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

3.1.2. Poor Performance of Petitioner's New Power Plants

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

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

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

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

Response of GSECL

The Petitioner submitted that from performance parameters of Ukai 6 and Wanakbori 8 during FY 2020-21, it is observed that units were available during most of the period. These units have also achieved lower SHR than the approved SHR. The lower PLF of these units were on

account of lower schedule due to reduced demand owing to lockdown on account of the first wave of COVID-19 pandemic. The demand of power was drastically reduced in the state. Therefore, though our units were available, they were not scheduled much resulted into low PLF.

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

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

Commission's View

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

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

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

The Commission has been allowing performance parameters on normative basis and it has

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

3.1.3. Effect of RSD on Plants and Burden on Consumers

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

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

Response of GSECL

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

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

received by GSECL plants which may be due to aggressive RE capacity addition in the state and must run status given to RE generators.

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

Commission's View

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

3.1.4. Poor Performance of Lignite based power plants

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

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

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

The Objector further added that the number of forced shutdowns is also very high due to

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

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

Response of GSECL

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

KLTPS Unit No. 1- 4

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

Bhavnagar Lignite TPS Unit No. 1 - 2

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

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

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

Further, GSECL submitted that there is vast difference in the actual performance parameters of Lignite based plants and submission made by the Objector. It is humbly submitted that since GSECL claims fixed charges based on the availability and variable charges at the rate

approved by Commission for actual scheduled energy only, the contention of the respondent regarding transferring in efficiency of GSECL on to consumers is not correct.

Commission's View

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

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

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

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

Response of GSECL

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

due to COVID - 19.

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

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

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

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

Commission's View

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

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

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

regard.

3.1.6. Station Heat Rate for FY 2022-23

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

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

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

Response of GSECL

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

However, the SHR of 200/210 MW units achieved after major R&M in 2 units (Ukai TPS Unit No. 4 and Wanakbori TPS Unit No. 3) is in the range of 2250-2260 kcal/kWh, which is comparable with Ukai TPS Unit no 6 and Wanakbori TPS Unit No. 8. GSECL is planning

similar R&M in its remaining 4 units at Ukai TPS & Gandhinagar TPS which will help in substantial reduction of SHR of these units. Moreover, SHR of all units considered by GSECL for projections of FY 2022-23 are as per the SHR approved by the Commission for FY 2021-22.

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

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

Commission's View

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

3.2 Objections on Fuel and energy charges

3.2.1. High Energy Charges due to inefficient operation by Petitioner

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

Response of GSECL

The energy charges are based on actual landed fuel cost. Since GSECL power plants are being non-pit heads plants, the power stations are at a very long distance from their coal source, which results in high transportation charges and higher landed cost of fuel. The Company receives the energy charges based on actual landed cost considering normative

parameters, i.e., SHR, Auxiliary Consumption and SFOC approved by the Commission. So, if SHR or Auxiliary Consumption or SFOC is higher than the normative parameters approved by the Commission, the cost of such inefficiency is absorbed by GSECL and is not passed on to the consumers of the State

Commission's View

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

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

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

Response of GSECL

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

The Objector in its submission regarding comparison of energy charges approved for FY 2020-21 and FY 2021-22 has shown the energy charges for FY 2020-21 as approved by Commission vide the MYT Order dated 31st March, 2017. In the said Order, the energy charges were projected considering the landed cost of fuel for FY 2015-16. However, actual

energy charges for FY 2020-21 as submitted in present petition are based on the actual landed cost of fuel, blending, GCV etc. Also, the plant performance parameters are considered as approved by Commission.

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

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

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

Commission's View

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

3.3 Objections related to other topics

3.3.1. Details of PPA

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

Response of GSECL

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

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

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

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

Commission's View

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

3.3.2. Lower generation from plants and disincentive

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

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

Response of GSECL

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

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

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

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

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

Further, GSECL has claimed tariff based on actual generation only and not as per projected

generation. Hence, the imposition disincentive for deviation in generation is not correct. The Commission is requested not to accept such contention of the Objector.

Commission's View

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

3.3.3. Recovery of fixed cost based on PLF

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

Response of GSECL

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

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

Commission's View

The Commission notes the response of the Petitioner. It is noted that, in past Regulations, the recovery of fixed cost is linked to Plant Availability Factor. This tariff framework is followed in accordance with the provisions of Tariff Policy and Central Commission guidelines and Regulations. Further, PLF is largely depends on the merit order dispatch resulting in backdown of the units as per the direction of the SLDC though the unit is available for generation. This

may be due to lower demand or injection of RE Power which are must run in nature. Hence, linked the fixed cost to PLF would not be an appropriate approach.

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

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

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

Response of GSECL

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

Commission's View

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

3.3.5. Capital expenses towards R&D and life extension

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

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

Response of GSECL

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

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

Commission's View

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

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

3.3.6. Regulatory provision for units completed normative life span

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

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

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

Response of GSECL

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

Commission's View

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

3.3.7. Non submission of Audited Accounts

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

comprehensive suggestions can be made in the petition.

Response of GSECL

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

Commission's View

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

3.3.8. Power procurement from other sources

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

Response of GSECL

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

Commission's View

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

4 Truing up of FY 2020-21

4.1 Generating Stations of GSECL

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

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

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

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

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

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

Name of Station	Unit No.	Capacity of the Unit (MW)	Date of Commissioning
	8 – Gas	112.45	01/11/2007
	Sub Total	**219.067**	
Utran Extension	GT -1	375	08/11/2009
Sikka TPS 3&4	3	250	14/09/2015
	4	250	28/12/2015
	Sub Total	**500**	
Ukai TPS	6	500	08/06/2013
Dhuvaran (Gas)	3	376	21/05/2014
BLTPS	1	250	16/05/2016
	2	250	27/03/2017
	Sub Total	**500**	
Wanakbori 8 TPS	1	800	13/10/2019
SUB TOTAL GSECL (Coal + Lignite)		**5,300**	
SUB TOTAL GSECL (Gas)		**970**	
TOTAL GSECL (Thermal)		**6270**	
Ukai Hydro	1	75	08/07/1974
	2	75	13/12/1974
	3	75	22/04/1975
	4	75	04/03/1976
	Sub Total	**300**	
Ukai LBC	1	2.5	08/12/1987
	2	2.5	19/02/1988
	Sub Total	**5.0**	
Kadana Hydro	1	60	31/03/1990
	2	60	02/09/1990
	3	60	03/01/1998
	4	60	27/05/1998
	Sub Total	**240**	
Panam	1	1	24/03/1994
	2	1	31/03/1994
	Sub Total	**2**	
SUB TOTAL GSECL (Hydro)		**547**	
Wind Mills		10	04/01/2009
Solar	Plant at GTPS Yard	1	27/03/2012
	Plant at Sanand Br. Canal	1	29/03/2012
	Charanka	10	23/03/2015
	KLTPS	1	02/05/2016
	Sikka TPS 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 2020-21 for individual stations. GSECL submitted that operating parameters are dependent on various technical factors like design, level of operation (low/partial load operation), ageing, water chemistry, number of starts or stops, etc.

The Commission has taken up the truing up of the annual performance parameters for FY 2020-21, which is discussed in the following sections.

4.2.1 Plant Availability Factor (PAF)

Petitioner's Submission

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

Table 4.2: Plant Availability Factor for FY 2020-21

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

** PPA based stations*

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

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

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

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

Commission's Analysis

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

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

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

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

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

** PPA based stations*

4.2.2 Plant Load Factor (PLF)

Petitioner's Submission

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

Table 4.4: Plant Load Factor for FY 2020-21

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

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

** PPA based stations*

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

Commission's Analysis

The Commission has analysed the submissions made by the Petitioner in the Table above. It is observed that all the stations except Dhuvaran CCPP 1 to 3, Utran extension and Ukai & Kadana Hydro stations, have achieved lower PLF for FY 2020-21 than that approved in the Tariff Order.

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

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

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

The Commission has taken note of the submissions made by the Petitioner and approved the PLF for FY 2020-21 for various stations at actuals for truing up purpose, being uncontrollable factor, as given in the Table below:

Table 4.5: PLF Approved for FY 2020-21 for truing up purpose

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

** PPA based stations*

4.2.3 Auxiliary Consumption

Petitioner's Submission

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

Table 4.6: Auxiliary consumption for FY 2020-21

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

** PPA based stations*

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

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

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

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

Commission's Analysis

The Commission has taken note of the submissions made by the Petitioner regarding the actual auxiliary consumption. The Commission observed that in respect of PPA governed stations, the auxiliary consumption is based on the respective PPAs and accordingly, the auxiliary consumption is considered in the Tariff Order dated 26th March, 2020 for FY 2020-21. The actual auxiliary consumption in all plants is higher than approved in the Tariff Order dated 26th March, 2020 for FY 2020-21 except Dhuvaran CCPP3, Utran extension and Kadana hydro station, where the actual auxiliary consumption is less than that approved in the Tariff Order.

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

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

GSECL has submitted the reason for higher Auxiliary consumption for almost all plants, as partial operation due to backing down and reserve shutdown of plants. Though GSECL has indicated the reasons for higher auxiliary consumption, the Commission is of the view that the reasons are not acceptable as the Commission had taken all the factors into consideration while approving the auxiliary consumption in the Tariff Order dated 26th March, 2020 for FY 2020-21, and the auxiliary consumption is also a controllable parameter as described in the GERC (MYT) Regulations, 2016.

The Commission approves the auxiliary consumption for various stations as approved in the Tariff Order dated 26th March, 2020 for FY 2020-21, for truing up purposes, as it is a controllable parameter.

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

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

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

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

** PPA based stations*

4.2.4 Station Heat Rate (SHR)

Petitioner's Submission

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

Table 4.8: Station Heat Rate for FY 2020-21

(kcal/kWh)

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

** PPA based stations*

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

GSECL has stated following reasons for higher SHR during FY 2020-21:

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

Commission's Analysis

For PPA governed stations, the SHR is approved as per the respective PPA terms. However, the Generation Stations of Gandhinagar 5, Wanakbori 7, Sikka Extn 3-4, KLTPS 4, BLTPS 1-2, Dhuvaran CCPP 1 and Dhuvaran CCPP 2 have SHR higher than normative SHR for FY 2020-21. The Commission has analysed the reasons submitted by the Petitioner for these stations and is of the view that the reasons put forward are not acceptable as the Commission had taken all the factors into consideration while approving the SHR in the Tariff Order dated 26th March, 2020 for FY 2020-21 and also SHR is considered as a controllable parameter for Truing up as prescribed in the GERC (MYT) Regulations, 2016.

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