loss of Rs. 5.38 Crore due to controllable factors by comparing the actual amount with the O&M expenses approved by the Commission in the Tariff Order dated 24th April, 2019.

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 2019-20 as detailed in the Table below:

Table 4.37: Approved O&M expenses gains/losses for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	174.13	213.19	212.45	(38.32)	
2.	Gandhinagar (3-4)	96.85	109.37	108.96	(12.11)	
3.	Wanakbori 1-6 TPS	253.41	218.05	217.34	36.07	
4.	KLTPS 1-3	121.38	109.38	109.09	12.29	
5.	KLTPS 4	20.79	19.81	19.76	1.03	
6.	Dhuvaran CCPP 2	35.45	51.98	51.86	(16.41)	
7.	Ukai Hydro	21.37	13.67	13.62	7.75	
8.	Kadana Hydro	25.73	21.49	21.42	4.31	
	Subtotal A	**749.12**	**756.94**	**754.50**	**(5.38)**	
9.	Gandhinagar 5*	24.68	54.69	54.48		
10.	Wanakbori 7* TPS	20.48	14.64	14.59		
11.	Sikka Extn.(3-4)*	106.80	130.73	130.30		
12.	BLTPS*	159.50	75.58	73.63		
13.	Dhuvaran CCPP 1*	35.37	52.24	52.13		
14.	Dhuvaran CCPP 3*	73.64	7.01	7.00		
15.	Utran Extension*	58.68	44.68	44.54		
16.	Ukai 6*	106.80	38.05	37.94		
17.	Wanakbori 8 TPS*	67.86**	12.36	12.31		
	Subtotal B	**653.81**	**429.98**	**426.92**		
	Total (A+B)	**1,402.92**	**1,186.92**	**1,181.43**	**(5.38)**	

** PPA based stations*

*** Proportionate reduction in approved Fixed Charges with respect to the date of commissioning*

4.7.5 Interest on Working Capital for FY 2019-20

Petitioner's Submission

GSECL has claimed Rs. 344.00 Crore towards interest on working capital in the Truing up for FY 2019-20. The interest on working capital approved for FY 2019-20 in the Tariff Order dated 24th April, 2019 and as claimed in the Truing up are given in the Table below:

Table 4.38: Interest on Working Capital Claimed by GSECL in Truing up for FY 2019-20

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Interest on Working Capital	318.28	344.00

GSECL has submitted that it has considered the interest rate for calculating Interest on Working Capital as 10.66% (weighted average of 1-year SBI MCLR for FY 2019-20 plus 2.50%). GSECL has further submitted that the Interest on Working Capital computed in the Truing up for FY 2019-20 indicates a loss of Rs. 22.13 Crore as shown in the Table below:

Table 4.39: Gains / Losses from Interest on working capital claimed for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1.	Ukai (3-5)	29.93	35.37		(5.44)
2.	Gandhinagar (3-4)	22.47	27.48		(5.01)
3.	Gandhinagar 5*	14.70	13.64		
4.	Wanakbori 1-6 TPS	67.24	78.25		(11.01)
5.	Wanakbori 7*	11.49	12.70		
6.	Sikka Extension (3-4)*	29.29	32.43		
7.	KLTPS 1-3	8.80	9.60		(0.80)
8.	KLTPS 4	3.35	3.60		(0.25)
9.	BLTPS*	29.51	28.40		
10.	Dhuvaran CCPP 1*	5.24	5.18		
11.	Dhuvaran CCPP 2	5.90	5.79		0.11
12.	Dhuvaran CCPP 3*	13.12	19.58		
13.	Utran Extension*	19.22	19.32		
14.	Ukai 6*	29.95	28.68		
15.	Wanakbori 8 TPS*	26.01	22.18		
16.	Ukai Hydro	0.74	0.61		0.13
17.	Kadana Hydro	1.32	1.17		0.15
18.	**Total**	**318.28**	**344.00**		**(22.13)**

** 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. Further, the Commission has considered the interest rate on working capital as 10.66% as per the GERC (MYT) Regulations, 2016.

The interest on working capital is calculated at Rs 344.48 Crore based on the expenses approved in the truing up for FY 2019-20.

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 2019-20 as detailed in the Table below:

Table 4.40: Approved Gains/ (Losses) from Interest on Working Capital for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff order	Actual claimed	Approved in truing up	Gain/(Loss) due to Controllable Factors	Gain/(Loss) due to Uncontrollable Factors
1	Ukai (3-5)	29.93	35.37	35.36		(5.43)
2	Gandhinagar (3-4)	22.47	27.48	27.48		(5.01)
3	Wanakbori 1-6 TPS	67.24	78.25	78.24		(11.00)
5	KLTPS 1-3	8.80	9.60	10.09		(1.29)
6	KLTPS 4	3.35	3.60	3.60		(0.25)
7	Dhuvaran CCPP 2	5.90	5.79	5.79		0.11
8	Ukai Hydro	0.74	0.61	0.61		0.13
	Kadana Hydro	1.32	1.17	1.17		0.15
	Subtotal A	**139.76**	**161.88**	**162.35**		**(22.59)**
9	Gandhinagar 5*	14.70	13.64	13.68		
10	Wanakbori 7* TPS	11.49	12.70	12.70		
11	Sikka Extn.(3-4)*	29.29	32.43	32.43		
12	BLTPS*	29.51	28.40	28.38		
13	Dhuvaran CCPP 1*	5.24	5.18	5.18		
14	Dhuvaran CCPP 3*	13.12	19.58	19.58		
15	Utran Extension*	19.22	19.32	19.32		
16	Ukai 6*	29.95	28.68	28.68		
17	Wanakbori 8 TPS*	26.01**	22.18	22.18		
	Subtotal B	**178.52**	**182.12**	**182.13**		
	Total (A+B)	**318.28**	**344.00**	**344.48**		**(22.59)**

** PPA based stations*

*** Proportionate reduction in approved Fixed Charges with respect to the date of commissioning*

4.7.6 SLDC Charges for FY 2019-20

Petitioner's Submission

GSECL has claimed Rs. 3.77 Crore towards SLDC charges in the Truing up for FY 2019-20. SLDC charges approved by the Commission in the Tariff Order for FY 2019-20, and now claimed by GSECL as actual are tabulated below:

Table 4.41: SLDC charges for FY 2019-20

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
SLDC charges	3.74	3.77

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 24th April, 2019 and as claimed by GSECL in the Truing up for FY 2019-20 and Gains/(Losses) on account of uncontrollable factors are given in the Table below:

Table 4.42: Gain/ (loss) for SLDC charges claimed for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	0.60	0.38		0.22
2.	Gandhinagar (3-4)	0.50	0.26		0.24
3.	Gandhinagar 5*	0.05	0.13		
4.	Wanakbori 1-6 TPS	0.81	0.78		0.03
5.	Wanakbori 7*	0.05	0.13		
6.	Sikka Extension (3-4)*	0.23	0.31		
7.	KLTPS 1-3	0.17	0.13		0.04
8.	KLTPS 4	0.02	0.05		(0.03)
9.	BLTPS*	0.24	0.32		
10.	Dhuvaran CCPP 1*	0.05	0.07		
11.	Dhuvaran CCPP 2	0.05	0.07		(0.02)
12.	Dhuvaran CCPP 3*	0.17	0.23		
13.	Utran Extension*	0.14	0.23		
14.	Ukai 6*	0.34	0.31		
15.	Wanakbori 8 TPS*	-	0.03		
16.	Ukai Hydro	0.17	0.19		(0.02)
17.	Kadana Hydro	0.15	0.15		(0.00)
18.	**Total**	**3.74**	**3.77**		**0.46**

** PPA based stations*

Commission's Analysis

SLDC charges are not reflected separately in the annual accounts but are included in Other Expenses (Note 34). The Commission has reconciled the SLDC Charges with Other Expenses submitted in the Petition vis-à-vis audited accounts. The Commission approves Rs. 3.77 Crore towards SLDC charges in the truing up for FY 2019-20 as claimed by GSECL against Rs. 3.74 Crore approved in the Tariff Order dated 24th April, 2019.

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 4.43: Approved SLDC charges gains/ (losses) for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (1-5)	0.60	0.38	0.38		0.22
2.	Gandhinagar (1-4)	0.50	0.26	0.26		0.24
3.	Wanakbori 1-6 TPS	0.81	0.78	0.78		0.03
4.	KLTPS 1-3	0.17	0.13	0.13		0.04
5.	KLTPS 4	0.02	0.05	0.05		(0.02)
6.	Dhuvaran CCPP 2	0.05	0.07	0.07		(0.02)
7.	Ukai Hydro	0.17	0.19	0.19		(0.02)
8.	Kadana Hydro	0.15	0.15	0.15		(0.00)
	Subtotal A	**2.48**	**2.01**	**2.01**		**0.47**
9.	Gandhinagar 5*	0.05	0.13	0.13		
10.	Wanakbori 7* TPS	0.05	0.13	0.13		
11.	Sikka Extn.(3-4)*	0.23	0.31	0.31		
12.	BLTPS*	0.24	0.32	0.32		
13.	Dhuvaran CCPP 1*	0.05	0.07	0.07		
14.	Dhuvaran CCPP 3*	0.17	0.23	0.23		
15.	Utran Extension*	0.14	0.23	0.23		
16.	Ukai 6*	0.34	0.31	0.31		
17.	Wanakbori 8 TPS*	-	0.03	0.03		
	Subtotal B	**1.27**	**1.76**	**1.76**		
	Total (A+B)	**3.74**	**3.77**	**3.77**		**0.47**

** PPA based stations*

4.7.7 Water Charges for FY 2019-20

GSECL has claimed Rs. 133.00 Crore towards water charges in the Truing up for FY 2019-20 against Rs. 69.39 Crore approved in the Tariff Order dated 24th April, 2019 as given in the Table below:

Table 4.44: Water Charges for FY 2019-20

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Water Charges	69.38	133.00

Petitioner's Submission

The station-wise water charges approved by the Commission in the Tariff Order dated 24th April, 2019, claimed by GSECL in the Truing up for FY 2019-20 and Gains/(Losses) on account of uncontrollable factors are given in the Table below:

Table 4.45: Gain/ (loss) for Water charges claimed for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	0.10	-		0.10
2.	Gandhinagar (3-4)	7.01	42.10		(35.09)
3.	Gandhinagar 5*	11.87	21.05		
4.	Wanakbori 1-6 TPS	35.76	38.46		(2.70)
5.	Wanakbori 7*	8.18	10.17		
6.	Sikka Extension (3-4)*	1.19	5.11		
7.	KLTPS 1-3	0.43	0.25		0.18
8.	KLTPS 4	0.13	0.15		(0.02)
9.	BLTPS*	-	6.32		
10.	Dhuvaran CCPP 1*	0.21	0.19		
11.	Dhuvaran CCPP 2	0.76	0.20		0.56
12.	Dhuvaran CCPP 3*	-	0.66		
13.	Utran Extension*	3.64	2.40		
14.	Ukai 6*	0.10	-		
15.	Wanakbori 8 TPS*	-	5.95		
16.	Ukai Hydro	-	-		
17.	Kadana Hydro	-	-		
18.	**Total**	**69.38**	**133.00**		**(36.96)**

** 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. 133.00 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 2019-20, 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 4.46: Approved Water charges gain/ (loss) for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (1-5)	0.10	-	-		0.10
2.	Gandhinagar (1-4)	7.01	42.10	42.10		(35.09)
3.	Wanakbori 1-6 TPS	35.76	38.46	38.46		(2.70)
4.	KLTPS 1-3	0.43	0.25	0.25		0.18
5.	KLTPS 4	0.13	0.15	0.15		(0.01)
6.	Dhuvaran CCPP 2	0.76	0.20	0.20		0.56
7.	Ukai Hydro	-	-			-
8.	Kadana Hydro	-	-			-
	Subtotal A	**44.19**	**81.15**	**81.15**		**(36.96)**
9.	Gandhinagar 5*	11.87	21.05	21.05		
10.	Wanakbori 7* TPS	8.18	10.17	10.17		
11.	Sikka Extn.(3-4)*	1.19	5.11	5.11		
12.	BLTPS*	-	6.32	6.32		
13.	Dhuvaran CCPP 1*	0.21	0.19	0.19		
14.	Dhuvaran CCPP 3*	-	0.66	0.66		
15.	Utran Extension*	3.64	2.40	2.40		
16.	Ukai 6*	0.10	-	-		
17.	Wanakbori 8 TPS*	-	5.95	5.95		
	Subtotal B	**25.20**	**51.85**	**51.85**		
	Total (A+B)	**69.38**	**133.00**	**133.00**		**(36.96)**

** PPA based stations*

4.7.8 Income Tax for FY 2019-20

Petitioner's Submission

GSECL has claimed Rs. 31.26 Crore towards Income Tax in the Truing up for FY 2019-20. The Income Tax approved for FY 2019-20 by the Commission in the Tariff Order dated 24th April 2019 and now claimed by GSECL as actual is given in the Table below:

Table 4.47: Income Tax for FY 2019-20

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Income Tax	31.37	31.26

The station wise Income Tax approved by the Commission in the Tariff Order dated 24th April, 2019, claimed by GSECL in the Truing up for FY 2019-20 and Gains/(Losses) on account of uncontrollable factors are given in the Table below:

Table 4.48: Gain/ (loss) for Income Tax claimed for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	3.47	3.46		0.01
2.	Gandhinagar (3-4)	2.39	2.38		0.01
3.	Gandhinagar 5*	1.19	1.19		
4.	Wanakbori 1-6 TPS	7.17	7.14		0.03
5.	Wanakbori 7*	1.19	1.19		
6.	Sikka Extension (3-4)*	2.84	2.83		
7.	KLTPS 1-3	1.22	1.22		0.00
8.	KLTPS 4	0.43	0.42		0.01
9.	BLTPS*	-	-		
10.	Dhuvaran CCPP 1*	0.61	0.60		
11.	Dhuvaran CCPP 2	0.64	0.64		
12.	Dhuvaran CCPP 3*	2.14	2.13		
13.	Utran Extension*	2.13	2.12		
14.	Ukai 6*	2.84	2.83		
15.	Wanakbori 8 TPS*	-	-		
16.	Ukai Hydro	1.73	1.73		0.00
17.	Kadana Hydro	1.38	1.37		0.01
	Total	**31.37**	**31.26**		**0.07**

** PPA based stations*

Commission's Analysis

The Commission has observed that the actual Income Tax as per the audited annual accounts for FY 2019-20 is Rs. 31.26 Crore. The Commission has also verified the computation of Income tax of Rs. 31.26 Crore shown in the audited accounts. As per the principle adopted in the previous Orders, the Commission has considered the Income Tax as per audited accounts for the purpose of truing up.

Further, the Commission notes that GSECL has submitted the actual revenue earned from operations as Rs. 9,637.36 Crore. This includes revenue from operation of Rs. 46.95 Crore for SSNNL and SPS, Rs. 53.46 Crore for RE Solar and Rs. 5.28 Crore for Wind. GSECL has submitted the following Table giving break-up of revenue from SSNL, SPS and RE Assets:

Table 4.49: Revenue from SSNL, SPS and RE for FY 2019-20

Particulars	**Amount (Rs.)**
Dhuvaran Solar	39,69,74,811
Charanka + Other Solar	13,75,93,406
Wind	5,27,96,995
Supervision Income from O&M Activity – SSNL & SPS	6,30,55,825
Reimbursement of O&M Expenses – SSNL & SPS	40,63,55,987
TOTAL	**1,05,67,77,023**

As seen from the above Table, Income Tax paid includes the total income of Rs. 105.68 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 stations. Accordingly, the Commission has computed Income Tax of Rs. 0.34 Crore towards income of SSNNL, SPS and RE Assets and the same has been reduced from current year's Income Tax of Rs. 31.26 Crore.

The Commission accordingly approves Income Tax of Rs. 30.92 Crore for FY 2019-20. 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 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (1-5)	3.47	3.46	3.42		0.05
2.	Gandhinagar (1-4)	2.39	.2.38	2.35		0.04
3.	Wanakbori 1-6 TPS	7.17	7.14	7.06		0.11
4.	KLTPS 1-3	1.22	1.22	1.20		0.02
5.	KLTPS 4	0.43	0.42	0.42		0.01
6.	Dhuvaran CCPP 2	0.64	0.64	0.63		0.01
7.	Ukai Hydro	1.73	1.73	1.71		0.02
8.	Kadana Hydro	1.38	1.37	1.36		0.02
	Subtotal A	**18.43**	**18.36**	**18.16**		**0.28**
9.	Gandhinagar 5*	1.19	1.19	1.18		
10.	Wanakbori 7* TPS	1.19	1.19	1.18		
11.	Sikka Extn.(3-4)*	2.84	2.83	2.80		
12.	BLTPS*	-	-	-		
13.	Dhuvaran CCPP 1*	0.61	0.60	0.60		
14.	Dhuvaran CCPP 3*	2.14	2.13	2.11		
15.	Utran Extension*	2.13	2.12	2.10		
16.	Ukai 6*	2.84	2.83	2.80		
17.	Wanakbori 8 TPS*	-	-	-		
	Subtotal B	**12.94**	**12.90**	**12.76**		
	Total (A+B)	**31.37**	**31.26**	**30.92**		**0.28**

** PPA based stations*

4.7.9 Non-Tariff Income for FY 2019-20

Petitioner's Submission

GSECL has claimed Rs. 161.95 Crore towards Non-Tariff Income in the Truing up FY 2019-20 as against Rs. 142.27 Crore approved in the Tariff Order dated 24th April, 2019, as given in the Table below:

Table 4.51: Non-Tariff Income claimed for FY 2019-20

(Rs. Crore)

Particulars	Approved as per Tariff Order	Actual claimed
Non-Tariff Income	142.27	161.95

The Petitioner has submitted the station-wise Non-Tariff Income approved in the Tariff Order dated 24th April, 2019, claimed in the Truing up for FY 2019-20 and the Gains/(Losses) as given in the Table below:

Table 4.52: Gain/ (loss) for Non-Tariff Income claimed for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual Claimed	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (3-5)	15.87	33.46		17.59
2.	Gandhinagar (3-4)	12.50	10.18		(2.32)
3.	Gandhinagar 5*	11.93	9.96		
4.	Wanakbori 1-6 TPS	46.29	43.02		(3.27)
5.	Wanakbori 7*	6.75	14.44		
6.	Sikka Extension (3-4)*	9.60	5.17		
7.	KLTPS 1-3	4.84	7.12		2.28
8.	KLTPS 4	1.65	4.51		2.86
9.	BLTPS*	-	14.84		
10.	Dhuvaran CCPP 1*	1.74	0.73		
11.	Dhuvaran CCPP 2	1.81	0.73		(1.08)
12.	Dhuvaran CCPP 3*	4.32	0.95		
13.	Utran Extension*	5.69	0.47		
14.	Ukai 6*	12.71	15.43		
15.	Wanakbori 8 TPS*	-	0.40		
16.	Ukai Hydro	3.51	0.15		(3.36)
17.	Kadana Hydro	3.06	0.39		(2.67)
	Total	**142.27**	**161.95**		**10.03**

** PPA based stations*

Commission's Analysis

The Non-Tariff Income as reflecting in audited accounts is Rs. 622.97 Crore including income shown under Note 30 as Rs. 201.53 Crore and under Note 29(a) as Rs. 421.44 Crore. This income includes income from trading of Rs. 307.06 Crore, income for SSNNL and SPS as Rs. 46.94 Crore and expenses of Rs. 13.14 Crore fly Ash Utilisation reserve. These incomes are not considered by the Commission for the purpose of truing up. Further, the Commission notes that GSECL has not considered income of Rs. 79.64 Crore towards Liability written back. Since, the provision of expenses is not allowed by the Commission, it has not considered the income towards reversal of provision.

In addition to the above GSECL has not considered the following items as income under Non-Tariff Income. GSECL has provided the following justification for the same.

Sr. No.	Particulars	Amount (Rs. Crore)	Reason
1	Profit from sale of Ukai	30.73	This income is passed on to the consumers as part of unabsorbed depreciation claim of Ukai 1-

Sr. No.	Particulars	Amount (Rs. Crore)	Reason
			2 and hence not offered as part of Non-Tariff Income.
2	GST Refund	23.52	GST Refund amount was booked as per order of the Hon'ble High Court subsequently GST Commissioner has rejected the claim and did not pay the amount. GSECL has gone to Appellate against claim rejected by GST Commissioner. As GST refund is not received by GSECL hence, it is not pass through as part of Non-Tariff Income. GST Refund is related to ocean freight which in turn is passed on to GUVNL. As this revenue is already passed on to GUVNL, GSECL is revenue neutral and hence, no GST refund is passed on to the Consumers as part of Non-Tariff Income.
3	Electricity Charges Recovery at GTPS	0.97	Amount pertains to charges received from UGVCL for power drawal by UGVCL for supplying electricity to GTPS Colony
4	Energy Conservation Grant	2.89	• Rs. 1.86 Crore is related to write back of grant received for RE projects which is not related to Tariff. • Rs. 1.03 Crore is energy conservation grant received from holding company which is not related to Tariff.
5	**Total**	**58.11**	

The Commission based on the justification submitted by GSECL has not considered the amount as stated above in Non-Tariff Income for FY 2019-20.

As regards, GST refund amount of Rs. 23.52 Crore, the Commission is of the opinion that this amount shall be considered as income in corresponding Tariff Order, whenever it is realised by GSECL, in case the ruling of Appellate Tribunal is in its favour.

After excluding these elements, the net Non-Tariff Income works out to Rs. 161.95 Crore and accordingly, the Commission approves the Non-Tariff Income of Rs.161.95 Crore.

Gains / (Losses):

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

Table 4.53: Approved Non-Tariff Income and gain/ (loss) for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved as per Tariff Order	Actual claimed	Approved in truing up	Gain / (Loss) due to controllable factor	Gain / (Loss) due to uncontrollable factor
1.	Ukai (1-5)	15.87	33.46	33.46		17.59
2.	Gandhinagar (1-4)	12.50	10.18	10.18		(2.33)
3.	Wanakbori 1-6 TPS	46.29	43.02	43.02		(3.27)
4.	KLTPS 1-3	4.84	7.12	7.12		2.28
5.	KLTPS 4	1.65	4.51	4.51		2.86
6.	Dhuvaran CCPP 2	1.81	0.73	0.73		(1.08)
7.	Ukai Hydro	3.51	0.15	0.15		(3.36)
8.	Kadana Hydro	3.06	0.39	0.39		(2.67)
	Subtotal A	**89.53**	**99.56**	**99.56**		**10.03**
9.	Gandhinagar 5*	11.93	9.96	9.96		
10.	Wanakbori 7* TPS	6.75	14.44	14.44		
11.	Sikka Extn.(3-4)*	9.60	5.17	5.17		
12.	BLTPS*	-	14.84	14.84		
13.	Dhuvaran CCPP 1*	1.74	0.73	0.73		
14.	Dhuvaran CCPP 3*	4.32	0.95	0.95		
15.	Utran Extension*	5.69	0.47	0.47		
16.	Ukai 6*	12.71	15.43	15.43		
17.	Wanakbori 8 TPS*	-	0.40	0.40		
	Subtotal B	**52.73**	**62.40**	**62.40**		
	Total (A+B)	**142.26**	**161.95**	**161.95**		**10.03**

** PPA based stations*

4.8 Approved Fixed Charges

The performance of GSECL has been reviewed under Regulation 21 of the GERC (MYT) Regulations, 2016 with reference to audited annual accounts for FY 2019-20. 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 2019-20 in the Tariff Order dated 24th April, 2019, 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 2019-20

(Rs. Crore)

Sr. No.	Fixed Charges	Approved as per Tariff Order	Actual claimed	Approved in truing up	Deviation+ (-)
1	**2**	**3**	**4**	5	**6=3-5**
(A)	**Non-PPA Stations**				
1.	Depreciation	394.83	258.31	258.31	136.52
2.	Interest and Finance Charges	84.57	42.33	42.33	42.24
3.	Return on Equity	271.36	270.42	270.42	0.94
4.	Interest on Working Capital	139.76	161.88	162.35	(22.59)
5.	O&M Expenses	749.12	756.94	754.50	(5.38)
6.	Water Charges	44.19	81.15	81.15	(36.96)
7.	SLDC Charges	2.48	2.01	2.01	0.47
8.	Income Tax	18.43	18.36	18.16	0.27
9.	**Total Fixed Charges**	**1,704.74**	**1,591.40**	**1,589.23**	**115.51**
10.	Less: Non- Tariff Income	89.53	99.56	99.56	(10.03)
11.	**Net Fixed Charges**	**1,615.21**	**1,491.84**	**1,489.67**	**125.54**
(B)	**PPA Stations**				
1.	Depreciation	779.26	836.93	832.62	(53.36)
2.	Interest and Finance Charges	669.05	592.56	534.91	134.14
3.	Return on Equity	692.38	686.64	644.76	47.62
4.	Interest on Working Capital	178.52	182.12	182.13	(3.61)
5.	O&M Expenses	653.81	429.98	426.92	226.89
6.	Water Charges	25.20	51.85	51.85	(26.65)
7.	SLDC Charges	1.27	1.76	1.76	(0.49)
8.	Income Tax	12.94	12.90	12.76	0.18
9.	**Total Fixed Charges**	**3,012.43**	**2,794.74**	**2,687.71**	**324.72**
10.	Less: Non- Tariff Income	52.73	62.40	62.40	(9.67)
11.	**Net Fixed Charges**	**2,959.70**	**2,732.34**	**2,625.31**	**334.39**
	Total Net Fixed Charges (A+B)	**4,574.91**	**4,224.21**	**4,115.00**	**459.93**

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

Table 4.55: Approved Station-wise Fixed Charges for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest on Working Capital	O&M Expenses	Water Charges	SLDC Charges	Income Tax	Total Fixed Cost	Less: Non-Tariff Income	Net Fixed Charges
1.	Ukai (3-5)	42.80	-	22.18	35.36	212.45	-	0.38	3.42	316.58	33.46	**283.13**
2.	Gandhinagar (3-4)	33.04	-	23.19	27.48	108.96	42.10	0.26	2.35	237.38	10.18	**227.20**
3.	Wanakbori 1-6 TPS	89.62	24.15	88.70	78.24	217.34	38.46	0.78	7.06	544.36	43.02	**501.34**
4.	KLTPS 1-3	35.87	1.34	52.91	10.09	109.09	0.25	0.13	1.20	210.89	7.12	**203.77**
5.	KLTPS 4	36.32	10.89	29.63	3.60	19.76	0.15	0.05	0.42	100.82	4.51	**96.31**
6.	Dhuvaran CCPP 2	12.92	3.88	14.37	5.79	51.86	0.20	0.07	0.63	89.72	0.73	**88.99**
7.	Ukai Hydro	2.31	2.07	10.62	0.61	13.62	-	0.19	1.71	31.14	0.15	**30.99**
8.	Kadana Hydro	5.44	-	28.82	1.17	21.42	-	0.15	1.36	58.35	0.39	**57.95**
9.	Gandhinagar 5*	-	-	28.67	13.68	54.48	21.05	0.13	1.18	119.19	9.96	**109.23**
10.	Wanakbori 7* TPS	-	-	26.16	12.70	14.59	10.17	0.13	1.18	64.93	14.44	**50.48**
11.	Sikka Extn.(3-4)*	179.58	132.82	135.93	32.43	130.30	5.11	0.31	2.80	619.28	5.17	**614.11**
12.	BLTPS*	238.62	152.02	151.97	28.38	73.63	6.32	0.32	-	651.25	14.84	**636.41**
13.	Dhuvaran CCPP 1*	9.73	-	10.45	5.18	52.13	0.19	0.07	0.60	78.35	0.73	**77.63**
14.	Dhuvaran CCPP 3*	78.77	65.56	67.01	19.58	7.00	0.66	0.23	2.11	240.94	0.95	**239.99**
15.	Utran Extension*	68.22	32.43	57.49	19.32	44.54	2.40	0.23	2.10	226.73	0.47	**226.26**
16.	Ukai 6*	155.11	96.41	125.18	28.68	37.95	-	0.31	2.80	446.44	15.43	**431.01**
17.	Wanakbori 8 TPS*	102.58	55.67	41.89	22.18	12.31	5.95	0.03	-	240.61	0.40	**240.21**
	Total	**1,090.93**	**577.24**	**915.17**	**344.48**	**1,181.43**	**133.00**	**3.77**	**30.92**	**4,276.95**	**161.95**	**4,115.00**

** PPA based stations*

Sharing of Gains or Losses for FY 2019-20

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 2019-20

(Rs. Crore)

Sr. No.	Power Station	Approved for FY 2019-20			Total Gains / (Losses) to be passed through (1/3rd of gains / losses)
		O&M Expenses	Fuel Charges	Total Gains / (Losses) Due to Controllable factors	
1.	Ukai (3-5)	(38.32)	2.46	(35.86)	(11.95)
2.	Gandhinagar (3-4)	(12.11)	(7.57)	(19.68)	(6.56)
3.	Wanakbori 1-6 TPS	36.07	7.06	43.14	14.38
4.	KLTPS 1-3	12.29	(20.26)	(7.97)	(2.66)
5.	KLTPS 4	1.03	(10.56)	(9.53)	(3.18)
6.	Dhuvaran CCPP 2	(16.41)	(5.05)	(21.46)	(7.15)
7.	Ukai Hydro	7.75	-	7.75	2.58
8.	Kadana Hydro	4.31	-	4.31	1.44
	Subtotal A	**(5.38)**	**(33.92)**	**(39.30)**	**(13.10)**
9.	Gandhinagar 5*				
10.	Wanakbori 7* TPS				
11.	Sikka Extn.(3-4)*				
12.	BLTPS*				
13.	Dhuvaran CCPP 1*				
14.	Dhuvaran CCPP 3*				
15.	Utran Extension*				
16.	Ukai 6*				
17.	Wanakbori 8 TPS*				
	Subtotal B				
	Total (A+B)	**(5.38)**	**(33.92)**	**(39.30)**	**(13.10)**

** PPA based stations*

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

Table 4.57: Approved Gains / (Losses) due to Uncontrollable Factors for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest on Working Capital	Water Charges	SLDC Charges	Income Tax	Non-Tariff Income	Total Gains / (Losses) to be passed through
1.	Ukai (3-5)	31.43	35.79	5.29	(5.43)	0.10	0.22	0.05	17.59	85.05
2.	Gandhinagar (3-4)	23.11	2.07	(5.61)	(5.01)	(35.09)	0.24	0.04	(2.33)	(22.58)
3.	Wanakbori 1-6 TPS	33.10	(0.27)	3.08	(11.00)	(2.70)	0.03	0.11	(3.27)	19.07
4.	KLTPS 1-3	30.63	(1.33)	(3.88)	(1.29)	0.18	0.04	0.02	2.28	26.64
5.	KLTPS 4	(0.04)	1.50	(0.23)	(0.25)	(0.01)	(0.02)	0.01	2.86	3.81
6.	Dhuvaran CCPP 2	10.22	4.02	2.55	0.11	0.56	(0.02)	0.01	(1.08)	16.38
7.	Ukai Hydro	(2.31)	0.46	(0.20)	0.13	-	(0.02)	0.02	(3.36)	(5.28)
8.	Kadana Hydro	10.37	-	(0.06)	0.15	-	(0.00)	0.02	(2.67)	7.82
	Sub Total A	**136.52**	**42.24**	**0.94**	**(22.59)**	**(36.96)**	**0.47**	**0.28**	**10.03**	**130.92**
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)	**136.52**	**42.24**	**0.94**	**(22.59)**	**(36.96)**	**0.47**	**0.28**	**10.03**	**130.92**

** PPA based stations*

The Consolidated Gains / (Losses) approved in the Truing up for FY 2019-20 are given in the Table below:

Table 4.58: Total Consolidated Gains / (Losses) Approved for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Gains / (Losses) of controllable factors	Gains / (Losses) of Uncontrollable factors to be passed through	Total Gains / (Losses)
		a	b	c = (a/3)+b
A	**Non-PPA Based Stations**			
1.	Ukai (3-5)	(11.95)	85.05	73.10
2.	Gandhinagar (3-4)	(6.56)	(22.58)	(29.13)
3.	Wanakbori 1-6 TPS	14.38	19.07	33.45
4.	KLTPS 1-3	(2.66)	26.64	23.98
5.	KLTPS 4	(3.18)	3.81	0.63
6.	Dhuvaran CCPP 2	(7.15)	16.38	9.23
7.	Ukai Hydro	2.58	(5.28)	(2.70)
8.	Kadana Hydro	1.44	7.82	9.26
	Sub Total A	**(13.10)**	**130.92**	**117.82**
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)	**(13.10)**	**130.92**	**117.82**

** PPA based stations*

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

Table 4.59: Total Consolidated (Fixed and Fuel Cost) Gains / (Losses) Approved for FY 2019-20

(Rs. Crore)

Sr. No.	Power Station	Gains / (Losses) of controllable factors (a)	Gains / (Losses) of Uncontrollable factors to be passed through (b)	Total Gains / (Losses) c = a/3+b	Total Gains/(losses) to be passed through at actual PAF	Gains / (Losses) of controllable factors (d)	Total Gains / (Losses) d/3	Total Gains / (Losses)
		Fixed charges	Fixed charges	Fixed charges	Fixed charges	Fuel cost	Fuel cost	Fixed & Fuel cost
A	**Non-PPA Stations**							
1.	Ukai (3-5)	(12.77)	85.05	72.28	72.28	2.46	0.82	73.10
2.	Gandhinagar (3-4)	(4.04)	(22.58)	(26.61)	(26.61)	(7.57)	(2.52)	(29.13)
3.	Wanakbori 1-6 TPS	12.02	19.07	31.10	31.10	7.06	2.35	33.45
4.	KLTPS 1-3	4.10	26.64	30.74	12.10	(20.26)	(6.75)	5.35
5.	KLTPS 4	0.34	3.81	4.15	2.35	(10.56)	(3.52)	(1.18)
6.	Dhuvaran CCPP 2	(5.47)	16.38	10.91	3.21	(5.05)	(1.68)	1.52
7.	Ukai Hydro	2.58	(5.28)	(2.70)	(2.70)	-	-	(2.70)
8.	Kadana Hydro	1.44	7.82	9.26	9.26	-	-	9.26
	Sub Total A	**(1.79)**	**130.92**	**129.13**	**100.97**	**(33.92)**	**(11.31)**	**89.66**
B	**PPA Stations**							
1.	Gandhinagar 5*							
2.	Wanakbori 7* TPS							
3.	Sikka Extn.(3-4)*							
4.	BLTPS*							
5.	Dhuvaran CCPP 1*							
6.	Dhuvaran CCPP 3*							
7.	Utran Extn.*							
8.	Ukai 6*							
9.	Wanakbori 8 TPS*							
	Sub Total B							
	Total (A+B)	**(1.79)**	**130.92**	**129.13**	**100.97**	**(33.92)**	**(11.31)**	**89.66**

* *PPA based stations*

The Commission thus approves the net gain of Rs. 89.66 Crore in the Truing up for FY 2019-20. The net gain of Rs. 89.66 Crore approved in the truing up for FY 2019-20 is to be passed on to four DISCOMs through GUVNL in Twelve (12) equal monthly instalments during FY 2021-22.

5 Determination of Aggregate Revenue Requirement for FY 2021-22

5.1 Introduction

This chapter deals with the determination of ARR and Tariff for FY 2021-22.

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	
	2	250	
	Sub Total	**500**	
Dhuvaran	7 – Gas	106.617	28/01/2004
	8 – Gas	112.45	01/11/2007
	Sub Total	**219.067**	
Utran Extension	GT -1	375	08-11-2009
Sikka TPS 3&4	3	250	14/09/2015
	4	250	28/12/2015
	Sub Total	**500**	
Ukai TPS	6	500	08/06/2013
Dhuvaran (Gas)	3	376	21/05/2014

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

As stated earlier, KLTPS Units 1 and 2 were decommissioned with effect from 1st January, 2020.

5.3 Operating Performance of GSECL Stations

The actual performance of the stations for FY 2019-20 as provided by GSECL and the Commission's analysis and decisions are already discussed in Chapter 4 in the truing up for FY 2019-20.

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 2021-22. GSECL has considered the PAF same as the PAF of FY 2020-21 approved in the MYT Order of 31st March, 2017, for all power plants except BLTPS. For BLTPS, GSECL has considered the PAF approved in True-up Order dated 26th March 2020. The PAF projected by GSECL for its stations for FY 2021-22 for recovery of fixed charges are given in the Table below:

Table 5.2: Plant Availability Factor for FY 2021-22

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	80%
2.	Gandhinagar (3-4)	84%
3.	Gandhinagar 5*	85%
4.	Wanakbori 1-6 TPS	85%
5.	Wanakbori 7*	85%
6.	Sikka Extension (3-4)*	85%
7.	KLTPS 3	75%
8.	KLTPS 4	80%
9.	BLTPS*	80%
10.	Dhuvaran CCPP 1*	85%
11.	Dhuvaran CCPP 2	85%
12.	Dhuvaran CCPP 3*	85%
13.	Utran Extension*	85%
14.	Ukai 6*	85%
15.	Wanakbori 8 TPS*	85%
16.	Ukai Hydro	80%
17.	Kadana Hydro	80%

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the PAF for FY 2021-22 in line with the PAF approved for FY 2020-21 in the MYT Order dated 31st March 2017. 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. For BLTPS, the Commission has considered the PAF as approved in last Tariff Order dated 26th March 2020. Accordingly, the Commission approves the normative PAF as submitted by GSECL for recovery of Fixed cost for FY 2021-22.

Table 5.3: Plant Availability Factor approved for FY 2021-22

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	80%	80%
2.	Gandhinagar (3-4)	84%	84%
3.	Gandhinagar 5*	85%	85%
4.	Wanakbori 1-6 TPS	85%	85%
5.	Wanakbori 7*	85%	85%
6.	Sikka Extension (3-4)*	85%	85%
7.	KLTPS 3	75%	75%
8.	KLTPS 4	80%	80%
9.	BLTPS*	80%	80%
10.	Dhuvaran CCPP 1*	85%	85%
11.	Dhuvaran CCPP 2	85%	85%
12.	Dhuvaran CCPP 3*	85%	85%
13.	Utran Extension*	85%	85%
14.	Ukai 6*	85%	85%
15.	Wanakbori 8 TPS*	85%	85%
16.	Ukai Hydro	80%	80%
17.	Kadana Hydro	80%	80%

** PPA based stations*

5.3.2 Plant Load Factor (PLF)

Petitioner's Submission

GSECL has submitted the projected PLF for different stations for FY 2021-22. GSECL has considered the PLF same as the PLF for FY 2020-21 approved in the MYT Order of 31st March, 2017 for all power plants except BLTPS. For BLTPS, GSECL has considered the PLF approved in the True-up Order dated 26th March 2020. The PLF projected by GSECL for its stations for FY 2021-22 is given in the Table below:

Table 5.4: Plant Load Factor for FY 2021-22

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	58%
2.	Gandhinagar (3-4)	45%
3.	Gandhinagar 5*	77%
4.	Wanakbori 1-6 TPS	50%
5.	Wanakbori 7*	70%
6.	Sikka Extension (3-4)*	70%
7.	KLTPS 3	75%

Sr. No.	Power Station	Projected
8.	KLTPS 4	75%
9.	BLTPS*	80%
10.	Dhuvaran CCPP 1*	25%
11.	Dhuvaran CCPP 2	25%
12.	Dhuvaran CCPP 3*	25%
13.	Utran Extension*	25%
14.	Ukai 6*	77%
15.	Wanakbori 8 TPS*	85%
16.	Ukai Hydro	13%
17.	Kadana Hydro	6%

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the PLF for FY 2021-22 in line with the PLF approved for FY 2020-21 in the MYT Order dated 31st March 2017. The approved PLF for PPA governed stations is based on their respective PPA's and for other stations, the approved PLF is based on the GERC (MYT) Regulations, 2016. For BLTPS, the Commission has considered the PLF as approved in last Tariff Order dated 26th March 2020. Accordingly, the Commission approves the normative PLF as submitted by GSECL, as given in the Table below:

Table 5.5: PLF Approved for FY 2021-22

Sr. No.	Power Station	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	58%	58%
2.	Gandhinagar (3-4)	45%	45%
3.	Gandhinagar 5*	77%	77%
4.	Wanakbori 1-6 TPS	50%	50%
5.	Wanakbori 7*	70%	70%
6.	Sikka Extension (3-4)*	70%	70%
7.	KLTPS 3	75%	75%
8.	KLTPS 4	75%	75%
9.	BLTPS*	80%	80%
10.	Dhuvaran CCPP 1*	25%	25%
11.	Dhuvaran CCPP 2	25%	25%
12.	Dhuvaran CCPP 3*	25%	25%
13.	Utran Extension*	25%	25%
14.	Ukai 6*	77%	77%
15.	Wanakbori 8 TPS*	85%	85%
16.	Ukai Hydro	13%	13%
17.	Kadana Hydro	6%	6%

** PPA based stations*

5.3.3 Auxiliary Consumption

Petitioner's Submission

GSECL has submitted the Auxiliary Consumption for different stations for FY 2021-22. GSECL has considered the Auxiliary Consumption same as the Auxiliary Consumption of FY 2020-21 approved in the MYT Order of 31st March, 2017 for all power plants except BLTPS. For BLTPS, GSECL has considered the Auxiliary Consumption approved in the True-up Order dated 26th March 2020. The Auxiliary Consumption projected by GSECL for its stations for FY 2021-22 is given in the Table below:

Table 5.6: Auxiliary Consumption for FY 2021-22

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

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the Auxiliary Consumption for FY 2021-22 in line with the Auxiliary Consumption approved for FY 2020-21 in the MYT Order dated 31st March 2017. 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. For BLTPS, the Commission has considered the Auxiliary Consumption as approved in last Tariff Order dated 26th March 2020. 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 2021-22

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

** PPA based stations*

5.3.4 Station Heat Rate (SHR)

Petitioner's Submission

GSECL has submitted the SHR for different stations for FY 2021-22. GSECL has considered the SHR same as the SHR of FY 2020-21 approved in the MYT Order dated 31st March, 2017 for all power plants except BLTPS. For BLTPS, GSECL has considered the SHR approved in the True-up Order dated 26th March 2020. The SHR projected by GSECL for its stations for FY 2021-22 is given in the Table below:

Table 5.8: Station Heat Rate for FY 2021-22

(kcal/kWh)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	2,625
2.	Gandhinagar (3-4)	2,625
3.	Gandhinagar 5*	2,460
4.	Wanakbori 1-6 TPS	2,575
5.	Wanakbori 7*	2,460
6.	Sikka Extension (3-4)*	2,398
7.	KLTPS 3	3,231
8.	KLTPS 4	3,000
9.	BLTPS*	2,623
10.	Dhuvaran CCPP 1*	1,950

Sr. No.	Power Station	Projected
11.	Dhuvaran CCPP 2	1,950
12.	Dhuvaran CCPP 3*	1,850
13.	Utran Extension*	1,850
14.	Ukai 6*	2,385
15.	Wanakbori 8 TPS*	2,248

** PPA based stations*

Commission's Analysis

The Commission has considered the SHR for FY 2021-22 in line with the SHR approved for FY 2020-21 in the MYT Order dated 31st March 2017 except for Ukai (3-5) TPS, Wanakbori (1-6) TPS and BLTPS. The Commission had re-computed energy charges for Ukai (3-5) TPS and Wanakbori (1-6) TPS based on revised SHR of 2,625 kcal/kWh and 2,575 kcal/kWh, respectively, approved vide Tariff Order dated 26th March 2020. The Commission has considered the same SHR for FY 2021-22. 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. For BLTPS, the Commission has considered the SHR as approved in the last Tariff Order dated 26th March 2020. 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 2021-22

(kcal/kWh)

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

** PPA based stations*

5.3.5 Secondary Fuel Oil Consumption (SFOC)

Petitioner's Submission

GSECL has submitted the SFOC for different stations for FY 2021-22. GSECL has considered the SFOC same as the SFOC for FY 2020-21 approved in the MYT Order dated 31st March, 2017 for all power plants except BLTPS. For BLTPS, GSECL has considered the SFOC approved in True-up Order dated 26th March 2020. The SFOC projected by GSECL for its stations for FY 2021-22 is given in the Table below:

Table 5.10: Secondary Fuel Oil Consumption for FY 2021-22

(ml/kWh)

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

** PPA based stations*

Commission's Analysis

The Commission observed that GSECL has considered the SFOC for FY 2021-22 in line with the SFOC for FY 2020-21 approved in the MYT Order dated 31st March 2017. 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. For BLTPS, the Commission has considered the SFOC as approved in the last Tariff Order dated 26th March 2020. 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 2021-22

(ml/kWh)

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

** PPA based stations*

5.3.6 Transit Loss

Petitioner's Submission

GSECL has submitted the Transit Loss for different stations for FY 2021-22. GSECL has considered the Transit Loss same as the Transit Loss for FY 2020-21 approved in MYT Order dated 31st March, 2017 for all power plants except BLTPS. For BLTPS, GSECL has considered the Transit Loss approved in the True-up Order dated 26th March 2020. The Transit Loss projected by GSECL for its stations for FY 2021-22 is given in the Table below:

Table 5.12: Transit Loss for FY 2021-22

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	0.80%
2.	Gandhinagar (3-4)	0.80%
3.	Gandhinagar 5*	0.80%
4.	Wanakbori 1-6 TPS	0.80%
5.	Wanakbori 7*	0.80%
6.	Sikka Extension (3-4)*	0.00%
7.	KLTPS 3	0.20%
8.	KLTPS 4	0.20%
9.	BLTPS*	0.80%
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 2021-22 in line with the Transit Loss for FY 2020-21 approved in the MYT Order dated 31st March 2017.

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. For BLTPS, the Commission has considered the Transit Loss as approved in the last Tariff Order dated 26th March 2020. 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 2021-22

(%)

Sr. No.	Power Stations	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	0.80%	0.80%
2.	Gandhinagar (3-4)	0.80%	0.80%
3.	Gandhinagar 5*	0.80%	0.80%
4.	Wanakbori 1-6 TPS	0.80%	0.80%
5.	Wanakbori 7*	0.80%	0.80%
6.	Sikka Extension (3-4)*	0.00%	0.00%
7.	KLTPS 3	0.20%	0.20%
8.	KLTPS 4	0.20%	0.20%
9.	BLTPS*	0.80%	0.80%
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 2021-22

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

Table 5.14: Performance parameters approved for FY 2021-22

Sr. No.	Power Stations	PAF (%)	PLF (%)	Auxiliary consumption (%)	SHR (kcal / kWh)	SFO consumption (ml / kWh)	Transit Loss (%)
1.	Ukai (3-5)	80%	58%	9.00%	2,625	1.00	0.80%
2.	Gandhinagar (3-4)	84%	45%	9.00%	2,625	1.00	0.80%
3.	Gandhinagar 5*	85%	77%	9.50%	2,460	3.50	0.80%
4.	Wanakbori 1-6 TPS	85%	50%	9.00%	2,575	1.00	0.80%
5.	Wanakbori 7*	85%	70%	9.50%	2,460	3.50	0.80%
6.	Sikka Extension (3-4)*	85%	70%	9.00%	2,398	1.00	0.00%
7.	KLTPS 3	75%	75%	12.00%	3,231	3.00	0.20%
8.	KLTPS 4	80%	75%	12.00%	3,000	3.00	0.20%
9.	BLTPS*	80%	80%	11.00%	2,623	1.00	0.80%
10.	Dhuvaran CCPP 1*	85%	25%	4.00%	1,950	-	-
11.	Dhuvaran CCPP 2	85%	25%	3.00%	1,950	-	-
12.	Dhuvaran CCPP 3*	85%	25%	3.00%	1,850	-	-
13.	Utran Extension*	85%	25%	3.00%	1,850	-	-
14.	Ukai 6*	85%	77%	6.00%	2,385	1.00	0.80%
15.	Wanakbori 8 TPS*	85%	85%	5.25%	2,248	0.50	0.80%
16.	Ukai Hydro	80%	13%	0.60%	-	-	-
17.	Kadana Hydro	80%	6%	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 2021-22, are given in the Table below:

Table 5.15: Gross and Net Generation for FY 2021-22

Sr. No.	Power Stations	As claimed 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)	3,099.29	9.00%	278.94	2,820.35	3,099.29	9.00%	278.94	2,820.35
2.	Gandhinagar (3-4)	1,655.64	9.00%	149.01	1,506.63	1,655.64	9.00%	149.01	1,506.63
3.	Gandhinagar 5*	1,416.49	9.50%	134.57	1,281.93	1,416.49	9.50%	134.57	1,281.93
4.	Wanakbori 1-6 TPS	5,518.80	9.00%	496.69	5,022.11	5,518.80	9.00%	496.69	5,022.11
5.	Wanakbori 7*	1,287.72	9.50%	122.33	1,165.39	1,287.72	9.50%	122.33	1,165.39
6.	Sikka Extension (3-4)*	3,066.00	9.00%	275.94	2,790.06	3,066.00	9.00%	275.94	2,790.06
7.	KLTPS 3	492.75	12.00%	59.13	433.62	492.75	12.00%	59.13	433.62
8.	KLTPS 4	492.75	12.00%	59.13	433.62	492.75	12.00%	59.13	433.62
9.	BLTPS*	3,504.00	11.00%	385.44	3,118.56	3,504.00	11.00%	385.44	3,118.56
10.	Dhuvaran CCPP 1*	233.49	4.00%	9.34	224.15	233.49	4.00%	9.34	224.15
11.	Dhuvaran CCPP 2	246.27	3.00%	7.39	238.88	246.27	3.00%	7.39	238.88
12.	Dhuvaran CCPP 3*	823.66	3.00%	24.71	798.95	823.66	3.00%	24.71	798.95
13.	Utran Extension*	820.31	3.00%	24.61	795.70	820.31	3.00%	24.61	795.70
14.	Ukai 6*	3,372.60	6.00%	202.36	3,170.24	3,372.60	6.00%	202.36	3,170.24
15.	Wanakbori 8 TPS*	5,956.80	5.25%	312.73	5,644.07	5,956.80	5.25%	312.73	5,644.07
16.	Ukai Hydro	347.33	0.60%	2.08	345.25	347.33	0.60%	2.08	345.25
17.	Kadana Hydro	127.20	1.00%	1.27	125.92	127.20	1.00%	1.27	125.92
	Total	**32,461.10**		**2,545.67**	**29,915.43**	**32,461.10**		**2,545.67**	**29,915.43**

** PPA based stations*

5.5 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 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 2021-22 same as actual value of weighted average GCV of primary fuels and secondary fuel and coal mix of FY 2019-20, as given in the Table below:

Table 5.16: Wt. Avg. Gross Calorific Value (GCV) of fuels for different stations for FY 2021-22

Sr. No.	Power Stations	Wt. Avg. GCV of Coal (kcal/kg)	Wt. Avg. GCV of Lignite (kcal/kg)	Wt. Avg. GCV of Gas (kcal/SCM)	Wt. Avg. GCV of Oil (kcal/kl)
1.	Ukai (3-5)	3,788			10,461
2.	Gandhinagar (3-4)	3,755			10,440
3.	Gandhinagar 5*	3,755			10,482
4.	Wanakbori 1-6 TPS	3,882			10,350
5.	Wanakbori 7 TPS*	3,861			10,371
6.	Sikka Extension (3-4)*	5,129			10,285
7.	KLTPS 3		2,282		10,311
8.	KLTPS 4		2,282		10,311
9.	BLTPS*		2,753		10,807
10.	Dhuvaran CCPP 1*			9,544	
11.	Dhuvaran CCPP 2			9,393	
12.	Dhuvaran CCPP 3*			9,268	
13.	Utran Extension*			9,327	
14.	Ukai 6*	3,830			10,479
15.	Wanakbori 8 TPS*	3,807			10,363

** PPA based stations*

Mix of Coal

GSECL has considered the actual mix of coal of FY 2019-20 for projection of FY 2021-22 as given in the Table below:

Table 5.17: The Mix of Different Types of Coal for FY 2021-22

Sr. No.	Power Station	Mix of coal (%)		
		Indigenous	Washed	Imported
1.	Ukai (3-5)	20.25%	79.40%	0.34%
2.	Gandhinagar (3-4)	26.03%	73.07%	0.90%
3.	Gandhinagar 5*	17.34%	79.90%	2.77%
4.	Wanakbori 1-6 TPS	15.23%	84.09%	0.68%
5.	Wanakbori 7*	15.30%	84.09%	0.61%
6.	Sikka Extension (3-4)*	0.00%	0.12%	99.88%
7.	Ukai 6*	13.06%	86.74%	0.21%
8.	Wanakbori 8 TPS*	13.14%	86.86%	0.00%

** PPA based stations*

5.5.2 Wt. Avg. Prices of Fuel

GSECL has considered the actual coal prices of FY 2019-20 for projection of FY 2021-22 as given in the Table below:

Table 5.18: Wt. Avg. Price / Unit of Fuels for FY 2021-22

Sr. No.	Station	Wt. Avg. Cost of Indigenous Coal (Rs./MT)	Wt. Avg. Cost of Washed Coal (Rs./MT)	Wt. Avg. Cost of Imported Coal (Rs./MT)	Wt. Avg. Cost of Coal (Rs./MT)	Wt. Avg. Cost of Lignite (Rs./MT)	Wt. Avg. Cost of Gas (Rs./SCM)	Wt. Avg. Cost of Oil (Rs./Kl)
1.	Ukai (3-5)	3,845	5,064	7,854	4,827			39,186
2.	Gandhinagar (3-4)	4,371	5,524	7,756	5,244			37,442
3.	Gandhinagar 5*	4,052	5,495	7,752	5,307			39,596
4.	Wanakbori 1-6 TPS	4,270	5,479	7,542	5,309			38,244
5.	Wanakbori 7*	4,188	5,459	7,512	5,277			38,619
6.	Sikka Extension (3-4)*		5,181	6,917	6,915			42,343
7.	KLTPS 3					1,649		42,217
8.	KLTPS 4					1,621		48,207
9.	BLTPS*					2,652		47,992
10.	Dhuvaran CCPP 1*						14.22	
11.	Dhuvaran CCPP 2						15.03	
12.	Dhuvaran CCPP 3*						17.35	
13.	Utran Extension*						17.79	
14.	Ukai 6*	3,756	4,990	7,757	4,835			39,328
15.	Wanakbori 8 TPS*	4,041	5,533		5,337			37,178

** PPA based stations*

Commission's Analysis

The Commission has considered the Wt. Avg. GCV of primary and secondary fuel, fuel mix of coal, and Wt. Avg. Fuel Price of primary and secondary fuel in line with the submission of

GSECL and considered the actual cost parameters of FY 2019-20 for projecting fuel cost of FY2021-22.

The Commission approves the Wt. Avg. GCVs of fuels, percentage of mix of coal and prices of fuel, as furnished by GSECL for FY 2021-22, which is in line with the actual cost parameters approved for FY 2019-20.

5.6 Fuel Costs

Based on the performance and cost parameters, the approved fuel costs for each of the stations for FY 2021-22, along with the fuel cost submitted by GSECL, are given in the Table below:

Table 5.19: Fuel Cost of different stations for FY 2021-22

Sr. No.	Power Stations	As claimed by GSECL				As approved by the Commission			
		Gross Generation (MU)	Net Generation (MU)	Fuel Cost (Rs. Crore)	Fuel Cost per unit (Rs./kWh)	Gross Generation (MU)	Net Generation (MU)	Fuel Cost (Rs. Crore)	Fuel Cost per unit (Rs./kWh)
1	**2**	**3**	**4**	**5**	**6=5/4**	**7**	**8**	**9**	**10=9/8**
1.	Ukai (3-5)	3,099	2,820	1,053.05	3.73	3,099	2,820	1,053.05	3.73
2.	Gandhinagar (3-4)	1,656	1,507	615.53	4.09	1,656	1,507	615.53	4.09
3.	Gandhinagar 5*	1,416	1,282	508.58	3.97	1,416	1,282	508.58	3.97
4.	Wanakbori 1-6 TPS	5,519	5,022	1,972.22	3.93	5,519	5,022	1,972.22	3.93
5.	Wanakbori 7*	1,288	1,165	447.38	3.84	1,288	1,165	447.38	3.84
6.	Sikka Extension (3-4)*	3,066	2,790	1,000.09	3.58	3,066	2,790	1,000.09	3.58
7.	KLTPS 3	493	434	120.19	2.77	493	434	120.19	2.77
8.	KLTPS 4	493	434	111.03	2.56	493	434	111.03	2.56
9.	BLTPS*	3,504	3,119	898.42	2.88	3,504	3,119	898.42	2.88
10.	Dhuvaran CCPP 1*	233	224	67.84	3.03	233	224	67.84	3.03
11.	Dhuvaran CCPP 2	246	239	76.84	3.22	246	239	76.84	3.22
12.	Dhuvaran CCPP 3*	824	799	285.25	3.57	824	799	285.25	3.57
13.	Utran Extension*	820	796	289.38	3.64	820	796	289.38	3.64
14.	Ukai 6*	3,373	3,170	1,032.43	3.26	3,373	3,170	1,032.43	3.26
15.	Wanakbori 8 TPS*	5,957	5,644	1,899.10	3.36	5,957	5,644	1,899.10	3.36
16.	**Grand Total**	**31,987**	**29,444**	**10.377.36**		**31,987**	**29,444**	**10.377.36**	

** PPA based stations*

5.7 Capital Expenditure and Capitalisation

Petitioner's Submission

GSECL submitted the expected Capital Expenditure of Rs. 315.69 Crore for FY 2021-22 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 2021-22 by GSECL

Table 5.20: Capital Expenditure as submitted by GSECL for FY 2021-22

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	20.80
2.	Gandhinagar (3-4)	23.72
3.	Gandhinagar 5*	-
4.	Wanakbori 1-6 TPS	115.75
5.	Wanakbori 7*	4.77
6.	Sikka Extension (3-4)*	25.97
7.	KLTPS 3	16.13
8.	KLTPS 4	-
9.	BLTPS*	77.15
10.	Dhuvaran CCPP 1*	0.19
11.	Dhuvaran CCPP 2	0.19
12.	Dhuvaran CCPP 3*	-
13.	Utran Extension*	0.51
14.	Ukai 6*	17.33
15.	Wanakbori 8 TPS*	-
16.	Ukai Hydro	8.14
17.	Kadana Hydro	5.05
18.	**TOTAL**	**315.69**

** PPA based stations*

GSECL submitted that it has proposed to take up ESP Retrofitting of 200/210 MW old Units of Wanakbori TPS and Ukai TPS, in order to bring down the ESP emission within limits prescribed by Gujarat Pollution Control Board (GPCB).

GSECL submitted that the old Units were designed as per GPCB norms prevailing at the time of commissioning. In order to meet the present MoEF norms, it is necessary to carry out retrofitting of ESP for old 200/210 MW Units of GSECL. Through ESP retrofitting work, GSECL is looking to meet the requirement of pollution norms and expects to reduce SPM level to 50 mg/NM3.

The following Table shows the capitalisation proposed by GSECL for FY 2021-22. GSECL has proposed capitalization based on the capital expenditure estimated for FY 2020-21 and

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 5.21: Proposed Capitalisation for FY 2021-22 as submitted by GSECL

(Rs. Crore)

Sr. No.	Power Station	Capitalisation	Funding of Capitalisation	
			Debt amount	Equity amount
1.	Ukai (3-5)	20.80	14.56	6.24
2.	Gandhinagar (3-4)	23.72	16.61	7.12
3.	Gandhinagar 5*	-	-	-
4.	Wanakbori 1-6 TPS	177.35	124.15	53.21
5.	Wanakbori 7*	4.77	3.34	1.43
6.	Sikka Extension (3-4)*	25.97	18.18	7.79
7.	KLTPS 3	11.93	8.35	3.58
8.	KLTPS 4	-	-	-
9.	BLTPS*	77.15	54.00	23.14
10.	Dhuvaran CCPP 1*	0.19	0.13	0.06
11.	Dhuvaran CCPP 2	0.19	0.13	0.06
12.	Dhuvaran CCPP 3*	-	-	-
13.	Utran Extension*	0.51	0.36	0.15
14.	Ukai 6*	17.33	12.13	5.20
15.	Wanakbori 8 TPS*	-	-	-
16.	Ukai Hydro	8.14	5.70	2.44
17.	Kadana Hydro	5.05	3.54	1.52
	Total	**373.09**	**261.17**	**111.93**

** PPA based stations*

Commission's Analysis

For approving the capitalisation for FY 2021-22, 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 5.22: Actual Capitalisation for FY 2017-18 to FY 2019-20 (Rs. Crore)

Sr. No.	Particulars	FY 2017-18	FY 2018-19	FY 2019-20	Average
1.	Capitalisation	765.34	362.18	226.17*	451.23

**Excluding Capital cost of Wanakbori 8 TPS*

As seen from the Table above, the proposed capitalisation of Rs. 373.09 Crore is within the actual average capitalisation of last three years. Hence, the Commission has considered the capitalisation as proposed by GSECL for FY 2021-22.

Further, it is observed that GSECL has proposed capitalisation for ESP retrofitting works for old Units of Wanakbori TPS and Ukai TPS in order to meet the norms specified by MoEF.

In this regard, it is to be noted that Ministry of Power (MoP) has issued a notification dated 20th January, 2021, wherein it has extended the timelines for installations of ESPs for compliance of SPM norms by two years on account of uncertainties/delays due to COVID-19 pandemic and other issues.

In view of the above, the Commission is of the view that the ESP retrofitting works for old plants of GSECL may not be taken up immediately as the timelines are now shifted to FY 2022-23.

However, considering the nature of the work of ESP retrofitting and the overall proposed capitalisation being within the average capitalisation, the Commission has not disallowed any capitalisation for FY 2021-22 against ESP retrofitting due to extension of timelines.

The Commission provisionally approves the capitalisation of Rs. 373.09 Crore for FY 2021-22, which includes capitalisation of ESP retrofitting works. However, GSECL is directed to assess the work related to ESP retrofitting and take up the work in accordance with the revised timelines notified by MoP. The funding of capitalisation is approved in line with the normative Debt:Equity ratio of 70:30 specified in the GERC (MYT) Regulations, 2016.

5.8 Fixed Charges

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

5.8.1 Depreciation for FY 2021-22

Petitioner's Submission

GSECL has considered the opening Gross Fixed Assets for FY 2021-22 based on the gross block of FY 2020-21. The capital addition to the fixed asset during the period FY 2021-22 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 2019-20 or average depreciation rate of 5.28%, whichever is lower.

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

The following Table shows the depreciation rates considered by GSECL and the depreciation claimed by GSECL for FY 2021-22:

Table 5.23: Depreciation claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Depreciation rates (%)	Depreciation
1.	Ukai (3-5)	3.25%	44.15
2.	Gandhinagar (3-4)	2.70%	34.41
3.	Gandhinagar 5*	0.33%	2.16
4.	Wanakbori 1-6 TPS	3.80%	96.47
5.	Wanakbori 7*	0.34%	2.18
6.	Sikka Extension (3-4)*	5.28%	173.55
7.	KLTPS 3	3.10%	29.62
8.	KLTPS 4	5.14%	36.35
9.	BLTPS*	5.28%	194.05
10.	Dhuvaran CCPP 1*	2.39%	9.74
11.	Dhuvaran CCPP 2	3.02%	13.03
12.	Dhuvaran CCPP 3*	4.94%	78.77
13.	Utran Extension*	5.02%	68.26
14.	Ukai 6*	5.20%	156.83
15.	Wanakbori 8 TPS*	4.81%	211.62
16.	Ukai Hydro	1.28%	2.37
17.	Kadana Hydro	1.64%	5.50
18.	**Total**		**1,159.06**

** PPA based stations*

Commission's Analysis

The Commission has considered the opening GFA for FY 2020-21 in line with the closing GFA approved in True-up of FY 2019-20. The capitalisation for FY 2020-21 is considered in line with the capitalisation approved in the MYT Order dated 31st March 2017 for FY 2020-21. Accordingly, the Commission arrived at the closing balance of GFA for FY 2020-21. The closing balance of FY 2020-21 is considered as opening balance of GFA for FY 2021-22.

The Commission has considered the capitalisation for FY 2021-22 in line with the amount approved in the above section on Capitalisation for FY 2021-22. The Commission has thus, arrived at the closing GFA of FY 2021-22.

The Commission has considered Depreciation rates based on actual rate of depreciation in FY 2019-20 or average depreciation rate of 5.28%, whichever is lower.

The Commission has continued with the approach adopted in true-up for FY 2019-20 and has not considered any depreciation for Gandhinagar-5 and Wanakbori 7 for FY 2021-22. The GFA approved for FY 2021-22 is given in the Table below:

Table 5.24: Approved Gross Fixed Assets for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	Opening GFA	Additions	Closing GFA
1.	Ukai (3-5)	1,380.57	20.80	1,401.37
2.	Gandhinagar (3-4)	1,241.54	23.72	1,265.26
3.	Gandhinagar 5*	657.84	-	657.84
4.	Wanakbori 1-6 TPS	2,463.92	177.35	2,641.27
5.	Wanakbori 7*	638.97	4.77	643.74
6.	Sikka Extension (3-4)*	3,249.48	25.97	3,275.45
7.	KLTPS 3	942.72	11.93	954.65
8.	KLTPS 4	710.84	-	710.84
9.	BLTPS*	3,621.80	77.15	3,698.95
10.	Dhuvaran CCPP 1*	406.86	0.19	407.05
11.	Dhuvaran CCPP 2	480.77	0.19	480.96
12.	Dhuvaran CCPP 3*	1,595.56	-	1,595.56
13.	Utran Extension*	1,359.11	0.51	1,359.62
14.	Ukai 6*	2,988.56	17.33	3,005.89
15.	Wanakbori 8 TPS*	4,269.13	-	4,269.13
16.	Ukai Hydro	180.19	8.14	188.33
17.	Kadana Hydro	334.77	5.05	339.82
	Total	**26,522.64**	**373.09**	**26,895.74**

** PPA based stations*

Based on the opening and closing GFA approved in the above Table, the Commission has worked out the depreciation for FY 2021-22. The depreciation rates considered are in line with the submission of GSECL.

The Commission, accordingly, approves the station-wise depreciation for FY 2021-22 as detailed in the Table below

Table 5.25: Depreciation approved for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	Depreciation rates	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	3.25%	44.15	45.26
2.	Gandhinagar (3-4)	2.70%	34.41	33.84
3.	Gandhinagar 5*	-	2.16	-
4.	Wanakbori 1-6 TPS	3.80%	96.47	96.88
5.	Wanakbori 7*	-	2.18	-
6.	Sikka Extension (3-4)*	5.28%	173.55	172.26
7.	KLTPS 3	3.10%	29.62	29.42
8.	KLTPS 4	5.14%	36.35	36.50

Sr. No.	Particulars	Depreciation rates	As claimed by GSECL	As approved by the Commission
9.	BLTPS*	5.28%	194.05	193.27
10.	Dhuvaran CCPP 1*	2.39%	9.74	9.74
11.	Dhuvaran CCPP 2	3.02%	13.03	14.54
12.	Dhuvaran CCPP 3*	4.94%	78.77	78.77
13.	Utran Extension*	5.02%	68.26	68.23
14.	Ukai 6*	5.20%	156.83	155.98
15.	Wanakbori 8 TPS*	4.81%	211.62	205.16
16.	Ukai Hydro	1.28%	2.37	2.36
17.	Kadana Hydro	1.64%	5.50	5.52
18.	**Total**		**1,159.06**	**1,147.74**

** PPA based stations*

5.8.2 Interest and Finance charges for FY 2021-22

Petitioner's Submission

GSECL has considered the funding for new capital expenditure in FY 2021-22 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.

GSECL has considered the weighted average rate of interest of 8.26% on the basis of actuals of FY 2019-20, 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 2021-22. The station-wise interest and finance charges claimed by GSECL for FY 2021-22 are given in the Table below:

Table 5.26: Interest & Finance charges claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	0.60
2.	Gandhinagar (3-4)	0.69
3.	Gandhinagar 5*	-
4.	Wanakbori 1-6 TPS	19.31
5.	Wanakbori 7*	0.13
6.	Sikka Extension (3-4)*	106.95
7.	KLTPS 3	0.34
8.	KLTPS 4	4.92
9.	BLTPS*	121.61
10.	Dhuvaran CCPP 1*	0.01
11.	Dhuvaran CCPP 2	1.95

Sr. No.	Power Station	Projected
12.	Dhuvaran CCPP 3*	52.55
13.	Utran Extension*	21.21
14.	Ukai 6*	72.56
15.	Wanakbori 8 TPS*	220.12
16.	Ukai Hydro	1.95
17.	Kadana Hydro	0.15
	Total	**625.06**

** PPA based stations*

Commission's Analysis

The Commission has considered the opening Loan for FY 2020-21 in line with the closing Loan approved in True-up of FY 2019-20. The opening loan balance of KLTPS 1-3 is proportionately reduced on account of de-commissioning of Unit 1 and Unit 2 and thus arrived at the opening loan balance of KLTPS Unit 3. The loan addition for FY 2020-21 is considered in line with the 70% of the capitalisation approved in MYT Order dated 31st March 2017 for FY 2020-21. The repayment is considered equal to depreciation. Accordingly, the Commission has arrived at the closing balance of Loan for FY 2020-21, which is considered as opening balance of Loan for FY 2021-22.

The Commission has considered the addition to loan for FY 2021-22 in line with the normative loan of 70% on approved capitalisation for FY 2021-22. The repayment for FY 2021-22 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 2021-22.

Table 5.27: Details of Approved Loan for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Opening Loan	Additions	Repayment	Closing Loan
1.	Ukai (3-5)	-	14.56	14.56	-
2.	Gandhinagar (3-4)	-	16.60	16.60	-
3.	Gandhinagar 5*	-	-	-	-
4.	Wanakbori 1-6 TPS	227.31	124.15	96.88	254.57
5.	Wanakbori 7*	-	3.34	-	3.34
6.	Sikka Extension (3-4)*	1,356.28	18.18	172.26	1,202.21
7.	KLTPS 3	-	8.35	8.35	-
8.	KLTPS 4	79.73	-	36.50	43.23
9.	BLTPS*	1,532.79	54.01	193.27	1,393.53
10.	Dhuvaran CCPP 1*	-	0.13	0.13	-
11.	Dhuvaran CCPP 2	64.21	0.13	14.54	49.80
12.	Dhuvaran CCPP 3*	675.78	-	78.77	597.01

Sr. No.	Power Station	Opening Loan	Additions	Repayment	Closing Loan
13.	Utran Extension*	290.52	0.36	68.23	222.65
14.	Ukai 6*	940.07	12.13	155.98	796.22
15.	Wanakbori 8 TPS*	2,680.65	-	205.16	2,475.49
16.	Ukai Hydro	24.23	5.70	2.36	27.56
17.	Kadana Hydro	-	3.54	3.54	-
	Total	**7,871.59**	**261.17**	**1,067.15**	**7,065.61**

** PPA based stations*

The Commission has considered the weighted average interest rate of 8.26% as approved in True-up of FY 2019-20.

The Commission, accordingly, approves the station-wise interest and finance charges for FY 2021-22 as detailed in the Table below:

Table 5.28: Approved Interest and Finance Charges for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	0.60	-
2.	Gandhinagar (3-4)	0.69	-
3.	Gandhinagar 5*	-	-
4.	Wanakbori 1-6 TPS	19.31	19.90
5.	Wanakbori 7*	0.13	0.14
6.	Sikka Extension (3-4)*	106.95	105.64
7.	KLTPS 3	0.34	-
8.	KLTPS 4	4.92	5.08
9.	BLTPS*	121.61	120.82
10.	Dhuvaran CCPP 1*	0.01	-
11.	Dhuvaran CCPP 2	1.95	4.71
12.	Dhuvaran CCPP 3*	52.55	52.55
13.	Utran Extension*	21.21	21.19
14.	Ukai 6*	72.56	71.69
15.	Wanakbori 8 TPS*	220.12	212.89
16.	Ukai Hydro	1.95	2.14
17.	Kadana Hydro	0.15	-
18.	**Total**	**625.06**	**616.74**

** PPA based stations*

5.8.3 Return on Equity for FY 2021-22

Petitioner's Submission

GSECL has considered closing equity for FY 2020-21 and addition to the equity expected during the year based on the normative equity contribution towards the projected capitalization in FY 2021-22. For KLPTS-3, the opening equity in FY 2020-21 is reduced in proportion to GFA.

GSECL has claimed RoE for FY 2021-22 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 2021-22 is shown in the Table below:

Table 5.29: Return on Equity claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	23.93
2.	Gandhinagar (3-4)	25.32
3.	Gandhinagar 5*	28.67
4.	Wanakbori 1-6 TPS	96.28
5.	Wanakbori 7*	26.43
6.	Sikka Extension (3-4)*	138.05
7.	KLTPS 3	36.12
8.	KLTPS 4	29.65
9.	BLTPS*	154.36
10.	Dhuvaran CCPP 1*	10.47
11.	Dhuvaran CCPP 2	14.53
12.	Dhuvaran CCPP 3*	67.01
13.	Utran Extension*	57.53
14.	Ukai 6*	126.57
15.	Wanakbori 8 TPS*	184.95
16.	Ukai Hydro	10.82
17.	Kadana Hydro	28.98
18.	**Total**	**1,059.65**

** PPA based stations*

Commission's Analysis

The Commission has considered the opening equity for FY 2020-21 in line with the closing equity approved in True-up of FY 2019-20. The opening equity balance of KLTPS 1-3 is proportionately reduced on account of de-commissioning of Unit 1 and Unit 2 and thus, the opening equity balance of KLTPS Unit 3 is arrived at. The equity addition for FY 2020-21 is considered in line with 30% of the capitalisation approved in MYT Order dated 31st March 2017 for FY 2020-21. Accordingly, the Commission arrived at the closing balance of Equity for FY 2020-21. The closing balance of FY 2020-21 is considered as opening balance of Equity for FY 2021-22.

The Commission has considered the addition to equity for FY 2021-22 at 30% of the approved capitalisation for FY 2021-22. The Commission has thus, arrived at the closing equity for FY 2021-22, as shown in the Table below:

Table 5.30: Approved Equity for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Opening Equity	Addition	Closing Equity
1.	Ukai (3-5)	178.00	6.24	184.24
2.	Gandhinagar (3-4)	170.94	7.12	178.05
3.	Gandhinagar 5*	220.57	-	220.57
4.	Wanakbori 1-6 TPS	664.33	53.21	717.53
5.	Wanakbori 7*	201.22	1.43	202.65
6.	Sikka Extension (3-4)*	974.86	7.79	982.65
7.	KLTPS 3	264.14	3.58	267.71
8.	KLTPS 4	212.68	-	212.68
9.	BLTPS*	1,086.54	23.15	1,109.69
10.	Dhuvaran CCPP 1*	80.42	0.06	80.48
11.	Dhuvaran CCPP 2	118.72	0.06	118.78
12.	Dhuvaran CCPP 3*	478.67	-	478.67
13.	Utran Extension*	410.71	0.15	410.86
14.	Ukai 6*	896.57	5.20	901.77
15.	Wanakbori 8 TPS*	1,280.74	-	1,280.74
16.	Ukai Hydro	76.01	2.44	78.45
17.	Kadana Hydro	206.65	1.52	208.16
	Total	**7,521.75**	**111.93**	**7,633.68**

** 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 2021-22 as detailed in the Table below:

Table 5.31: Approved Return on Equity for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	23.93	25.36
2.	Gandhinagar (3-4)	25.32	24.43
3.	Gandhinagar 5*	28.67	28.67
4.	Wanakbori 1-6 TPS	96.28	96.73
5.	Wanakbori 7*	26.43	26.25
6.	Sikka Extension (3-4)*	138.05	137.03
7.	KLTPS 3	36.12	37.23
8.	KLTPS 4	29.65	29.77
9.	BLTPS*	154.36	153.74
10.	Dhuvaran CCPP 1*	10.47	10.46
11.	Dhuvaran CCPP 2	14.53	16.62
12.	Dhuvaran CCPP 3*	67.01	67.01
13.	Utran Extension*	57.53	57.51
14.	Ukai 6*	126.57	125.88
15.	Wanakbori 8 TPS*	184.95	179.30
16.	Ukai Hydro	10.82	10.81
17.	Kadana Hydro	28.98	29.04
18.	**Total**	**1,059.67**	**1,055.85**

** PPA based stations*

5.8.4 O&M Expenses for FY 2021-22

Petitioner's Submission

GSECL has claimed O&M expenses for FY 2021-22 considering the approved O&M of FY 2020-21 in Case No 1619 of 2016 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 2021-22:

Table 5.32: O&M expenses claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	194.62
2.	Gandhinagar (3-4)	108.25
3.	Gandhinagar 5*	27.58
4.	Wanakbori 1-6 TPS	283.23

Sr. No.	Power Station	Projected
5.	Wanakbori 7*	22.89
6.	Sikka Extension (3-4)*	119.36
7.	KLTPS 3	47.32
8.	KLTPS 4	23.24
9.	BLTPS*	178.24
10.	Dhuvaran CCPP 1*	39.53
11.	Dhuvaran CCPP 2	39.62
12.	Dhuvaran CCPP 3*	82.30
13.	Utran Extension*	65.68
14.	Ukai 6*	119.36
15.	Wanakbori 8 TPS*	162.32
16.	Ukai Hydro	23.88
17.	Kadana Hydro	28.76
18.	**Total**	**1,566.09**

** PPA based stations*

Commission's Analysis

For projecting O&M expenses for FY 2021-22, the Commission has considered the approach adopted in MYT Order dated 31st March, 2017 for all existing stations except BLTPS and Wanakbori 8 TPS. The Commission has considered the actual O&M expenses approved in True-up of last three years starting from FY 2017-18 to FY 2019-20 in respective Tariff Orders. For FY 2017-18, the Commission has normalised the impact of 7th Pay commission for the entire year, which was reflecting in the actual expenses only for 8 months. The Commission has then considered the average of the O&M expenses for the three years to arrive at O&M expenses for mid-year, i.e., FY 2018-19 for these stations.

The following Table shows the actual O&M expenses approved in Truing-up of last three years (i.e., FY 2017-18 to FY 2019-20)

Table 5.33: Actual O&M expenses approved in True-up

(Rs. Crore)

Sr. No.	Power Station	FY 2017-18**	FY 2018-19	FY 2019-20	Average
1.	Ukai (3-5)	205.72	212.50	212.45	210.22
2.	Gandhinagar (3-4)	121.93	134.40	108.96	121.76
3.	Gandhinagar 5*	60.66	32.94	54.48	49.36
4.	Wanakbori 1-6 TPS	224.47	234.25	217.34	225.35
5.	Wanakbori 7*	17.35	19.27	14.59	17.07
6.	Sikka Extension (3-4)*	107.62	114.45	130.30	117.46

Sr. No.	Power Station	FY 2017-18**	FY 2018-19	FY 2019-20	Average
7.	KLTPS 3	115.16	131.66	109.09	118.64
8.	KLTPS 4	15.26	15.35	19.76	16.79
9.	Dhuvaran CCPP 1*	36.92	34.90	52.13	41.32
10.	Dhuvaran CCPP 2	38.95	34.90	51.86	41.90
11.	Dhuvaran CCPP 3*	3.28	2.22	7.00	4.17
12.	Utran Extension*	46.35	40.98	44.54	43.96
13.	Ukai 6*	52.84	47.41	37.95	46.07
14.	Ukai Hydro	12.96	10.54	13.62	12.36
15.	Kadana Hydro	30.97	22.90	21.42	25.09
	Total	**1,090.38**	**1,088.67**	**1,095.49**	**1,091.51**

** PPA based stations*

*** Impact of 7th Pay Commission normalised for entire year*

The average O&M expenses for FY 2018-19 is escalated at 5.72% YoY to arrive at the O&M expenses for FY 2021-22. The average O&M expenses for KLTPS 1-3 has been reduced proportionately in line with capacity to arrive at the O&M expenses for KLTPS Unit 3.

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

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

The Commission, approves the station-wise O&M expenses for FY 2021-22 as detailed in the Table below:

Table 5.34: Approved O&M expenses for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	194.62	248.40
2.	Gandhinagar (3-4)	108.25	143.87
3.	Gandhinagar 5*	27.58	58.32
4.	Wanakbori 1-6 TPS	283.23	266.28
5.	Wanakbori 7*	22.89	20.17
6.	Sikka Extension (3-4)*	119.36	138.79
7.	KLTPS 3	47.32	48.90
8.	KLTPS 4	23.24	19.84
9.	BLTPS*	178.24	178.24
10.	Dhuvaran CCPP 1*	39.53	48.82
11.	Dhuvaran CCPP 2	39.62	49.51

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
12.	Dhuvaran CCPP 3*	82.30	4.92
13.	Utran Extension*	65.68	51.94
14.	Ukai 6*	119.36	54.43
15.	Wanakbori 8 TPS*	162.32	162.32
16.	Ukai Hydro	23.88	14.61
17.	Kadana Hydro	28.76	29.65
18.	**Total**	**1,566.09**	**1,539.02**

** PPA based stations*

5.8.5 Interest on Working Capital for FY 2021-22

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 10.25% in line with the GERC (MYT) Regulations, 2016. The IoWC claimed by GSECL for FY 2021-22 is given in the Table below:

Table 5.35: Interest on working capital claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	36.21
2.	Gandhinagar (3-4)	28.61
3.	Gandhinagar 5*	13.62
4.	Wanakbori 1-6 TPS	81.24
5.	Wanakbori 7*	12.99
6.	Sikka Extension (3-4)*	35.11
7.	KLTPS 3	4.96
8.	KLTPS 4	4.27
9.	BLTPS*	30.16
10.	Dhuvaran CCPP 1*	5.22
11.	Dhuvaran CCPP 2	5.85
12.	Dhuvaran CCPP 3*	21.39
13.	Utran Extension*	20.68
14.	Ukai 6*	32.55
15.	Wanakbori 8 TPS*	53.33
16.	Ukai Hydro	0.75
17.	Kadana Hydro	1.15
18.	**Total**	**388.08**

** PPA based stations*

Commission's Analysis

The working capital requirement and the IoWC have been worked out as per the GERC (MYT) Regulations, 2016. The Commission has calculated working capital based on approved values of O&M costs, fuel costs, ARR and SFO cost. Further, the Commission has considered the interest rate on working capital as 10.25% as per the GERC (MYT) Regulations, 2016.

The Commission accordingly approves the station-wise IoWC for FY 2021-22 as detailed in the Table below:

Table 5.36: Approved Interest on Working Capital for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	36.21	37.04
2.	Gandhinagar (3-4)	28.61	29.08
3.	Gandhinagar 5*	13.62	13.94
4.	Wanakbori 1-6 TPS	81.24	80.66
5.	Wanakbori 7*	12.99	12.73
6.	Sikka Extension (3-4)*	35.11	35.25
7.	KLTPS 3	4.96	4.93
8.	KLTPS 4	4.27	4.16
9.	BLTPS*	30.16	29.98
10.	Dhuvaran CCPP 1*	5.22	5.38
11.	Dhuvaran CCPP 2	5.85	6.13
12.	Dhuvaran CCPP 3*	21.39	20.06
13.	Utran Extension*	20.68	20.44
14.	Ukai 6*	32.55	31.27
15.	Wanakbori 8 TPS*	53.33	52.93
16.	Ukai Hydro	0.75	0.59
17.	Kadana Hydro	1.15	1.17
18.	**Total**	**388.08**	**385.74**

** PPA based stations*

5.8.6 SLDC Charges for FY 2021-22

Petitioner's Submission

GSECL has claimed SLDC Fees and Charges plant-wise for FY 2021-22, same as actually incurred in FY 2019-20. The SLDC Charges for KLTPS-3 are considered at actuals incurred in FY 2019-20 after pro-rata reduction on the basis of capacity. The following Table shows the SLDC Fees and Charges claimed by GSECL for FY 2021-22:

Table 5.37: SLDC Charges claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	0.38
2.	Gandhinagar (3-4)	0.26
3.	Gandhinagar 5*	0.13
4.	Wanakbori 1-6 TPS	0.78
5.	Wanakbori 7*	0.13
6.	Sikka Extension (3-4)*	0.31
7.	KLTPS 3	0.05
8.	KLTPS 4	0.05
9.	BLTPS*	0.32
10.	Dhuvaran CCPP 1*	0.07
11.	Dhuvaran CCPP 2	0.07
12.	Dhuvaran CCPP 3*	0.23
13.	Utran Extension*	0.23
14.	Ukai 6*	0.31
15.	Wanakbori 8 TPS*	0.03
16.	Ukai Hydro	0.19
17.	Kadana Hydro	0.15
18.	**Total**	**3.69**

** PPA based stations*

Commission's Analysis

The Commission has approved the SLDC Charges for FY 2021-22 in line with the amount considered in True-up of FY 2019-20. The Commission has proportionately reduced the SLDC Charges for FY 2021-22 for KLTPS1-3 with respect to the capacity of Unit 1 and 2 on account of decommissioning of Units. The SLDC charges approved for FY 2021-22 are as shown in the following Table:

Table 5.38: Approved SLDC Charges for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	0.38	0.38
2.	Gandhinagar (3-4)	0.26	0.26
3.	Gandhinagar 5*	0.13	0.13
4.	Wanakbori 1-6 TPS	0.78	0.78
5.	Wanakbori 7*	0.13	0.13
6.	Sikka Extension (3-4)*	0.31	0.31
7.	KLTPS 3	0.05	0.05
8.	KLTPS 4	0.05	0.05

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
9.	BLTPS*	0.32	0.32
10.	Dhuvaran CCPP 1*	0.07	0.07
11.	Dhuvaran CCPP 2	0.07	0.07
12.	Dhuvaran CCPP 3*	0.23	0.23
13.	Utran Extension*	0.23	0.23
14.	Ukai 6*	0.31	0.31
15.	Wanakbori 8 TPS*	0.03	0.03
16.	Ukai Hydro	0.19	0.19
17.	Kadana Hydro	0.15	0.15
18.	**Total**	**3.69**	**3.69**

** PPA based stations*

5.8.7 Water Charges for FY 2021-22

GSECL has claimed Water Charges plant-wise for FY 2021-22, same as actually incurred in FY 2019-20. The Water Charges for KLTPS-3 are considered at actuals incurred in FY 2019-20 after pro-rata reduction on the basis to capacity. The following Table shows the Water Charges claimed by GSECL for FY 2021-22:

Table 5.39: Water Charges claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	-
2.	Gandhinagar (3-4)	42.10
3.	Gandhinagar 5*	21.05
4.	Wanakbori 1-6 TPS	38.46
5.	Wanakbori 7*	10.17
6.	Sikka Extension (3-4)*	5.11
7.	KLTPS 1-3	0.09
8.	KLTPS 4	0.15
9.	BLTPS*	6.32
10.	Dhuvaran CCPP 1*	0.19
11.	Dhuvaran CCPP 2	0.20
12.	Dhuvaran CCPP 3*	0.66
13.	Utran Extension*	2.40
14.	Ukai 6*	-
15.	Wanakbori 8 TPS*	5.95
16.	Ukai Hydro	-
17.	Kadana Hydro	-
18.	**Total**	**132.84**

** PPA based stations*

Commission's Analysis

The Commission has approved the Water Charges for FY 2021-22 in line with the amount considered in True-up of FY 2019-20. The Commission has proportionately reduced the Water Charges for FY 2021-22 for KLTPS1-3 with respect to the decommissioned capacity of Unit 1 and 2. The Water Charges approved for FY 2021-22 are as shown in the following Table

Table 5.40: Approved Water charges for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	-	-
2.	Gandhinagar (3-4)	42.10	42.10
3.	Gandhinagar 5*	21.05	21.05
4.	Wanakbori 1-6 TPS	38.46	38.46
5.	Wanakbori 7*	10.17	10.17
6.	Sikka Extension (3-4)*	5.11	5.11
7.	KLTPS 3	0.09	0.09
8.	KLTPS 4	0.15	0.15
9.	BLTPS*	6.32	6.32
10.	Dhuvaran CCPP 1*	0.19	0.19
11.	Dhuvaran CCPP 2	0.20	0.20
12.	Dhuvaran CCPP 3*	0.66	0.66
13.	Utran Extension*	2.40	2.40
14.	Ukai 6*	-	-
15.	Wanakbori 8 TPS*	5.95	5.95
16.	Ukai Hydro	-	-
17.	Kadana Hydro	-	-
18.	**Total**	**132.84**	**132.84**

** PPA based stations*

5.8.8 Income Tax for FY 2021-22

Petitioner's Submission

GSECL has claimed Income Tax plant-wise for FY 2021-22, same as actually incurred in FY 2019-20. The Income Tax for KLTPS-3 is considered at actuals incurred in FY 2019-20 after pro-rata reduction on the basis to capacity. The following Table shows the Income Tax claimed by GSECL for FY 2021-22:

Table 5.41: Income Tax claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	3.46
2.	Gandhinagar (3-4)	2.38
3.	Gandhinagar 5*	1.19
4.	Wanakbori 1-6 TPS	7.14
5.	Wanakbori 7*	1.19
6.	Sikka Extension (3-4)*	2.83
7.	KLTPS 1-3	0.42
8.	KLTPS 4	0.42
9.	BLTPS*	-
10.	Dhuvaran CCPP 1*	0.60
11.	Dhuvaran CCPP 2	0.64
12.	Dhuvaran CCPP 3*	2.13
13.	Utran Extension*	2.12
14.	Ukai 6*	2.83
15.	Wanakbori 8 TPS*	-
16.	Ukai Hydro	1.73
17.	Kadana Hydro	1.37
	Total	**30.47**

** PPA based stations*

Commission's Analysis

The Commission has approved the Income Tax for FY 2021-22 in line with the amount considered in True-up of FY 2019-20. The Commission has proportionately reduced the Income Tax for FY 2021-22 for KLTPS1-3 with respect to the decommissioned capacity of Units 1 and 2. The Income Tax approved for FY 2021-22 is as shown in the following Table

Table 5.42: Approved Income Tax for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	3.46	3.42
2.	Gandhinagar (3-4)	2.38	2.35
3.	Gandhinagar 5*	1.19	1.18
4.	Wanakbori 1-6 TPS	7.14	7.06
5.	Wanakbori 7*	1.19	1.18
6.	Sikka Extension (3-4)*	2.83	2.80
7.	KLTPS 3	0.42	0.42
8.	KLTPS 4	0.42	0.42

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
9.	BLTPS*	-	-
10.	Dhuvaran CCPP 1*	0.60	0.60
11.	Dhuvaran CCPP 2	0.64	0.63
12.	Dhuvaran CCPP 3*	2.13	2.11
13.	Utran Extension*	2.12	2.10
14.	Ukai 6*	2.83	2.80
15.	Wanakbori 8 TPS*	-	-
16.	Ukai Hydro	1.73	1.71
17.	Kadana Hydro	1.37	1.36
18.	**Total**	**30.47**	**30.13**

** PPA based stations*

5.8.9 Non-Tariff Income for FY 2021-22

Petitioner's Submission

GSECL has claimed Non-Tariff Income plant-wise for FY 2021-22, same as actual income earned in FY 2019-20. The Non-Tariff Income for KLTPS-3 is considered at actuals earned in FY 2019-20 after pro-rata reduction on the basis of capacity. The following Table shows the Non-Tariff Income claimed by GSECL for FY 2021-22:

Table 5.43: Non-Tariff Income claimed for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Projected
1.	Ukai (3-5)	33.46
2.	Gandhinagar (3-4)	10.18
3.	Gandhinagar 5*	9.96
4.	Wanakbori 1-6 TPS	43.02
5.	Wanakbori 7*	14.44
6.	Sikka Extension (3-4)*	5.17
7.	KLTPS 3	2.48
8.	KLTPS 4	4.51
9.	BLTPS*	14.84
10.	Dhuvaran CCPP 1*	0.73
11.	Dhuvaran CCPP 2	0.73
12.	Dhuvaran CCPP 3*	0.95
13.	Utran Extension*	0.47
14.	Ukai 6*	15.43
15.	Wanakbori 8 TPS*	0.40
16.	Ukai Hydro	0.15
17.	Kadana Hydro	0.39
	Total	**157.32**

** PPA based stations*

Commission's Analysis

The Commission has approved the Non-Tariff Income for FY 2021-22 in line with the amount considered in True-up of FY 2019-20. The Commission has proportionately reduced the Non-Tariff Income for FY 2021-22 for KLTPS1-3 with respect to the decommissioned capacity of Units 1 and 2. The Non-Tariff Income approved for FY 2021-22 is as shown in the following Table:

Table 5.44: Approved Non-Tariff Income for FY 2021-22

(Rs. Crore)

Sr. No.	Particulars	As claimed by GSECL	As approved by the Commission
1.	Ukai (3-5)	33.46	33.46
2.	Gandhinagar (3-4)	10.18	10.18
3.	Gandhinagar 5*	9.96	9.96
4.	Wanakbori 1-6 TPS	43.02	43.02
5.	Wanakbori 7*	14.44	14.44
6.	Sikka Extension (3-4)*	5.17	5.17
7.	KLTPS 3	2.48	2.48
8.	KLTPS 4	4.51	4.51
9.	BLTPS*	14.84	14.84
10.	Dhuvaran CCPP 1*	0.73	0.73
11.	Dhuvaran CCPP 2	0.73	0.73
12.	Dhuvaran CCPP 3*	0.95	0.95
13.	Utran Extension*	0.47	0.47
14.	Ukai 6*	15.43	15.43
15.	Wanakbori 8 TPS*	0.40	0.40
16.	Ukai Hydro	0.15	0.15
17.	Kadana Hydro	0.39	0.39
18.	**Total**	**157.32**	**157.32**

** 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 2021-22 in the above paragraphs.

The station-wise approved fixed charges for FY 2021-22 are given in the Table below:

Table 5.45: Approved Station-wise Fixed Charges for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest on Working Capital	O&M Expenses	Water Charges	Income Tax	SLDC charges	Total Fixed Cost	Less: Non-Tariff Income	Net Fixed Charges
1.	Ukai (3-5)	45.26	-	25.36	37.04	248.40	-	3.42	0.38	359.85	33.46	326.40
2.	Gandhinagar (3-4)	33.84	-	24.43	29.08	143.87	42.10	2.35	0.26	275.93	10.18	265.76
3.	Gandhinagar 5*	-	-	28.67	13.94	58.32	21.05	1.18	0.13	123.29	9.96	113.34
4.	Wanakbori 1-6 TPS	96.88	19.90	96.73	80.66	266.28	38.46	7.06	0.78	606.74	43.02	563.72
5.	Wanakbori 7*	-	0.14	26.25	12.73	20.17	10.17	1.18	0.13	70.77	14.44	56.33
6.	Sikka Extension (3-4)*	172.26	105.64	137.03	35.25	138.79	5.11	2.80	0.31	597.18	5.17	592.02
7.	KLTPS 3	29.42	-	37.23	4.93	48.90	0.09	0.42	0.05	121.04	2.48	118.56
8.	KLTPS 4	36.50	5.08	29.77	4.16	19.84	0.15	0.42	0.05	95.96	4.51	91.45
9.	BLTPS*	193.27	120.82	153.74	29.98	178.24	6.32	-	0.32	682.68	14.84	667.84
10.	Dhuvaran CCPP 1*	9.74	-	10.46	5.38	48.82	0.19	0.60	0.07	75.25	0.73	74.52
11.	Dhuvaran CCPP 2	14.54	4.71	16.62	6.13	49.51	0.20	0.63	0.07	92.42	0.73	91.69
12.	Dhuvaran CCPP 3*	78.77	52.55	67.01	20.06	4.92	0.66	2.11	0.23	226.32	0.95	225.38
13.	Utran Extension*	68.23	21.19	57.51	20.44	51.94	2.40	2.10	0.23	224.04	0.47	223.56
14.	Ukai 6*	155.98	71.69	125.88	31.27	54.43	-	2.80	0.31	442.37	15.43	426.94
15.	Wanakbori 8 TPS*	205.16	212.89	179.30	52.93	162.32	5.95	-	0.03	818.59	0.40	818.18
16.	Ukai Hydro	2.36	2.14	10.81	0.59	14.61	-	1.71	0.19	32.41	0.15	32.27
17.	Kadana Hydro	5.52	-	29.04	1.17	29.65	-	1.36	0.15	66.89	0.39	66.49
	Total	**1,147.74**	**616.74**	**1,055.85**	**385.74**	**1,539.02**	**132.84**	**30.13**	**3.69**	**4,911.75**	**157.32**	**4,754.43**

** PPA based stations*

6 Unabsorbed Depreciation for Ukai TPS Unit 1 & 2

Petitioner's Submission

GSECL submitted that the Units 1 and 2 of Ukai TPS have been decommissioned on 1st April, 2017. The accumulated depreciation charged by GSECL as on 1st April, 2017 stands at Rs. 354.90 Crore. The salvage value of the plant has been assessed at 10% of capital cost in line with GERC (MYT) Regulations, 2016. Based on the above, there is a depreciation amounting to Rs. 167.79 Crore that has not been charged/claimed by GSECL as shown in the following Table:

Table 6.1: Unabsorbed Depreciation claimed for Ukai TPS Unit No. 1 & 2

(Rs. Crore)

Particulars	Gross Fixed Assets as on April 1, 2017	Accumulated Depreciation as on April 1, 2017	Net Block as on April 1, 2017	10% of Gross Fixed Assets	Remaining value of Depreciation to be Charged
Fixed Assets, excluding spares	336.62	159.71	176.91	33.66	143.25
Spares	219.73	195.19	24.54	-	24.54
Total	**556.35**	**354.90**	**201.45**	**33.66**	**167.79**

Further, GSECL submitted that it has received an amount of Rs. 65.61 Crore as total sales proceeds. Hence, there is an excess recovery or profit amounting to Rs. 31.95 Crore (i.e., Rs. 65.61 Crore - Rs. 33.66 Crore) on account of sales proceeds, after adjustment with salvage value. GSECL has adjusted this excess recovery from the remaining depreciation to be charged and accordingly, has claimed an unabsorbed depreciation of Rs. 102.18 Crore as shown in the following Table:

Table 6.2: Unabsorbed Depreciation claimed for Ukai TPS Unit No. 1 & 2

(Rs. Crore)

Particulars	Legend	Amount
Deprecation yet to be claimed from GERC	A	167.79
Total Sale proceeds	B	65.61
Salvage Value	C	33.66
Excess recovery (Profit)	D=B-C	31.95
Net Unabsorbed Depreciation to be claimed in True-up of FY 2019-20	**E=A-D**	**102.18**

Commission's Analysis

As per GSECL's submission, the Commission has noted that Units 1 and 2 of Ukai TPS have been decommissioned on April 1, 2017 and the sale process of the assets have been completed.

The Commission observed that there is an error in the computation of net unabsorbed depreciation to be claimed as provided by GSECL in the Petition. GSECL has reduced the total sales proceeds instead of excess recovery (profit) from the balance depreciation yet to be claimed to arrive at the net unabsorbed depreciation for both the Units. The claim of GSECL based on correct computation works out to be Rs. 135.84 Crore.

The Commission has verified the documentary evidences of the sale proceeds of the assets and found that it has received total amount of Rs. 65.61 Crore. The Commission has therefore, considered the sale proceeds amount of Rs. 65.61 Crore.

The Commission had directed GSECL to submit details of amount of Rs. 354.90 Crore claimed as accumulated depreciation charged as on 1st April, 2017 for Unit 1 and 2 of Ukai TPS. GSECL provided the asset-wise details of opening balance and accumulated depreciation of Unit 1 and Unit 2 of Ukai as on 1st April, 2014 and depreciation charged thereafter till FY 2017-18. The Commission has verified the amount of accumulated depreciation charged by GSECL as on 1st April, 2017 for Unit 1 and 2 of Ukai TPS.

The Commission notes that GSECL has submitted the GFA as on April 1, 2017 of Rs. 556.35 Crore, including Initial Spares of Rs. 219.73 Crore. While considering the salvage value of total assets, GSECL has not considered the salvage value of spares. Further, the Commission observes that GFA submitted by GSECL includes the initial spares of Rs. 219.73 Crore, which is 39.49% of total Gross Fixed Assets of Rs. 556.35 Crore as against 4% specified in the GERC (MYT) Regulations, 2016. The cost of initial spares is too high compared to total cost of the plant. This higher cost of Initial Spares is not justified for Ukai TPS Unit 1 and 2. Therefore, keeping the GERC (MYT) Regulations, 2016 in mind, the Commission has not considered the cost of initial spares as submitted by GSECL for allowing un-absorbed depreciation.

Accordingly, the Commission allows the accumulated depreciation of Fixed Assets excluding spares only and approves the unabsorbed depreciation for Ukai TPS Units 1 and 2 as shown in the Table below:

Table 6.3: Unabsorbed Depreciation for Ukai Units 1 & 2 Approved by the Commission

(Rs. Crore)

Particulars	Legend	Claimed by GSECL	Approved by the Commission
Gross Fixed Assets as on April 1, 2017 (Excluding spares)	A	556.35*	336.62
Accumulated Depreciation as on April 1, 2017 (Excluding spares)	B	354.90*	159.71
Net Fixed Assets as on April 1, 2017	C=A-B	201.45	176.91
Residual Value of Gross Fixed Assets	D=10%A	33.66	33.66
Balance Depreciable Amount	E=C-D	167.79	143.25
Receipt of amount through Sale Proceeds	F	65.61	65.61
Excess Recovery	G=F-D	31.95	31.95
Net Unabsorbed Depreciation	**H=E-G**	**102.18****	**111.30**

**Including spares*

*** Error in computation of GSECL. Correct claim is Rs. 135.84 Crore*

Based on the above Table, the unabsorbed depreciation of Rs. 111.30 Crore as approved above is to be recovered from four DISCOMs through GUVNL in Twelve (12) equal monthly instalments of FY 2021-22.

7 Determination of Tariff for FY 2021-22

The Commission approves the station-wise energy charges for FY 2021-22 as outlined in the Table below:

Table 7.1: Energy Charges Approved for FY 2021-22

(Rs./kWh)

Sr. No.	Power Station	Energy Charges
1.	Ukai (3-5)	3.734
2.	Gandhinagar (3-4)	4.085
3.	Gandhinagar 5*	3.967
4.	Wanakbori 1-6	3.927
5.	Wanakbori 7*	3.839
6.	Sikka Extension (3-4)*	3.584
7.	KLTPS 1-3	2.772
8.	KLTPS 4	2.561
9.	BLTPS*	2.881
10.	Dhuvaran CCPP 1*	3.027
11.	Dhuvaran CCPP 2	3.217
12.	Dhuvaran CCPP 3*	3.570
13.	Utran Extension*	3.637
14.	Ukai 6*	3.257
15.	Wanakbori 8*	3.365

* *PPA based stations*

The approved Energy Charges for FY 2021-22 are given in **Annexure B** of this Order.

The Commission approves the station-wise fixed charges for FY 2021-22 as approved in the Chapter on Determination of ARR for FY 2021-22, and as summarised in the Table below:

Table 7.2: Approved Station-wise Fixed Charges for FY 2021-22

(Rs. Crore)

Sr. No.	Power Station	Depreciation	Interest and Finance Charges	Return on Equity	Interest on Working Capital	O&M Expenses	Water Charges	Income Tax	SLDC charges	Total Fixed Cost	Less: Non-Tariff Income	Net Fixed Charges
1.	Ukai (3-5)	45.26	-	25.36	37.04	248.40	-	3.42	0.38	359.85	33.46	326.40
2.	Gandhinagar (3-4)	33.84	-	24.43	29.08	143.87	42.10	2.35	0.26	275.93	10.18	265.76
3.	Gandhinagar 5*	-	-	28.67	13.94	58.32	21.05	1.18	0.13	123.29	9.96	113.34
4.	Wanakbori 1-6 TPS	96.88	19.90	96.73	80.66	266.28	38.46	7.06	0.78	606.74	43.02	563.72
5.	Wanakbori 7*	-	0.14	26.25	12.73	20.17	10.17	1.18	0.13	70.77	14.44	56.33
6.	Sikka Extension (3-4)*	172.26	105.64	137.03	35.25	138.79	5.11	2.80	0.31	597.18	5.17	592.02
7.	KLTPS 3	29.42	-	37.23	4.93	48.90	0.09	0.42	0.05	121.04	2.48	118.56
8.	KLTPS 4	36.50	5.08	29.77	4.16	19.84	0.15	0.42	0.05	95.96	4.51	91.45
9.	BLTPS*	193.27	120.82	153.74	29.98	178.24	6.32	-	0.32	682.68	14.84	667.84
10.	Dhuvaran CCPP 1*	9.74	-	10.46	5.38	48.82	0.19	0.60	0.07	75.25	0.73	74.52
11.	Dhuvaran CCPP 2	14.54	4.71	16.62	6.13	49.51	0.20	0.63	0.07	92.42	0.73	91.69
12.	Dhuvaran CCPP 3*	78.77	52.55	67.01	20.06	4.92	0.66	2.11	0.23	226.32	0.95	225.38
13.	Utran Extension*	68.23	21.19	57.51	20.44	51.94	2.40	2.10	0.23	224.04	0.47	223.56
14.	Ukai 6*	155.98	71.69	125.88	31.27	54.43	-	2.80	0.31	442.37	15.43	426.94
15.	Wanakbori 8 TPS*	205.16	212.89	179.30	52.93	162.32	5.95	-	0.03	818.59	0.40	818.18
16.	Ukai Hydro	2.36	2.14	10.81	0.59	14.61	-	1.71	0.19	32.41	0.15	32.27
17.	Kadana Hydro	5.52	-	29.04	1.17	29.65	-	1.36	0.15	66.89	0.39	66.49
	Total	**1,147.74**	**616.74**	**1,055.85**	**385.74**	**1,539.02**	**132.84**	**30.13**	**3.69**	**4,911.75**	**157.32**	**4,754.43**

** PPA based stations*

8 Compliance to Directives

8.1 Compliance of Directives issued by the Commission

The Commission, in its MYT Order dated 31st March, 2017 and in subsequent Tariff Orders, had issued certain directives to GSECL. The Commission also issued fresh directives in the Tariff Order dated 26th March, 2020. The Petitioner has submitted the status of compliance of directives issued by the Commission.

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

8.2 Compliance of Earlier Directives

Directive 1: Renovation and Modernization of Thermal Plant

GSECL may submit its further plan for Renovation and Modernization of Ukai Units 1 & 2. Further, GSECL may also submit a quarterly progress report of the Renovation and Modernization activities being undertaken for Wanakbori 1-6. Compliance as per current Petition:

- Renovation and Modernization work of Ukai Units 1 & 2 completed on 24.02.2010.
- C & I up-gradation work of Wanakbori TPS Unit 6 is completed on 17.05.2015. So, Unit No.2, 3, 4, 5 & 6 are completed. Work of Unit 1 will be started as per the program of SLDC for Shut Down.

Compliance:

GSECL has submitted the report on Energy Efficiency improvement through Up gradation of C&I system in Unit 1 to 6 at Wanakbori TPS along with the Tariff Petition.

Commission Comments:

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

Directive 2: 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:

Performance Parameters and Coal stock position month-wise at quarterly intervals are submitted as Annexures to the Petition.

Commission Comments:

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

Directive 3: Deviation of Capital Expenditure

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

Compliance:

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

Commission Comments:

The Commission has noted the compliance and further directs that any investment / proposal / modification to be carried out for meeting the environmental Guidelines of GoI shall be put up for approval of the Commission.

Further Compliance:

GSECL will put up the CAPEX proposal to the Commission for modification to meet the environment norms as per Guidelines issued by Government of India.

Commission Comments:

GSECL is directed to submit its Capex proposal in Tariff Petition for next Control Period commencing from April 1, 2021.

Further Compliance:

GSECL will submit Capex proposal in Tariff Petition for next Control Period commencing from April 1, 2021.

Commission Comments:

The Commission had directed GSECL in previous Tariff Order to submit its Capex proposal for next Control Period commencing from April 1, 2021. However, since the next MYT Control Period was deferred by one year, the Commission now directs GSECL to submit its Capex proposal along with the next MYT Petition for next Control Period commencing from April 1, 2022.

8.3 Directives Issued vide Order dated April 24, 2019

Directive 1: Life Assessment & fulfilling Environment Norms of GSECL Plants

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:

LoI is issued to M/s Datang Technologies & Engineering for Implementation of Flue Gas Desulphurization (FGD) in 800 MW at the total price of Rs. 377 Crore with scheduled commissioning in Aug 2021.

Commission Comments:

The Commission noted the submission. GSECL is further directed to submit half-yearly progress report for 800 MW plant, and submit the status with respect to above for other plants.

Further Compliance:

Implementation FGD for other Plants

For 500 MW Unit # 6 of UTPS and 2 x 250 MW Units # 3 & 4 of STPS, preparation of tender for EPC is under progress.

Half-yearly progress of installation of FGD system in 800 MW Unit No. 8 of Wanakbori TPS

Contract award: 16.03.2019.

Contract value: Rs. 357 Cr including custom duty, insurance, freight, and P&F charges & GST

Zero date of contract: 14.02.2019 (date of LOI)

Scheduled Completion Date: 30 months from zero date, i.e., 13.08.2021.

Technical progress:

Design Engineering:

- Basic Engineering work for Mass balance, waste water balance, sizing calculation of various equipment like, limestone crushing system, wet ball mill Slurry pumps, Slurry RC pump, Process water pump, Mist Eliminator wash pump, drain pumps, oxidation blower and tanks is completed.

- Layout of process building, P & ID of various FGD systems, is under review.

Vendor Approval:

- Vendor approval is given for supply of RC pump, Booster Fan, Vacuum Belt filter, Oxidation blower, damper, limestone handling system, nozzle, Mist eliminator, chimney works.
- Proposal of vendor approval for elevator, expansion bellow, etc., is under review.

Equipment/Material supply:

Order for Bunk house is placed by DTEI.

Civil Works:

- Site levelling based on Soil Investigation report is completed.
- PCC work for site office and store is completed.
- Vendor for Chimney work had mobilised the site before lockdown, however, work stopped due to lockdown.
- At present, site work is held up due to Covid-19. However, Design and Engineering of various equipment and systems is under process.

Commission Comments:

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

Directive 2: Study for Technical Minimum Operations of plants at 55% of MCR

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:

One 200/210 MW (Ukai TPS Unit 4) and one 500 MW Unit (Ukai TPS Unit 6) of GSECL are identified as the pilot coal flexing projects with USAID, to study and identify the capability of Units for low load operation. The study will identify the ramping capability, safe technical minimum load for sustained operation, retrofit/modifications required to achieve 3% ramp rate with 55% load. The estimated expenditure for the same will also be shared by USAID in the Report. The existing ramping capability of GSECL Coal based generating units is 1% - 1.5% MW per min.

The previous operational database of units as required by USAID has been shared with the concerned. The USAID Team has visited Ukai TPS during August 2018 in this regard and they have submitted the draft report.

As suggested by USAID team, the low load trial run (60%) with 1% ramp rate has been conducted by Ukai TPS during June 2019 and relevant database is submitted to the USAID team for comments & observations.

However, USAID has suggested to undertake 55% low load trial run of Ukai TPS 1 x 500 MW Unit with 1% ramp rate, with technical assistance of M/s BHEL being the OEM/designer of the Unit. The tentative schedule for the trial is planned during Sept 19 – Oct 19 in consultation with SLDC. Based on the trial at Ukai TPS, the similar trial will be carried out in all the coal-based power stations and Unit-wise strategy for achieving 55% load with 3% ramping capability shall be made in due course of time.

Commission Comments:

The Commission noted the submission of the Petitioner. However, GSECL is further directed to update the Commission for the progress made to achieve 55% technical minimum operation and 3% ramp rate for other generating plants.

Further Compliance:

The 55% Capability test @1% and 3% ramp up/down was carried out in Ukai TPS #6 during March' 20 with the help of the OEM (BHEL). The draft report is under scrutiny. According to the recommendation, GSECL will plan further action accordingly.

GSECL has taken 55% minimum load level run in 2 Units of 210 MW at Wanakbori TPS.

GSECL has planned turbine retrofitting of UTPS # 3 and # 5 for 55% min load and achieving 3% ramp rate along with reduction in SHR.

Commission Comments:

The Commission noted the submission of the Petitioner. However, GSECL is further directed to continue updating the Commission on the progress made to achieve 55% technical minimum operation and 3% ramp rate for generating plants.

8.4 Directives Issued vide Order dated March 26, 2020

Directive 1: Action Plan for Capacity Retirement/Addition/Utilisation

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

Compliance:

(1) Plan for retirement of existing old Units:

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

(B) Gas Based –

(1) Dhuvaran CCPP-I - 27.01.2024

(2) Dhuvaran CCPP-II - 31.10.2027

(3) Utran Extension - 07.11.2029

(2) Plan for Capacity Addition:

(a) Conventional power plant:

800 MW Coal based supercritical Unit 7 at Ukai TPS:

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

(b) Renewable Energy

1. Implementation of 75 MW Solar PV Project Phase-II at Dhuvaran is under progress.

Scheduled COD of the project is 12.02.2021

2. 100 MW Solar PV Project Phase-I at Raghanesda is under progress

Scheduled COD of the project is 17.02.2021

3. 100 MW Solar PV Project Phase-II at Raghanesda is under progress

Scheduled COD of the project is 26.07.2021

4. 2500 MW Solar PV Project on Government around GETCO S/S

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

Scheduled COD of Projects is

31.05.2021 for >20 MW Capacity projects

30.04.2021 for 20 MW Capacity project

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

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

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

Retrofitting of Turbine and Boiler Modification in unit # 3 & 5 of UTPS is planned.

Tender preparation for EPC is under progress.

Commission Comments:

GSECL has submitted the following details as compliance to this directive

- ✓ Plan for retirement of existing old Units
- ✓ Plan for Capacity Addition (Conventional as well as Renewable Energy)
- ✓ Status of the Projects to be commissioned
- ✓ Plan for optimum utilisation of existing Generating stations and plan for achieving operational and economic efficiency

The Commission has studied the response submitted by GSECL and observed that some of the details were missing. GSECL submitted that coal-based stations would be retired based on Committee constituted by CEA but has not provided its proposal on which old coal-based

Units it plans to retire. GSECL has also not provided details on the year-wise power availability and the effect of commissioning/de-commissioning on Y-o-Y basis for the next ten years.

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

In view of the above, the Commission 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 April 1, 2022, along with details of retirement of existing Unit/stations, generation capacity availability, capacity addition from Conventional Generating station and Renewable Energy, plan for optimum utilisation of existing generating stations and plan for achieving operational efficiency in economical manner, as directed in previous Tariff Order, in the form of a report within 45 days of the issuance of this Tariff Order.

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

Directive 2: Roadmap for Improvement of Performance of Lignite Based Stations

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

Compliance:

Preparation of Roadmap is under discussion.

Commission Comments:

GSECL in this regard submitted that the preparation of roadmap is under discussion. The Commission is of the view that GSECL has failed to comply with this directive given by the Commission in the past Tariff Order. The Commission hence, directs GSECL to submit within 45 days from the date of issuance of this Order, the roadmap for improvement in the performance of Lignite based power stations, in economical manner.

8.5 Fresh Directive

Directive 1: 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 the every subsequent MYT/ Tariff Petition may lead to disallowance of capitalisation.

Directive 2: ESP Retrofitting works

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.

Directive 3: Overview of Power Supply Scenario

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 pose 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.

COMMISSION'S ORDER

The Commission has determined tariff of GSECL for FY 2021-22 in Chapter 7 of this Order. Accordingly, the approved energy charges and fixed charges are as mentioned in the Table Nos. 7.1 and 7.2, respectively. The Commission approves the station-wise fixed charges and energy charges for FY 2021-22 as outlined in the Table below:

Sr. No.	Power Station	Annual Fixed Charges for FY 2021-22 (Rs. Crore)	Energy Charges for FY 2021-22 (Rs./kWh)
1.	Ukai (3-5)	326.40	3.734
2.	Gandhinagar (3-4)	265.76	4.085
3.	Gandhinagar 5*	113.34	3.967
4.	Wanakbori 1-6	563.72	3.927
5.	Wanakbori 7*	56.33	3.839
6.	Sikka 3 & 4*	592.02	3.584
7.	KLTPS 3	118.56	2.772
8.	KLTPS 4	91.45	2.561
9.	BLTPS*	667.84	2.881
10.	Dhuvaran CCPP 1*	74.52	3.027
11.	Dhuvaran CCPP 2	91.69	3.217
12.	Dhuvaran CCPP 3*	225.38	3.570
13.	Utran Extension*	223.56	3.637
14.	Ukai 6*	426.94	3.257
15.	Wanakbori 8*	818.18	3.365
16.	Ukai Hydro	32.27	-
17.	Kadana Hydro	66.49	-
	Total	**4,754.43**	

** PPA based stations*

The Annual Fixed Charges are exclusive of Consolidated (Fixed & Fuel Cost) Gains / (Losses) of Rs. 89.66 Crore. The Commission has approved unabsorbed depreciation of Rs. 111.30 Crore of Ukai TPS Unit 1 & 2 on account of decommissioning of these Units.

The net losses of Rs. 21.64 Crore is worked out after considering Consolidated (Fixed & Fuel Cost) Gains / (Losses) of Rs. 89.66 Crore and Net Unabsorbed Depreciation of Rs. 111.30 Crore (Rs. 111.30 Crore – Rs. 89.66 Crore = Rs. 21.64 Crore). This amount is to be recovered from four DISCOMs in Twelve (12) equal monthly instalments through GUVNL.

This order shall come into force with effect from 1st April, 2021.

-Sd-	-Sd-	-Sd-
S.R. PANDEY **Member**	**MEHUL M. GANDHI** **Member**	**ANAND KUMAR** **Chairman**

Place: Gandhinagar
Date: 30.03.2021

ANNEXURE A

A-1: Ukai TPS 3 to 5 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2019-20

SL. No.	ITEM	DERIVATION	UNIT	FY 2019-20
1	GROSS GENERATION	A	MUS	2,948.91
2	AUXILIARY CONSUMPTION	C	%	9.00%
3	AUXILIARY CONSUMPTION	B	MUS	265.40
4	NET GENERATION	Y=A-B	MUS	2,683.50
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	3,788
8	CALORIFIC VALUE OF OIL	G	KCAL/L	10,461
9	OVERALL HEAT	H= A x D	GCAL	77,40,878
10	HEAT FROM OIL	I= (A x E x G)/1000	GCAL	30,848
11	HEAT FROM COAL	J = H-I	GCAL	77,10,030
12	TRANSIT LOSSES	K	%	0.80%
13	COAL BLEND			
14	(A) INDIGENOUS COAL	X1	%	20.25%
15	(B) WASHED COAL	X2	%	79.40%
16	(C) IMPORTED COAL	X3	%	0.34%
17	ACTUAL OIL CONSUMPTION	L= A x E	KL	2,949
18	ACTUAL COAL CONSUMPTION	M= (J x 1000)/F	MT	20,35,464
19	(A) INDIGENOUS COAL	Q1=M* x X1/(1-K)	MT	4,15,579
20	(B) WASHED COAL	Q2=M* x X2 / (1-K)	MT	16,29,231
21	(C) IMPORTED COAL	Q3=M* X X3	MT	7,011
22	PRICE OF COAL			
23	(A) INDIGENOUS COAL	P1	RS./MT	3,845
24	(B) WASHED COAL	P2	RS./MT	5,064
25	(C) IMPORTED COAL	P3	RS./MT	7,854
26	PRICE OF OIL	P4	RS./KL	39,186
27	COAL COST			
28	(A) INDIGENOUS COAL	N1=Q1 X P1/10^7	RS. CRORE	159.77
29	(B) WASHED COAL	N2=Q2 X P2/10^7	RS. CRORE	825.12
30	(C) IMPORTED COAL	N3=Q3 X P3/10^7	RS. CRORE	5.51
31	TOTAL COAL COST	N4= N1+N2+N3	RS. CRORE	990.40
32	OIL COST	N5=P4 x L/10^7	RS. CRORE	11.56
33	TOTAL FUEL COST	O= N4+N5	RS. CRORE	1,001.95
34	FUEL COST/UNIT (GROSS)	P= O/(A*10)	RS./KWH	3.40
35	FUEL COST/UNIT (NET)	Q=O/(Y*10)	RS./KWH	3.73
36	COST OF FUEL/GCAL	R=(O/H)*10^7	RS./GCAL	1,294.37
37	ACTUAL NET GENERATION	S	MUS	2,657
38	NORMATIVE FUEL COST FOR ACTUAL NET GENERATION	T=S*Q/10	RS. CRORE	992.08

A-2: Gandhinagar 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	737.91
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	66.41
4	Net Generation	Y=A-B	MUs	671.50
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	3,755
8	Calorific value of oil	G	kcal/l	10,440
9	Overall Heat	H= A x D	GCal	19,37,009
10	Heat from Oil	I= (A x E x G)/1000	GCal	7,704
11	Heat from Coal	J = H-I	GCal	19,29,305
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	26.03%
15	(B) Washed Coal	X2	%	73.07%
16	(C) Imported Coal	X3	%	0.90%
17	Actual oil consumption	L= A x E	KL	738
18	Actual Coal consumption	M= (J x 1000)/F	MT	5,13,789
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,34,796
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	3,78,456
21	(C) Imported Coal	Q3=M* X X3	MT	4,643
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,371
24	(B) Washed Coal	P2	Rs./MT	5,524
25	(C) Imported Coal	P3	Rs./MT	7,756
26	Price of oil	P4	Rs./KL	37,442
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^7	Rs Crores	58.92
29	(B) Washed Coal	N2=Q2 X P2/10^7	Rs Crores	209.05
30	(C) Imported Coal	N3=Q3 X P3/10^7	Rs Crores	3.60
31	Total coal cost	N4= N1+N2+N3	Rs Crores	271.58
32	Oil Cost	N5=P4 x L/10^7	Rs Crores	2.76
33	Total fuel cost	O= N4+N5	Rs Crores	274.34
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.72
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	4.09
36	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	1,416.30
37	Actual net generation	S	MUs	644
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	263.05

A-3: Gandhinagar 5 - Approved Fuel Costs (Coal, Lignite & Secondary Oil) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	971.12
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	92.26
4	Net Generation	Y=A-B	MUs	878.86
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	3,755
8	Calorific value of oil	G	kcal/l	10,482
9	Overall Heat	H= A x D	GCal	23,88,955
10	Heat from Oil	I= (A x E x G)/1000	GCal	35,628
11	Heat from Coal	J = H-I	GCal	23,53,327
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	17.34%
15	(B) Washed Coal	X2	%	79.90%
16	(C) Imported Coal	X3	%	2.77%
17	Actual oil consumption	L= A x E	Kl	3,399
18	Actual Coal consumption	M= (J x 1000)/F	MT	6,26,737
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,09,527
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	5,04,793
21	(C) Imported Coal	Q3=M* X X3	MT	17,331
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,052
24	(B) Washed Coal	P2	Rs./MT	5,495
25	(C) Imported Coal	P3	Rs./MT	7,752
26	Price of oil	P4	Rs./Kl	39,596
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^7	**Rs Crores**	44.38
29	(B) Washed Coal	N2=Q2 X P2/10^7	**Rs Crores**	277.39
30	(C) Imported Coal	N3=Q3 X P3/10^7	**Rs Crores**	13.44
31	Total coal cost	N4= N1+N2+N3	**Rs Crores**	335.21
32	Oil Cost	N5=P4 x L/10^7	**Rs Crores**	13.46
33	Total fuel cost	O= N4+N5	Rs Crores	348.67
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.59
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.97
36	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	1,459.52
37	Actual net generation	S	MUs	867
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	344.00

A-4: Wanakbori 1-6 - Approved Fuel Costs (Coal, Lignite & Secondary Oil) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	3,975
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	358
4	Net Generation	Y=A-B	MUs	3,617
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	3,882
8	Calorific value of oil	G	kcal/l	10,350
9	Overall Heat	H= A x D	GCal	1,02,34,956
10	Heat from Oil	I= (A x E x G)/1000	GCal	41,137
11	Heat from Coal	J = H-I	GCal	1,01,93,818
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	15.23%
15	(B) Washed Coal	X2	%	84.09%
16	(C) Imported Coal	X3	%	0.68%
17	Actual oil consumption	L= A x E	KL	3,975
18	Actual Coal consumption	M= (J x 1000)/F	MT	26,25,787
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	4,03,097
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	22,25,826
21	(C) Imported Coal	Q3=M* X X3	MT	17,895
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,270
24	(B) Washed Coal	P2	Rs./MT	5,479
25	(C) Imported Coal	P3	Rs./MT	7,542
26	Price of oil	P4	Rs./KL	38,244
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^7	Rs Crores	172.13
29	(B) Washed Coal	N2=Q2 X P2/10^7	Rs Crores	1,219.60
30	(C) Imported Coal	N3=Q3 X P3/10^7	Rs Crores	13.50
31	Total coal cost	N4= N1+N2+N3	Rs Crores	1,405.23
32	Oil Cost	N5=P4 x L/10^7	Rs Crores	15.20
33	Total fuel cost	O= N4+N5	Rs Crores	1,420.43
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.57
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.93
36	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	1,387.82
37	Actual net generation	S	MUs	3,581
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	1,406.37

A-5: Wanakbori 7 - Approved Fuel Costs (Coal, Lignite & Secondary Oil) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	1,073
2	Auxiliary Consumption	C	%	9.50%
3	Auxiliary Consumption	B	MUs	102
4	Net Generation	Y=A-B	MUs	971
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	3,861
8	Calorific value of oil	G	kcal/l	10,371
9	Overall Heat	H= A x D	GCal	26,38,576
10	Heat from Oil	I= (A x E x G)/1000	GCal	38,934
11	Heat from Coal	J = H-I	GCal	25,99,642
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	15.30%
15	(B) Washed Coal	X2	%	84.09%
16	(C) Imported Coal	X3	%	0.61%
17	Actual oil consumption	L= A x E	Kl	3,754
18	Actual Coal consumption	M= (J x 1000)/F	MT	6,73,267
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,03,870
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	5,70,694
21	(C) Imported Coal	Q3=M* X X3	MT	4,099
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,188
24	(B) Washed Coal	P2	Rs./MT	5,459
25	(C) Imported Coal	P3	Rs./MT	7,512
26	Price of oil	P4	Rs./Kl	38,619
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^7	**Rs Crores**	43.50
29	(B) Washed Coal	N2=Q2 X P2/10^7	**Rs Crores**	311.56
30	(C) Imported Coal	N3=Q3 X P3/10^7	**Rs Crores**	3.08
31	Total coal cost	N4= N1+N2+N3	**Rs Crores**	358.15
32	Oil Cost	N5=P4 x L/10^7	**Rs Crores**	14.50
33	Total fuel cost	O= N4+N5	Rs Crores	372.65
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.47
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.84
36	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	1,412.30
37	Actual net generation	S	MUs	966
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	370.91

A-6: Sikka Extension 3 & 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	2,711
2	Auxiliary Consumption	C	%	9.00%
3	Auxiliary Consumption	B	MUs	244
4	Net Generation	Y=A-B	MUs	2,467
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	5,129
8	Calorific value of oil	G	kcal/l	10,285
9	Overall Heat	H= A x D	GCal	65,01,489
10	Heat from Oil	I= (A x E x G)/1000	GCal	27,886
11	Heat from Coal	J = H-I	GCal	64,73,603
12	Transit losses	K	%	0.00%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	0.00%
15	(B) Washed Coal	X2	%	0.12%
16	(C) Imported Coal	X3	%	99.88%
17	Actual oil consumption	L= A x E	Kl	2,711
18	Actual Coal consumption	M= (J x 1000)/F	MT	12,62,237
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	-
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1,466
21	(C) Imported Coal	Q3=M* X X3	MT	12,60,771
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	-
24	(B) Washed Coal	P2	Rs./MT	5,181
25	(C) Imported Coal	P3	Rs./MT	6,917
26	Price of oil	P4	Rs./Kl	42,343
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^7	Rs Crores	-
29	(B) Washed Coal	N2=Q2 X P2/10^7	Rs Crores	0.76
30	(C) Imported Coal	N3=Q3 X P3/10^7	Rs Crores	872.12
31	Total coal cost	N4= N1+N2+N3	Rs Crores	872.88
32	Oil Cost	N5=P4 x L/10^7	Rs Crores	11.48
33	Total fuel cost	O= N4+N5	Rs Crores	884.36
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.26
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.58
36	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	1,360.25
37	Actual net generation	S	MUs	2,455
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	879.84

A-7: KLTPS 1-3 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	558
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	67
4	Net Generation	Y=A-B	MUs	491
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	2,282
8	Calorific value of oil	G	kcal/L	10,311
9	Overall Heat	H= A x D	GCal	18,04,029
10	Heat from Oil	I= (A x E x G)/1000	GCal	17,272
11	Heat from Lignite	J = H-I	GCal	17,86,757
12	Transit losses	K	%	0.20%
13	Actual Oil consumption	L= A x E	KL	1,675
14	Actual Lignite consumption	M= (J x 1000)/F	MT	7,82,952
15	Lignite consumption incl. transit losses	N=M/(1-K)	MT	7,84,520.68
16	Price of Lignite	P1	Rs./MT	1,649
17	Price of Oil	P2	Rs./KL	42,217
18	Cost of Lignite	N1= M x P1/10^7	Rs Crores	129.12
19	Oil cost	N2=P2 x L/10^7	Rs Crores	7.07
20	Total Fuel Cost	O= N1 + N2	Rs Crores	136.19
21	Fuel cost/Unit (Gross)	P=O/(A*10)	Rs./kWh	2.44
22	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	2.77
23	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	754.94
24	Actual net generation	S	MUs	472
25	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	130.90

A-8: KLTPS 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	325
2	Auxiliary Consumption	C	%	12.00%
3	Auxiliary Consumption	B	MUs	39
4	Net Generation	Y=A-B	MUs	286
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	2,282
8	Calorific value of oil	G	kcal/l	10,311
9	Overall Heat	H= A x D	GCal	9,74,526
10	Heat from Oil	I= (A x E x G)/1000	GCal	10,049
11	Heat from Lignite	J = H-I	GCal	9,64,477
12	Transit losses	K	%	0.20%
13	Actual Oil consumption	L= A x E	KL	975
14	Actual Lignite consumption	M= (J x 1000)/F	MT	4,22,631
15	Lignite consumption incl. transit losses	N=M/(1-K)	MT	4,23,478.12
16	Price of Lignite	P1	Rs./MT	1,621
17	Price of Oil	P2	Rs./KL	48,207
18	Cost of Lignite	N1= M x P1/10^7	Rs Crores	68.50
19	Oil cost	N2=P2 x L/10^7	Rs Crores	4.70
20	Total Fuel Cost	O= N1 + N2	Rs Crores	73.20
21	Fuel cost/Unit (Gross)	P=O/(A*10)	Rs./kWh	2.25
22	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	2.56
23	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	751.11
24	Actual net generation	S	MUs	254
25	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	64.92

A-9: BLTPS 4 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2019-20

Sl. No.	Item	Units	FY 2019-20
1.	Gross Generation	MUs	611
2.	Auxiliary Consumption	MUs	67
3.	Net Generation	MUs	544
4.	Capacity	MW	500
5.	Availability Factor	%	80.00%
6.	Plant Load Factor	%	13.91%
7.	Auxiliary Consumption	%	11.00%
8.	Station Heat Rate	kcal/kWh	2,623
9.	Sp. Oil Consumption	ml/kWh	1.00
10.	Gross Calorific Value of Lignite	kcal/kg	2,753
11.	Calorific Value of Oil	kcal/l	10,807
12.	Overall Heat	G Cal	16,02,637
13.	Heat from Oil	G Cal	6,603
14.	Heat from Lignite	G Cal	15,96,034
15.	Actual Oil Consumption	kl	611
16.	Actual Lignite Coal Consumption	MT	5,79,744
17.	Specific Lignite Coal Consumption	kg/kWh	0.95
18.	Price of Lignite	Rs/MT	2,652
19.	Price of Oil	Rs/kl	47,992
20.	Cost of Lignite	Rs Crores	153.73
21.	Oil Cost	Rs Crores	2.93
22.	Total Fuel Cost	Rs Crores	156.66
23.	Fuel Cost/Unit Gross	Rs/kWh	2.56
24.	Fuel Cost/Unit Net	Rs/kWh	2.88
25.	Actual Net Generation	MUs	465
26.	Normative Fuel cost for actual net generation	Rs Crores	133.83

A-10: Dhuvaran CCPP 1 - Approved Fuel Costs (Gas) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	191
2	Auxiliary Consumption	C	%	4.00%
3	Auxiliary Consumption	B	MUs	8
4	Net Generation	Y=A-B	MUs	183
5	Station Heat Rate	D	kcal/kWh	1,950
6	Calorific value of gas	F	kcal/Scm	9,544
7	Overall heat from gas	H= A x D	GCal	3,71,477
8	Actual gas consumption	M= (H x 1000)/F	M. scm	39
9	Price of gas	P1	Rs./scm	14.22
10	Cost of gas	N5=P1 x M/10^7	**Rs Crores**	55.35
11	Total fuel cost	N5	Rs Crores	55.35
12	Fuel cost/unit (Gross)	P=N5/(A*10)	Rs./kWh	2.91
13	Fuel cost/unit (Net)	Q=N5/(Y*10)	Rs./kWh	3.03
14	Cost of fuel/GCal	R=(N5/H)*10^7	Rs./GCal	1,490.05
15	Actual net generation	S	MUs	176
16	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	53.42

A-11: Dhuvaran CCPP 2 - Approved Fuel Costs (Gas) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1.	Gross Generation	A	MUs	92
2.	Auxiliary Consumption	C	%	3.00%
3.	Auxiliary Consumption	B	MUs	3
4.	Net Generation	Y=A-B	MUs	89
5.	Station Heat Rate	D	kcal/kWh	1,950
6.	Calorific value of gas	F	kcal/Scm	9,393
7.	Overall heat from gas	H= A x D	GCal	1,79,632
8.	Actual gas consumption	M= (H x 1000)/F	M. scm	19
9.	Price of gas	P1	Rs./scm	15.03
10.	Cost of gas	N5=P1 x M/10^7	Rs Crores	29
11.	Total fuel cost	N5	Rs Crores	28.74
12.	Fuel cost/unit (Gross)	P=N5/(A*10)	Rs./kWh	3.12
13.	Fuel cost/unit (Net)	Q=N5/(Y*10)	Rs./kWh	3.22
14.	Cost of fuel/GCal	R=(N5/H)*10^7	Rs./GCal	1,600.10
15.	Actual net generation	S	MUs	83
16.	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	26.73

A-12: Dhuvaran CCPP 3 - Approved Fuel Costs (Gas) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1.	Gross Generation	A	MUs	556
2.	Auxiliary Consumption	C	%	3.00%
3.	Auxiliary Consumption	B	MUs	17
4.	Net Generation	Y=A-B	MUs	539
5.	Station Heat Rate	D	kcal/kWh	1,850
6.	Calorific value of gas	F	kcal/Scm	9,268
7.	Overall heat from gas	H= A x D	GCal	10,28,890
8.	Actual gas consumption	M= (H x 1000)/F	M. scm	111
9.	Price of gas	P1	Rs./scm	17.35
10.	Cost of gas	N5=P1 x M/10^7	Rs Crores	193
11.	Total fuel cost	N5	Rs Crores	192.61
12.	Fuel cost/unit (Gross)	P=N5/(A*10)	Rs./kWh	3.46
13.	Fuel cost/unit (Net)	Q=N5/(Y*10)	Rs./kWh	3.57
14.	Cost of fuel/GCal	R=(N5/H)*10^7	Rs./GCal	1,872.03
15.	Actual net generation	S	MUs	532
16.	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	189.90

A-13: Utran Extension - Approved Fuel Costs (Gas) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	747
2	Auxiliary Consumption	C	%	3.00%
3	Auxiliary Consumption	B	MUs	22
4	Net Generation	Y=A-B	MUs	724
5	Station Heat Rate	D	kcal/kWh	1,850
6	Calorific value of gas	F	kcal/Scm	9,327
7	Overall heat from gas	H= A x D	GCal	13,81,698
8	Actual gas consumption	M= (H x 1000)/F	M. scm	148
9	Price of gas	P1	Rs./scm	17.79
10	Cost of gas	N5=P1 x M	**Rs Crores**	263.47
11	Total fuel cost	N5	Rs Crores	263.47
12	Fuel cost/unit (Gross)	P=N5/(A*10)	Rs./kWh	3.53
13	Fuel cost/unit (Net)	Q=N5/(Y*10)	Rs./kWh	3.64
14	Cost of fuel/GCal	R=(N5/H)*10^7	Rs./GCal	1,906.85
15	Actual net generation	S	MUs	717
16	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	260.87

A-14: Ukai Extension 6 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	2,831
2	Auxiliary Consumption	C	%	6.00%
3	Auxiliary Consumption	B	MUs	170
4	Net Generation	Y=A-B	MUs	2,661
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	3,830
8	Calorific value of oil	G	kcal/l	10,479
9	Overall Heat	H= A x D	GCal	67,52,815
10	Heat from Oil	I= (A x E x G)/1000	GCal	29,671
11	Heat from Coal	J = H-I	GCal	67,23,144
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	13.06%
15	(B) Washed Coal	X2	%	86.74%
16	(C) Imported Coal	X3	%	0.21%
17	Actual oil consumption	L= A x E	Kl	2,831
18	Actual Coal consumption	M= (J x 1000)/F	MT	17,55,558
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	2,31,070
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	15,34,975
21	(C) Imported Coal	Q3=M* X X3	MT	3641.283359
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	3,756
24	(B) Washed Coal	P2	Rs./MT	4,990
25	(C) Imported Coal	P3	Rs./MT	7,757
26	Price of oil	P4	Rs./Kl	39,328
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^7	Rs Crores	86.7948
29	(B) Washed Coal	N2=Q2 X P2/10^7	Rs Crores	766.00
30	(C) Imported Coal	N3=Q3 X P3/10^7	Rs Crores	2.82
31	Total coal cost	N4= N1+N2+N3	Rs Crores	855.62
32	Oil Cost	N5=P4 x L/10^7	Rs Crores	11.14
33	Total fuel cost	O= N4+N5	Rs Crores	866.75
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.06
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.26
36	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	1,284
37	Actual net generation	S	MUs	2,650
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	862.85

A-15: Wanakbori 8 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2019-20

Sl. No.	Item	Derivation	Unit	FY 2019-20
1	Gross Generation	A	MUs	534
2	Auxiliary Consumption	C	%	5.25%
3	Auxiliary Consumption	B	MUs	28
4	Net Generation	Y=A-B	MUs	506
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	3,807
8	Calorific value of oil	G	kcal/L	10,363
9	Overall Heat	H= A x D	GCal	12,00,383
10	Heat from Oil	I= (A x E x G)/1000	GCal	2,767
11	Heat from Coal	J = H-I	GCal	11,97,616
12	Transit losses	K	%	0.80%
13	Coal Blend			
14	(A) Indigenous coal	X1	%	13.14%
15	(B) Washed Coal	X2	%	86.86%
16	(C) Imported Coal	X3	%	0.00%
17	Actual oil consumption	L= A x E	KL	267
18	Actual Coal consumption	M= (J x 1000)/F	MT	3,14,591
19	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	41,682
20	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	2,75,447
21	(C) Imported Coal	Q3=M* X X3	MT	0
22	Price of coal			
23	(A) Indigenous coal	P1	Rs./MT	4,041
24	(B) Washed Coal	P2	Rs./MT	5,533
25	(C) Imported Coal	P3	Rs./MT	-
26	Price of oil	P4	Rs./KL	37,178
27	Coal Cost			
28	(A) Indigenous coal	N1=Q1 X P1/10^7	Rs Crores	16.8432
29	(B) Washed Coal	N2=Q2 X P2/10^7	Rs Crores	152.40
30	(C) Imported Coal	N3=Q3 X P3/10^7	Rs Crores	-
31	Total coal cost	N4= N1+N2+N3	Rs Crores	169.25
32	Oil Cost	N5=P4 x L/10^7	Rs Crores	0.99
33	Total fuel cost	O= N4+N5	Rs Crores	170.24
34	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.19
35	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.36
36	Cost of fuel/GCal	R=(O/H)*10^7	Rs./GCal	1418.20
37	Actual net generation	S	MUs	487
38	Normative Fuel Cost for actual Net Generation	T=S*Q/10	Rs. Crore	163.85

ANNEXURE B

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

SL. No.	ITEM	DERIVATION	UNIT	FY 2021-22
1.	GROSS GENERATION	A	MUs	3,099.29
2.	AUXILIARY CONSUMPTION	C	%	9.00%
3.	AUXILIARY CONSUMPTION	B	MUs	278.94
4.	NET GENERATION	Y=A-B	MUs	2,820.35
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	3,788
8.	CALORIFIC VALUE OF OIL	G	KCAL/L	10,461
9.	OVERALL HEAT	H= A x D	GCAL	81,35,631
10.	HEAT FROM OIL	I= (A x E x G)/1000	GCAL	32,421
11.	HEAT FROM COAL	J = H-I	GCAL	81,03,210
12.	TRANSIT LOSSES	K	%	0.80%
13.	COAL BLEND			
14.	(A) INDIGENOUS COAL	X1	%	20.25%
15.	(B) WASHED COAL	X2	%	79.40%
16.	(C) IMPORTED COAL	X3	%	0.34%
17.	ACTUAL OIL CONSUMPTION	L= A x E	KL	3,099
18.	ACTUAL COAL CONSUMPTION	M= (J x 1000)/F	MT	21,39,264
19.	(A) INDIGENOUS COAL	Q1=M* x X1/(1-K)	MT	4,36,772
20.	(B) WASHED COAL	Q2=M* x X2 / (1-K)	MT	17,12,315
21.	(C) IMPORTED COAL	Q3=M* X X3	MT	7,369
22.	PRICE OF COAL			
23.	(A) INDIGENOUS COAL	P1	RS./MT	3,845
24.	(B) WASHED COAL	P2	RS./MT	5,064
25.	(C) IMPORTED COAL	P3	RS./MT	7,854
26.	PRICE OF OIL	P4	RS./KL	39,186
27.	COAL COST			
28.	(A) INDIGENOUS COAL	N1=Q1 X P1/10^5	RS. LAKH	167.92
29.	(B) WASHED COAL	N2=Q2 X P2/10^5	RS. LAKH	867.20
30.	(C) IMPORTED COAL	N3=Q3 X P3/10^5	RS. LAKH	5.79
31.	TOTAL COAL COST	N4= N1+N2+N3	RS. LAKH	1,040.90
32.	OIL COST	N5=P4 x L/10^5	RS. LAKH	12.14
33.	TOTAL FUEL COST	O= N4+N5	RS. LAKH	1,053.05
34.	FUEL COST/UNIT (GROSS)	P= O/(A*10)	RS./KWH	3.40
35.	FUEL COST/UNIT (NET)	Q=O/(Y*10)	RS./KWH	3.73
36.	COST OF FUEL/GCAL	R=(O/H)*10^5	RS./GCAL	1,294.37

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1.	Gross Generation	A	MUs	1,655.64
2.	Auxiliary Consumption	C	%	9.00%
3.	Auxiliary Consumption	B	MUs	149.01
4.	Net Generation	Y=A-B	MUs	1,506.63
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	3,755
8.	Calorific value of oil	G	kcal/l	10,440
9.	Overall Heat	H= A x D	GCal	43,46,055
10.	Heat from Oil	I= (A x E x G)/1000	GCal	17,285
11.	Heat from Coal	J = H-I	GCal	43,28,770
12.	Transit losses	K	%	0.80%
13.	Coal Blend			
14.	(A) Indigenous coal	X1	%	26.03%
15.	(B) Washed Coal	X2	%	73.07%
16.	(C) Imported Coal	X3	%	0.90%
17.	Actual oil consumption	L= A x E	Kl	1,656
18.	Actual Coal consumption	M= (J x 1000)/F	MT	11,52,787
19.	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	3,02,442
20.	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	8,49,139
21.	(C) Imported Coal	Q3=M* X X3	MT	10,418
22.	Price of coal			
23.	(A) Indigenous coal	P1	Rs./MT	4,371
24.	(B) Washed Coal	P2	Rs./MT	5,524
25.	(C) Imported Coal	P3	Rs./MT	7,756
26.	Price of oil	P4	Rs./Kl	37,442
27.	Coal Cost			
28.	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs. Lakh	132.21
29.	(B) Washed Coal	N2=Q2 X P2/10^5	Rs. Lakh	469.04
30.	(C) Imported Coal	N3=Q3 X P3/10^5	Rs. Lakh	8.08
31.	Total coal cost	N4= N1+N2+N3	Rs. Lakh	609.33
32.	Oil Cost	N5=P4 x L/10^5	Rs. Lakh	6.20
33.	Total fuel cost	O= N4+N5	Rs. Lakh	615.53
34.	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.72
35.	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	4.09
36.	Cost of fuel/GCal	R=(O/H)*10^5	Rs./GCal	1,416.30

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1.	Gross Generation	A	MUs	1,416.49
2.	Auxiliary Consumption	C	%	9.50%
3.	Auxiliary Consumption	B	MUs	134.57
4.	Net Generation	Y=A-B	MUs	1,281.93
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	3,755
8.	Calorific value of oil	G	kcal/l	10,482
9.	Overall Heat	H= A x D	GCal	34,84,570
10.	Heat from Oil	I= (A x E x G)/1000	GCal	51,967
11.	Heat from Coal	J = H-I	GCal	34,32,603
12.	Transit losses	K	%	0.80%
13.	Coal Blend			
14.	(A) Indigenous coal	X1	%	17.34%
15.	(B) Washed Coal	X2	%	79.90%
16.	(C) Imported Coal	X3	%	2.77%
17.	Actual oil consumption	L= A x E	Kl	4,958
18.	Actual Coal consumption	M= (J x 1000)/F	MT	9,14,169
19.	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,59,758
20.	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	7,36,300
21.	(C) Imported Coal	Q3=M* X X3	MT	25,280
22.	Price of coal			
23.	(A) Indigenous coal	P1	Rs./MT	4,052
24.	(B) Washed Coal	P2	Rs./MT	5,495
25.	(C) Imported Coal	P3	Rs./MT	7,752
26.	Price of oil	P4	Rs./Kl	39,596
27.	Coal Cost			
28.	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs. Lakh	64.74
29.	(B) Washed Coal	N2=Q2 X P2/10^5	Rs. Lakh	404.61
30.	(C) Imported Coal	N3=Q3 X P3/10^5	Rs. Lakh	19.60
31.	Total coal cost	N4= N1+N2+N3	Rs. Lakh	488.95
32.	Oil Cost	N5=P4 x L/10^5	Rs. Lakh	19.63
33.	Total fuel cost	O= N4+N5	Rs. Lakh	508.58
34.	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.59
35.	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.97
36.	Cost of fuel/GCal	R=(O/H)*10^5	Rs./GCal	1,459.52

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1.	Gross Generation	A	MUs	5,518.80
2.	Auxiliary Consumption	C	%	9.00%
3.	Auxiliary Consumption	B	MUs	496.69
4.	Net Generation	Y=A-B	MUs	5,022.11
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	3,882
8.	Calorific value of oil	G	kcal/l	10,350
9.	Overall Heat	H= A x D	GCal	1,42,10,910
10.	Heat from Oil	I= (A x E x G)/1000	GCal	57,117
11.	Heat from Coal	J = H-I	GCal	1,41,53,793
12.	Transit losses	K	%	0.80%
13.	Coal Blend			
14.	(A) Indigenous coal	X1	%	15.23%
15.	(B) Washed Coal	X2	%	84.09%
16.	(C) Imported Coal	X3	%	0.68%
17.	Actual oil consumption	L= A x E	KL	5,519
18.	Actual Coal consumption	M= (J x 1000)/F	MT	36,45,821
19.	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	5,59,688
20.	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	30,90,488
21.	(C) Imported Coal	Q3=M* X X3	MT	24,847
22.	Price of coal			
23.	(A) Indigenous coal	P1	Rs./MT	4,270
24.	(B) Washed Coal	P2	Rs./MT	5,479
25.	(C) Imported Coal	P3	Rs./MT	7,542
26.	Price of oil	P4	Rs./KL	38,244
27.	Coal Cost			
28.	(A) Indigenous coal	N1=Q1 X P1	Rs. Lakh	239.00
29.	(B) Washed Coal	N2=Q2 X P2	Rs. Lakh	1,693.38
30.	(C) Imported Coal	N3=Q3 X P3	Rs. Lakh	18.74
31.	Total coal cost	N4= N1+N2+N3	Rs. Lakh	1,951.12
32.	Oil Cost	N5=P4 x L/10^5	Rs. Lakh	21.11
33.	Total fuel cost	O= N4+N5	Rs. Lakh	1,972.22
34.	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.57
35.	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.93
36.	Cost of fuel/GCal	R=(O/H)*10^5	Rs./GCal	1,387.82

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1.	Gross Generation	A	MUs	1,287.72
2.	Auxiliary Consumption	C	%	9.50%
3.	Auxiliary Consumption	B	MUs	122.33
4.	Net Generation	Y=A-B	MUs	1,165.39
5.	Station Heat Rate	D	kcal/kWh	2,460
6.	Sp. Oil Consumption	E	ml/kWh	3.50
7.	Gross calorific value of coal	F	kcal/Kg	3,861
8.	Calorific value of oil	G	kcal/l	10,371
9.	Overall Heat	H= A x D	GCal	31,67,791
10.	Heat from Oil	I= (A x E x G)/1000	GCal	46,743
11.	Heat from Coal	J = H-I	GCal	31,21,048
12.	Transit losses	K	%	0.80%
13.	Coal Blend			
14.	(A) Indigenous coal	X1	%	15.30%
15.	(B) Washed Coal	X2	%	84.09%
16.	(C) Imported Coal	X3	%	0.61%
17.	Actual oil consumption	L= A x E	Kl	4,507
18.	Actual Coal consumption	M= (J x 1000)/F	MT	8,08,300
19.	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	1,24,703
20.	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	6,85,155
21.	(C) Imported Coal	Q3=M* X X3	MT	4,921
22.	Price of coal			
23.	(A) Indigenous coal	P1	Rs./MT	4,188
24.	(B) Washed Coal	P2	Rs./MT	5,459
25.	(C) Imported Coal	P3	Rs./MT	7,512
26.	Price of oil	P4	Rs./Kl	38,619
27.	Coal Cost			
28.	(A) Indigenous coal	N1=Q1 X P1	Rs. Lakh	52.23
29.	(B) Washed Coal	N2=Q2 X P2	Rs. Lakh	374.05
30.	(C) Imported Coal	N3=Q3 X P3	Rs. Lakh	3.70
31.	Total coal cost	N4= N1+N2+N3	Rs. Lakh	429.98
32.	Oil Cost	N5=P4 x L/10^5	Rs. Lakh	17.41
33.	Total fuel cost	O= N4+N5	Rs. Lakh	447.38
34.	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.47
35.	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.84
36.	Cost of fuel/GCal	R=(O/H)*10^5	Rs./GCal	1,412.30

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1.	Gross Generation	A	MUs	3,066.00
2.	Auxiliary Consumption	C	%	9.00%
3.	Auxiliary Consumption	B	MUs	275.94
4.	Net Generation	Y=A-B	MUs	2,790.06
5.	Station Heat Rate	D	kcal/kWh	2,398
6.	Sp. Oil Consumption	E	ml/kWh	1.00
7.	Gross calorific value of coal	F	kcal/Kg	5,129
8.	Calorific value of oil	G	kcal/l	10,285
9.	Overall Heat	H= A x D	GCal	73,52,268
10.	Heat from Oil	I= (A x E x G)/1000	GCal	31,535
11.	Heat from Coal	J = H-I	GCal	73,20,733
12.	Transit losses	K	%	0.00%
13.	Coal Blend			
14.	(A) Indigenous coal	X1	%	0.00%
15.	(B) Washed Coal	X2	%	0.12%
16.	(C) Imported Coal	X3	%	99.88%
17.	Actual oil consumption	L= A x E	Kl	3,066
18.	Actual Coal consumption	M= (J x 1000)/F	MT	14,27,412
19.	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	-
20.	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	1,658
21.	(C) Imported Coal	Q3=M* X X3	MT	14,25,754
22.	Price of coal			
23.	(A) Indigenous coal	P1	Rs./MT	-
24.	(B) Washed Coal	P2	Rs./MT	5,181
25.	(C) Imported Coal	P3	Rs./MT	6,917
26.	Price of oil	P4	Rs./Kl	42,343
27.	Coal Cost			
28.	(A) Indigenous coal	N1=Q1 X P1	Rs. Lakh	-
29.	(B) Washed Coal	N2=Q2 X P2	Rs. Lakh	0.86
30.	(C) Imported Coal	N3=Q3 X P3	Rs. Lakh	986.25
31.	Total coal cost	N4= N1+N2+N3	Rs. Lakh	987.11
32.	Oil Cost	N5=P4 x L/10^5	Rs. Lakh	12.98
33.	Total fuel cost	O= N4+N5	Rs. Lakh	1,000.09
34.	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.26
35.	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.58
36.	Cost of fuel/GCal	R=(O/H)*10^5	Rs./GCal	1,360.25

B-7: KLTPS 1-3 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

SL. No.	ITEM	DERIVATION	UNIT	FY 2021-22
1	GROSS GENERATION	A	MUs	493
2	AUXILIARY CONSUMPTION	C	%	12.00%
3	AUXILIARY CONSUMPTION	B	MUs	59
4	NET GENERATION	Y=A-B	MUs	434
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	2,282
8	CALORIFIC VALUE OF OIL	G	KCAL/L	10,311
9	OVERALL HEAT	H= A x D	GCAL	15,92,075
10	HEAT FROM OIL	I= (A x E x G)/1000	GCAL	15,243
11	HEAT FROM LIGNITE	J = H-I	GCAL	15,76,833
12	TRANSIT LOSSES	K	%	0.20%
13	ACTUAL OIL CONSUMPTION	L= A x E	KL	1,478
14	ACTUAL LIGNITE CONSUMPTION	M= (J x 1000)/F	MT	6,90,963
15	LIGNITE CONSUMPTION INCL. TRANSIT LOSSES	N=M/(1-K)	MT	6,92,348.11
16	PRICE OF LIGNITE	P1	RS./MT	1,649
17	PRICE OF OIL	P2	RS./KL	42,217
18	COST OF LIGNITE	N1= M x P1	RS. LAKH	113.95
19	OIL COST	N2=P2 x L/10^5	RS. LAKH	6.24
20	TOTAL FUEL COST	O= N1 + N2	RS. LAKH	120.19
21	FUEL COST/UNIT (GROSS)	P=O/(A*10)	RS./KWH	2.44
22	FUEL COST/UNIT (NET)	Q=O/(Y*10)	RS./KWH	2.77
23	COST OF FUEL/GCAL	R=(O/H)*10^5	RS./GCAL	754.94

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

SL. NO.	ITEM	DERIVATION	UNIT	FY 2021-22
1	GROSS GENERATION	A	MUs	493
2	AUXILIARY CONSUMPTION	C	%	12.00%
3	AUXILIARY CONSUMPTION	B	MUs	59
4	NET GENERATION	Y=A-B	MUs	434
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	2,282
8	CALORIFIC VALUE OF OIL	G	KCAL/L	10,311
9	OVERALL HEAT	H= A x D	GCAL	14,78,250
10	HEAT FROM OIL	I= (A x E x G)/1000	GCAL	15,243
11	HEAT FROM LIGNITE	J = H-I	GCAL	14,63,007
12	TRANSIT LOSSES	K	%	0.20%
13	ACTUAL OIL CONSUMPTION	L= A x E	KL	1478
14	ACTUAL LIGNITE CONSUMPTION	M= (J x 1000)/F	MT	6,41,086
15	LIGNITE CONSUMPTION INCL. TRANSIT LOSSES	N=M/(1-K)	MT	6,42,370.27
16	PRICE OF LIGNITE	P1	RS./MT	1,621
17	PRICE OF OIL	P2	RS./KL	48,207
18	COST OF LIGNITE	N1= M x P1	RS. LAKH	103.91
19	OIL COST	N2=P2 x L/10^5	RS. LAKH	7.13
20	TOTAL FUEL COST	O= N1 + N2	RS. LAKH	111.03
21	FUEL COST/UNIT (GROSS)	P=O/(A*10)	RS./KWH	2.25
22	FUEL COST/UNIT (NET)	Q=O/(Y*10)	RS./KWH	2.56
23	COST OF FUEL/GCAL	R=(O/H)*10^5	RS./GCAL	751.11

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

SL. No.	ITEM	UNITS	FY 2021-22
1	GROSS GENERATION	MUs	3,504
2	AUXILIARY CONSUMPTION	MUs	385
3	NET GENERATION	MUs	3,119
4	CAPACITY	MW	500
5	AVAILABILITY FACTOR	%	80.00%
6	PLANT LOAD FACTOR	%	80.00%
7	AUXILIARY CONSUMPTION	%	11.00%
8	STATION HEAT RATE	KCAL/KWH	2,623
9	SP. OIL CONSUMPTION	ML/KWH	1.00
10	GROSS CALORIFIC VALUE OF LIGNITE	KCAL/KG	2,753
11	CALORIFIC VALUE OF OIL	KCAL/L	10,807
12	OVERALL HEAT	G CAL	91,90,992
13	HEAT FROM OIL	G CAL	37,867
14	HEAT FROM LIGNITE	G CAL	91,53,125
15	ACTUAL OIL CONSUMPTION	KL	3,504
16	ACTUAL LIGNITE COAL CONSUMPTION	MT	33,24,782
17	SPECIFIC LIGNITE COAL CONSUMPTION	KG/KWH	0.95
18	PRICE OF LIGNITE	RS/MT	2,652
19	PRICE OF OIL	RS/KL	47,992
20	COST OF LIGNITE	RS CRORES	881.60
21	OIL COST	RS CRORES	16.82
22	TOTAL FUEL COST	RS CRORES	898.42
23	FUEL COST/UNIT GROSS	RS/KWH	2.56
24	FUEL COST/UNIT NET	RS/KWH	2.88

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1	Gross Generation	A	MUs	233
2	Auxiliary Consumption	C	%	4.00%
3	Auxiliary Consumption	B	MUs	9
4	Net Generation	Y=A-B	MUs	224
5	Station Heat Rate	D	kcal/kWh	1950
6	Calorific value of gas	F	kcal/Scm	9,543.90
7	Overall heat from gas	H= A x D	GCal	4,55,308
8	Actual gas consumption	M= (H x 1000)/F	M. scm	48
9	Price of gas	P1	Rs./scm	14.22
10	Cost of gas	N5=P1 x M	Rs.M	67.84
11	Total fuel cost	N5	Rs.M	67.84
12	Fuel cost/unit (Gross)	P=N5/(A*10)	Rs./kWh	2.91
13	Fuel cost/unit (Net)	Q=N5/(Y*10)	Rs./kWh	3.03
14	Cost of fuel/GCal	R=(N5/H)*10^5	Rs./GCal	1,490.05

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1	Gross Generation	A	MUs	246
2	Auxiliary Consumption	C	%	3.00%
3	Auxiliary Consumption	B	MUs	7
4	Net Generation	Y=A-B	MUs	239
5	Station Heat Rate	D	kcal/kWh	1950
6	Calorific value of gas	F	kcal/Scm	9,392.76
7	Overall heat from gas	H= A x D	GCal	4,80,218
8	Actual gas consumption	M= (H x 1000)/F	M. scm	51
9	Price of gas	P1	Rs./scm	15.03
10	Cost of gas	N5=P1 x M	Rs.M	76.84
11	Total fuel cost	N5	Rs.M	76.84
12	Fuel cost/unit (Gross)	P=N5/(A*10)	Rs./kWh	3.12
13	Fuel cost/unit (Net)	Q=N5/(Y*10)	Rs./kWh	3.22
14	Cost of fuel/GCal	R=(N5/H)*10^5	Rs./GCal	1,600.10

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1	Gross Generation	A	MUs	824
2	Auxiliary Consumption	C	%	3.00%
3	Auxiliary Consumption	B	MUs	25
4	Net Generation	Y=A-B	MUs	799
5	Station Heat Rate	D	kcal/kWh	1850
6	Calorific value of gas	F	kcal/Scm	9,268.06
7	Overall heat from gas	H= A x D	GCal	15,23,769
8	Actual gas consumption	M= (H x 1000)/F	M. scm	164
9	Price of gas	P1	Rs./scm	17.35
10	Cost of gas	N5=P1 x M	Rs.M	285.25
11	Total fuel cost	N5	Rs.M	285.25
12	Fuel cost/unit (Gross)	P=N5/(A*10)	Rs./kWh	3.46
13	Fuel cost/unit (Net)	Q=N5/(Y*10)	Rs./kWh	3.57
14	Cost of fuel/GCal	R=(N5/H)*10^5	Rs./GCal	1,872.03

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1	Gross Generation	A	MUs	820
2	Auxiliary Consumption	C	%	3.00%
3	Auxiliary Consumption	B	MUs	25
4	Net Generation	Y=A-B	MUs	796
5	Station Heat Rate	D	kcal/kWh	1850
6	Calorific value of gas	F	kcal/Scm	9,327.12
7	Overall heat from gas	H= A x D	GCal	15,17,574
8	Actual gas consumption	M= (H x 1000)/F	M. scm	163
9	Price of gas	P1	Rs./scm	17.79
10	Cost of gas	N5=P1 x M	Rs.M	289.38
11	Total fuel cost	N5	Rs.M	289.38
12	Fuel cost/unit (Gross)	P=N5/(A*10)	Rs./kWh	3.53
13	Fuel cost/unit (Net)	Q=N5/(Y*10)	Rs./kWh	3.64
14	Cost of fuel/GCal	R=(N5/H)*10^5	Rs./GCal	1,906.85

B-14: Ukai Extension 6 - Approved Fuel Costs (Coal, Lignite & SFO) for FY 2021-22

Sl. No.	Item	Derivation	Unit	FY 2021-22
1.	Gross Generation	A	MUs	3,372.60
2.	Auxiliary Consumption	C	%	6.00%
3.	Auxiliary Consumption	B	MUs	202.36
4.	Net Generation	Y=A-B	MUs	3,170.24
5.	Station Heat Rate	D	kcal/kWh	2385
6.	Sp. Oil Consumption	E	ml/kWh	1.00
7.	Gross calorific value of coal	F	kcal/Kg	3,830
8.	Calorific value of oil	G	kcal/L	10,479
9.	Overall Heat	H= A x D	GCal	80,43,651
10.	Heat from Oil	I= (A x E x G)/1000	GCal	35,343
11.	Heat from Coal	J = H-I	GCal	80,08,308
12.	Transit losses	K	%	0.80%
13.	Coal Blend			
14.	(A) Indigenous coal	X1	%	13.06%
15.	(B) Washed Coal	X2	%	86.74%
16.	(C) Imported Coal	X3	%	0.21%
17.	Actual oil consumption	L= A x E	Kl	3,373
18.	Actual Coal consumption	M= (J x 1000)/F	MT	20,91,142
19.	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	2,75,240

20.	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	18,28,394
21.	(C) Imported Coal	Q3=M* X X3	MT	4,337
22.	Price of coal			
23.	(A) Indigenous coal	P1	Rs./MT	3,756
24.	(B) Washed Coal	P2	Rs./MT	4,990
25.	(C) Imported Coal	P3	Rs./MT	7,757
26.	Price of oil	P4	Rs./KL	39,328
27.	Coal Cost			
28.	(A) Indigenous coal	N1=Q1 X P1/10^5	Rs. Lakh	103.39
29.	(B) Washed Coal	N2=Q2 X P2/10^5	Rs. Lakh	912.42
30.	(C) Imported Coal	N3=Q3 X P3/10^5	Rs. Lakh	3.36
31.	Total coal cost	N4= N1+N2+N3	Rs. Lakh	1,019.17
32.	Oil Cost	N5=P4 x L/10^5	Rs. Lakh	13.26
33.	Total fuel cost	O= N4+N5	Rs. Lakh	1,032.43
34.	Fuel cost/Unit (Gross)	P= O/(A*10)	Rs./kWh	3.06
35.	Fuel cost/Unit (Net)	Q=O/(Y*10)	Rs./kWh	3.26
36.	Cost of fuel/GCal	R=(O/H)*10^5	Rs./GCal	1,284

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

Sl. No.	Item	Derivation	Unit	FY 2021-22
1.	Gross Generation	A	MUs	5957
2.	Auxiliary Consumption	C	%	5.25%
3.	Auxiliary Consumption	B	MUs	312.732
4.	Net Generation	Y=A-B	MUs	5644
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	3,807
8.	Calorific value of oil	G	kcal/l	10,363
9.	Overall Heat	H= A x D	GCal	1,33,90,886
10.	Heat from Oil	I= (A x E x G)/1000	GCal	30,865
11.	Heat from Coal	J = H-I	GCal	1,33,60,022
12.	Transit losses	K	%	0.80%
13.	Coal Blend			
14.	(A) Indigenous coal	X1	%	13.14%
15.	(B) Washed Coal	X2	%	86.86%
16.	(C) Imported Coal	X3	%	0.00%
17.	Actual oil consumption	L= A x E	KL	2,978
18.	Actual Coal consumption	M= (J x 1000)/F	MT	35,09,430
19.	(A) Indigenous coal	Q1=M* x X1/(1-K)	MT	4,64,982
20.	(B) Washed Coal	Q2=M* x X2 / (1-K)	MT	30,72,750
21.	(C) Imported Coal	Q3=M* X X3	MT	-
22.	Price of coal			

23.	(A) INDIGENOUS COAL	P1	RS./MT	4,041
24.	(B) WASHED COAL	P2	RS./MT	5,533
25.	(C) IMPORTED COAL	P3	RS./MT	-
26.	PRICE OF OIL	P4	RS./KL	37,178
27.	COAL COST			
28.	(A) INDIGENOUS COAL	N1=Q1 X P1	RS. LAKH	187.89
29.	(B) WASHED COAL	N2=Q2 X P2	RS. LAKH	1,700.14
30.	(C) IMPORTED COAL	N3=Q3 X P3	RS. LAKH	-
31.	TOTAL COAL COST	N4= N1+N2+N3	RS. LAKH	1,888.03
32.	OIL COST	N5=P4 x L/10^5	RS. LAKH	11.07
33.	TOTAL FUEL COST	O= N4+N5	RS. LAKH	1,899.10
34.	FUEL COST/UNIT (GROSS)	P= O/(A*10)	RS./KWH	3.19
35.	FUEL COST/UNIT (NET)	Q=O/(Y*10)	RS./KWH	3.36
36.	COST OF FUEL/GCAL	R=(O/H)*10^5	RS./GCAL	1418.20