

APPENDIX-1

COMMISSION'S DIRECTIVES AND COMPLIANCE BY THE KPTCL

The Commission, in its Tariff Order dated 30th March, 2016 and in the earlier Tariff Orders under the MYT framework, had issued the following directives for compliance by the KPTCL. The compliance is discussed in this section.

1. **Reactive Power compensation and restoration of failed Capacitors:**

The Commission had taken note of the availability of 3913.61 MVAR capacitors in the KPTCL system against the installed capacity of 5588.32 MVAR. The Commission therefore had directed the KPTCL to develop an action plan for restoration of failed capacitors immediately, and submit a monthly status report.

Compliance by the KPTCL:

As directed, the KPTCL had submitted compliance during the first quarterly review meeting held in the Commission for the 1st quarter (April to June 2016), informing the Commission about achieving 81 per cent progress. It was informed by KPTCL that a budget provision of Rs. 1361 lakh has been made in the in its General Budget for FY17, for installation of capacitor Banks, which is a major step towards achieving reactive compensation and efficient grid management and that action is being taken for installation of Capacitor Banks in Bengaluru city in a big way. On the restoration of failed capacitors, while submitting the progress report up to 31.10.2016 KPTCL has submitted that:

- I. Out of 162 number of capacitor banks (1127.24 MVAR) which were out of service, 46 number of capacitor banks (263.24 MVAR) were restored by June, 2016. Further, during the period from 1st July up to 31st October, 2016, 20 number of capacitor banks (91.15MVAR) have been restored and put into service.

- II. The remaining 96 number of capacitor banks (772.85 MVAR) will be restored by 31.03.2017.
- III. The details of 11 KV class capacitor banks proposed to be added in different Transmission Zones during 2016-17, are as follows:

Sl. No.	Transmission Zone	Capacity in MVAR	Targeted date of completion
1	Bagalkot	258.10	15.12.2016
2	Mysuru	60.90	11.12.2016
3	Hassan	136.30	11.12.2016
4	Tumakuru	281.30	15.12.2016
5	Kalaburagi	98.60	11.12.2016
6	Bengaluru	708.80	Lol to be issued shortly
	Total	1544.00	

The Information regarding reactive power charges paid by KPTCL to CTU, is as follows:

Reactive Energy charges paid by Karnataka from 01.04.2015 to 31.03.2016.		
Period	Amount	Bill & Date
Payment of reactive energy charges by KPTCL for the week 27.04.2015 TO 03.05.2015	132725.00	15.05.2015
Payment of reactive energy charges by KPTCL for the week 29.02.2016 to 06.03.2016.	1881388.00	19.03.2016
Note: Paid duly collecting funds from ESCOMs		

Commission's Views

The Commission notes that the capacitors which have failed in various substations are not being restored immediately once they are declared faulty. As a result, KPTCL is not achieving the desired reactive compensation and efficient grid management. Noting that the KPTCL has paid large sums towards reactive energy charges to the CTU, the Commission is of the view

that, if the transmission system is maintained efficiently by commissioning of capacitors, with adequate capacity in the transmission system, the question of paying reactive energy charges to CTU would not arise. The KPTCL shall consider the importance and the necessity to restore all the failed capacitors and put them back to service, so as to maintain them in a healthy condition in the transmission system, for effective reactive power management which would help in achieving reduction of transmission losses, improvement in bus voltages and minimize/avoidance of payment of reactive energy charges to the CTU. **Therefore, it is necessary that the targeted time for restoration of failed capacitors of 772.85 MVAR capacity indicated in the compliance report as March, 2017, shall be met so as to commission them in various substations for maintaining an efficient transmission system.**

Further, taking note of the KPTCL's proposal to install 11 kV class capacitor banks in the substations located in its Transmission Zones, the Commission hereby directs the KPTCL to take immediate measures to ease the transmission constraints in Bengaluru Transmission network by expediting the work of installation of capacitors.

The Commission reiterates its directives that the KPTCL shall restore all the failed capacitors within a definite time frame and submit monthly status reports thereon to the Commission regularly.

2. Transmission System Availability (TSA) – Monthly Report:

The Commission had directed that the KPTCL shall submit the monthly reports of Transmission System Availability duly certified by the SLDC with effect from March, 2015.

Compliance by the KPTCL

The Transmission System Availability (TSA) for the financial year ending 31.03.2016, duly certified by the SLDC, has been submitted to the Commission vide letter No. KPTCL / B36/21474/2015-16/226-36, dated 23.07.2016. Further, transmission system availability for the months of April 2016, May 2016 and June 2016 duly certified by the SLDC was submitted to the Commission vide letter No. KPTCL/B36/41613/2016-17/296-306 dated 31.08.2016.

The KPTCL has also furnished the response to the Commission's observations on TSA for FY16 vide letter No. KPTCL/B36/21474/2015-16/465 dated 09.12.2016. Further, the Zone-wise, Month-wise, TSA reports have been furnished till September, 2016. The TSA for the month of October, 2016 is being computed based on the reports from the six transmission zones and the same will be submitted in the near future.

Commission's Views:

The Commission notes that the KPTCL is not submitting the Zone-wise and Month-wise Transmission System Availability reports regularly. The Commission also notes that the KPTCL has submitted the transmission system availability for the FY16, duly attending to the data gaps and inconsistencies pointed out by the Commission, in respect of the transmission system elements. The Commission, after examining the TSA reports, has reckoned the Transmission System Availability achieved by the KPTCL for the FY16 at 99.43 per cent which is more than the target availability of 98 per cent. As the TSA to be reckoned has a bearing on the incentives to be allowed, it is necessary that the KPTCL, henceforth, submits the data to the Commission, after carrying out proper scrutiny at various levels in the organisation, to ensure that correct Transmission System Availability is reckoned for the State.

The Commission is of the view that any delay in restoration of the failed power transformers in the substations, would affect the transmission system availability to the area catered by such transformers and therefore the same needs to be addressed by the KPTCL to ensure maintaining of continuity of power supply to the consumers. The Commission directs the KPTCL to take necessary action to maintain elements of the transmission system in a healthy condition by carrying out maintenance works as per the schedule, conduct Condition Monitoring of the substation equipment and Residual Life Assessment (RLA) tests for the old equipment in the substations, to ensure proper reliability in power supply.

The Commission reiterates that the KPTCL shall submit the monthly reports of Transmission System Availability duly certified by the SLDC, regularly to the Commission.

3. Directive on MIS & Implementation of Intra-state ABT :

The KPTCL was directed to improve its Management Information System in its filing to give greater details and explain the basis for all the projections indicating the sources of data and the method of estimating projected values. The Commission had noted that the progress in MIS needs improvement, as it had resulted in the KPTCL furnishing inconsistent data at different points of time.

The Commission, besides reiterating its earlier directives, had directed the KPTCL to furnish consistent data on time regarding the following:

- i) Details of Transmission Losses
- ii) Voltage-wise Losses
- iii) Implementation of Intra-State ABT

The Commission had directed the KPTCL to furnish the status of implementation of the Intra-State ABT. Further, the Commission had also directed the KPTCL to furnish the ESCOM-wise UI charges to ensure that the cost of over drawal of power at frequencies below the permissible band, should be borne by the respective ESCOMs.

Compliance by the KPTCL

As directed, the KPTCL had reported the compliance on implementation of Intra-State ABT during the first quarter review meeting held in the Commission. The progress made and difficulties faced by the KPTCL were presented before the Commission. Further, during the second quarter review, the KPTCL had reported the following status about implementation of Intra-state ABT in the State.

- a. The KPTCL is providing 15-minute block day ahead schedule for the RTPS and BTPS. The KPTCL is also in the process of replacing the meters by ABT compliant meters at all IF points, to facilitate deviation settlement.
- b. Billing and monitoring mechanism is in place using SCADA data and the Intra-State ABT bills (CGS portion) are being sent to the ESCOMs. After all the ESCOMs communicate about the acceptance of the mechanism, the same would be commercially enabled.

A brief account of the status of implementation of Intra State ABT is as follows:

- i. Weekly Intra-State ABT Bills at 220kV level using the SCADA data are being generated from April, 2013, based on the methodology finalized by the SLDC and the same are being sent to all ESCOMs as well as to the Commission.
- ii. As directed by the Commission, the KPTCL will send monthly Mock bills every month regularly.
- iii. The methodology adopted explaining the various factors involved along with detailed procedure for arriving at UI calculation has already been sent to all ESCOMs requesting them to furnish their opinion / comments.
- iv. The CESC, GESCOM and MESCOM have accepted the methodology adopted by the KPTCL. Further, clarifications were sought from the HESCOM and also the Officers from the company have visited the SLDC and interacted on the subject. However, the HESCOM and BESCOM have not yet communicated their acceptance in writing of the proposed methodology, for total implementation.
- v. The Commission during the review meeting held on 5th October, 2016, has directed the KPTCL and ESCOMs to speed up implementation of ABT duly bringing State owned Generators in the ambit of Intra-State ABT. The Managing Directors and Officers of ESCOMs present in the meeting have agreed in principal for implementation of the Intra-State ABT using SCADA data.
- vi. Further, the KPCL has taken up replacement of energy meters at Interface points by ABT compliant meters. In this regard, the KPCL has been requested to speed up the work.
- vii. After obtaining due acceptance from the HESCOM and BESCOM, and also compliance from KPCL on fixing of ABT meters, KPTCL will implement the Intra-State ABT from 1st of April, 2017.

Commission's Views

The Commission notes with displeasure that the KPTCL and ESCOMs have not implemented the Intra-State ABT despite agreeing to the same in the several Review Meetings held by the Commission. Also, during the meetings held with KPTCL/ESCOMs on 30th March, 2016 and 5th October, 2016, it was stressed that the implementation of the Intra-State ABT in the State would lead to efficient management of power generation, supply, distribution and use. In fact, all the ESCOMs including the BESCO and HESCO who participated in such meetings had consented in principle to implement the Intra-State ABT, duly agreeing to the methodology to be adopted for implementation. In spite of this, it is seen that there has been an inordinate delay in implementation of the Intra-State ABT in the State. The current status is that the KPTCL/ESCOMs have only conducted the mock exercises that too at 220 kV level but have totally failed to implement the Intra-State ABT regime fully in the State which is aimed at bringing in discipline in all facets of power management. In this regard, the KPTCL shall follow up with all the participants and stakeholders to expedite implementation of the Intra-State ABT regime fully in the State.

The Commission therefore, directs the KPTCL and ESCOMs to take suitable measures to achieve full implementation of the Intra-State ABT and report compliance thereon to the Commission within one month from the date of this Order and thereafter report the status/progress every month regularly.

4. Directive on Energy Audit

The Commission had directed KPTCL to prepare and submit the metering plan for energy audit of the KPTCL grid system, voltage level-wise such as 400 KV, 220 KV etc., to the Commission. It was also directed that the work of procurement of metering equipment with accessories and their installation shall also be completed. It was also directed to ensure that accuracy class of CT/PT shall match with that of meters duly ensuring that combined class of accuracy of complete metering system shall be within the specified accuracy class, so as to measure the parameters accurately and that the interface metering system shall be in conformity with the CEA (Installation and

Operation of Meters) Regulations, 2006, and its amendments from time to time.

The Commission had directed the KPTCL to furnish voltage-wise losses on a monthly basis. Further, the KPTCL was directed to maintain the entire Interface metering system in a healthy condition, as accurate readings of the meters are required to be recorded for accurate energy audit/accounting purpose. This is also one of the sound practices to be followed by any power transmission utility.

Compliance by the KPTCL

The month-wise voltage-wise transmission losses for the year 2015-16 were furnished to the Commission vide letter No. KPTCL / B36/21458/2015-16/60 dated 06.05.2016. Further, the details up to July'16 were submitted to the Commission vide letter No. KPTCL/B36/21458/2016-17/271 dated 23.08.2016. Also, month-wise voltage-wise transmission losses till October, 2016, are furnished in Annexure-B of APR filing.

Commission's Views:

The Commission notes that the KPTCL has submitted the consolidated figures of transmission losses for the FY16. The KPTCL needs to furnish the voltage-wise transmission losses on a monthly basis, regularly to the Commission.

Further, the KPTCL is directed to continue to analyse the losses occurring in the transmission system and on the basis of energy audit conducted, take suitable measures to ensure bringing down the losses with a view to achieving an efficient system of transmission of power.

The Commission reiterates its directive to the KPTCL to furnish voltage-wise losses on a monthly basis, regularly.

5. Directive on Quality of Service:

The Commission had directed that, KPTCL shall take all measures to improve the Reliability & Quality of Supply i.e., reduction in interruptions and maintenance of good voltage in the transmission system. That the KPTCL shall display on its website the details of interruptions of major substations and lines

with maximum and minimum voltage at station bus of each substation on a monthly basis.

The Commission had directed the KPTCL to take note of the permissible frequency band for operation of the grid between 49.95 –50.05 Hz as per the IEGC (latest amendment) Regulations of the CERC. Also, as per the decision taken in the meeting of the Forum of Regulators (FoR) held during June 11 & 12, 2009, the penal UI charges for any over drawal will not be allowed to be passed on to the consumers through tariff. Any such penal charges have to be borne by the ESCOMs from their own finances. In the light of this, the KPTCL, through SLDC/ALDCs, shall take necessary steps to avoid over drawal from the Southern grid when frequency level goes below 49.95 Hz to ensure that payment of additional UI charges is avoided.

Compliance by the KPTCL:

The SLDC is adhering to the IEGC norms as amended from time to time, by the CERC, in grid operation. As for auditing of protective system, the Relay Testing wing of KPTCL has taken measures to audit the protective system in the transmission system.

Further, the details of interruptions that occurred in the transmission system are being displayed on the KPTCL's website. Presently, the SLDC is uploading major 400 kV and 220 kV interruptions on daily basis on KPTCL's website under "load curve" details. Regarding displaying the details of interruptions in other voltage classes, action is being taken to upload the same by the concerned zonal chief engineers.

Commission's Views:

The Commission is of the view that the protection audit of the transmission system covering all the transmission zones shall be carried out regularly by the KPTCL to ensure safe grid management in the State.

Further, the SLDC shall ensure that grid frequency as per the IEGC norms, as amended from time to time, is adhered to, in grid operation.

The KPTCL is directed to take action to display on its website the details of interruptions occurring in its transmission system duly indicating the maximum and minimum voltage at station bus of each substation, on a monthly basis regularly. The KPTCL is directed to report compliance in this regard, to the Commission regularly, every month.

KPTCL is also directed to display on its website, on a daily basis, the details of daily load curve, (Maximum and Minimum demand), generation of power source-wise and the details of source-wise outages with a view to make the general public aware of the power situation in the State.

6. Directive on Capital Works Programme:

The KPTCL was directed to:

- a) Submit the details of capex actually incurred and capitalisation of assets in the formats already prescribed by the Commission to undertake necessary prudence check during Annual Performance Review.
- b) Maintain separate accounts with respect to the costs incurred in respect of lines and bays respectively.

Compliance by the KPTCL:

The details of capex for the year 2015-16 as per the prescribed formats has been submitted to the Commission vide letter No. KPTCL/B36/41603/2015-16/336-39, dated 28.09.2016 and revised data was also furnished vide letter No. KPTCL/B36/41604/2016-17/405, dated 28.10.2016.

Further, the information relating to costs incurred in respect of lines and bays for FY16 are furnished to the Commission based on the Audited Accounts are enclosed.

Commission's views:

The Commission is of the view that the KPTCL needs to submit the details of the capex incurred and capitalisation of assets as per the formats prescribed by the Commission and any other details sought relating to capex, within the time prescribed, to enable it to conduct prudence check during the APR. In this regard, the Commission directs the KPTCL shall continue to,

- i. **Submit the details of capex incurred and capitalisation of assets to undertake necessary prudence check during the APR.**
- ii. **Maintain separate accounts with respect to the costs incurred in respect of lines and bays.**

7. Directive on Studies conducted:

The Commission had directed the KPTCL to have a fresh look into its manpower requirements keeping in view the / computerisation of its operational and financial activities and also keeping in view the technological advancements and the changed organisational set-up.

The Commission in its earlier Tariff Orders had directed the KPTCL to complete the manpower studies at the earliest and submit the interim report of ASCI.

Compliance by the KPTCL

It was submitted by the KPTCL that the ASCI's final report on manpower studies was referred to an internal Committee to finalize an exhaustive list of the recommendations that can be implemented in the KPTCL along with justifications in costs and or efficiency for each of its recommendations. The Committee has submitted its recommendations and also it made a presentation before the Management of KPTCL.

Further, on a cursory look at the internal Committee report has revealed that, for implementation of the recommendations, additional posts need to be sanctioned throughout the State in various substations, offices, stores etc. This would result in additional employee cost. Hence, with a view to bring down the costs, the internal Committee report has been referred back to the operational heads of the KPTCL to have a relook and suggest suitable measures to cut down on the employees' cost.

Commission's Views:

The Commission views with displeasure that the KPTCL has not been able to take a view on the recommendations suggested by the Consultants, in their manpower study report. The Commission notes that this issue has been pending for a long time for want of a decision by the KPTCL. The KPTCL shall

expedite action to finalise its views on the manpower study recommendations and implement the same for ensuring optimum utilisation of its manpower and to minimise the operational costs, in the organisation.

The Commission reiterates its directive to the KPTCL to ensure implementation of a proper manpower planning strategy with a view to ensure optimum use of human resources and to minimise the operational costs and submit a compliance report thereon to the Commission, within three months from the date of issue of this Order.

8. Directive on prevention of electrical accidents:

The Commission had directed the KPTCL to prepare an action plan to effect improvements in the transmission network and implement safety measures to prevent electrical accidents. The detailed Transmission Line and Sub-Station division-wise action plans were to be submitted to the Commission within two months of the date of Tariff Order.

Compliance by the KPTCL:

It is submitted by the KPTCL that The Zonal Chief engineers are regularly monitoring the improvement works taken up as per the action plan, in their jurisdiction, to minimise accidents and the Zone-wise action plan for prevention of electrical accidents in transmission system has been submitted to the Commission vide letter No. KPTCL/B36/33093/16-17/354-67, dated 07.10.2016.

Further, action is being taken to complete the rectification of identified hazardous installations in the transmission network. In this regard, Zonal Chief Engineers have been directed to expedite implementation of the planned works under action plan. Also, training regarding safety aspects is being imparted to employees regularly at the HRD centre of KPTCL.

Commission's views:

The Commission notes that most of the works planned under the action plan for effecting improvements to the transmission system by the KPTCL have not been completed but they are either in the early stage of estimate

preparation or lined up for execution or in the process of execution at various stages, indicating that the effecting improvements to the network, is taking place at a snail's pace. This needs to be expedited to ensure that the hazardous works are identified and rectification of hazardous installations in the transmission network is completed at the earliest, to prevent possible accidents to the human beings and the livestock.

Further, KPTCL shall take necessary measures aimed at prevention of electrical accidents in its transmission system by conducting regular review of such works.

Also, necessary action for continuous awareness on electrical safety aspects including sensitising of its staff is undertaken so as to sustain the campaign on safety aspects.

The Commission reiterates its directive to the KPTCL to regularly submit its action plan for prevention of electrical accidents in the transmission line and substations.